ATME College of Engineering

C1.1.1 - The Institution ensures effective curriculum delivery through a well planned and documented process

Supporting Documents

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Department of Electrical and Electronics Engineering

ATME COLLEGE OF ENGINEERING
13th Kilometer, Mysore-Kanakapura-Bangalore Road, Mysore – 570 028 P : 0821-2593335 F: 0821-2593328
Email: info@atme.in, Web : www.atme.in

JULY 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	**2** WORKSHOP ART OF COUNSELING START DAY	**3**	**4**	**5**	**6**
7 START OF INTERNSHIP FOR 7TH SEM STUDENTS	**8**	**9** WORKSHOP ART OF COUNSELING END DAY	**10**	**11**	**12**	**13**
14	**15** FACULTY TRAINING MS OFFICE	**16** FACULTY TRAINING MS OFFICE	**17**	**18**	**19**	**20**
21	**22**	**23**	**24**	**25**	**26**	**27** NBA CRITERIA 2 & 3 WORKSHOP
28	**29** COMMENCEMENT OF ODD SEM 2019-20 III, VI , VII	**30**	**31**			

June 2019

S	M	T	W	Th	F	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

August 2019

S	M	T	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

ATME College of Engineering

AUGUST 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3 NON-WORKING
4	5	6	7	8	9 COMMENCEMENT OF INDUCTION PROGRAM FOR FIRST YEAR	10 WORKING MONDAY TT ORIENTATION PROGRAM FIRST YEAR
11	12 HOLIDAY BAKRID	13	14	15 HOLIDAY INDEPENDENCE DAY	16	17 NON-WORKING
18	19	20	21	22	23	24 WORKING THURSDAY TT END OF 11 DAYS INDUCTION PRG FOR FIRST YEAR
25	26 COMMENCEMENT OF THEORY CLASSES FOR FIRST YEAR	27	28	29	30	31 WORKING MONDAY TT

July 2019

S	M	T	W	Th	F	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

ATME College of Engineering

SEPTEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 HOLIDAY SWARNA GOWRI VRATAM GANESHA CHATHURTHI	3	4	5	6	7 NON-WORKING
8	9	10 10TH DAY OF MUHARRAM	11	12 FIRST IA SEMESTERS 3,5 & 7	13 FIRST IA SEMESTERS 3,5 & 7	14 WORKING MONDAY TT FIRST IA SEMESTERS 3,5 & 7
15	16	17	18	19	20	21 NON-WORKING
22	23	24	25	26	27	28 HOLIDAY MAHALAYA AMAVASYA
29	30					

August 2019

S	M	T	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

October 2019

S	M	T	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

ATME College of Engineering

OCTOBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 FIRST IA FOR FIRST SEMESTER	**2** HOLIDAY 150TH GANDHI JAYANTHI	**3** FIRST IA FOR FIRST SEMESTER	**4** FIRST IA FOR FIRST SEMESTER	**5** NON- WORKING
6	**7** HOLIDAY AYUDHA POOJA	**8** HOLIDAY VIJAYA DASHAMI	**9**	**10**	**11**	**12** WORKING WEDNESDAY TT
13	**14**	**15**	**16**	**17**	**18** SECOND IA SEMESTERS 3,5 & 7	**19** NON- WORKING
20	**21** SECOND IA SEMESTERS 3,5 & 7	**22** SECOND IA SEMESTERS 3,5 & 7	**23**	**24**	**25**	**26** WORKING TUESDAY TT
27	**28**	**29** HOLIDAY BALIPADYAMI	**30**	**31**		

September 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

November 2019

S	M	T	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

ATME College of Engineering

NOVEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 HOLIDAY KANNADA RAJYOTSAVA	**2** NON-WORKING
3	**4**	**5**	**6**	**7**	**8**	**9** WORKING FRIDAY TT
10	**11** WORLD SCIENCE DAY	**12** SECOND IA FOR FIRST SEMESTER	**13** SECOND IA FOR FIRST SEMESTER	**14** FIRST IA FOR FIRST SEMESTER	**15** HOLIDAY KANAKADASA JAYANTHI	**16** NON-WORKING
17	**18**	**19**	**20**	**21**	**22** THIRD IA SEMESTERS 3,5 & 7	**23** WORKING TUESDAY TT PTM FIRST YEAR THIRD IA SEMESTERS 3,5 & 7
24	**25** THIRD IA SEMESTERS 3,5 & 7	**26**	**27**	**28**	**29**	**30** LAST WORKING DAY HIGHER SEM WORKING FRIDAY TT

October 2019

S	M	T	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

December 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

ATME College of Engineering

Dr. L Basavaraj

DECEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 LAB EXAM COMMENCEMENT HIGHER SEM	4	5	6	7 NON WORKING
8	9	10	11	12	13 THIRD IA FOR FIRST SEMESTER LAB EXAMS END HIGHER SEM	14 WORKING THIRD IA FOR FIRST SEMESTER
15	16 THIRD IA FOR FIRST SEMESTER THEORY EXAMS COMMENCEMENT FOR HIGHER SEM	17	18	19	20	21 NON WORKING LAST WORKING DAY FOR FIRST YEAR
22	23 LAB EXAMS COMMENCEMENT FIRST YEAR	24	25 HOLIDAY CHRISTMAS DAY	26	27	28 WORKING
29	30	31				

November 2019

S	M	T	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

January 2020

S	M	T	W	Th	F	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

ATME College of Engineering

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ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
1	JANUARY				1	2	3	4		
2		5	6	7	8	9	10	11		
3		12	13	14	15	16	17	18	MAKARA SANKRANTHI	
4		19	20	21	22	23	24	25		
5		26	27	28	29	30	31		REPUBLIC DAY	Training the Trainer Program
5	FEBRUARY							1		
6		2	3	4	5	6	7	8		
7		9	10	11	12	13	14	15		COMMENCEMENT OF EVEN SEMESTER
8		16	17	18	19	20	21	22	MAHA SHIVARATHRI	Alumni Day
9		23	24	25	26	27	28	29		ATMEYA-2020
10	MARCH	1	2	3	4	5	6	7		
11		8	9	10	11	12	13	14		International Wonmen's Day Personality Enhancement Training for 4th Sem Students
12		15	16	17	18	19	20	21		IA-1
13		22	23	24	25	26	27	28	UGADI	First PTM
14		29	30	31						

Dr. L Basavaraj

ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
14					1	2	3	4		
15		5	6	7	8	9	10	11	MAHAVEERJAYANTHI GOOD FRIDAY	ICRTST-2020
16	APRIL	12	13	14	15	16	17	18	DR. AMBEDKAR JAYANTHI	IA Test II
17		19	20	21	22	23	24	25		ATMEYA
18		26	27	28	29	30			BASAVA JAYANTHI	Second PTM
18							1	2	MAY DAY	
19		3	4	5	6	7	8	9		
20		10	11	12	13	14	15	16		
21	MAY	17	18	19	20	21	22	23		IA Test III
22		24	25	26	27	28	29	30	IDUL FITR	Lab Test Week
23		31								
23			1	2	3	4	5	6		Last Working Day
24		7	8	9	10	11	12	13		Practical Examination Schedule
25	JUNE	14	15	16	17	18	19	20		Commencement of Theory Examination, II Sem till 4th July 2020, Higher Semesters till 20th July 2020 Graduation Day
26		21	22	23	24	25	26	27		
27		28	29	30					Non Working Saturdays	The commencement of Odd Semester is from 27th July 2020

Sd-
Dr. L Basavaraj
Principal

* Weekly Mentoring as per time table.
* Attendance will be regulary sent to parents through SMS
PTM dates for higher sem left to the descreption of HoDs.

Department Calendar of Events- 2019-20 Odd Semester

Month	Date	Academic Work	Semester	Remarks
July	29th	Commencement of ODD Semester	III, V	VII Semestor Postponed to August 8th
August	6th to 8th	Elective List Submission	V &VII	
August	7th to 14th	Counseling week	III, V,VII	
August	8th	Commencement of ODD Semester	VII	
August	12th	Bakrid Holiday		
August	13th	Project Synopsis submission	VII	
August	13th	Result Analysis-2018-19 Even Semester		
August	15th	Independence Day		
August	16th	Technical Talk	V,VII	
August	29th to 31st	Project-Phase-I Review I	VII	
September	2nd	Ganesh Chaturthi		
September	10th	Moharram		
September	12th ,13th, 14th	IA-Test-I		
September	20th	IA-1 Result Analysis	III, V,VII	
September	21st to 29th	Counseling week	III, V,VII	
September	30th	Department Technical Fest	III, V, VII	
October	1st	Monthly attendance status and report	III, V,VII	
October	3rd ,4th & 5th	Industry Visit	VII	
October	7th	Ayudha Pooja		
October	18th, 21st, 22nd	IA-Test-II Week		
October	24th to 30th	Counseling week	III, V,VII	
October	24th ,25th ,26th	Project-Phase-I Review II	VII	
October	27th	FTM	III, V,VII	
October	27nd	IA -2 Result Analysis	III, V,VII	
October	27th and 29th	Naraka Chaturdasi and Balipadyami		
November	1st	Kannada Rajyotsava		
November	4th	Project-Phase-I Review II for Re-assessment Projects	VII	
November	8th	Project Draft Report Assessment and Plagiarism check	VII	
November	15th	Kanakadasa Jayanthi		
November	16th	Project Final Report submission	VII	
November	22nd, 23rd , 25th	IA-Test-III	III,V,VII	
November	27th, 28th, 29th & 30th	Lab IA	III,V,VII	
November	28th, 29th & 30th	Counseling	III,V,VII	
November	30th	Last Working day	III,V,VII	

HoD

Dr. PARTHASARATHY L.
Professor and HOD
Dept. of Electrical & Electronics Engineering
ATME College of Engineering, Mysuru

ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

2nd, 3rd & 4th Year of BE

Department of Electrical & Electronics Engineering

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	EVENTS
1	JANUARY				1	2	3	4		
2		5	6	7	8	9	10	11		
3		12	13	14	15	16	17	18	MAKARA SANKRANTHI	
4		19	20	21	22	23	24	25		
5		26	27	28	29	30	31		REPUBLIC DAY	
5	FEBRUARY							1		
6		2	3	4	5	6	7	8		
7		9	10	11	12	13	14	15		COMMENCEMENT OF EVEN SEMESTER
8		16	17	18	19	20	21	22	MAHA SHIVARATHRI	Finalisation of Course Elective List Industry Visit-IV & VI Semester
9		23	24	25	26	27	28	29		ATMEYA MARATHON EVENT
10	MARCH	1	2	3	4	5	6	7		ATMEYA STAGE EVENT
11		8	9	10	11	12	13	14		FIRST IA
12		15	16	17	18	19	20	21		FIRST IA Project Phase-II Review -II
13		22	23	24	25	26	27	28	CHANDRAMANA UGADI	Project Phase-II Review -I Parent Teachers Meeting Technical Talk
14		29	30	31						

ATME College of Engineering

ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

2^{nd}, 3^{rd} & 4^{th} Year of BE

Department of Electrical & Electronics Engineering

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
14	APRIL				1	2	3	4		
15		5	6	7	8	9	10	11	MAHAVEERJAYANTHI GOOD FRIDAY	International Conference Workshop -IV Semester
16		12	13	14	15	16	17	18	DR. AMBEDKAR JAYANTHI	
17		19	20	21	22	23	24	25		SECOND IA, 25^{th} Alumni Meet
18		26	27	28	29	30			BASAVA JAYANTHI	Project Phase-II Review -II
18	MAY						1	2	MAY DAY	
19		3	4	5	6	7	8	[illegible]		Project Draft Report Submission Department Technical Project- Avagamah
20		10	11	12	13	14	15	16		
21		17	18	19	20	21	22	23		THIRD IA
22		24	25	26	27	28	29	30	IDUL FITR	LAB IA
23		31								
23	JUNE		1	2	3	4	5	6		Last Working Day of Even Semester
24		7	8	9	10	11	12	13		Practical Examination Schedule
25		14	15	16	17	18	19	20		Commencement of Theory Examination, II Sem till 4^{th} July 2020, Higher Semesters till 20^{th} July 2020
26		21	22	23	24	25	26	27		Graduation Day
27		28	29	30					Non Working Saturdays	Commencement of Odd Semester is from 27^{th} July 2020

HoD

Dr. PARTHASARATHY L.
Professor and HOD
Dept. of Electrical & Electronics Engineering

ATME College of Engineering

NBA ACCREDITED

Department of Electrical & Electronics Engineering

Lesson Plan & Work-done Diary for AY:2019-20, ODD Semester

Course with Code: Management & Entrepreneurship / 17EE51				Faculty: Mr. Vinod Kumar P		Semester & Section: V		
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**	class no.
				MODULE-1				
1	31/7	MANAGEMENT: Definition, Importance –Nature and Characteristics of Management	ICT	31/7	Management: Definition Importance - Nature & Characteristics of Mang	ICT	Completed	1
2	1/8	Management Functions & Roles of Manager	Chalk & Talk	1/8	Management functions & Roles of Manager	Chalk & Talk	Completed	2
3	2/8	Levels of Management , Managerial Skills, Management & Administration	Chalk & Talk	2/8	Levels of Management Skills	Chalk & Talk	Completed	3
4	2/8	Management as a Science, Art & Profession	ICT	2/8	Management as a Science Art & Profession	ICT	Completed	4
5	7/8	PLANNING: Nature, Importance and Purpose of Planning	Chalk & Talk	7/8	Planning - Nature, Importance & Purpose	Chalk & Talk	Completed	5
6	8/8	Types of Plans	Chalk & Talk	8/8	Types of plans	Chalk & Talk	Completed	6
7	9/8	Steps in Planning , Limitations of Planning	Chalk & Talk	14/8	Steps in planning.	Chalk & Talk	Completed	7
8	9/8	Decision Making –Meaning	ICT	16/8	Decision making	ICT	Completed	8
9	14/8	Types of Decisions-Steps in Decision Making.	Chalk & Talk	16/8	Types of Decisions	Chalk & Talk	Completed	9
10	16/8	Assessment & Overview of Module-1	ICT	21/8 ~~[illegible]~~/10	Assessment & Overview	ICT	Completed	10

Assessment conducted on 29/10 for module-1.

Course with Code: Course with Code: Management & Entrepreneurship / 17EE51				Faculty: Mr. Vinod Kumar P		Semester & Section: V		
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation	Class no'
MODULE 2								
11	16/8	**ORGANISING AND STAFFING:** Meaning, Nature and Characteristics of Organization –Process of Organization	Chalk & Talk	22/8	Organising & staffing Meaning, Process	Chalk & Talk		11
12	21/8	Principles of Organization, Departmentalisation	Chalk & Talk	23/8	Principles of organization	Chalk & Talk		12
13	22/8	Committees –meaning, Types of Committees	ICT	28/8	Committees, Types	ICT		13
14	23/8	Centralization Vs Decentralization of Authority and Responsibility	ICT	28/8	Centralization v/s Decentralization	ICT		14
15	23/8	Span of Control (Definition only)	Chalk & Talk	29/8	Span of Control.	Chalk & Talk		15
16	28/8	Nature and Importance of Staffing, Process of Selection and Recruitment.	Chalk & Talk	30/8	Nature & Importance of staffing, process	Chalk & Talk		16
17	28/8	**DIRECTING & CONTROLLING:** Meaning and Nature of Directing-Leadership Styles	ICT	4/9	Directing & Controlling Meaning Nature Styles.	ICT		17
18	29/8	Motivation Theories ,Communication – Meaning and Importance	ICT	4/9	Motivation theories	ICT		18
19	30/8	Coordination-Meaning and Importance, Techniques of Coordination. Controlling –Meaning	Chalk & Talk	5/9	Co-ordination -Meaning & Importance	Chalk & Talk		19
20	4/9	Steps in Controlling, Assessment & Overview of Module-2	ICT	5/9 9/10	Steps in Controlling Assessment & overview	ICT		20

Assessment was Conducted on 9/10.

Course with Code: Course with Code: Management & Entrepreneurship / 17EE51				Faculty: Mr. Vinod Kumar P		Semester & Section: V		
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation	class no.
				MODULE 3				
21	4/9	**Social Responsibilities of Business:** Meaning of Social Responsibility,	ICT	19/9	Social Responsibilities of Business Meaning	ICT		21
22	5/9	Social Responsibilities of Business towards Different Groups	ICT	26/9	Social Responsibilities of Business towards	ICT		22
23	6/9	Social Audit, Business Ethics and Corporate Governance	Chalk & Talk	27/9	Social Audit Business Ethics Corporate	Chalk & Talk		23
24	11/9	**ENTREPRENEUR:** Definition of Entrepreneur, Importance of Entrepreneurship, concepts of Entrepreneurship	ICT	11/9	Entrepreneur Definition Importance, concepts	ICT		24
25	11/9	Characteristics of successful Entrepreneur, Classification of Entrepreneurs	Chalk & Talk	20/9	Characteristics of Entrepreneur	Chalk & Talk		25
26	1/98/9	Intrapreneur –An Emerging Class, Comparison between Entrepreneur and Intrapreneur	ICT	23/9	Intrapreneur - An Emerging class	ICT		26
27	18/9	Myths of Entrepreneurship,	Chalk & Talk	23/9	Myths of Entrepreneurship	Chalk & Talk		27
28	19/9	Entrepreneurial Development models	ICT	25/9	Entrepreneurial Development models	ICT		28
29	20/9	Entrepreneurial development cycle, Problems faced by Entrepreneurs	Chalk & Talk	25/9	Entrepreneurial development Cycle	Chalk & Talk		29
30	25/9	Capacity building for Entrepreneurship	Chalk & Talk	27/9	Capacity building for Entrepreneurship	Chalk & Talk		30
31	25/9	Assessment & Overview of Module-3	ICT	17/10	Assessment & overview of module	ICT		31

Assessment of module-3 conducted on 17/10/2019

Course with Code: Course with Code: Management & Entrepreneurship / 17EE51				Faculty: Mr. Vinod Kumar P		Semester & Section: V		
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation	Class no
				MODULE 4				
32	26/9	**Modern Small Business Enterprises:** Role of Small Scale Industries.	ICT	3/10	Modern Small Business Enterprises : Role of SSI	ICT		32
33	27/9	Concepts and definitions of SSI Enterprises	Chalk & Talk	4/10	Concepts & definitions of SSI Enterprises	Chalk & Talk		33
34	3/10	Government policy and development of the Small Scale sector in India	Chalk & Talk	9/10	Government policy & development of SSI	Chalk & Talk		34
35	4/10	Growth and Performance of Small Scale Industries in India, Sickness in SSI sector	ICT	9/10	Growth & performance of SSI in India	ICT		35
36	9/10	Problems for Small Scale Industries, Impact of Globalization on SSI	ICT	10/10	Problems for SSI, Impact of Globalization	ICT		36
37	9/10	Impact of WTO/GATT on SSIs, Ancillary Industry and Tiny Industry (Definition only).	Chalk & Talk	11/10	Impact of WTO/GATT on SSIs	Chalk & Talk		37
38	10/10	**Institutional Support for Business Enterprises:** Introduction, Policies & Schemes of Central–Level Institutions	ICT	12/10	Institutional Support for Business Enterprises	ICT		38
39	11/10	Meaning; Nature of Support; Objectives; Functions; Types of Help; Ancillary Industry and Tiny Industry	ICT	12/10	Meaning, nature of support, objectives	ICT		39
40	12/10	State-Level Institutions	ICT	15/10	State level institutions.	ICT		40
41	12/10	Assessment & Overview of Module-4	ICT	16/10 15/10	Assessment & overview of Module-4	ICT		41

Assessment conducted on 25/10/2019

Course with Code: Course with Code: Management & Entrepreneurship / 17EE51				Faculty: Mr. Vinod Kumar P		Semester & Section: V		
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation	class no.
				MODULE 5				
42	16/10	**Project Management**: Meaning of Project, Project Objectives & Characteristics	Chalk & Talk	23/10	Project Management: Meaning, objective	Chalk & Talk		42
43	23/10	Project Identification-Meaning & Importance: Project Life Cycle	Chalk & Talk	24/10	Project Identification Meaning & Importance	Chalk & Talk		43
44	24/10	Project Scheduling, Capital Budgeting.	Chalk & Talk	30/10	Project Scheduling Capital Budgeting	Chalk & Talk		44
45	30/10	Generating an Investment Project Proposal, Project Report-Need and Significance of Report	Chalk & Talk	31/10	Generating an Investment Project Proposal.	Chalk & Talk		45
46	31/10	Contents, Formulation, Project Analysis-Market	ICT	5/11	Contents, Formulation, project analysis,	ICT		46
47	6/11	Technical, Financial, Economic, Ecological, Project Evaluation and Selection	ICT	6/11	Technical Financial Economic Ecological	ICT		47
48	7/11	Project Financing, Project Implementation Phase, Human & Administrative aspects of Project Management	Chalk & Talk	7/11 18/11	Project Financing Project Implementation	Chalk & Talk		48
49	9/11	Prerequisites for Successful Project Implementation	Chalk & Talk	12/11	Prerequisites for successful project	Chalk & Talk		49
50	13/11	Assessment & Overview of Module-5	ICT	19/11	Assessment & Overview of M-5	ICT		50

Assessment of module-5 Conducted on 19/11

	Activity	Planned	Actual	Remarks
1	Theory Classes	50	50	
2	Assignments/Quizzes/ Self study	5	5	Through SBS assessment carried out
3	Tutorials/ Extra classes	-	–	
4	Internal Assessments	3	3	
5	ICT based Teaching (% of usage in Curriculum)	50%	50%	

Planning		Execution	
Faculty Signature:		**Faculty Signature:**	
HoD Signature:		**HoD Signature:**	

ATME College of Engineering

Department of Electrical and Electronics Engineering

Ref.No.ATME/EEE/AY_2019-20/Odd/Dept_Meeting/17

Date: 04/12/2019

Agenda	• Discussion on Course Allotment for the upcoming semester 2019-20 Even • Topics related to the department

Following points were discussed during the meeting

1. Course allotment for 2nd, 4th, 6th and 8th semester are as follows

2nd Semester

Sl.No	Course/ Course Code	Faculty Alloted
1	BEE – 18ELEL27	LK
2		KRS

4th Semester

Sl.No	Course/ Course Code	Faculty Alloted
1	18MAT41	PNB
2	PGE - 18EE42	SH
3	T&D - 18EE43	RL
4	EM - 18EE44	MS
5	EFT - 18EE45	VK
6	OLIC - 18EE46	SSR/RKS

6th Semester

Sl.No	Course/ Course Code	Faculty Alloted
1	CS - 17EE61	RKS
2	PSA-1 17EE62	MP
3	DSP - 17EE63	SH
4	EMD – 17EE64	HOD
5	CAED – 17EE651	MS
6	S&T – 17EE662	KRS

8th Semester

Sl.No	Course/ Course Code	Faculty Alloted
1	PSOC - 15EE81	SSR
2	IDA - 15EE82	MP
3	IDG - 15EE83	RL

2. Laboratory Allotment for the faculty and Instructors

2nd Semester

Sl.No	Course/ Course Code	Faculty Alloted	Instructor Alloted
1	BEE Lab 18ELEL27	KRS,LK	CB

4th Semester

Sl.No	Course/ Course Code	Faculty Alloted	Instructor Alloted
1	EM-II Lab 18EEL47	MS, SH	KR
2	OLIC Lab18EEL48	RKS,MP,SSR	Somasekhar

6th Semester

Sl.No	Course/ Course Code	Faculty Alloted	Instructor Alloted
1	CS Lab 17EEL67	RL, RKS	SL
2	DSP Lab17EEL68	VK.SSR,SH	Mr. Yaseen
3	CAED Lab	MS/VK	Mr. Yaseen, KR

Sl.No		Faculty Alloted	Instructor Alloted
1	PLC Lab	KRS	CB Mr. Yaseen

3. Instructors are informed to produce updated Lab Manuals for the next semester.
4. Faculties are informed to submit counseling report for the respective R-File.
5. Email to the students need to be followed on the even semester.
6. Class Incharges for the upcoming semester

Sl.No.	Semester	Class Incharge
1	4th	VK
2	6th	KRS
3	8th	MP

1	Project Coordinator	SSR
2	Seminar Coordinator	MS
3	Internship Coordinator	RKS

HoD

Faculty Signature:

RL	KRS	LK	MP	VK	SSR	SH	MS	RKS

SL. No	Faculty Name	Initials
1 2	Mr. Raghavendra L Mr. Sathish K R	RL KRS
3	Mrs. Lakshmi K	LK
4	Mr. Praveen Kumar M	MP
5	Mr. Vinod Kumar P	VK

SL. No	Faculty Name	Initials
6	Mr. ShreeShayana R	SSR
7	Ms. Swapna H	SH
8	Mrs. Maria Sushma S	MS
9	Mr. Rajesh K S	RKS

Department of Electrical and Electronics Engineering

COURSE MODULE OF THE COURSE TAUGHT FOR THE SESSION August– November 2019-20(ODD SEM)

Course Syllabi with CO's

Faculty Member: **Mr. Vinod Kumar P**				Academic Year: 2019-20			
Department: Electrical & Electronics Engineering							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
17EE51	**Management & Entrepreneurship**	**Core**		**4**	**-**	**-**	**50**

Objectives

Course objectives:

1. To introduce the field of management, task of the manager, importance of planning and types of planning, staff recruitment and selection process.
2. To discuss the ways in which work is allocation, structure of organizations, modes of communication and importance of managerial control in business.
3. To explain need of coordination between the manager and staff, the social responsibility of business and leadership.
4. To explain the role and importance of the entrepreneur in economic development and the concepts of entrepreneurship.
5. To explain various types of entrepreneurs and their functions, the myths of entrepreneurship and the factors required for capacity building for entrepreneurs
6. To discuss the importance of Small Scale Industries and the related terms and problems involved.
7. To discuss methods for generating new business ideas and business opportunities in India and the importance of business plan.
8. To introduce the concepts of project management and discuss capitol building process.
9. To explain project feasibility study and project appraisal and discuss project financing
10. To discuss about different institutions at state and central levels supporting business enterprises.

Topics Covered as per Syllabus

Module – 1

Management: Definition, Importance - Nature and Characteristics of Management, Management Functions, Roles of Manager, Levels of Management, Managerial Skills, Management & Administration, Management as a Science, Art & Profession.

Planning: Nature, Importance and Purpose Of Planning, Types of Plans, Steps in Planning, Limitations of Planning, Decision Making - Meaning, Types of Decisions- Steps in Decision making. **(10 Hours)**

Bloom's Taxonomy Level	L1 – Remembering, L2 – Understanding, L4 – Analysing

Module-2

Organizing and Staffing: Meaning, Nature and Characteristics of Organization - Process of Organization, Principles of Organization, Departmentalization, Committees -meaning, Types of Committees, Centralization Vs Decentralization of Authority and Responsibility, Span of Control (Definition only), Nature and Importance of Staffing, Process of Selection and Recruitment.

Directing and Controlling: Meaning and Nature of Directing-Leadership Styles, Motivation Theories Communication - Meaning and Importance, Coordination- Meaning and Importance, Techniques of Coordination. Controlling - Meaning, Steps in controlling. **(10 Hours)**

Bloom's Taxonomy Level	L2 – Understanding, L3 – Applying, L4 – Analysing.

Module-3

Social Responsibilities of Business: Meaning of Social Responsibility, Social Responsibilities of Business towards Different Groups, Social Audit, Business Ethics and Corporate Governance.

Entrepreneurship: Definition of Entrepreneur, Importance of Entrepreneurship, concepts of Entrepreneurship, Characteristics of successful Entrepreneur, Classification of Entrepreneurs, Intrapreneur - An Emerging Class,

Comparison between Entrepreneur and Intrapreneur, Myths of Entrepreneurship, Entrepreneurial Development models, Entrepreneurial development cycle, Problems faced by Entrepreneurs and capacity building for Entrepreneurship. **(10 Hours)**	
Bloom's Taxonomy Level	L3 – Applying
Module-4 **Modern Small Business Enterprises:** Role of Small Scale Industries, Concepts and definitions of SSI Enterprises, Government policy and development of the Small Scale sector in India, Growth and Performance of Small Scale Industries in India, Sickness in SSI sector, Problems for Small Scale Industries, Impact of Globalization on SSI, Impact of WTO/GATT on SSIs, Ancillary Industry and Tiny Industry (Definition only). **Institutional Support for Business Enterprises:** Introduction, Policies & Schemes of Central–Level Institutions, State-Level Institutions. **(10 Hours)**	
Bloom's Taxonomy Level	L3 – Applying
Module-5 **Project Management:** Meaning of Project, Project Objectives & Characteristics, Project Identification Meaning & Importance; Project Life Cycle, Project Scheduling, Capital Budgeting, Generating an Investment Project Proposal, Project Report-Need and Significance of Report, Contents, Formulation, Project Analysis-Market, Technical, Financial, Economic, Ecological, Project Evaluation and Selection, Project Financing, Project Implementation Phase, Human & Administrative aspects of Project Management, Prerequisites for Successful Project Implementation. New Control Techniques- PERT and CPM, Steps involved in developing the network, Uses and Limitations of PERT and CPM **(10 Hours)**	
Bloom's Taxonomy Level	L2 – Understanding, L3 – Applying, L4 – Analysing
List of Text Books	
1. Principles of Management - P. C. Tripathi, P. N. Reddy; Tata McGraw Hill, 4th Edition, 2010.. 2. Entrepreneurship Development - Small Business Enterprises - Poornima M Charantimath – Pearson Education – 2006.	
List of Reference Books	
1. Dynamics of Entrepreneurial Development and Management, Vasant Desai, Himalaya Publishing House, 2007. 2. Essentials of Management: An International, Innovation and Leadership perspective, Harold Koontz, Heinz Weihrich, McGraw Hill, 10thEdition 2016.	
List of URLs, Text Books, Notes, Multimedia Content, etc	
1. https://www.youtube.com/watch?v=0GyKxRYx1tQ **2. https://www.youtube.com/watch?v=1EL3VCo98IE** **3. https://www.youtube.com/watch?v=hu3dpAPI1lE** **4. https://www.youtube.com/watch?v=DmSOAYE6Cd8** **5. https://www.youtube.com/watch?v=Xcsp0486olY** **6. https://www.youtube.com/watch?v=K-yVBDIKIb8** **7.** https://www.youtube.com/watch?v=kobRqhl_TmM	
Course Outcomes	**At the end of the course the Student will able to** CO.1. Apply the principles and concepts of management, planning for decision making. [M1][L2] CO.2. Interpret the concepts of organizing, staffing, directing and controlling. [M2][L2] CO.3. Interpret the concepts and characteristics of entrepreneur and business for capacity building and corporate Governance. [M3][L3] CO.4. Extend the concepts of small-scale industries and receive institutional supports for industries. [M4] [L3] CO.5: Apply the ideas in the development and execution of the project by considering Technical, Economical, Administrative and relevant aspects. [M5] [L4]
Internal Assessment Marks: CIE: Internal Assessment Marks (30) + Assignment (10) **Note:** 30 marks (3 Session Tests are conducted during the semester and marks allotted based on average of all the sessions)	

Department of Electrical and Electronics Engineering

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Course Code:	17EE51	**Title:** Management & Entrepreneurship						**Faculty Name:**		**Mr. Vinod Kumar P**		
List of Course Outcomes	**Program Outcomes**											
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO-1	2	-	-	-	-	2	-	-	-	-	-	-
CO-2	2	-	-	-	-	2	-	-	-	-	-	-
CO-3	2	-	-	-	-	2	-	-	-	-	-	-
CO-4	2	-	-	-	-	2	-	-	-	-	-	-
CO-5	2	-	-	-	-	2	-	-	-	-	3	-

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution

The Correlation of Course Outcomes (CO's) and Program Specific Outcomes (PSO's)

Course Code:	17EE51	**Title:** Management & Entrepreneurship	**Faculty Name:**	Mr. Vinod Kumar P
List of Course Outcomes	**Program Specific Outcomes**			
	PSO1		PSO2	
CO-1	-		**1**	
CO-2	-		**1**	
CO-3	-		**2**	
CO-4	-		**1**	
CO-5	-		**2**	

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution -= No Contribution

HOD
Dr. PARTHASARATHY L.
Professor and HOD
Dept. of Electrical & Electronics Engineering
ATME College of Engineering, Mysuru

ATME College of Engineering

ATME COLLEGE OF ENGINEERING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS

TIME TABLE FOR ODD SEMESTER - 2019-20

Date: 09/10/2019

Staff Name: Mr. Vinod Kumar P

DAY/TIME	9:00 - 10:00	10:00-11:00	11:15 - 12:15	12:15 - 1:15	1:15- 2:00	2:00- 2:55	2:55 - 3:50	3:50- 4:45
MONDAY		MC LAB- Batch-1:VK (*KR*)				PSS LAB Batch-1:VK (*CB*)		
TUESDAY	17EE51					PSS LAB Batch-2:VK (*CB*)		
WEDNESDAY	15EE71	EL LAB-Batch-2: RKS+VK (*CB*)				17EE51		
THURSDAY	15EE71		15EE71	17EE51				
FRIDAY			17EE51	15EE71				
SATURDAY								

Course Code	Course Title	Semester	Contact Hours
15EE71	Power System Analysis-2	VII	4
17EE51	Management and Entrepreneurship	V	4
EL Lab-B2, MC Lab-B1, PSS Lab-B1-B2		III, V, VII, VII	12
Total Contact Hours Weekly			20

Co-ordinator

HOD

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

(ACADEMIC YEAR 2019-20)

COURSE: MANAGEMENT & ENTREPRENEURSHIP

SUB CODE: 17EE51

SEMESTER: V

Vision & Mission of ATME College of Engineering

Vision

Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

Mission

- To keep pace with advancements in knowledge and make the students competitive and capable at the global level.
- To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as torchbearers of tomorrow's society.
- To strive to attain ever-higher benchmarks of educational excellence.

Vision & Mission of Department of Electrical & Electronics Engineering

Vision of the department

To create Electrical and Electronics Engineers who excel to be technically competent and fulfill the cultural and social aspirations of the society.

Mission of the Department

- To provide knowledge to students that builds a strong foundation in the basic principles of electrical engineering, problem solving abilities, analytical skills, soft skills and communication skills for their overall development.
- To offer outcome based technical education.
- To encourage faculty in training & development and to offer consultancy through research & industry interaction.

PROGRAMME EDUCATIONAL OBJECTIVES AND PROGRAMME OUTCOMES

PROGRAMME OUTCOMES:

Engineering Graduates will be able to:

PO1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of EXPERIMENTs, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one**'**s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

<u>Program Specific Outcomes (PSOs)</u>

At the end of graduation the student will be able,

PSO1: Apply the concepts of Electrical & Electronics Engineering to evaluate the performance of power systems and also to control industrial drives using power electronics.

PSO2: Demonstrate the concepts of process control for Industrial Automation, design models for environmental and social concerns and also exhibit continuous self- learning.

<u>Program Educational Objectives (PEOs)</u>

PEO1: To produce Electrical and Electronics Engineers who will exhibit the technical and managerial skills with professional ethics for the societal progress.

PEO2: To make students continuously acquire, enhance their technical and socio-economic skills and also to be globally competent.

PEO3: To impart the experience of research and development to students so that they develop abilities in offering solutions to relevant diverse career path.

PEO4: To produce quality engineers with a team leading capabilities, also show good coordination to contribute towards real time application of projects.

MODULE 1

Unit 1 MANAGEMENT

Learning Objectives :

- To introduce the concept and definitions of management.
- Present the characteristics of management.
- Understand the functions of management.
- Understand the functional areas of management.
- Distinguish administration and management.
- Introduce the role of management.
- Present the levels of management.
- Trace the development of management thought.

1.1 MEANING

Giving precise definition of management is not so simple because the term management is used in a variety of ways. Being a new discipline it has drawn concepts and principles from a number of disciplines such as Sociology, Economics, Psychology, Statistics,

Anthropology and so on. The contributors from each of these groups have viewed **management differently. For example economists have treated management as 'a factor of production'; Sociologists treated it as 'a group of persons'. Hence, taking all these** view points, it becomes difficult to define management in a comprehensive way and no definition of management has been universally accepted. Many definitions were given by various contributors; one popular definition is given by Mary Parker Follet. According to **Follet management is 'the art of getting things done through people'.** This definition clearly distinguishes between manager and other personnel of the organization. A **manager is a person who contributes to the organization's goal indirectly by directing the** efforts of others, not by performing the task by him. A person who is not a manager **makes his contribution to the organization's goal directly by performing the tasks by** himself. Some times a person may play both roles simultaneously. For example, a sales

manager plays managerial role by directing the sales force to meet the organization's goal and plays non-managerial role by contacting an important customer and negotiating deal with him. The principal of an institution plays the role of manager by directing the heads of the departments and plays non-managerial role by teaching a subject. There are two weaknesses of this definition. The first weakness is that the definition states that management is an art. Art deals with application of knowledge. But management is not merely application of knowledge. It also involves acquisition of knowledge i.e., Science. Managing using intuition or thumb rule is not correct management. The second weakness of this definition is that it does not explain the various functions of management.

A better definition is given by George R Terry who defines management as "a process consisting of planning, organizing, actuating and controlling performed to **determine and accomplish the objectives by the use of people and resources".** According to him, management is a process-a systematic way of doing thing using four managerial **functions namely planning, organizing, actuating and controlling. 'Planning' means thinking of the manager's action in advance. The actions of the managers are** based on **logic, plan or some method rather than hunch. 'Organizing' means coordinating machines, materials and human resources of the organization. 'Actuating' means motivating, directing the subordinates. 'Controlling' means that manager must ensure that** there is no deviations from plans. This definition also indicates that managers use people, materials and other resources to accomplish the organizations objectives. The objectives may vary with each organization. For example the objective of a technical or management institute might be to provide quality education according to the needs of the industry. The objective of a hospital might be to provide medical care to the community at reasonable price. Whatever may be the objectives of the organization management is a process by which the objectives are achieved.

From the view point of economics, sociology, psychology, statistics and anthropology management has different meanings. There are four views of management:

(1) Management is a process.

(2) Management is a discipline.

(3) Management is a human activity.

(4) Management is a career.

Management is a process: A process is defined as systematic method of handling **activities. Often we hear the statements "that company is well managed" or "the company** is miss-manag**ed". These statements imply that management is some type of work or set** of activities, these activities sometimes performed quite well and some times not so well. These statements imply that management is a process involving certain functions and activities that managers perform.

Management is a discipline: Discipline refers to the field of study having well defined concepts and principles. Classifying management as discipline implies that it is an accumulated body of knowledge that can be learnt. Thus, management is a subject with principles and concepts. The purpose of studying management is to learn how to apply these principles and concepts at right circumstances at the right time to produce desired result.

***Management is a human activity*: If you say that "the restaurant has an entirely** new **management" or "He is the best manager I have worked for", you are referring to the people who guide, direct and thus manage organizations. The word 'management' used** here refers to the people who engage in the process of management. Managers are responsible for seeing that work gets done in organization.

Management is a career: Today management is developed as a career focused on specialization. Marketing management, finance management, personal management, Industrial management, production management, quality management are some of the specializations in management. Specialists are appointed at various positions of the organizational hierarchy. Hence, management is career.

Accor**ding to Ralph C Devis, "Management is the executive leadership anywhere".**

According to William Spriegal, "Management is that function of an enterprise which concerns itself with the direction and control of various activities to attain business activities**".**

Ross Moore states "Management means decision-making".

According to Donald J Clough, "Management is the art and science of decision-making and leadership".

Joseph L Massie defines as "Management is the process by which a cooperative group directs **actions towards common goals".**

According to F.W. Taylor, "Management is the art of knowing what you want to do and then seeing that it is done in the best and cheapest way".

John F Mee states "Management is the art of securing maximum results with minimum efforts so as to secure maximum prosperity for employer and employee and **give the public the best possible service".**

According to Koontz and O'Donnel, "Management is the direction and maintenance of an internal environment in an enterprise where individuals working in groups can perform efficiently and effectively towards the attainment of group goals". It is the art of getting the work done through and with people in formally organized groups.

Learning Activity 1.1: List the Managerial and Non-managerial activities of your Principal and Head of the department.

1.2 CHARACTERISTICS OF MANAGEMENT

The critical analysis of the above definitions, the following characteristics of management evolve.

(1) ***Management is a continuous process***: The process of management consists of planning, organizing, directing and controlling the resources to ensure that resources are used to the best advantages of the organization. A single function alone cannot produce the desired results. Management involves continuous planning, organizing, directing and controlling.

(2) ***Management is an art as well as science***: Management is an art in the sense of possessing managing skill by a person. Management is science because certain principles, laws are developed which are applicable in place where group activities are coordinated. This will be discussed in detail later in this chapter.

(3) ***Management aims at achieving predetermined objectives*****:** All organizations have objectives that are laid down. Every managerial activity results in achievement of these predetermined objectives.

(4) ***Management is a factor of production*****:** An enterprise produce goods or services using resources like land, labour, capital, machines etc. These resources themselves cannot realize the organizations goals. The goals are achieved when these are effectively coordinated by the entrepreneur. In case of small enterprises an individual can do such type of job where as in large enterprises the coordination job is done by management. Therefore, management is a factor of production.

(5) ***Management is decision-making*****:** Decision-making is selecting the best among alternative courses. Decision-making is an important function of a manager. Whatever a manager does, he does it by making decisions. The success or failure of an organization depends upon the quality of decision. A manager must make a right decision at right time.

(6) ***Universal application*****:** The principles and concepts of management are applicable to every type of industry. The practice of management is different from one organization to another according to their nature.

(7) ***Management is needed at all levels*****:** The functions of management are common to all levels of organization. The functions of planning, organizing, directing, controlling, decision-making are performed by top level as well as lower level supervisors.

(8) ***Management aims at maximum profit*****:** The resources are properly utilized to maximize profit. Maximizing the profit is the economic function of a manager.

(9) ***Dynamic*****:** Management is not static. Over a period of time new principles, concepts and techniques are developed and adopted by management. Management is changed accordingly to the social change.

(10) ***Management as a career*****:** Today management is developed as a career focused on specialization. Marketing management, finance management, personal management,

industrial management, production management, quality management are some of the specializations in management. Specialists are appointed at various positions of the organizational hierarchy. Hence management is career.

(11) ***Management is a profession*:** Management is a profession because it possesses the qualities of a profession. The knowledge is imported and transferred. The established principles of management are applied in practice. This is discussed in detail later in this chapter.

(12) ***Management is a discipline*:** Discipline refers to the field of study having well defined concepts and principles. Classifying management as disciplines implies that it is an accumulated body of knowledge that can be learnt. Thus, management is a subject with principles and concepts. The purpose of studying management is to learn how to apply these principles and concepts at right circumstances, at the right time to produce desired result.

1.3 NATURE OF MANAGEMENT

The principles, concepts and techniques of management have changed over the period of time. Various contributions to the field of management have changed its nature. The nature of management can be described as follows:

(1) ***Multidisciplinary*:** Management is multidisciplinary. It draws freely ideas and concepts from the disciplines like economics, sociology, psychology, statistics, operations research etc. Management integrates the ideas taken from various disciplines and presents newer concepts which can be put into practice. The integration of these ideas is the major contribution of management.

(2) ***Dynamic nature of principles*:** A principle is truth which establishes cause and effect relationships of a function. Principles are developed by integration of ideas from various disciplines supported by practical evidence. These principles are flexible and change with the environment in which organization works. Continuous researches are being carried on to establish new principles; many older principles are changed by new principles. There is nothing permanent in management.

(3) ***Relative not absolute principles*:** Management principles are relative and not absolute. They must be applied according to the need of the organization. Each organization is different from other. The principles of management should be applied in the light of prevailing conditions.

(4) ***Management – science or art*:** There is controversy whether management is science or art. Earlier management was regarded as art but now it is both science and art. This aspect has been discussed in detail in this chapter.

(5) ***Universality of management*:** Management is universal phenomena. Though universal yet management principles are not universally applicable but are to be modified according to the needs of the situation.

1.4 MANAGEMENT FUNCTIONS OR THE PROCESS OF MANAGEMENT

A function is a group of similar activities. There is divergence of view on "What functions are undertaken by managers in organizations?" Some management experts classify these functions into four types and others classify into five types and some others classify them as seven items. The Table 1.1 presents the management functions identified by various writers. The Table 1.2 gives the combined list of management functions.

Table 1.1: Management functions

	Write rs	Management Functions
1	Henry Fayol	Planning, organizing, commending, coordinating, controlling
2	Luther Gulick	Planning, organizing, staffing, directing, coordinating, reporting and budgeting (POSDCORB)
3	Lyndall Urwick	Planning, organizing, commanding, coordinating, communicating, forecasting, and investigating.
4	E.F.L. Brech	Planning, organizing, motivating, coordinating, controlling
5	Koontz and **O'Donnell**	Planning, organizing, staffing, directing (leading), controlling.

Table 1.2: Combined list of management functions

Planning	Directing	Controlling
Formulating purpose	Leading	Investigating
Decision making	Motivating	Evaluating
Innovating	Commanding	Coordinating
Organizing	Activating	Representing
Staffing	Securing Efforts	Administration
Appraising	Communicating	

The list of management functions is too long. However it can be shortened by combining some functions into one. For example, leading, motivating, communicating and commanding may be combined into a single function namely directing.

For our purpose we shall designate the following five as the functions of the manager. In addition we briefly refer **to "Innovation and representation as two additional** managerial functions considered important by Earnest Dale.

(1) ***Planning*****:** Planning is the primary function of management. It is looking ahead and preparing for the future. It determines in advance what should be done. It is conscious determination of future course of action. This involves determining why to take action? What action? How to take action? When to take action? Planning involves

determination of specific objectives, programs, setting policies, strategies, rules and procedures and preparing budgets. Planning is a function which is performed by managers at all levels – top, middle and supervisory. Plans made by top management for the organization as a whole may cover periods as long as five to ten years, whereas plans **made by low level managers cover much shorter periods. This "Planning" is** discussed in detailed in Chapter–2.

(2) ***Organizing*:** Organizing is the distribution of work in group-wise or section-wise for effective performance. Once the managers have established objectives and developed plans to achieve them, they must design and develop a human organization that will be able to carry out those plans successfully. Organizing involves dividing work into convenient tasks or duties, grouping of such duties in the form of positions, grouping of various positions into departments and sections, assigning duties to individual positions and delegating authority to each position so that the work is carried out as planned.

According to Koonz O'Donnel, "Organization consists of conscious coordination of people towards a desired goal". One has to note that different objectives require different kinds of organization to achieve them. For example, an organization for scientific research will have to be very different from one manufacturing automobiles.

(3) ***Staffing*:** Staffing involves managing various positions of the organizational structure. It involves selecting and placing the right person at the right position. Staffing includes identifying the gap between manpower required and available, identifying the sources from where people will be selected, selecting people, training them, fixing the financial compensation and appraising them periodically. The success of the organization depends upon the successful performance of staffing function.

(4) ***Directing*:** Planning, organizing and staffing functions are concerned with the preliminary work for the achievement of organizational objectives. The actual performance of the task starts with the function of direction. This function can be called **by various names namely "leading", "directing", "motivating", "activating" and so on.** Directing involves these sub functions:

(a) ***Communicating*:** It is the process of passing information from one person to another.

(b) ***Leading*:** It is a process by which a manager guides and influences the work of his subordinates.

(c) ***Motivating*:** It is arousing desire in the minds of workers to give their best to the enterprise.

(5) ***Controlling*:** Planning, organizing, staffing and directing are required to realize organizational objectives. To ensure that the achieved objectives confirm to the pre-planned objectives control function is necessary. Control is the process of checking to determine whether or not proper progress is being made towards the objectives and goals and acting if necessary to correct any deviations. Control involves three elements:

(a) Establishing standards of performance.

(b) Measuring current performance and comparing it against the established standard.

(c) Taking action to correct any performance that does not meet those standards.

(6) ***Innovation*:** Innovation means creating new ideas which may be either results in the development of new products or finding new uses for the old ones. A manager who invents new products is an innovator. A salesman who persuades Eskimos to purchase refrigerator is an innovator. One has to note that innovation is not a separate function but a part of planning.

(7) ***Representation*:** A manager has to spend a part of his time in representing his organization before various groups which have some stake in the organization. A manager has to be act as representative of a company. He has dealings with customers, suppliers, government officials, banks, trade unions and the like. It is the duty of every manager to have good relationship with others.

Learning Activity 1.2: Visit your bank and identify various functions performed by the bank manager.

1.5 FUNCTIONAL AREAS OF MANAGEMENT

Management process involves several functions. A distinction should be maintained between management functions (planning, organizing, staffing, directing and controlling) and the organizational functions (productions, finance etc.) Organizational functions differ from organization to organization depending upon their nature while management functions are common to all. A manager may be put either in production or finance or marketing, he performs all the managerial functions. These organization functions are called functional areas of management. There are four functional areas of management namely production, finance, marketing and finance and personnel. Each functional area may have a number of sub-activities.

***Production*:** This is generally put under production manager and he is responsible for all production related activities.

This area has a number of activities, few of them are given below:

(1) ***Purchasing*:** Which is related with the purchase of various materials required by the organization. Purchasing involves procuring right quantity of materials at the right quality, at the right time and at the right price from the right supplier.

(2) ***Materials management*:** This involves storing of materials, issue of materials to various departments.

(3) ***Research and Development*:** It deals with improving the existing products and process and developing new products and process.

***Marketing*: This area involves the distribution of organizations' products to the** buyers. The sub-activities are:

(1) ***Advertising*:** Involves giving information about products to buyers.

(2) ***Marketing research*:** It is related with the systematic collection, analysis of data relating to the marketing of goods and services.

(3) ***Sales management*:** It involves management efforts directed towards movement of products and services from producers to consumers.

***Finance and accounting*:** It deals with intelligent investment of financial resources and record-keeping of various transactions. The various sub-functions are

(1) ***Financial Accounting*:** Deals with record keeping of various transactions.

(2) ***Management Accounting*:** Deals with analysis and interpretation of financial records so that management can take certain decision.

(3) ***Costing*:** It deals with recording of costs, their classification and analysis for cost control.

(4) ***Investment Management*:** Takes care of how financial resources can be invested in various alternatives to maximize returns.

(5) ***Taxation*:** Deals with various direct and indirect taxes to be paid by the organization.

***Personnel*:** It deals with the management of human resources with the following sub-activities:

(1) ***Recruitment and Selection*:** It deals with recruitment and selection of employees.

(2) ***Training and Development*:** It deals with training of employees and making them more efficient.

(3) ***Wage and Salary Administration*:** Deals with fixing of salaries, job evaluation, promotion, incentives etc.

(4) ***Industrial Relations*:** Deals with maintenance of good employee relations.

1.6 MANAGEMENT: A SCIENCE OR ART?

There is great controversy whether management is science or art. It is an art in the sense of possessing of managing skill by a person. It is a science also because of developing principles or laws which are applicable in a place where a group of activities are coordinated. In fact management is both science and art as it clear from the following discussion.

***Management as science*:** Science is a systematized body of knowledge. We call a discipline scientific if its

(1) Methods of inquiry are systematic and empirical.

(2) Information can be ordered and analyzed; and

(3) Results are cumulative and communicable.

'Systematic' means, being orderly and unbiased. Moreover, enquiry must be empirical and not merely an armchair speculation. Scientific information collected in the raw form is finally ordered and analyzed with statistical tools. It is communicable which permits repetition of study. When study is replicated then the second try produces the results similar to the original. Science is also cumulative in that what is discovered is added to that which has been found before. We build upon the base that has been left by others.

Science denotes two types of systematic knowledge; natural or exact and behavioural or inexact. In exact or natural science (such as physics and chemistry) we can study the effect of any one of many factors affecting a phenomenon. For example, we can study in the laboratory, the effect of heat on density by holding other factors (like humidity, pressure etc.) constant, whereas in behavioural or in exact science it is not possible. In management we have to study man and number of factors affecting him. For example, we cannot study the effect of monetary incentives on workers productivity, because in addition to monetary incentives other inseparable factors like leadership styles, workers need hierarchy and leadership styles will also have simultaneous effect on productivity. At the most we may get only rough idea of the relationship between monetary incentives and productivity. Therefore, management is in the category of behavioural science.

***Management is an art*:** Management is the art of getting things done through others in dynamic situations. A manager has to coordinate various resources against several constraints to achieve predetermined objectives in the most efficient manner. Manager has to constantly analyze the existing situation, determine objectives, seek alternatives, implement, and control and make decision. The theoretical lessons on principles, concepts and techniques learnt by a manager in classroom is not enough to get the aimed results unless he possess the skill (or art) of applying such principles to the problems. The knowledge has to be applied and practised. It is like the art of musician or painter who achieves the desired results with his own skill which comes by practice. A comparison between science and art is given in table 1.3.

Table 1.3: Comparison between science and art

Sc ie nc e	Art
Advances by knowledge	Advances by policies
Process	Feels
Predicts	Guesses
Defines	Describes
Measures	Opines
Impresses	Expresses

Management uses both scientific knowledge and art in managing an organization. As the science of management increases so should the art of management. A balance between the two is needed.

1.7 MANAGEMENT: A PROFESSION

According to McFarland, "Profession" possesses the following characteristics:

(1) Existence of an organized knowledge.
(2) Formalized method of acquiring training and expertise.
(3) Existence of professional association.
(4) Existence of an ethical code to regulate the behaviour.
(5) Charging of fees based on service with due regard to social interest.

Management does not possess all the above characteristics of profession. Management has no fixed norms for managerial behaviour. There is no uniform code of conduct or licensing of managers. There are no restrictions to individuals to possess an academic degree. Unlike medical or legal professionals, a manager need not possess an academic degree. In the light of absence of these characteristics, management cannot be **called as profession. However, 'professionalization' of management started and it is** essential nowadays to acquire some professional knowledge or training. In this regard government of India has started six national institutes of management and a number of universities and institutions are offering MBA programmes.

1.8 MANAGEMENT AND ADMINISTRATION

The term administration and management are used synonymously. Some writers urge that running of a business requires skills, which is known as management and functioning of government departments and non-profit institutions requiring skill is known as administration. Various views expressed by thinkers of management led to the emergence of there approaches:

(1) Administration is above management.
(2) Administration is a part of management.
(3) Management and administration are same.

According to classical thinkers, Administration is above management so far as **different in the organization are concerned. According to Spreigal, "Administration is** that phase of business enterprise that concerns itself with the overall determination of institutional objectives and the policies necessary to be followed in achieving those objectives. Management on the other hand is an executive function which is primarily **concerned with carrying of broad policies laid down by the administration". This implies** that administration deals with establishing objectives and policies and is done by the top level whereas management is the execution of these policies by the middle and lower organizational level. Table 1.4 shows the distinction between administration and management.

Table: 1.4: Differences between administration and management

Bas is of difference	Adminis tration	Management
1. Level of organization	Top Level	Middle and Lower Level
2. Major focus	Policies formulation and objective determination	Policies execution for objectives achievements
3. Nature of function	Determinative	Executive
4. Scope of functions	Broad & Conceptual	Narrow & Operational
5. Factors affecting decision	Mostly external	Mostly internal
6. Employer – Employee relation	Entrepreneurs & Owners	Employee
7. Qualities required	Administrative	Technical

E. El. Brech urges that administration is a part of management. According to Brech, **"Management is a generic name for** the total process of executive control in industry or commerce. It is a social process entailing responsibility for the effective and economical planning and regulation of the operation of an enterprise in the fulfilment of a given purpose or risk. Administration is that part of management which is concerned with the installation and carrying out of procedures by which it is laid down and communicated, and the process of activities regulated and checked against plans. According to this view, administration become a subordinate function to overall management function. According to the third approach which is the most popular and practical one, management and administration are same. Both involve the same functions, principles and objectives. The term administrator found its origin in bureaucratic structure of government or in regulation of some laws. The government often uses the terms administrator who is supposed to execute broad policies laid down by government.

The basic point of controversy between management and administration lies in forms of coverage of activities. The content of policy formulation is higher at higher levels; it is lower at lower levels, while executive is more at lower levels and lower at higher levels. Hence, it becomes unimportant whether policy formulation function is known as administration or management.

1.9 ROLE OF MANAGEMENT

A manager performs planning, organizing, directing and controlling to achieve the organizational objectives. It has been questioned whether these functions provide an adequate description of the management process. As against these management functions Henry Mintzberg has defined the role of managers to identify what managers do in the organizations. Mintzberg has identified ten roles of manager which are classified into three broad categories as shown in fig. 1.1.

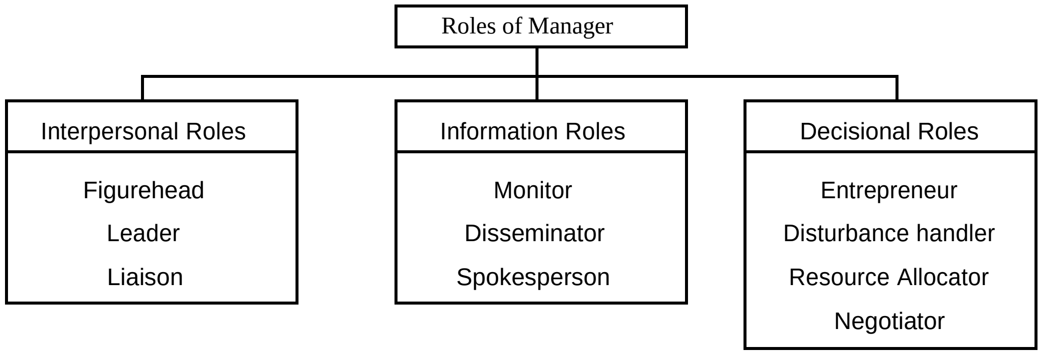

Fig. 1.1: Roles of manager

***Interpersonal role*:** This role is concerned with his interacting with people both organizational members and outsiders. There are three types of interpersonal roles:

(1) ***Figure head role*:** In this role manager has to perform duties of ceremonial nature such as attending social functions of employees, taking an important customer to lunch and so on.

(2) ***Leader role*: Manager's leader role involves leading the subordinates motivating** and encouraging them.

(3) ***Liaison*:** In liaison role manager serves as a connecting link between his organization and outsiders. Managers must cultivate contacts outside his vertical chain to collect information useful for his organization.

***Information roles*:** It involves communication. There are three types of informational roles:

(1) ***Monitor*:** In his monitoring role, manager continuously collects information about all the factors which affects his activities. Such factors may be within or outside organization.

(2) ***Disseminator*:** In the disseminator role, manager possesses some of his privileged information to his subordinates who otherwise not be in a position to collect it.

(3) ***Spokesperson*:** As a spokesperson manager represents his organization while interacting with outsiders like customers, suppliers, financers, government and other agencies of the society.

***Decisional roles*:** Decisional role involves choosing most appropriate alternative among all so that organizational objectives are achieved in an efficient manner. In his decisional role manager perform four roles:

1. ***Entrepreneur*:** As an entrepreneur, a manager assumes certain risks in terms of outcome of an action. A manager constantly looks out for new ideas and seeks to improve his unit by adopting it to dynamic environment.

2. ***Disturbance handler*****:** In this role manager works like a fire-fighter manager contains forces and events which disturb normal functioning of his organization. The forces and events may be employee complaints and grievances, strikes, shortage of raw materials etc.
3. ***Negotiator*****:** In his role of negotiator, manager negotiates with various groups in the organization. Such groups are employees, shareholders and other outside agencies.

Readers are advised to note that management functions and roles do not exist opposite to each other but these are two ways of interpreting what managers do. All these roles can be integrated with earlier classification of management which is presented in fig. 1.2.

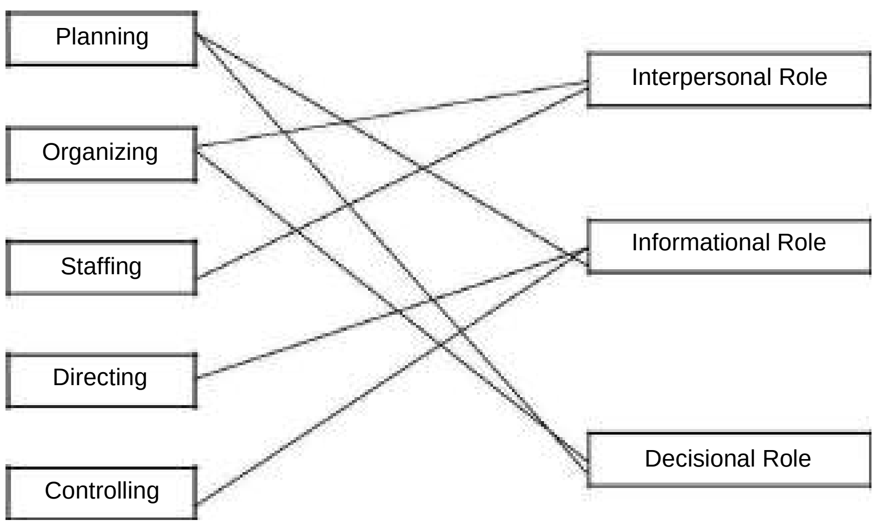

Fig. 1.2: Functions and roles of manager

In planning a manager performs informational and decisional role as he has to collect information on the basis in which he makes decisions. Similarly in performing other functions some or the other roles are performed by manager.

Learning Activity 1.3: Visit an industry, identify and analyze various roles of the manager.

1.10 LEVELS OF MANAGEMENT

People in an organization are arranged in an hierarchy and they all have the relationship of superior-subordinates. Every manager in an organization performs all five management functions. The relative importance of these functions varies along the managerial levels. There may be as many levels in the organization as the number of superiors in a line of command. Some of these levels are merged into one on the basis of nature of functions performed and authority enjoyed. E.F.L. Brech has classified management levels into three categories – Top Management, Middle Management and Supervisory/Lower Level as shown in fig 1.3.

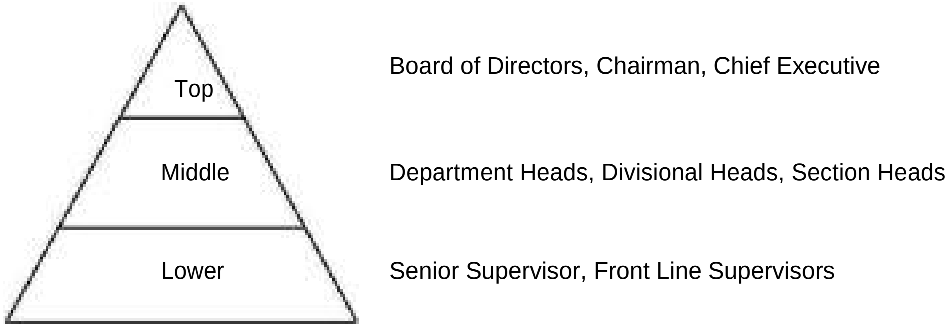

Fig. 1.3: Levels of management

Top management of an organization consists board of directors, chairman and chief executive officer. Top level management determines goals and objectives. It performs overall planning, organizing, staffing, directing and controlling. It integrates organization with environment, balances the interest groups and is responsible for overall results. Middle management stands between top management and supervisory management level. Middle level management establishes programs for department and carries out functions for achieving specific goals. The other functions of middle level management are training and development of employees, integrating various parts of the department. Supervisory management is concerned with efficiency in using resources of the organization. A supervisor is an executor of policies and procedures making a series of decisions with well-defined and specified premises.

Learning Activity 1.4: Identify various levels of management of your institution.

1.11 EVOLUTION OF MANAGEMENT

Management in one or other form has existed in every hook and corner of the world service the down of civilization. Although the 20th **century is marked in history as an 'Era of scientific management', yet it does not mean that management was totally absent in** yester years. 1700 to 1800 highlights the industrial revolution and the factory system highlights the industrial revolution and the factory system highlighted the importance of direction as a managerial function. Several economists during this period explained the concept of management. For example, Adam Smith explained the concept of division of labour, Jacques Turgot explained the importance of direction and control, and Baptiste explained the importance of planning. But management is emerged as a separate discipline in the second half of 19th century with the introduction of Joint Stock

Company. This form of enterprises separated management of business from their ownership and gave rise to labour inefficiency and inadequate systems of wage payments. In search of solution to this problem, people began to recognize management as a separate field of study. During 20th century, Management has become more scientific discipline with standard principles and practices. The evaluation of management thought during this period can be classified into two parts namely

(1) Early management approac**hes represented by Taylor's scientific management, Foyal's administrative management and human relations movement.**

(2) Modern management approaches, represented by behavioural approach, quantitative/management science approach, systems approach and contingency approach.

Early Management Approaches

Taylor's Scientific Management

F.W. Taylor started his career as an apprentice in a steel company in USA and finally became Chief Engineer. Taylor along with his associates made the first systematic study in management. He launched a new movement in 1910 which is known as scientific management. Taylor is known as father of scientific management and has laid down the following principles of scientific management.

(1) ***Separation of planning and doing***: In the pre-Taylor era, a worker himself used to decide or plan how he had to do his work and what machines and equipments would be required to perform the work. But Taylor separated the two functions of planning and doing, he emphasized that planning should be entrusted to specialists.

(2) ***Functional foremanship***: Taylor introduced functional foremanship for supervision and direction. Under eight-boss-scheme of functional foremanship, four persons: (i) route clerk, (ii) instruction card clerk, (iii) time and cost clerk and (iv) disciplinarian are related with planning function, and the remaining four: (vi) speed boss, (vii) inspector, (viii) maintenance foreman, and (ix) gang-boss are concerned with operating function.

(3) ***Elements of scientific management***: The main elements of scientific management are:

(a) Work study involving work important and work measurement using method and time study.

(b) Standardization of tools and equipments for workmen and improving working conditions.

(c) Scientific Selection, placement and training of workers by a centralized personal department.

(4) ***Bilateral mental revolution***: Scientific management involves a complete mental revolution of workmen towards their work, toward their fellow-men and toward **their employers. Mental revolution is also required on the part of management's** side– the foreman, the superintendent, the owners and board of directions.

(5) ***Financial incentives***: In order to motivate workers for greater and better work Taylor introduced differential piece-rate system. According to Taylor, the wage should be based on individual performance and on the position which a worker occupies.

(6) ***Economy***: Maximum output is achieved through division of labour and specialization. Scientific Management not only focuses on technical aspects but also on profit and economy. For this purpose, techniques of cost estimates and control should be adopted.

Henry Fayol's Administrative Management (1841–1925)

Henry Fayol was a French Mining Engineer turned into a leading industrialist and successful manager. Fayol provided a broad analytical framework of the process of administration. He used the word Administration for what we call Management. Foyal focused on general administrative and managerial functions and processes at the organizational level. Foyal divided activities of business enterprise into six groups: Technical, Financial, Accounting, Security, and Administrative or Managerial. He focused on this last managerial activity and defined management in terms of five functions: Planning, Organizing, Commanding, Coordinating and Controlling. He emphasized repeatedly that these managerial functions are the same at every level of an organization and is common to all types of organizations.

Foyal presented 14 principles of management as general guides to the management process and management practice. His principles of management are as follows:

1. ***Division of work*:** This is the principle of specialization which is so well expressed by economists as being necessary to efficiency in the utilization of labour. Fayol goes beyond shop labour to apply the principle to all kinds of work, managerial as well as technical.

2. ***Authority and responsibility*:** In this principle, Fayol finds authority and responsibility to be related with the letter, the corollary of the former and arising from the latter. The conceives of authority as a combination of official authority

deriving from a manager's official position and personal authority, "Compounded of intelligence, experience, moral worth, past services etc".

3. ***Discipline*: Holding that discipline is "respect for agreements which are directed** at achieving ob**edience, application, energy and the outward marks of respect".** Fayol declares that discipline requires good superiors at all levels, clear and fair agreement, and judicious application of penalties.

4. ***Unity of command*:** This is the principle that an employee should receive orders from one superior only.

5. ***Unity of direction*:** According to Fayol, unity of direction is the principle that each group of activities having the same objective must have one head and one plan. As distinguished from the principle of unity of command, Fayol perceives unity of direction as related to the functioning of personnel.

6. ***Subordination of individual interest to general interest*:** In any group the interest of the group should supersede that of the individual; when these are found to differ, it is the function of management to reconcile them.

7. ***Remuneration of personnel*:** Fayol perceives that remuneration and methods of payment should be fair and afford the maximum satisfaction to employee and employer.

8. ***Centralization*: Although Fayol does not use the term 'Centralization of Authority', his principle definitely refers to the extent to which authority is** concentrated or dispersed in an enterprise. Individual circumstances will determine the degree of centralization that will give the best overall yield.

9. ***Scalar chair*: Fayol thinks of the scalar chair as a line of authority, a 'Chain** of **Superiors" from the highest to the lowest ranks and held that, while it is an error of subordinate to depart 'needlessly' from lines of aut**hority, the chain should be short-circuited when scrupulous following of it would be detrimental.

10. ***Order*: Breaking this principle into 'Material order' and 'Social Order', Fayol thinks of it as the simple edge of "a place for everything (everyone), and** ev**erything (everyone) in its (his) place". This is essentially a principle of** organization in the arrangement of things and persons.

11. ***Equity*:** Fayol perceives this principle as one of eliciting loyalty and devotion from personnel by a combination of kindliness and justice in managers dealing with subordinates.

12. ***Stability of tenure of personn* :** Finding that such instability is both the causeand effect of bad management,

13. ***Initiative*:** Initiative is conceived as the thinking out and execution of a plan.

Since **it is one of the "Keenest satisfactions for an intelligent man to experience", Fayol exhorts managers to "Sacrifice Personal Vanity" in order to** permit subordinates to exercise it.

14. ***Esprit de corps*: This is the principle that ‘union is strength’ an extension of** the principle of unity of command. Fayol here emphasizes the need for team-work and the importance of communication in obtaining it.

Human Relations Approach

The human rationalists (also known as neo-classicists) focused as human aspect of industry. They emphasize that organization is a social system and the human factor is the most important element within it. Elton Mayo and others conducted experiments (known as Hawthorne experiments) and investigated informal groupings, informal relationships, patterns of communication, patterns of internal leadership etc. Elton Mayo is generally recognized as father of Human Relations School.

The human relationists, proposed the following points as a result of Hawthorne experiments.

(1) ***Social system*:** The organization in general is a social system composed of numerous interacting parts. The social system defines individual roles and establishes norms that may differ from those of formal organization.

(2) ***Social environment*:** The social environment of the job affects the workers and is also affected.

(3) ***Informal organization*:** The informal organization does also exist within the frame work of formal organization and it affects and is affected by the formal organization.

(4) ***Group dynamics*:** At the workplace, the workers often do not act or react as individuals but as members of group. The group plays an important role in determining the attitudes and performance of individual workers.

(5) ***Informal leader*:** There is an emergence of informal leadership as against formal leadership and the informal leader sets and enforces group norms.

(6) ***Non-economic reward*:** Money is only one of the motivators, but not the sole motivator of human behaviour. Man is diversely motivated and socio-psychological factors act as important motivators.

Modern Management Approaches

Behavioural Approach

This is an improved and more matured version of human relations approach. The various contributors of this approach are Douglas Mc Gregor, Abraham Maslow, Curt Levin, Mary Porker Follelt, Rensis Likert etc. Behavioural Scientists regard the classical approach as highly mechanistic, which finds to degrade the human spirit. They prefer more flexible organization structures and jobs built around the capabilities and aptitudes of average employees. The behavioral approach has laid down the following conclusions.

(1) Decision-making is done in a sub-optimal manner, because of practical and situational constraints on human rationality of decision-making. The behaviorists attach great weight age on participative and group decision-making.

(2) Behavioral Scientists encourage self direction and control instead of imposed control.

(3) Behavioral Scientists consider the organization as a group of individuals with certain goals.

(4) In view of behavioural scientists the democratic-participative styles of leadership are desirable, the autocratic, task oriented styles may also be appropriate in certain situation.

(5) They suggest that different people react differently to the same situation. No two people are exactly alike and manager should tailor his attempts to influence his people according to their needs.

(6) They recognize that organizational conflict and change are inevitable.

Quantitative Approach

Quantitative approach (also known as management approach) started during Second World War during which each participant country of the war was trying to seek solutions to a number of new and complex military problems. The interdisciplinary teams who were engaged for this purpose were known as operation research teams. These operation research teams developed quantitative basis for making military decisions. These quantitative tools later are used to make business, industry and enterprise decisions.

The focus of quantitative approach is on decision making, and to provide tools and techniques for making objectively rational decisions. Objective rationality means an ability and willingness to follow reasonable, unemotional and scientific approach in relating means with ends and in visualizing the totality of the decision environment. This approach facilitates disciplined thinking while defining management problems and establishing relationships among the variables involved. This approach is widely used in planning and control activities where problems can be defined in quantitative terms.

Systems Approach

A system is a set of interdependent parts which form a unit as a whole that performs some function. An organization is also a system composed of four independent parts namely, task, structure, people and technology. The central to the system approach is **'holism' which means that each part of the system bears relation of interdependence with**

other parts and hence no part of the system can be accurately analyzed and understood apart from the whole system. A system can be open or closed system. In open system, a system interacts with surrounding. An organization is open system because it interacts with it.

Contingency Approach

According to this approach, management principles and concepts have no general and universal application under all conditions. There is no best way of doing things under all conditions. Methods and techniques which are highly effective in one situation may not give the same results in another situation. This approach suggests that the task of managers is to identify which technique in a situation best contribute to the attainment of goals. Managers therefore have to develop a sort of situational sensitivity and practical selectivity. Contingency views are applicable in designing organizational structure, in deciding degree of decentralization, in motivation and leadership approach, in establishing communication and control systems, in managing conflicts and in employee development and training.

Chapter Summary

Management is defined as the art and science of getting things done through others. Management is the process of designing and maintaining the environment in which individuals working together in groups, accomplish their aims effectively and efficiently. Managers carry out the functions for Planning, Organizing, Staffing, Directing and Controlling. Planning involves thinking ahead and preparing for future. It determines in advance what should be done. Organizing involves dividing work into convenient tasks or duties, grouping of such duties in the form of positions, grouping of various positions into departments and sections, assigning duties to individual positions, and delegating authority to each position so that work is carried out as planned. Staffing consists of selecting and placing the right people at right position. Directing involves various sub functions like Communicating, Leading and Motivating. Control is the process of checking to determine whether or not proper progress is being made towards the objectives and goals and acting if necessary to correct any deviations. All these functions are performed to achieve predetermined goals. The nature of management can be described by its multidisciplinary, dynamic nature, relative principles and universality of Management. The functional areas of Management are Production, Finance, Marketing and Personnel. A clear distinction can be made between Administration and Management. Administration involves policy formulation, objective determination and Management deals with policy execution and achieving objectives. A manager plays inter-personal roles, information roles and decision roles. There are many theories of Management and each theory contributes something to our knowledge of what managers do. F W Taylor, Adam Smith, Henry Fayol, Elton Mayo and others have contributed to the development of Management concept.

QUESTIONS

(1) Define management. Explain the functions to be performed by managers to attain the set goals.

(2) Explain in brief the nature management.

(3) Write a note on characteristics of management.

(4) Discuss the functional areas of management.

(5) **'Management is an art as well as science'. Comment on this statement.**

(6) Draw the distinction between administration and management.

(7) Explain different roles of management.

(8) Discuss the levels of management.

(9) **Explain Taylor's concept of scientific management.**

(10) **Discuss Henry Fayol's principles of management.**

(11) Explain in brief the following approaches of management

(a) Systems approach.

(b) Contingency approach.

(c) Behavioural approach.

(d) Human relations approach.

(12) Write short notes on the following

(a) Planning

(b) Organizing

(c) Staffing

(d) Directing

(e) Controlling

❍ ❍ ❍

UNIT 2

PLANNING

Learning Objectives :

- To introduce the meaning and definitions of management.
- Analyze the nature and importance of planning.
- Discuss various types of planning.
- Understand types of plan.
- Present steps in planning.
- Understand the meaning and types of decisions.
- Discuss steps in rational decision making.
- Present decision environment.

2.1 MEANING

The management functions as discussed earlier are planning, organizing, staffing, direction and controlling. These functions are essential to achieve organizational objectives. If objectives are not set then there is nothing to organize, direct and control. An organization has to specify what it has to achieve. Planning is related with this aspect.

Every person whether in business or not has framed a number of plans during his life. The plan period may be short or long. One of the characteristic of human being is that he plans. Planning is the first and foremost function of management. According to Koontz **and O'Donnel "Planning is deciding in advance what to do, how to do it, when to do it and who is to do it. It bridges the gap from where we are and to where we want to go. It is in essence the exercise of foresight".** According to **M.S. Hardly "Planning is** deciding in advance what is to be done. It involves the selection of objectives, policies, procedures and programmes from among alternatives.

Heying and Massie define "Planning is that function of the manager in which he decides in advance what he will do. It is a decision making process of a special kind. It is an intellectual process in which creative mind and imagination are e**ssential". Planning is** an attempt to anticipate the future in order to achieve better performance. Plans derive the following benefits:

(1) Planning focus managers to think ahead.

(2) It leads to development of performance standards.

(3) Having to formulate plans forces management to articulate clear objectives.

(4) Planning makes organization to be better prepared for sudden developments.

On the basis of definitions of planning the following **features** can be identified.

(1) Planning is primarily concerned with looking into future. It requires forecasting the future.

(2) Planning involves selection of suitable course of action. It means there are several ways to achieving objectives.

(3) Planning is undertaken at all levels of the organization because managers at all level are concerned with determination of future course of action.

(4) Planning is flexible. Planning involves selection of best course of action under specific environment. If environment changes an adjustment is needed between various factors of planning.

(5) Planning is pervasive and continuous managerial function.

2.2 NATURE OF PLANNING

The nature of planning may be understood in terms of it being a rational approach, open system, flexibility and pervasiveness.

Planning: A Rational Approach

Planning is a rational approach for defining where one stands, where one wants to go in future and how to reach there. Rationalist denotes a manager chooses appropriate means for achieving the stated objectives rational approach fills the gap between the current status and future status. The difference between two time periods T1 and T2 may be as long as 5 years or as short as one year. The desired and the current results are usually expressed in terms of objectives, which can be achieved by an action or set of actions. The actions required resources and the rational approach emphasis an appropriate use of resources.

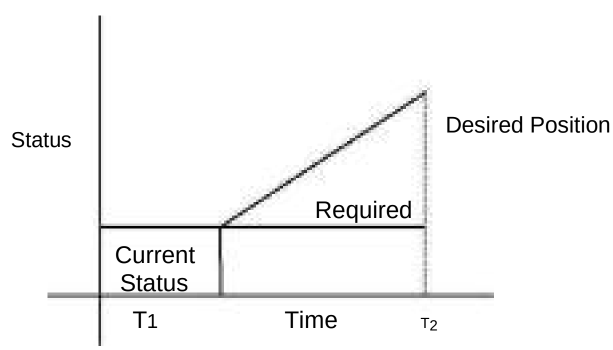

Fig. 2.1: Planning for bridging current & desired

Planning: An Open System Approach

An organization is an open system because it accepts inputs from the environment and exports output to environment. Planning adopt an open system approach. Open system approach indicates that the gap between current and desired status and the action required to bridge this gap is influenced by a variety of environmental economic, legal, political, technological, socio-cultural and competitive factors. These factors are dynamic and change with time. Therefore managers have to take into account the dynamic features of environment while using open system approach.

Flexibility of Planning

By flexibility of a plan is meant its ability to change direction to adopt to changing situations without undue cost. The plans must be flexible to adapt to changes in technology, market, finance, personal and organizational factors. However flexibility is possible only within limits, because it involves extra cost. Some times the benefit of flexibility may not be worth the cost.

Pervasiveness of Planning

Planning is pervasive and it extends throughout the organization. Planning is the fundamental management function and every manager irrespective of level, has a planning function to perform within his particular area of activities. Top management is responsible for overall objectives and action of the organization. Therefore it must plan what these objectives should be and how to achieve them. Similarly a departmental head has to devise the objectives of his department within the organizational objectives and also the methods to achieve them. Thus planning activity goes in hierarchy as shown in fig 2.2.

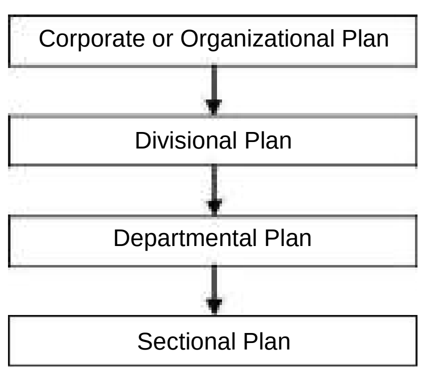

Fig. 2.2: Planning at various levels

2.3 IMPORTANCE OF PLANNING

Planning is of great importance in all types of organization whether business or non-business, private or public, small or large. The organization which thinks much ahead about what it can do in future is likely to succeed as compared to one which fails to do so. Without planning, business decisions would become random, ad hoc choices. Planning is important because of the following reasons.

(1) ***Primacy of planning*****:** Planning is the first and foremost function of management, other functions follow planning. What is not planned cannot be organized and controlled. Planning establishes the objectives and all other functions are performed to achieve the objectives set by the planning process as shown in fig 2.3.

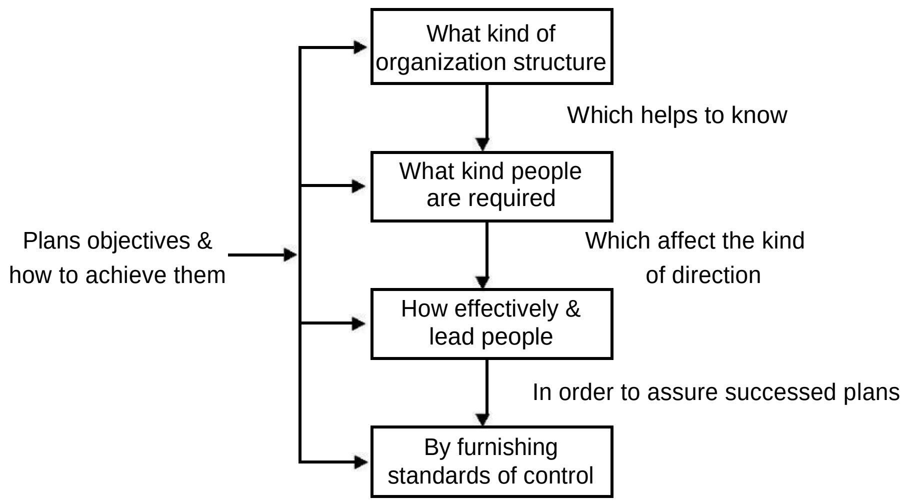

Fig. 2.3: Primacy of planning

(2) ***To minimize risk and uncertainty*****:** The organization continuously interacts with the external dynamic environment where there is great amount of risk and uncertainty. In this changing dynamic environment where social and economic conditions alter rapidly, planning helps the manager to cope up with and prepare for changing environment. By using rational and fact based procedure for making decisions, manager can reduce the risk and uncertainty.

(3) ***To focus attention on objectives*****:** Planning focuses on organizational objectives and direction of action for achieving these objectives. It helps managers to apply and coordinate all resources of the organization effectively in achieving the objectives. The whole organization is forced to embrace identical goals and collaborate in achieving them.

(4) ***To facilitate control*****:** Planning sets the goals and develops plans to achieve them. These goals and plans become the standards or benchmarks against which the actual performance can be measured. Control involves the measure-ment of actual performance, comparing it with the standards and initiating corrective action if there is deviation. Control ensures that the activity confirm to plans. Hence control can be exercised if there are plans.

(5) ***To increase organizational effectiveness*:** Effectiveness implies that the organization is able to achieve its objectives within the given resources. The resources are put in a way which ensures maximum contribution to the organizational objectives. Effectiveness leads to success.

2.4 TYPES OF PLANNING

Though the basic process of planning is same yet there are several ways in which an organization can undertake planning process. Planning can be classified on the basis of coverage of activities, importance of contents in planning, approach adopted in planning process, time dimension and degree of formalization in planning process as shown in Table 2.1

Table 2.1: Types of planning

Dime ns ion	Types of planning
1. Coverage of activity	Corporate and functional planning
2. Importance of contents	Strategic and tactical/operational planning
3. Time period involved	Long term and short term planning
4. Approach adopted	Proactive and reactive planning
5. Degree of formalization	Formal and Informal planning

Corporate and functional planning: The planning activities at the corporate level which cover the entire organizational activities are known as corporate planning. The focus in corporate planning is to determine long term objectives as a whole and to generate plans to achieve these objectives bearing in mind the probable changes in dynamic environment. This corporate planning is the basis for functional planning. Functional planning which is derived from corporate planning is undertaken for each major function of the organization like production, marketing, finance etc., Since functional planning is derived out of corporate planning and therefore it should contribute to the corporate planning.

Strategic and operational planning: Strategic planning sets future directions of the organization in which it wants to proceed in future. Strategic planning involves a time horizon of more than one year and for most of the organization it ranges between 3 and 5 years. Examples of strategic planning may be diversification of business into new lines, planned grown rate in sales etc. Operational planning also known of tactical planning on the other hand involves deciding the most effective use of resources already allocated to achieve the organizational objectives. The time horizon in operational planning is less than one year. Operational planning is undertaken out of the strategic planning. The examples of operational planning may be adjustment of production within available capacity, increasing the efficiency of the operating activity by analyzing past performance etc. Table 2.2 gives the differences between strategic and operational planning.

Table 2.2: Differences between strategic and operational planning.

Strategic planning	Operational planning
1. It decides major goals and policies of allocation of resources to achieve these goals.	1. It decides the detailed use of resources for achieving these goals
2. It is carried at higher level of management.	2. It is carried at lower level of management.
3. It is long term.	3. It is short term.
4. It is based on long term forecasting considering the possible impact of political, economical, technological and competitive factors and is more uncertain.	4. It is generally based on past performance of the organization and is less uncertain.
5. It is less detailed.	5. It is more detailed.

Long and short term planning: The long term planning is strategic in nature and involves more than one year period and can extend to 15 to 20 years or so. Short term planning usually covers one year. Short term plans are made with reference to long term plans because short term plans contribute to long term plans.

Proactive and reactive plans: Planning is an open system approach and hence it is affected by environmental factors which keep on changing continuously. The **organization's response to these changes differs. Based on these responses planning may** be proactive and reactive. Proactive planning involves designing suitable courses of action in anticipation of likely changes of environment. Managers adopting proactive changes do not wait for environment to change, but take action in advance of environmental changes. For this, continuous scanning of environment is necessary. In reactive planning response comes after environmental changes take place. By the time organization responds to change in environment there may be further change in environment. Hence this type of planning is suitable in the environment which is fairly stable over a long period of time.

Formal and informal planning: Large organizations undertake planning in a formal way. Generally a separate corporate planning cell is formed at higher level. The cell is staffed by people of different backgrounds like engineers, economists, statisticians etc., depending upon the nature. The cell continuously monitors the environment. When environment shows some change the cell analysis the environment and suggest suitable measures to take the advantage of the changing environment. This type of planning is rational, systematic, regular and well documented. On the other hand informal planning is undertaken generally by small organizations. This planning process is based on **manager's experience, intuitions rather than based on systematic evaluation of environmental changes. This planning process is part of manager's regular activity and is** suitable for small organizations.

Learning activity 2.1: Identify and analyze the long range and short plans of your institution.

2.5 TYPES OF PLANS

Plans are classified into standing plans and single use plans as shown in fig 2.3. Standing plans provide guidelines for further course of action and are used over a period of time. Standing plans are designed for situations that recur often enough to justify a standardize approach. For example a bank designs a standing plan to process a loan application. Using this standing plan the bank manager decides whether to approve or not a loan application depending upon the details furnished by the applicant. Once formulated these plans are in operation for a long period unless there is change in these plans. Examples of such plans are organizational mission, long term objective, strategies, policies, procedures and rules. On the other hand single use plans are designed for specific end; when that end is reached, the plan is dissolved or formulated again for next end. Examples of such plans are project, budgets, quotas, targets etc. Single use plans are generally derived from standing plans. Organization set their mission and objectives, out of which strategic actions are determined. In order to put these actions into operations, projects, budgets etc., are prepared for specific time period.

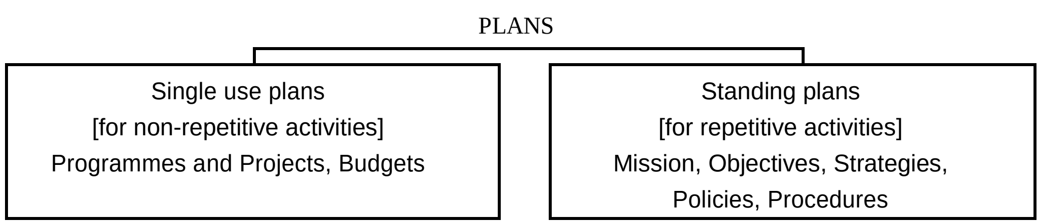

Fig. 2.3: Types of plans

Various organizational plans discussed above are interlinked and may be arranged in hierarchy in which higher order plans helps to derive lower order plans. In turn a lower order plan contributes to the achievement of the objectives of a higher order plans. The hierarchical nature of various plans is represented in fig. 2.4.

Fig. 2.4: Hierarchies of plans

Mission and Purpose

Setting organizational objectives is the starting point of managerial actions. Every organization is purposive creation, it has some objectives; the end results for which the **organization strive. These end results are referred to as mission, 'purpose', 'goal', 'target'** etc. which are often used inter-changeably. However there are differences in the contest in which these terms are used.

In every social system, enterprises have a basic function or task, which is assigned to them by society. The mission or purpose identifies this basic function or task of the organization, for example the purpose of university.

Mission and purpose are often used interchangeably though there is difference between the two at least at theoretical level. Mission has external orientation and relates the organization to the society in which it operates. A mission statement links the organization activities to the needs of the society and legitimates its existence. Purpose is also externally focused but is relates the organization to that segment of the society to which it serves; it defines the business which the company will undertake. The difference between the two may be visualized in the mission and purpose of Hindustan Lever Limited. The mission statement of HLL is:

> **"Hindustan Lever's commitment to national priorities has ensured that the** company is a part of people lives at the grass root level, making a difference to India and to Indians- in depth, width and size. Hindustan has always identified itself with the nations priorities; employment generation, development of **backward area, agricultural linkages, exports etc."**

The purpose of the company is:

> Our purpose in Hindustan lever is to meet the every day needs of the people every where **–** to anticipate the aspirations of consumers and customers and to respond creatively and competitively with branded products and services which raise the quality of life.

The mission of the company says what it can be for the country i.e., society in general and purpose suggest how this contribution can be made. However in general practice mission and purpose are either used interchangeably or jointly.

Objectives

Every organization is established for the purpose of achieving some objectives. An individual who starts a business has the objective of earning profits. A chartable institution which starts schools and colleges has the objectives of rendering service to the public in the field of education. Though objectives may differ from one organization to another, yet each organization has its own objective. According to Mc Farland, **"Objectives are the goals, aims or purposes that the organizations wish to achieve over varying periods of time". George R Terry defines ". A managerial objective is** the intended goal which describes definite scope and suggests direction to the efforts of a **manager". Objective is the term used to indicate the end point of management** programme, for which an organization is established and tries to achieve.

Objectives have the following characteristics.

(1) ***Objectives are multiple in numbers*:** Every business enterprise has a package of objectives set in various key areas. Peter Drucker has emphasized setting objectives in eight key areas namely market standing, innovation, productivity, physical and financial resources, profitability, manager performance and development, worker performance and attitude, and public responsibility.

(2) ***Objectives are tangible or intangible*:** Some of the objectives such as productivity, physical and financial resources are tangible; where as objectives in the **areas of manager's performance, workers morale is completely intangible.**

(3) ***Objectives have a priority*:** At a given point of time one objective may be important than another. For example maintaining minimum cash balance is important than due date of payment.

(4) ***Objectives are generally arranged in hierarchy*:** It implies that organization has corporate objectives at the top and divisional, departmental and sectional objectives at the lower level of organization.

(5) ***Objectives some time clash with each other*:** An objective of one department may clash with the objectives of other department. For example the objectives of production of low unit cost achievement through mass production of low quality products may conflict with goal of sales department selling high quality products.

Requirements of Sound Objectives

(1) Objectives must be clear: There should not be ambiguity in objectives. The framed objectives should be achievable and are to be set considering various factors affecting their achievements.

(2) Objectives must support one another.

(3) Objectives must be consistent with organizations mission.

(4) Objectives should be consistent over period of time.

(5) Objectives should be rational, realistic and not idealistic.

(6) **Objectives should start with word 'to' and be followed by an action verb.**

(7) Objectives should be periodically reviewed.

Advantages of Objectives

The following are some of the advantages of objectives.

(1) ***Unified planning*****:** Various plans are prepared at various level in the organization. These plans are consistent with the objectives and hence objectives encourage unified planning.

(2) ***Individual motivation*****:** Objectives act as motivators for individual and departments imbuing their activity with a sense of purpose.

(3) ***Coordination*****:** Objectives facilitate coordinated behavior of various groups which otherwise may pull in different directions.

(4) ***Control*****:** Objectives provide yardstick for performance. The actual performance is compared with standard performance and hence objectives facilitate control.

(5) ***Basis for decentralization*****:** Department-wise or section wise objectives are set in order to achieve common objectives of the organization. These objectives provide basis for decentralization.

Learning activity 2.2: Identify the objectives of your department and institution.

Strategies

'Every organization has to develop plans logically from goals considering the

environmental opportunities and threats and the organizational strengths and weakness. A strategy is a plan which takes into these factors and provides an optimal match between the firm and external environment. Two activities are involved in strategy formulation namely environmental appraisal and corporate appraisal.

Environmental appraisal involves identifying and analysis of the following factors:

(1) ***Political and legal factors*****:** Stability of government, taxation and licensing laws, fiscal policies, restrictions on capital etc.

(2) ***Economic factors*****:** Economic development, distribution of personal income, trend in prices, exchange rates etc.,

(3) ***Competitive factors*****:** Identifying principal competitors and analysis of their performance, anti-monopoly laws, protection of patents, brand names etc.

Corporate analysis involves identifying and analyzing company's strength and weakness. For example a companies strength may be low cost manufacturing skill, excellent product design, efficient distribution etc.,. Its weakness may be lack of physical and financial resources. A company must plan to exploit these strengths to maximum and **circumvent it's weakness.**

The formulation of strategy is like preparing for beauty contest in which a lady tries to highlight her strong points and hide her weak points. The process of matching **company's strength and weakness with environmental opportunities and threats is known** as SWOT analysis.

Standing Plans

Policies

A policy is a general guideline for decision making. It sets up boundaries around decisions. Policies channelize the thinking of the organization members so that it is **consistent with the organizational objectives. According to George R Terry " Policy is a** verbal, written or implied overall guide, setting up boundaries that supply the general **limits and directions in which managerial action will take place". Although policies deal with "how to do" the work, but do not dictate terms to subordinates. They only provide** framework within which decisions are to be made by the management in various areas. Hence an organization may have recruitment policy, price policy, advertisement policy etc.,

Types of policies: Policies may be classified on the basis of sources, functions or organizational levels as shown in fig 2.5.

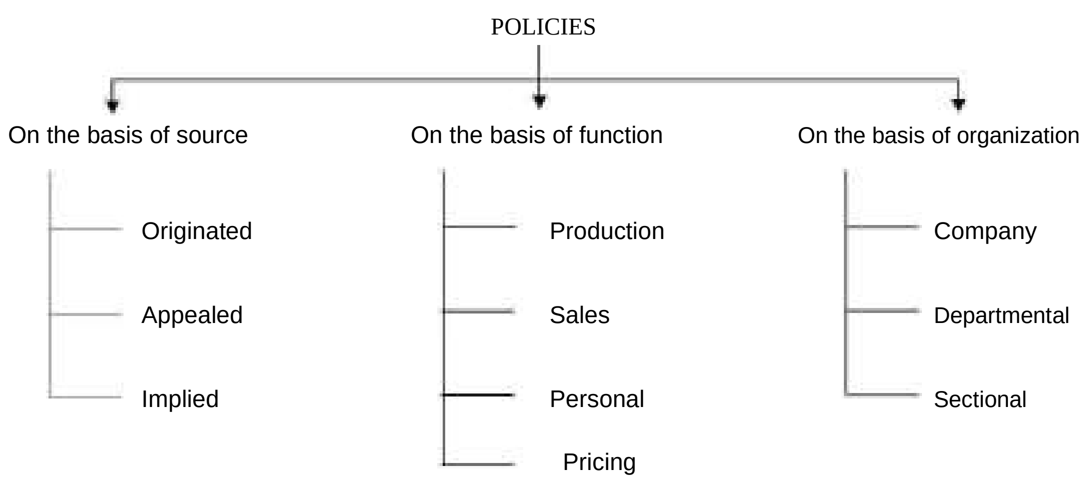

Fig. 2.5: Classification of policies

Originated policies are policies which are established formally. These policies are established by top managers for guiding the decisions of their subordinates and also their own and are made available in the form of manuals. Appealed policies are those which arise from the appeal made by a subordinate to his superior regarding the manner of handling a given situation. When decisions are made by the supervisor on appeals made by the subordinates, they become precedents for further action. For example a books dealer offers a discount of 10% on all text books. Suppose if an institution requests for a discount of 15% and prepared to pay full amount in advance, the sales manager not knowing what to do may approach his superior for his advice. If the superior accepts the proposal for 15% discount, the decision of the superior become a guideline for the sales manager in future. This policy is an appealed policy because it comes into existence from the appeal made by the subordinate to the superior. The policies which are stated neither in writing nor verbally are known as implied policies. The presence of implied policies can be ascertained by watching the actual behavior of various superiors in specific situations. For example **if company's residential quarters are repeatedly allotted to** individuals on the basis of seniority, this may become implied policy.

On the basis of business function policies may be classified into production, sales, finance, personnel policies etc. Every one of these function may have a number of policies. For example the personnel function may have recruitment policy, promotion policy and finance function may have policies related to capital structure, dividend payment etc.,

On the basis of organizational level policies may range from major company policies through major departmental policy to minor or derivative policies applicable to smallest segment of the organization.

Advantages of Policies

The advantages of policies are as follows:

(1) Policies ensure uniformity of action at various organization points which make actions more predictable.

(2) Since the subordinates need not consult superiors, it speeds up decision.

(3) Policies make easier for the superior to delegate more and more authority to his subordinates because, he knows that whatever decision the subordinates make will be within the boundaries of the policies.

(4) Policies give a practical shape to the objectives by directing the way in which predetermined objectives are to be attained.

Procedures

Policies are carried out by means of more detailed guidelines called procedures. A procedure provides a detailed set of instructions for performing a sequence of actions involved in doing a certain piece of work. A procedure is a list of systematic steps for handling activities that occur regularly. The same steps are followed each time that activity is performed. A streamlined, simplified and sound procedure helps to accelerate clerical work without duplication and waste of efforts and other resources. Difference between policies and procedures can be explained by means of an example. A company may adopt a policy of centralized recruitment and selection through labor department. The labor department may chalk out the procedure of recruitment and selection. The procedure may consist of several steps like inviting application, preliminary interview aptitude and other tests, final interview, medical examination and issue of appointment orders. The following are advantages of procedures.

(1) They indicate a standard way of performing a task.
(2) They result in simplification and elimination of waste.
(3) Procedure improves the efficiency of employees.
(4) Procedure serves as a tool of control by enabling managers to evaluate the performance of their subordinates.

Methods

A method is a prescribed way in which one step of procedure is to be performed. A method is thus a component part of procedure. It means an established manner of doing an operation. Medical examination is a part of recruitment and selection procedure, method indicate the manner of conducting medical examination. Methods help in increasing the effectiveness and usefulness of procedures. By improving methods,

reduced fatigue, better productivity and lower costs can be achieved. Methods can be **improved by eliminating wastes by conducting "motion study".**

Rules

The rules are the simplest and most specific type of standing plans. Every organization attempts to operate in an orderly way by laying down certain rules. Rules are detailed and recorded instructions that a specific action must or must not be performed in a given situation. Rules are more rigid than policies. Rules generally pertain to the administrative area of a procedure. For example sanctioning overtime wages to workers, sanctioning

traveling bills etc., need uniform way of handling them. These are all covered by rules of the enterprises. A rule may not be part of procedure. **For example 'no smoking' is not** related to any procedure. Rules demand strict compliance. Their violation is generally associated with some sort of disciplinary action.

Single Use Plans

Programme

A programme is a sequence of activities directed towards the achievement of certain objectives. A programme is action based and result oriented. A programme lays down the definite steps which will be taken to accomplish a given task. It also lays down the time to be taken for completion of each step. The essential ingredients of every programme are time phasing and budgeting. This means that specific dates should be laid down for the completion of each successive stage of programme. In addition a provision should be made in the budget for financing the programme. A programme might include such general activity as purchasing new machines or introducing new product in the market. Thus a programme is a complex of objective, policies, procedures, task assignments, steps to be taken, resources to be employed and other elements to carry out a given course of action.

Budgets

A budget is a single use plan since it is drafted for a particular period of time. A budget is a statement of expected results expressed in quantitative terms i.e. rupees, man hours, product units etc. Since it is a statement of expected results, it is also used as an instrument of managerial control. It provides a standard by which actual operations can be measured and variation could be controlled. One should not forget that making budget is clearly planning. The important budgets are sales budgets, production budgets, cash budgets, and revenue and expenses budgets.

2.6 STEPS IN PLANNING

The planning process is different from one plan to another and one organization to another. The steps generally involved in planning are as follows:

(1) ***Establishing goals/objectives*:** The first step in planning process is to determine the enterprise objectives. These are set by upper level managers after number of objectives has been carefully considered. The objective set depends on the number of factors like mission of the organization, abilities of the organization etc., Once the organizations objectives are determined, the section wise or department wise objectives are planned at the lower level. Defining the objectives of every department is a very essential one; then only clear cut direction is available to the departments. Control process is very easy if the objectives are clearly defined.

(2) ***Establishing planning premises*:** This is the second step in planning which involves establishing planning premises that is the conditions under which planning activities will be undertaken. Planning premises are planning assumptions—the expected environmental factors, pertinent facts and information relating to the future such as general economic conditions, population trends, competitive behavior etc.

The planning premises can be classified as below:

(1) Internal and External premises.

(2) Tangible and Intangible premises.

(3) Controllable and non-controllable premises.

Internal and External premises: Premises may exist within or outside the enterprise. Internal premises include sales forecasts, ability of the organization in the form of machines, methods of design, behavior of the owners and employees etc., The external premises exists outside the enterprise and include general business and economic environment, technological changes, government policies and regulations, population growth etc.,

Tangible and Intangible premises: Tangible premises are those which can be quantified. They include population growth, industry demand, capital and resources invested etc., On the other hand political stabilities, sociological factors, attitudes and behavior of the owners etc., are intangible premises.

Controllable and non-controllable premises: Some of the planning premises are controllable and others are non-controllable. Some examples of non-controllable factors are strikes, wars, natural calamity, legislation etc., Because of the presence of non-controllable factors; organizations have to revise plans periodically in accordance with current development. The controllable factors are availability of resources, skill of managers and labor etc.,

(3) ***Deciding the planning period*:** Once the long term objectives and planning premises are decided, the next task is to decide the period of the plan. Some plans are made for a year and in others it will be decades. Companies generally base their period on a future that can reasonably be anticipated. The factors which influence the choice of a period are:

(a) Lead time in development and commercialization of a new product: An aircraft building company planning to start a new project should have a planning period of five to ten years where as a small manufacturer of spare parts who can commercialize his idea in a year or so makes annual plans.

(b) Time required for recovering capital investment or the pay back period: The pay back period also influence the planning period. For example, if a machine costs 50 lakhs and generates cash in flow of Rs. 10 lakhs a year, it has a pay back period of 5 years. Therefore the plans should also be for at least five years.

(c) Length of commitment already made: The plan period should be long enough to enable the fulfillment of already made commitments. For example if a company has agreed to supply goods for five years, it needs to plan for the same period to fulfill its commitments.

(4) ***Identification of alternatives*:** The fourth step in planning is identifying

alternatives. A particular objective can be achieved through various actions. For **example an organization's objective is to grow further which can be achieved in** several ways like expanding in the same field of business or product line, diversifying in other areas, joining hands with other organization and so on. With each category there may be several alternatives. For example, diversification may point out the possibility of entering into one of the several fields.

(5) ***Evaluation and selection of alternative*****:** Once the alternatives are identified the next step is to evaluate the alternatives in the light of the premises and goals and to select the best course or courses of action. This is done with the help of quantitative techniques and operations research. In addition software packages are available for evaluating alternatives.

(6) ***Developing derivative/supportive plans*****:** Once the plan is selected, various plans are derived so as it support the main plan. The derivative may be planning for buying equipments, buying raw material etc. These derivative plans are formulated out of the main plan and therefore, they support.

(7) ***Measuring and controlling the process*****:** One should not allow plan to run on its own without monitoring its progress. Managers need to check the progress of their plans so that remedial action can be taken to make plan work or change the plan if it is unrealistic. Hence process of controlling is a part of any plan.

2.7 DECISION-MAKING

Decision-making is an essential part of modern management. Whatever a manager does he does by making decisions. A manager makes hundreds of decisions consciously or subconsciously every day. Decisions are made by the managers and actions are taken by others. Major decisions are taken carefully and consciously by the application of human judgment and experience where as minor decisions are made almost subcon-sciously using rules. Decision-making permeates through all managerial functions namely planning, organizing, staffing, directing and control. In planning for example manager decides what to produce, where and when etc., and in organizing manager decides about division of work, delegating authority and fixing responsibility. Decision-making is commitment to something, a point of view, a principle or course of action. It is selecting the best among alternative courses of action. The decision-making has the following factors.

(1) Decision-making implies that there are various alternatives and the most desirable alternative is chosen to solve the problem.

(2) Existence of alternatives suggests that the decision-maker has freedom to choose an alternative of his liking.

(3) Decision-making like any other managerial process is goal oriented. It implies that the decision maker attempts to achieve some results through decision-making.

Types of Decisions

Decisions are classified in a number of ways as below:

Programmed and non-programmed decisions: Programmed decisions are those that are made in accordance to policy, procedure and rules. These decisions are routine and repetitive and programmed decision are relatively easy to make. For example determining salary payment to the workers who have been ill, offering discounts for regular customers etc. are programmed decision. Non-programmed decisions are novel and non-repetitive. If a problem has not arisen before or if there is no clear cut method for handling it, it must be handled by non-programmed decision. For example what to do about a failing product line is a non-programmed decision because no definite procedure exists for it. For programmed decision clear cut rules exists and hence it is not possible for two persons to reach different solutions to the some problem.

In case of non-programmed decision there are no clear cut rules for handling the problem, each manager may bring his own personal beliefs, attitudes and judgments to bear on the decision, it is possible for two managers to arrive at distinctly different solutions to the same problem. For manager at higher level this ability to make non-programmed decisions becomes important.

Major and minor decisions: The decisions which have their impact for long-period or which have impact on other departments are known as major decision. On the other hand decisions which does not have long term effect or affecting one department are known as minor decisions, diversification of existing product lines, adopting new technology are the major decisions. The decision to procure raw materials is a minor decision, Major decisions are made at higher level and minor decisions are taken at lower level in the organizational hierarchy.

Simple and complex decisions: If very few variables are to be considered for solving a problem the decision is sample. If the variables are many, then it is a complex decision.

Strategic and tactical or operational decisions: Strategic decision is a major choice of actions concerning allocation of resources and contribution to the achievement of organizational objectives. Strategic decisions are major and non-programmed decisions having long term impact. A strategic decision may involve major departure from earlier ones. For example change in the product mix. Strategic decisions are made by the higher level managers. Tactical or operational decision is derived out of strategic decision. It relates to day-to-day working of the organization and is made in the context of well-set policies and procedures. Decisions relating to provisions of air conditioning, parking facilities are operational decisions. These decisions are made at the lower level of the organization.

Individual and group decisions: Decision may be taken either by an individual or group. Decisions which are routine in nature, with few variables and definite procedures exists to deal with them are taken by individuals. On the other hand decisions which have their impact on other departments, which may result into some changes in the organization, are generally taken by groups.

Learning activity 2.3: Enumerate the major and minor decisions that you have made in the recent past.

Decision Making Process: Steps in Rational Decision Making

A decision is rational if appropriate means are chosen to reach the desired end. The following steps are involved in the process decision making.

(1) Recognizing the problem.
(2) Deciding priorities among the problems.
(3) Diagnosing the problem.
(4) Developing alternative solutions or courses of activities.
(5) Evaluating alternatives.
(6) Converting the decision into effective action and follow up of action.

(1) ***Recognizing the problem*****:** When a manager makes a decision it is in effect the **organization's response to a problem. Hence it is necessary to search the environment for** the existence of a problem. A problem is said to exist;

(a) **When there is deviation from past experience. For example the present year's** sales are lower than previous year, the expenses are more than previous years etc.,

(b) When there is deviation from plan. For example sales are lower than anticipated, expenses are more than expected etc.,

(c) When competitors outperform. For example other companies manufacture the goods of same quality at lower costs.

(d) When people bring problems to the manager, For example workers may complain about poor ventilation.

(2) ***Deciding priorities among problems*****:** A manager might have identified a number of problems. All these problems vary in their importance. He may find that some of the problems are such that they can be solved by their subordinates because they are closest to them. All such problems should be passed on to them. Some problems may need information available only at higher level or affecting other departments. Such problems are referred to higher level managers. And those problems which can be best solved by him are to be focused.

(3) ***Diagnosing the problems*****:** Symptoms of the problem that are observed by the manager may some times mislead him. The symptom may lead manager to suspect one part when the defect may lie hidden in another part. For example if there is decline in sales, the management may think that the problem is one of poor selling procedure or

the saturation of the old market. But the real problem may be inability to move quickly to meet changing needs of the customers. For diagnosing the problem a manager should follow the systems approach. He should study all the sub-parts of his organization which are connected with the sub-part in which the problem seems to be located.

(4) ***Developing alternative solutions or courses of action***: A problem can be solved in several ways; however all the ways cannot be equally satisfying. If there is only one way of solving a problem, then no question of decision arises. Therefore decision maker must identify various alternatives available in order to get most satisfactory result of a decision. It should also be borne in mind that it is not possible to consider all alternatives either because information about all alternatives may not be available or some of the alternatives cannot be considered because of limitations. Hence while developing alternatives; the concept of limiting factor should be applied. Limiting factor is one which stands in the way of accomplishing a desired objective. For example, if an organization has limitation in raising sizable finance, it cannot consider projects involving high investment.

A decision maker can identify alternatives using his own experience, practices followed by others and using creative technique. A decision maker using past experience takes into account the action taken by the decision maker in the past with the difference between former challenges and the present one. The successful action of the past may become an alternative for the future. The limitation of this is, what was successful in the past may not be so in the present context because of change in context under which decision was made. Copying from experience of others is another way of generating alternatives. Alternatives used by successful decision makers can be thought of alternatives of decision making. The third method of generating alternatives is through creative process where various exercises are taken to generate entirely new ideas. Creative ideas of individuals or groups help in developing alternatives. One popular group technique is brain storming. The brain storming group consists of 5 to 10 people. The best idea behind brain storming is to think of as many alternatives as possible without pausing to evaluate them.

(5) ***Measuring and comparing consequences of the alternative solution***: Once various alternatives are developed, the next step is to measure and compare their consequences of alternatives using quality and acceptability. The quality of a decision must be determined considering both tangible and intangible consequences. Tangible consequences are those which can be quantitatively measured or mathematically demonstrated. For example the one can calculate the installing and running costs of two types of air conditioners. Intangible consequences cannot be measured quantita-tively. For example the effect of good labor relationship in one location cannot be compared with the local taxes in another location.

Acceptability of solution is also important. A decision though good in quality may be poor in acceptability or decision though acceptable may not be good in quality. In such cases managers must find the relative importance of these two. In production, **finance, purchase etc. the solution's quality is important than acceptability, where as** in all human maters such as lighting condition, layout of office etc., the acceptability is more important. If sufficient information about quality or acceptability of a solution is not available, it is suggested to experiment it on a small scale known as pilot testing. For example a company may test a new product in a certain market before expanding its sale nationwide.

(6) ***Converting the decision into effective action and follow up of action***: This step involves communication of decisions to the employees. Decision must be communicated in clear and unambiguous terms. All necessary efforts should be made to secure employees participation in some stages of decision making. Association of employees in decision making not only enhance the acceptability, but also improves the quality of decision. Sometimes due to non-availability of data, a manager may not take correct decision. As a safeguard against incorrect decision, the manager while converting a decision into effective action should institute a system of follow-up so that he can modify or alter his decision at the earliest opportunity.

ENVIRONMENT OF DECISION-MAKING

A decision-maker may not have the complete knowledge about decision alternatives or about the outcome of a chosen alternative. This problem may be highly complex and **uncertain. These conditions of knowledge are referred to as the 'environment of decision making'. The environment may be of three types; certainty risks and uncertainty. The** environment of decision-making is a continuum, at one end there is complete certainty and at the other end there is complete uncertainty as shown in fig 2.6.

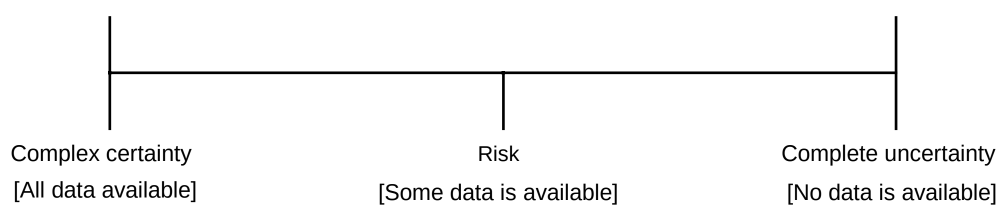

Fig. 2.6

Decision-making under certainty: The term certainty refers to accurate knowledge of the outcome of each alternative. All relevant data are available for making decision. For example a company wants to transport goods from five warehouses to a number of customers. It is possible to obtain the relevant facts for the problem like type of transport available, the cost of transporting a unit from each warehouse to each customer. With this it is possible to design least cost distribution pattern.

Decision-making under risk: In decision making under risk, the consequences of a particular decision cannot be specified with certainty but can be specified with known probability values. The value of probability is a measure of likelihood of the occurrence of that event. In such cases, alternatives are evaluated by computing the expected value of the payoff associated with each alternative. For example, while estimating the demand of a product for future where there is great amount of uncertainty, a manager can make three estimates of demand associated with the probability of occurrence as show is table 2.3.

Table 2.3

Types of demand	Demand	Probability
High demand	1000	0.3
Medium demand	800	0.5
Low demand	500	0.2

Then the expected demand is computed as follows

Expected demand = 1000(0.3)+800(0.5)+500(0.2)

Decision making under uncertainty: Uncertainty is said to exist when the decision maker does not know the probabilities associated with the possible outcomes, though he has been able to identify the possible outcomes and their related pay-offs. Since the probabilities are not known, the decision maker cannot use the criterion of maximizing the pay off. He can however use MaxiMin criterion. MaxiMaxi criterion or Minimax regret criterion. If a manufacturer is pessimistic or cautions in his approach, he can choose that decision act which maximizes the minimum pay-off, which is called as MaxiMin criterion. If a manufacturer is optimistic he may choose that decision act which maximizes the maximum pay-off. This is called as max-max criterion. A manager using minimax regrets criterion look at the decision problem neither as pessimistic nor as optimistic. As the name implies the minimax regret criterion is the one by which the decision maker minimizes the maximum regret can occur, no matter what the outcome.

Learning activity 2.4: List at least two decisions that you have made under complete certainty, risk and complete uncertainty.

Chapter Summary

Planning is the first and foremost function of management Planning is deciding in advance what to do, when to do, how to do and who is to do it. It is in essence the exercise of foresight. The nature of planning may be understood in terms of it being a rational approach, open system, flexibility and pervasiveness. Planning can be classified on the basis of coverage of activities, importance of contents in planning, approach adopted in planning process, time dimension and degree of formalization and so on.

Plans are classified into standing plans and single use plans. Single use plans (programmes, projects, budgets) are for non-repetitive activities and standing plans (mission, objectives, strategies, policies and procedures) are for repetitive activities. The steps involved in planning process are establishing goals/objectives, establishing planning premises, deciding the planning period, identifying alternatives, evaluation and selection of alternative, developing derivative/supportive plans, and measuring and controlling process. Decision making is selecting the best among alternative courses of action. Decisions may be classified as programmed and non-programmed decisions, major and minor decisions, simple and complex decisions, strategic and operational (tactical) decisions. The environment of decision may be of three types; certainty, risk and uncertainty.

QUESTIONS

(1) Briefly discuss the nature of planning.
(2) Explain in brief the importance of planning.
(3) Discuss the strategic and tactical planning.
(4) Write a note on hierarchy of plan.
(5) Discuss the steps in planning.
(6) Explain in brief planning premises.
(7) Enumerate requirements of sound objectives.
(8) Write a note on characteristics of objectives.
(9) Explain in brief standing and single use plans.
(10) Discuss different types of decisions.
(11) Explain in brief the steps involved in rational decision making.
(12) Write a note on decision making environment.

❍ ❍ ❍

ATME College of Engineering

ATTENDANCE

Semester & Section : III 'A'

Course Title with Code : Digital System Design - 18EE35

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		Date	30	30	31	01	06	06	07	08	13	13	14	20	20	21	24	27	27	28	29	31	03
		Month	Jul	Jul	Jul	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Sep
1.	4AD18EE001	ABDUL BASEER KHATTAL	A	1	2	3	A	5	6	A	A	A	A	7	8	9	A	10	11	12	13	A	14
2.	4AD18EE002	ADITHYA KS	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	16	17	18	19	20
3.	4AD18EE003	AISHWARYA M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	A	20
4.	4AD18EE004	ANUSHA N K	1	2	3	4	5	6	7	8	A	9	10	A	11	12	13	A	A	14	15	16	17
5.	4AD18EE005	CHANDAN KUMAR CB	1	2	3	4	5	6	7	8	9	10	11	12	13	A	14	15	16	17	18	19	20
6.	4AD18EE006	CHANDAN M N	1	2	3	4	5	6	7	8	9	10	11	12	13	A	14	15	16	17	18	19	20
7.	4AD18EE007	DAMINI DORA KP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A
8.	4AD18EE009	DEEKSHITHA V.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
9.	4AD18EE010	GAGANA S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A
10.	4AD18EE011	JEEVITH U	1	2	3	4	5	6	7	8	9	10	11	12	13	A	14	A	A	15	16	27	18
11.	4AD18EE012	KAVERI K	1	2	3	4	5	6	7	8	A	9	10	11	12	13	14	15	16	17	18	19	20
12.	4AD18EE013	LAKSHMI A A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A
13.	4AD18EE014	LANKESH H D	1	2	3	4	5	A	A	6	7	8	9	10	A	A	11	A	12	13	14	15	16
14.	4AD18EE015	MADHU GOWDA H K	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A
15.	4AD18EE016	MANJUNATHA KB	1	2	3	4	5	A	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
16.	4AD18EE017	MANOJ KUMAR KS	1	2	3	4	5	6	A	A	7	8	9	10	A	A	A	11	12	13	14	15	16
17.	4AD18EE018	MISBAH AFSHEEN	A	A	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	A	17
18.	4AD18EE019	MOHAMMED SUHAIL	A	1	2	3	4	5	6	7	8	9	10	A	A	11	12	13	14	15	16	17	18
19.	4AD18EE020	NAYANA K S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
20.	4AD18EE021	POOJA BAI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
21.	4AD18EE022	PRAVEEN GOWDA SB	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
22.	4AD18EE023	PREETHU N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	A	20
23.	4AD18EE024	RADHIKA MS	1	2	3	4	A	A	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
24.	4AD18EE026	SHASHI KUMAR V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	A	18	19	A
25.	4AD18EE027	SYEDA FAIZA	1	2	3	4	5	6	7	8	A	A	9	10	11	A	12	13	14	15	16	17	18
	No. of Abs.																						
	Initials		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			

ATME College of Engineering

ATTENDANCE

Course Title with Code : ....

Semester & Section : III 'A'

Sl. No.	USN	Student Name	22	23	24	25	26	27	28	29	30	31	32
		Date	3	3	4	5	17	17	18	24	24	26	01
		Month	Sep	Sep	sep	Sep	sep	sep	sep	sep		Sep	oct
1.	4AD18EE001	ABDUL BASEER KHATTAL	15	16	17	18	19	20	21	22	Detained		A
2.	4AD18EE002	ADITHYA KS	21	22	23	24	25	26	27	28	29	30	31
3.	4AD18EE003	AISHWARYA M	21	22	23	24	25	26	27	28	29	30	A
4.	4AD18EE004	ANUSHA N K	18	19	20	21	22	23	24	25	26	27	A
5.	4AD18EE005	CHANDAN KUMAR CB	21	22	23	24	25	26	27	28	29	30	31
6.	4AD18EE006	CHANDAN MN	21	22	23	24	A	25	26	27	28	29	30
7.	4AD18EE007	DAMINI DORA KP	A	A	21	22	23	24	25	26	27	28	A
8.	4AD18EE009	DEEKSHITHA V.	22	23	24	25	26	27	28	29	30	31	A
9.	4AD18EE010	GAGANA S	21	22	23	24	25	26	A	27	28	29	A
10.	4AD18EE011	JEEVITH U	19	20	21	22	23	24	25	26	A	27	28
11.	4AD18EE012	KAVERI K	21	22	23	24	A	A	25	26	27	28	A
12.	4AD18EE013	LAKSHMI A A	A	A	21	22	23	24	A	25	26	27	A
13.	4AD18EE014	LANKESH H D	A	A	17	18	19	20	A	A	A	21	22
14.	4AD18EE015	MADHU GOWDA HK	A	A	21	22	23	24	25	26	27	28	29
15.	4AD18EE016	MANJUNATHA KB	21	22	23	24	25	26	27	28	29	30	31
16.	4AD18EE017	MANOJ KUMAR KS	17	18	19	20	A	A	A	A	A	21	A
17.	4AD18EE018	MISBAH AFSHEEN	18	19	20	21	22	23	A	24	25	26	27
18.	4AD18EE019	MOHAMMED SUHAIL	19	20	21	22	23	24	25	26	27	28	29
19.	4AD18EE020	NAYANA K S	22	23	24	25	26	27	28	29	30	31	32
20.	4AD18EE021	POOJA BAI	22	23	24	25	26	27	28	29	30	31	32
21.	4AD18EE022	PRAVEEN GONDA SB	22	23	24	25	26	27	28	29	30	31	32
22.	4AD18EE023	PREETHU N	21	22	23	24	25	26	27	28	29	30	A
23.	4AD18EE024	RADHIKA MS	20	21	22	23	24	25	26	27	28	29	A
24.	4AD18EE026	SHASHI KUMAR V	20	21	A	22	A	23	24	25	26	27	28
25.	4AD18EE027	SYEDA FAIZA	19	20	A	21	22	23	24	25	26	A	27
		No. of Abs.											
		Initials											

Sl. No.	33	34	35	36	37	38	39	40	41	42	43
Date	01	03	09	10	23	30	5	5	6	8	12
Month	oct	oct	oct	oct	oct	oct	Nov	Nov	Nov	Nov	Nov
1.			A	A	A		Detained.				
2.	32	A	A	A	33	34	A	35	36	37	38
3.	A	31	32	33	34	35	36	37	38	A	39
4.	A	28	A	A	29	30	31	32	33	34	35
5.	32	A	A	A	33	34	35	36	A	37	38
6.	31	32	A	A	33	34	35	36	A	37	38
7.	A	29	30	31	A	32	33	34	35	A	36
8.	A	32	33	34	35	36	37	38	39	40	41
9.	A	30	A	A	A	A	31	32	33	34	35
10.	29	30	A	A	31	32	33	34	35	36	A
11.	A	29	30	31	32	33	34	35	36	37	38
12.	A	28	29	30	31	32	33	34	35	36	37
13.	23	A	24	25	A	26	A	27	28	A	29
14.	30	31	A	A	32	33	34	35	36	37	38
15.	32	33	34	35	36	37	38	39	40	A	41
16.	A	22	23	24	A	25	A	26	27	A	28
17.	28	29	A	A	30	31	32	33	34	35	A
18.	30	31	32	33	34	35	36	37	38	39	40
19.	33	34	35	36	37	A	38	39	40	41	42
20.	33	34	35	36	37	38	39	40	41	42	43
21.	33	34	35	36	37	A	A	38	39	A	40
22.	A	31	32	33	34	35	36	37	A	38	39
23.	A	30	31	32	33	34	35	36	37	38	39
24.	29	30	A	A	A	31 A	32	33	34	35	36
25.	28	29	30	31	32	33	34	35	36	37	38
No. of Abs.											
Initials											

ATME College of Engineering

ATTENDANCE

Semester & Section : III 'A'   Course Title with Code : ...

45 Special class on Kanakajayanthi 15 — Spcl class 1st Nov

Sl. No.	USN	Student Name	44 (12 Nov)	45 (13 Nov)	46 (18 Nov)	47 (19 Nov)	48 (19 Nov)	49 (20 Nov)	50	51	52	53	54		55 (15 Nov)	56 (15 No)	57 (15 Nov)	58 (1 Nov)	59 (1 Nov)	60 (1 Nov)	AT1
1.	4AD18EE001	ABDUL BASEER KHATTAL	39	40	41	A	42	43						41	3	2	1	A	A	A	
2.	4AD18EE002	ADITHYA KS	A	A	A	~~A~~ 40	41	42						40	6	5	4	3	2	1	
3.	4AD18EE003	AISHWARYA M	36	37	38	39	40	41						39	6	5	4	3	2	1	
4.	4AD18EE004	ANUSHA N K	A	A	39	A	40	41						39	6	5	4	3	2	1	
5.	4AD18EE005	CHANDAN KUMAR CB	A	A	~~A~~ 39	40	41	42						39	A	A	A	A	A	A	
6.	4AD18EE006	CHANDAN MN	37	38	39	40	41	42						40	3	2	1	A	A	A	
7.	4AD18EE007	DAMINI DORA KP	42	43	44	45	46	47						44	6	5	4	3	2	1	
8.	4AD18EE009	DEEKSHITHA V.	36	37	38	39	40	41						38	6	5	4	3	2	1	
9.	4AD18EE010	GAGANA S	A	37	A	~~A~~ 38	39	40						37	6	5	4	3	2	1	
10.	4AD18EE011	JEEVITH U	39	A	40	41	42	43						40	6	5	4	3	2	1	
11.	4AD18EE012	KAVERI K	38	A	39	40	41	42						40	6	5	4	3	2	1	
12.	4AD18EE013	LAKSHMI A A	30	31	32	33	34	35						31	6	5	4	3	2	1	
13.	4AD18EE014	LANKESH H D	39	40	41	42	43	44						42	A	A	A	A	A	A	
14.	4AD18EE015	MADHU GOWDA HK	42	43	44	45	46	47						43	6	5	4	3	2	1	
15.	4AD18EE016	MANJUNATHA KB	29	30	A	A	31	32						28	A	A	A	3	2	1	
16.	4AD18EE017	MANOJ KUMAR KS	A	36	37	38	39	40						37	6	5	4	3	2	1	
17.	4AD18EE018	MISBAH AFSHEEN	41	41	42	43	44	45						42	3	2	1	A	A	A	
18.	4AD18EE019	MOHAMMED SUHAIL	43	A	44	45	46	47						43	6	5	4	3	2	1	
19.	4AD18EE020	NAYANA K S	44	A	45	46	47	48						45	6	5	4	3	2	1	
20.	4AD18EE021	POOJA BAI	41	A	42	43	44	45						41	6	5	4	3	2	1	
21.	4AD18EE022	PRAVEEN GOWDA SB	40	A	A	~~A~~ 41	42	43						41	6	5	4	3	2	1	
22.	4AD18EE023	PREETHU N	40	41	42	43	44	45						42	6	5	4	3	2	1	
23.	4AD18EE024	RADHIKA MS	A	A	~~37~~	A	46	~~47~~						34	A	A	A	A	A	A	
24.	4AD18EE026	SHASHI KUMAR V	39	40	41	42	43	44						43	6	5	4	3	2	1	
25.	4AD18EE027	SYEDA FAIZA.													6	5	4	3	2	1	
		No. of Abs.																			
		Initials																			

22.11.19

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ATTENDANCE

Course Title with Code : Digital System Design - 18EE35

Semester & Section : III 'A'

Sl. No.	USN	Student Name	1 (30 Aug)	2 (30 Jul)	3 (31 Jul)	4 (01 Aug)	5 (06 Aug)	6 (06 Aug)	7 (07 Aug)	8 (08 Aug)	9 (13 Aug)	10 (13 Aug)
26.	4AD18EE028	VINOD HV	1	2	3	4	5	A	A	6	7	8
27.	4AD18EE029	VIVEK S	1	2	3	4	5	6	7	8	9	10
28.	4AD18EE030	YASEEN ULLA KHAN.	1	2	3	4	5	6	7	8	9	10
29	4AD17EE024	MONICA	A	A	A	A	1	2	3	4	5	6
30.	4AD17EE010	FAWAZ AHMED N S. (19/8/19)	←									
		NAVEEN B (21/8/19)										
		VIJAY KUMAR C (21/8/19).										
		H										
		No. of Abs.	4.	2	2	1	1	4	3	2	4	2
		Initials	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS

Student Name	11 (14 Aug)	12 (20 Aug)	13 (20 Aug)	14 (21 Aug)	15 (24 Aug)	16 (27 Aug)	17 (27 Aug)	18 (28 Aug)	19 (29 Aug)	20 (31 Aug)	21 (03 Sep)
VINOD HV	9	10	11	12	A	13	14	15	A	16	A7
VIVEK S	11	12	13	14	15	16	17	18	19	20	A
YASEEN ULLA KHAN.	11	12	13	A	14	15	16	17	18	19	20
MONICA	7	8	9	10	11	12	13	14	15	16	17
FAWAZ AHMED N S.	→	1	2	3	4	5	6	A	7	A	8
NAVEEN B				1	2	3	4	5	6	A	7
VIJAY KUMAR C				1	2	3	4	5	6	A	7
No. of Abs.	2	2	3	7	3	3	3	2	1	5	6
Initials	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS	MS

ATME College of Engineering

ATTENDANCE

Semester & Section : III 'A'

Course Title with Code : ...

Sl. No.	USN	Student Name	3 sep	3 sep	4 sep	5 sep	17 sep	17 sep	18 sep	24 sep	24 sep	26 sep	01 oct	1 oct	3 oct	9 oct	10 oct	23 oct	30 oct	5 Nov	5 Nov	6 Nov	8 Nov	12 Nov
			22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
26.	4AD18EE028	VINOD HV	18	19	20	21	22	23	A	24	25	26	A	A	27	A	A	A	A	A	28	29	A	30
27.	4AD18EE029	VIVEK S	21	22	23	24	25	26	27	28	29	A	30	31	32	A	A	A	33	34	35	A	36	37
28.	4AD18EE030	YASEEN ULLA KHAN.	21	22	A	23	24	25	26	27	28	29	30	31	32	33	34	35	A	36	37	38	39	40
29	4AD17EE024	MONICA	18	19	20	21	22	23	24	25	26	27	A	A	28	29	30	31	32	33	34	35	36	37
30.	4AD17EE010	FAWAZ AHMED N S. (19/8/19)	09	10	11	12	23	24	A	25	26	27	A	A	18	19	20	A	21	22	23	24	A	25
		NAVEEN B (21/8/19)	8	9	10	11	—	Shifted to B Sec																
		VIJAY KUMAR C (21/8/19)	8	9	A	10	—	Shifted to B Sec.																
		H																						
		No. of Abs.	4	A	3	0	4	2	7	2	2	1	14	13	3	11	11	8	5	5	-	A	8	2
		Initials																						

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ATTENDANCE

Semester & Section : III 'A'   Course Title with Code : ...

Sl. No.	USN	Student Name	12 Nov 44	13 Nov 45	16 Nov 46	19 Nov 47	19 Nov 48	49	50	51	52	53	54
26.	4AD18EE028	VINOD HV	31	32	32	A	34						
27.	4AD18EE029	VIVEK S	A	A	38	39	40						
28.	4AD18EE030	YASEEN ULLA KHAN.	41	42	43	44	45						
29	4AD17EE024	MONICA	38	39	40	41	42						
30	4AD17EE010	FAWAZ AHMED N.S. (19/8/19)	36	37	A	38	39						
		NAVEEN B (21/8/19)											
		VIJAY KUMAR C (21/8/19)											
		H											
	No. of Abs.		7	11	5	5	1	–					
	Initials												

Special class on Karnataka Sangeetha   Spl class on Karnataka Rajyotsava.

15 Nov 55	15 Nov 56	15 Nov 57	1 Nov 58	1 Nov 59	1 Nov 60	Attendance AT1	AT2	AT3
6	5	4	3	2	1			
A	A	A	3	2	1			
3	2	1	A	A	A			
6	5	4	3	2	1			
3	2	1	A	A	A			

22.11.19

Department of Electrical and Electronics Engineering

Additional Tutorial Session

Based on the previous results, student ability to grasp the course extra sessions are offered to Identified courses.

a. University Allotted Hours for courses:

VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI
Scheme of Teaching and Examination 2018 – 19
Outcome Based Education(OBE) and Choice Based Credit System (CBCS)
(Effective from the academic year 2018 – 19)

III SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week: Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Examination: Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	BSC	18MAT31	Transform Calculus, Fourier Series and Numerical Techniques (Common to all Branches)	Mathematics	2	2	--	03	40	60	100	3
2	PCC	18EE32	Electric Circuit Analysis	EEE	3	2	--	03	40	60	100	4
3	PCC	18EE33	Transformers and Generators	EEE	3	0	--	03	40	60	100	3
4	PCC	18 EE 34	Analog Electronic Circuits	EEE	2	2	--	03	40	60	100	3
5	PCC	18 EE 35	Digital System Design	EEE	3	0	--	03	40	60	100	3
6	PCC	18 EE 36	Electrical and Electronic Measurements	EEE	3	0	--	03	40	60	100	3
7	PCC	18 EE L37	Electrical Machines Laboratory -1	EEE	--	2	2	03	40	60	100	2
8	PCC	18 EE L38	Electronics Laboratory	EEE	--	2	2	03	40	60	100	2
9	HSMC	18KVK39/49	Vyavaharika Kannada (Kannada for communication)/	HSMC	--	2	--	--	100	--	100	1
		18KAK39/49	Aadalitha Kannada (Kannada for Administration)									
		OR										
		18CPC39	Constitution of India, Professional Ethics and Cyber Law		1	--	--	02	40	60		
					Examination is by objective type questions							
				TOTAL	16 OR 17	10 OR 12	04	24 OR 26	420 OR 360	480 OR 540	900	24

b. Extra Hour Alloted for Identified Courses:

III Semester A Sec:

Department of Electrical and Electronics Engineering

A- Section Course Title	Course Title	University Alloted Hours	Total Hours Alloted	Course Handling Faculty
18MAT31	Transform Calculus, Fourier Series and Numerical Techniques	4	4	Mrs. Priyanka N (PN)
18EE32	Electric Circuit Analysis	5	5	Dr. Parthasarathy L (HOD)
18EE33	Transformers & Generators	3	4	Mr. Raghavendra L **(RL)**
18EE34	Analog Electronic Circuits	4	4	Mr. Rajesh KS **(RKS)**
18EE35	Digital System Design	3	4	Mrs. Maria Sushma S **(MS)**
18EE36	Electrical & Electronic Measurements	3	4	Ms. Swapna H **(SH)**
18KAK39	Aadalitha Kannada	1	1	Mr. Nandeesh

B section-Course Title	Course Title	University Alloted Hours	Total Hours Handled	Course Handling Faculty
18MAT31	Transform Calculus, Fourier Series and Numerical Techniques	4	4	Mr. Sudhakar N (SN)
18EE32	Electric Circuit Analysis	5	5	Mrs. Lakshmi K (LK)
18EE33	Transformers & Generators	3	4	Mr. Raghavendra L **(RL)**
18EE34	Analog Electronic Circuits	4	4	Mr. Rajesh KS (RKS)
18EE35	Digital System Design	3	4	Mrs. Maria Sushma S **(MS)**
18EE36	Electrical & Electronic Measurements	3	3	Ms. Swapna H **(SH)**
18KAK39	Aadalitha Kannada	1	1	Mr. Nandeesh
	DIPMATHS	-	3	Mrs. Priyanka N (PN)

Department of Electrical and Electronics Engineering

c. Faculty Individual Time Table handling Extra Tutorial Session

ATME COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS
TIME TABLE FOR ODD SEMESTER - 2019-20

Date: 09/10/2019 Staff Name: Mr. Raghavendra L

DAY/TIME	9:00 - 10:00	10:00-11:00	11:15 - 12:15	12:15 - 1:15	1:15- 2:00	2:00- 2:55	2:55 - 3:50	3:50- 4:45
MONDAY							18EE33-A	17EE563
TUESDAY			18EE33-B	18EE33-B			17EE563	18EE33-A
WEDNESDAY	18EE33-B	EM-1 LAB Batch-1: RL+HP (A1+I3)						
THURSDAY	18EE33-A	EM-1 LAB Batch-2: HP+RL (A1+I3)				18EE33-A	18EE33-B	
FRIDAY	HV and Relay LAB Batch-1: SSR+RL (SR)			17EE563				
SATURDAY								

Course Code	Course Title	Semester	Contact Hours
18EE33	Transformers and Generators	III' A'	4
18EE33	Transformers and Generators	III' B'	4
17EE563	Renewable Energy Resources	V	3
EMS Lab-B1,B2 HV Lab-B1		III, III, VII	9
Total Contact Hours Weekly			20

Co-ordinator

HOD

Dr. PARTHASARATHY L
Professor and HOD
Dept. of Electrical & Electronics Engineering
ATME College of Engineering, Mysuru

ATME COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS
TIME TABLE FOR ODD SEMESTER - 2019-20

Date: 09/10/2019 Staff Name: Maria Sushma S

DAY/TIME	9:00 - 10:00	10:00-11:00	11:15 - 12:15	12:15 - 1:15	1:15- 2:00	2:00- 2:55	2:55 - 3:50	3:50- 4:45
MONDAY		18EE35-B	15EE742	15EE742		18EE35-B		
TUESDAY	18EE35-A			15EE742		18EE35-A		18EE35-B
WEDNESDAY	18EE35-A	15EE742						
THURSDAY		EL LAB-Batch-4: SH+MS (CR)				MC LAB- Batch-3: MS (KR)		
FRIDAY	PSS LAB Batch-3: MS (SM)			18EE35-B		18EE35-A		
SATURDAY								

Course Code	Course Title	Semester	Contact Hours
18EE35	Digital System Design	III-A	4
18EE35	Digital System Design	III-B	4
15EE742	Utilization of Electrical Power	VII	4
EL Lab-B3, MC Lab-B3, PSS Lab-B3		I, V, VII	9
Total Contact Hours Weekly			21

Co-ordinator

HOD

Dr. PARTHASARATHY L
Professor and HOD
Dept. of Electrical & Electronics Engineering
ATME College of Engineering, Mysuru

Department of Electrical and Electronics Engineering

ATME COLLEGE OF ENGINEERING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS

TIME TABLE FOR ODD SEMESTER - 2019-20

Date: [illegible]

Staff Name: Ms. Swapna H

DAY/TIME	9:00 - 10:00	10:00-11:00	11:15 - 12:15	12:15 - 1:15	1:15- 2:00	2:00- 2:55	2:55 - 3:50	3:50- 4:45
MONDAY	18EE36-A		18EE36-B			HV and Relay LAB Batch-2: SSR+SH (KR)		
TUESDAY		PE LAB Batch-3: KRS+SH (CR)					18EE36-A	
WEDNESDAY								18EE36-B
THURSDAY		EL LAB-Batch-1: SH+NS (CR)				PE LAB Batch-1: SH+RKS (CR)		
FRIDAY	18EE36-A		18EE36-B					18EE36-A
SATURDAY								

Course Code	Course Title	Semester	Contact Hours
18EE36	Electrical and Electronic Measurements	III-A	4
18EE36	Electrical and Electronic Measurements	III-B	3
17EE54	Signals and Systems	V	4
PE Lab-B1-B3, HV Lab-B2, EL Lab-B1		V V,VII, III	12
Total Contact Hours Weekly			23

Co-ordinator

HOD

Dr. PARTHASARATHY L

Professor and HOD

Dept. of Electrical & Electronics Engineering

ATME College of Engineering, Mysore

d. Sample Lesson Plan & Attendance Report

Faculty member: Mrs.Maria Sushma S

Course:Digital System Design

Course Code:18EE35

Department of Electrical and Electronics Engineering

ATME College of Engineering

Lesson Plan — Digital System Design

Semester & Section: III 'A'

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	[illegible]	Module-1: Introduction, Definition of Combinational Logic	[illegible]	
2	[illegible]	Canonical forms, Generation of switching equations from Truth table	[illegible]	[illegible]
3	[illegible]	Karnaugh maps: Introduction, 2, 3, 4 variables	[illegible]	[illegible]
4	[illegible]	Karnaugh maps for 2, 4 variables	[illegible]	[illegible]
5	[illegible]	Karnaugh maps for 5 variables	[illegible]	[illegible]
6	[illegible]	K-map: Incompletely specified functions (Don't care terms), Simplifying Max term equations	[illegible]	[illegible]
7	[illegible]	Quine-McCluskey minimization technique, Q-M technique using don't care terms	[illegible]	[illegible]
8	[illegible]	Reduced prime implicant tables	[illegible]	
9	[illegible]	Numericals		
10	[illegible]	Evaluation — Mock test on [illegible]	[illegible]	[illegible]
11	[illegible]	Module-2: General approach, Decoders	[illegible]	[illegible]
12	[illegible]	BCD decoders — BCD decoders	[illegible]	[illegible]
13	[illegible]	BCD decoders, Encoders	[illegible]	[illegible]
14	[illegible]	Digital multiplexers — Using multiplexers as Boolean function generators	[illegible]	[illegible]
15	[illegible]	Adders & Subtractors — Cascading full adders	[illegible]	[illegible]
16	[illegible]	Look ahead carry	[illegible]	
17	[illegible]	Binary Comparators	[illegible]	[illegible]
18	[illegible]	Design methods of building blocks of combinational logic		
19	[illegible]	Numericals	[illegible]	
20	[illegible]	Evaluation — Mock test on [illegible]		Conducted [illegible]
21	[illegible]	Module-3: Basic bistable element, latches	[illegible]	
22	[illegible]	SR latch, The gated SR latch, Application of SR latch, Switch debouncer	[illegible]	
23	[illegible]	SR latch, Gated SR latch	[illegible]	
24	[illegible]	Gated D latch, Master slave flip-flops	[illegible]	[illegible]
25	[illegible]	Master slave FFs (Pulse triggered FFs), Master slave SR FFs	[illegible]	[illegible]
26	[illegible]	Master slave JK flip flop	[illegible]	
27	[illegible]	Edge triggered flip flop — Positive edge triggered D flip flop	[illegible]	Special class for 3 Hours ([illegible])
28	[illegible]	Negative edge triggered D flip flop, characteristic equations	[illegible]	
29	[illegible]	Numericals	[illegible]	
30	[illegible]	Evaluation	[illegible]	
31	[illegible]	Flip-Flop Applications: Registers	[illegible]	[illegible]
32	[illegible]	Binary Ripple Counters	[illegible]	[illegible]
33	[illegible]	Synchronous Binary Counters	[illegible]	[illegible]
34	[illegible]	Counters based on shift registers	[illegible]	[illegible]
35	[illegible]	Design of a Synchronous Counter	[illegible]	[illegible]
36	[illegible]	Design of a synchronous mod-n counter using clocked T flip flops	[illegible]	
37	[illegible]	Design of a synchronous mod-n counter using clocked JK, D, SR flip flops	[illegible]	[illegible]
38	[illegible]	Numericals / counter design using [illegible]		
39	[illegible]	Evaluation		
40	[illegible]	Evaluation		
41	[illegible]	Module-5: Sequential circuit design — Introduction	[illegible]	
42	[illegible]	Sequential circuit Design: Mealy model	[illegible]	
43	[illegible]	Sequential circuit Design: Moore model	[illegible]	[illegible]
44	[illegible]	State machine notation	[illegible]	[illegible]
45	[illegible]	Synchronous Sequential circuit analysis	[illegible]	
46	[illegible]	Construction of state diagrams	[illegible]	
47	[illegible]	Counter Design	[illegible]	
48	[illegible]	Memories: Read only & Read/write memories	[illegible]	
49	[illegible]	Programmable ROM, EPROM, Flash memory	[illegible]	
50	[illegible]	Evaluation — Mock test on [illegible]		

Faculty Member Signature — HOD Signature

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Lesson Plan

Course with Code: Digital System Design - [illegible] — Semester & Section: III 'B'

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	[illegible]	Module-1: Introduction, Definition of Combinational Logic	[illegible]	
2	[illegible]	Canonical forms, Generation of switching equations from T.T	[illegible]	[illegible]
3	[illegible]	Karnaugh maps for 3, 4 variables	[illegible]	
4	[illegible]	Karnaugh maps for 5 variables	[illegible]	[illegible]
5	[illegible]	K-map for Incompletely specified functions	[illegible]	[illegible]
6	[illegible]	K-maps for Don't care terms, simplifying Max term equations	[illegible]	[illegible]
7	[illegible]	Quine McCluskey minimization technique	[illegible]	[illegible]
8	[illegible]	Q-M technique using don't care terms	[illegible]	
9	[illegible]	Q-M technique — Reduced prime implicant tables	[illegible]	[illegible]
10		Numericals	[illegible]	
11		Evaluation / Mock test was conducted [illegible]	[illegible]	
12	[illegible]	Module-3: Basic bistable element, latches	[illegible]	[illegible]
13	[illegible]	SR latch, gated SR latch, Application of SR latch, Switch debouncer	[illegible]	[illegible]
14	[illegible]	SR latch, Gated SR latch	[illegible]	Special class & Complete [illegible]
15	[illegible]	Gated D latch, Master Slave FFs	[illegible]	
16	[illegible]	Master Slave FFs (Pulse triggered), MS SR FFs	[illegible]	
17	[illegible]	Master Slave JK FFs	[illegible]	Special class [illegible]
18	[illegible]	Edge Triggered FFs	[illegible]	
19	[illegible]	Module-4: Flip-flop applications: Registers	[illegible]	
20	[illegible]	Binary Ripple Counters	[illegible]	
21	[illegible]	Synchronous Binary Counters, counters based on shift registers		[illegible]
22	[illegible]	Design of Synchronous Counters	[illegible]	Class [illegible]
23	[illegible]	Design of Sync. mod-n counter using clocked T FF	[illegible]	[illegible]
24	[illegible]	Design of Sync. mod-n counter using clocked JK, D & SR FFs	[illegible]	
25	[illegible]	Counter design using SR FFs		[illegible]
26	[illegible]	Module-5: Sequential ckt design — Introduction	[illegible]	Special class taken on [illegible]
27	[illegible]	Sequential ckt design: Mealy model		
28	[illegible]	Sequential ckt design: Moore model	[illegible]	
29	[illegible]	State machine notation	[illegible]	From [illegible]
30	[illegible]	Synchronous Sequential ckt analysis	[illegible]	[illegible]
31	[illegible]	Construction of state diagrams	[illegible]	
32	[illegible]	Counter Design	[illegible]	[illegible]
33	[illegible]	Memories: Read only & Read/write memories		
34	[illegible]	Programmable ROM, EPROM, Flash memory	[illegible]	
35	[illegible]	Evaluation / Numericals		
36	[illegible]	Module-2: General approach, Decoders		[illegible]
37	[illegible]	Encoders, BCD decoders	[illegible]	
38	[illegible]	BCD decoders, Encoders		
39	[illegible]	Digital Encoders, multiplexers — using MUX as Boolean function generators		
40	[illegible]	Adders & Subtractors — Cascading full Adders		
41	[illegible]	Look ahead Carry & Binary Comparators	[illegible]	
42	[illegible]	Design methods of building blocks of combinational logic		
43				
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50				

Faculty Member Signature — HOD Signature

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Department of Electrical and Electronics Engineering

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ATTENDANCE

Semester & Section : III 'A'   Course Title with Code : Digital System Design - 18EE35

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		Date	31	30	31	01	02	06	07	08	13	13	14	20	20	21	24	27	27	28	28	31	03
		Month	Jul	Jul	Jul	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Sep
1.	4AD18EE001	ABDUL BASEER KHATTAL	A	1	2	3	4	5	6	A	A	A	A	7	8	9	A	10	11	12	13	A	14
2.	4AD18EE002	ADITHYA KS	1	2	3	4	5	6	7	8	9	10	A	11	12	13	14	15	16	17	18	19	20
3.	4AD18EE003	AISHWARYA M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	A	20
4.	4AD18EE004	ANUSHA N K	1	2	3	4	5	6	7	8	A	9	10	A	11	12	13	A	A	14	15	16	17
5.	4AD18EE005	CHANDAN KUMAR CB	1	2	3	4	5	6	7	8	9	10	11	12	13	A	14	15	16	17	18	19	20
6.	4AD18EE006	CHANDAN M N	1	2	3	4	5	6	7	8	9	10	11	12	13	A	14	15	16	17	18	19	20
7.	4AD18EE007	DAMINI DORA KP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A
8.	4AD18EE009	DEEKSHITHA V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
9.	4AD18EE010	GAGANA S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A
10.	4AD18EE011	JEEVITH U	1	2	3	4	5	6	7	8	9	10	11	12	13	A	14	A	A	15	16	17	18
11.	4AD18EE012	KAVERI K	1	2	3	4	5	6	7	8	A	9	10	11	12	13	14	15	16	17	18	19	20
12.	4AD18EE013	LAKSHMI A A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A
13.	4AD18EE014	LANKESH H D	1	2	3	4	5	A	A	6	7	8	9	10	A	A	11	A	12	13	14	15	16
14.	4AD18EE015	MADHU GOWDA H K	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A
15.	4AD18EE016	MANJUNATHA KB	1	2	3	4	5	A	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
16.	4AD18EE017	MANOJ KUMAR KC	1	2	3	4	5	6	A	A	7	8	9	10	A	A	A	11	12	13	14	15	16
17.	4AD18EE018	MISBAH AFSHEEN	A	A	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	A	17
18.	4AD18EE019	MOHAMMED SUHAIL	A	1	2	3	4	5	6	7	8	9	10	A	A	11	12	13	14	15	16	17	18
19.	4AD18EE020	NAYANA K S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
20.	4AD18EE021	POOJA RAI	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
21.	4AD18EE022	PRAVEEN GOWDA SB	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
22.	4AD18EE023	PREETHU N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	A	20
23.	4AD18EE024	RADHIKA MS	1	2	3	4	A	A	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
24.	4AD18EE026	SHASHI KUMAR V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	A	18	19	A
25.	4AD18EE027	SYEDA FAIZA	1	2	3	4	5	6	7	8	A	A	9	10	11	A	12	13	14	15	16	17	18
	No. of Abs.																						
	Initials																						

ATME College of Engineering

NBA ACCREDITED

Department of EEE Emitting Elite Energy

Department of Electrical and Electronics Engineering

ATME College of Engineering

ATTENDANCE

Semester & Section : III 'A'   Course Title with Code :

Sl. No.	USN	Student Name	22 (3 Sep)	23 (3 Sep)	24 (4 Sep)	25 (5 Sep)	26 (19 Sep)	27 (17 Sep)	28 (18 Sep)	29 (24 Sep)	30 (24 Sep)	31 (31 Sep)	32 (01 Oct)
1.	4AD18EE001	ABDUL BASEER KHATTAL	15	16	17	18	19	20	21	22	Detained		
2.	4AD18EE002	ADITHYA K S	21	22	23	24	25	26	27	28	29	30	31
3.	4AD18EE003	AISHWARYA M	21	22	23	24	25	26	27	28	29	30	A
4.	4AD18EE004	ANUSHA N K	18	19	20	21	22	23	24	25	26	27	A
5.	4AD18EE005	CHANDAN KUMAR C B	A	22	23	24	25	26	27	28	29	30	31
6.	4AD18EE006	CHANDAN M N	21	22	23	24	A	25	26	27	28	29	30
7.	4AD18EE007	DAMINI DORA K P	A	A	21	22	23	24	25	26	27	28	A
8.	4AD18EE009	DEEKSHITHA Y	22	23	24	25	26	27	28	29	30	31	A
9.	4AD18EE010	GAGANA S	21	22	23	24	25	26	A	27	28	29	A
10.	4AD18EE011	JEEVITH U	19	20	21	22	23	24	25	26	A	27	28
11.	4AD18EE012	KAVERI K	21	22	23	24	A	A	25	26	27	28	A
12.	4AD18EE013	LAKSHMI B A	A	A	21	22	23	24	A	25	26	27	A
13.	4AD18EE014	LANKESH H D	A	A	17	18	19	20	A	A	A	A	21
14.	4AD18EE015	MADHU GOWDA H K	A	A	21	22	23	24	25	26	27	28	29
15.	4AD18EE016	MANJUNATHA K B	21	22	23	24	25	26	27	28	29	30	31
16.	4AD18EE017	MANOJ KUMAR K S	17	18	19	20	A	A	A	A	A	21	A
17.	4AD18EE018	MISBAH AFSHEEN	18	19	20	21	22	23	A	24	25	26	27
18.	4AD18EE019	MOHAMMED SOHAIL	19	20	21	22	23	24	25	26	27	28	29
19.	4AD18EE020	NAYANA K S	22	23	24	25	26	27	28	29	30	31	32
20.	4AD18EE021	POOJA BAI	22	23	24	25	26	27	28	29	30	31	32
21.	4AD18EE022	PRAVEEN GOWDA S B	22	23	24	25	26	27	28	29	30	31	32
22.	4AD18EE023	PREETHU N	21	22	23	24	25	26	27	28	29	30	A
23.	4AD18EE024	RADHIKA M G	20	21	22	23	24	25	26	27	28	29	A
24.	4AD18EE026	SHASHI KUMAR V	20	21	A	22	A	23	24	25	26	27	28
25.	4AD18EE027	SYEDA FAIZA	19	20	A	21	22	23	24	25	26	A	27
	No. of Abs.												
	Initials												

Sl. No.	33 (01 Oct)	34 (03 Oct)	35 (09 Oct)	36 (10 Oct)	37 (23 Oct)	38 (30 Oct)	39 (5 Nov)	40 (5 Nov)	41 (6 Nov)	42 (8 Nov)	43 (12 Nov)
1.	←		A	A	A		Detained				
2.	32	A	A	A	33	34	A	35	36	37	38
3.	A	31	32	33	34	35	36	37	38	A	39
4.	A	28	A	A	29	30	31	32	33	34	35
5.	32	A	A	A	33	34	35	36	A	37	38
6.	31	32	A	A	33	34	35	36	A	37	38
7.	A	29	30	31	A	32	33	34	35	A	36
8.	A	32	33	34	35	36	37	38	39	40	41
9.	A	30	A	A	A	A	31	32	33	34	35
10.	29	30	A	A	31	32	33	34	35	36	A
11.	A	29	30	31	32	33	34	35	36	37	38
12.	A	28	29	30	31	32	33	34	35	36	37
13.	23	A	24	25	A	26	A	27	28	A	29
14.	30	31	A	A	32	33	34	35	36	37	38
15.	32	33	34	35	36	37	38	39	40	A	41
16.	A	42	43	44	A	45	A	46	47	A	48
17.	28	29	A	A	30	31	32	33	34	35	A
18.	30	31	32	33	34	35	36	37	38	39	40
19.	33	34	35	36	37	A	38	39	40	41	42
20.	33	34	35	36	37	38	39	40	41	42	43
21.	33	34	35	36	37	A	A	38	39	A	40
22.	30	31	32	33	34	35	36	37	A	38	39
23.	A	30	31	32	33	34	35	36	37	38	39
24.	29	30	A	A	A	31	32	33	34	35	36
25.	28	29	30	31	32	33	34	35	36	37	38
No. of Abs.											
Initials											

Department of Electrical and Electronics Engineering

A T M E
College of Engineering

ATTENDANCE

Semester & Section : III 'A'   Course Title with Code : [illegible]

45 Special class on 15th Nov · 1st Nov Spl class

Sl. No.	USN	Student Name	44 (12 Nov)	45 (13 Nov)	46 (16 Nov)	47 (19 Nov)	48 (19 Nov)	49 (20 Nov)	50	51	52	53	54		55 (15 Nov)	56 (15 Nov)	57 (15 Nov)	58 (1 Nov)	59 (1 Nov)	60 (1 Nov)	AT1
1.	4AD18EE001	ABDUL BASEER KHATTAL	39	40	41	A	42	43						41	3	2	1	A	A	A	
2.	4AD18EE002	ADITHYA KS	A	A	A	40	41	42						40	6	5	4	3	2	1	
3	4AD18EE003	AISHWARYA M	36	37	38	39	40	41						39	6	5	4	3	2	1	
4.	4AD18EE004	ANUSHA N K	A	A	39	A	40	41						39	6	5	4	3	2	1	
5	4AD18EE005	CHANDAN KUMAR CB	A	A	39	40	41	42						39	A	A	A	A	A	A	
6.	4AD18EE006	CHANDAN M N	37	38	39	40	41	42						40	3	2	1	A	A	A	
7.	4AD18EE007	DAMINI PURA KP	42	43	44	45	46	47						44	6	5	4	3	2	1	
8.	4AD18EE009	DEEKSHITHA Y	36	37	38	39	40	41						38	6	5	4	3	2	1	
9.	4AD18EE010	GAGANA S	A	37	A	38	39	40						37	6	5	4	3	2	1	
10.	4AD18EE011	JEEVITH U	39	A	40	41	42	43						40	6	5	4	3	2	1	
11.	4AD18EE012	KAVERI K	38	A	39	40	41	42						40	6	5	4	3	2	1	
12.	4AD18EE013	LAKSHMI A A	30	31	32	33	34	35						31	6	5	4	3	2	1	
13.	4AD18EE014	LANKESH H D	39	40	41	42	43	44						42	A	A	A	A	A	A	
14.	4AD18EE015	MADHU GOWDA H K	42	43	44	45	46	47						43	6	5	4	3	2	1	
15.	4AD18EE016	MANJUNATHA KB	29	30	A	A	31	32						28	A	A	A	3	2	1	
16.	4AD18EE017	MANOJ KUMAR KS	A	36	37	38	39	40						37	6	5	4	3	2	1	
17.	4AD18EE018	MISBAH AFSHEEN	41	41	42	43	44	45						42	3	2	1	A	A	A	
18.	4AD18EE019	MOHAMMED SUHAIL	43	A	44	45	46	47						43	6	5	4	3	2	1	
19.	4AD18EE020	NAYANA K S	44	A	45	46	47	48						45	6	5	4	3	2	1	
20.	4AD18EE021	POOJA BAI	41	A	42	43	44	45						41	6	5	4	3	2	1	
21.	4AD18EE022	PRAVEEN GOWDA SB	40	A	A	41	42	43						41	6	5	4	3	2	1	
22.	4AD18EE023	PREETHU N	40	41	42	43	44	45						42	6	5	4	3	2	1	
23.	4AD18EE024	RADHIKA MS	A	A	37	A	38	39						34	A	A	A	A	A	A	
24.	4AD18EE026	SAACHI KUMAR V	39	40	41	42	43	44						43	6	5	4	3	2	1	
25.	4AD18EE027	SYEDA FAIZA													6	5	4	3	2	1	
	No. of Abs.																				
	Initials														[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	

22.11.19

Department of Electrical and Electronics Engineering

ATME College of Engineering

ATTENDANCE

Semester & Section : III 'A'

Course Title with Code : Digital System Design - 18EE35

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		Date	30	30	31	01	06	06	07	08	13	13	14	20	20	21	24	27	27	28	29	31	03
		Month	Aug	Jul	Jul	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Aug	Sep
26	4AD18EE026	VINOD HV	1	2	3	4	5	A	A	6	7	8	9	10	11	12	A	13	14	15	A	16	17
27	4AD18EE027	VIVEK S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A
28	4AD18EE030	YASEEN ULLA KHAN	1	2	3	4	5	6	7	8	9	10	11	12	13	A	14	15	16	17	18	19	20
29	4AD18EE024	MONICA	A	A	A	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
30	4AD17EE01[illegible]	FAWAZ AHMED NC (19/8/19)												1	2	3	4	5	6	A	7	A	8
		MAVERN B (21/8/19)														1	2	3	4	5	6	A	7
		VIJAY KUMAR C (21/8/19)														1	2	3	4	5	6	A	7
		H																					
	No. of Abs.		4	2	2	1	1	4	3	2	4	2	2	2	3	3	3	3	3	2	1	5	6
	Initials		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Department of Electrical and Electronics Engineering

A T M E
College of Engineering

ATTENDANCE

Semester & Section : III 'A'

Course Title with Code : ...

Sl. No.	USN	Student Name	22 (3 Sep)	23 (3 Sep)	24 (4 Sep)	25 (5 Sep)	26 (17 Sep)	27 (19 Sep)	28 (18 Sep)	29 (24 Sep)	30 (24 Sep)	31 (26 Sep)	32 (2 Oct)
26.	4AD18EE026	VINOD HV	18	19	20	21	22	23	A	24	25	26	A
27.	4AD18EE027	VIVEK S	21	22	23	24	25	26	27	28	29	A	30
28.	4AD18EE030	YASEEN ULLA KHAN	21	22	A	25	24	25	26	27	28	29	30
29.	4AD18EE029	MONICA	18	19	20	21	22	23	24	25	26	27	A
30.	4AD19EE416	FAIAZ AHMED NS (19/8/19)	09	18	[illegible]	20	23	24	A	25	26	27	A
		NAVEEN B (21/8/19)	8	9	10	11	Shifted to B sec.						
		VIJAY KUMAR C (21/8/19)	8	9	A	10	Shifted to B sec.						
		11											
	No. of Abs.		4	4	3	3	4	2	7	2	2	1	14
	Initials												

15 38

33 (1 Oct)	34 (3 Oct)	35 (9 Oct)	36 (10 Oct)	37 (23 Oct)	38 (30 Oct)	39 (5 Nov)	40 (5 Nov)	41 (6 Nov)	42 (8 Nov)	43 (12 Nov)
A	27	A	A	A	A	A	28	29	A	30
31	32	A	A	A	33	34	35	A	36	37
31	32	33	34	35	A	36	37	38	39	40
A	28	29	30	31	32	33	34	35	36	37
A	18	19	20	A	21	22	23	24	A	25
13	3	11	11	5	5	6	-	A	8	[illegible]

Department of Electrical and Electronics Engineering

A T M E College of Engineering

ATTENDANCE

Semester & Section : III 'A'

Course Title with Code : ...

Sl. No.	USN	Student Name	44	45	46	47	48	49	50	51	52	53	54
26	4AD18EE026	VINOD HY	31	32	33	A	34						
27	4AD18EE027	VIVEK S	A	A	38	39	40						
28	4AD18EE028	YASEEN ULLA KHAN	41	42	43	44	45						
29	4AD18EE029	MONICA	38	39	40	41	42						
30	4AD17EE[illegible]	FAIZ AHMED HC (1/8/19)	36	37	A	38	39						
		MAVERN B (31/8/19)											
		VIJAY KUMAR C (31/8/19)											
		11											
	No. of Abs.		7	8	5	6	1	–					
	Initials												

Seminar class on [illegible] / Sort class on [illegible]

55	56	57	58	59	60	AT1	AT2	AT3
6	5	4	3	2	1			
A	A	A	3	2	1			
3	2	1	A	A	A			
6	5	4	3	2	1			
3	2	1	A	A	A			

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CBCS SCHEME

USN | | | | | | | | | | |

15ES/EI51

Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Management & Entrepreneurship Development

Time: 3 hrs. Max. Marks: 80

Note: ***Answer FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. Classify management into three levels. **(03 Marks)**
b. Summarize briefly three types of managerial skills. **(06 Marks)**
c. Analyse management as science and also as an art. **(07 Marks)**

OR

2 a. Define planning. Explain any six limitations of planning. **(07 Marks)**
b. Illustrate and explain different blocks of decision making process. **(09 Marks)**

Module-2

3 a. Select and describe important steps in the process of organizing. **(05 Marks)**
b. Explain the advantages and disadvantages of committees in an organization. **(05 Marks)**
c. Summarize any six types of recruitment process. **(06 Marks)**

OR

4 a. What is direction in an organization? Explain any five techniques of co-ordination. **(06 Marks)**
b. Explain the three basic steps in a control process. **(06 Marks)**
c. List four important characteristics of leadership. **(04 Marks)**

Module-3

5 a. Why is social audit required? **(02 Marks)**
b. Illustrate the social responsibilities of business towards different groups. **(08 Marks)**
c. List out the advantages of corporate governance. **(06 Marks)**

OR

6 a. Explain any four characteristics of successful entrepreneurship. **(08 Marks)**
b. Summarize capacity building for entrepreneurship. **(08 Marks)**

Module-4

7 a. Explain any four roles or importance of Small Scale Industries (SSI) in economic development. **(08 Marks)**
b. Define Ancillary Industry and Tiny Industry. **(04 Marks)**
c. Outline any four reasons for sickness in SSI sector. **(04 Marks)**

OR

8 Summarize any four state level or central level institutions that support small business enterprises. **(16 Marks)**

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

Module-5

9 a. List out any four characteristics of project. (04 Marks)
b. Classify projects into different types based on various parameters. (05 Marks)
c. What is project formulation? Explain the major steps involved in project formulation. (07 Marks)

OR

10 a. Mention various steps involved in the PERT analysis. (10 Marks)
b. List out the advantages and limitations of CPM. (04 Marks)
c. Show the relation between project design and network using block diagram. (02 Marks)

* * * * *

CBCS SCHEME

USN

Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020
Management and Entrepreneurship

Time: 3 hrs. Max. Marks: 100

Important Note: 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. What is management? Discuss the various characteristics of management. (07 Marks)
b. Explain the various roles played by the manager. (07 Marks)
c. Discuss whether management is art, science or profession. (06 Marks)

OR

2 a. Discuss the hierarchy of plans with examples. (06 Marks)
b. What are the different steps involved in planning? Explain. (08 Marks)
c. What is decision making? Classify the different types of decisions. (06 Marks)

Module-2

3 a. What are the various principles of management? (08 Marks)
b. Explain the steps in selection process. (06 Marks)
c. What are the various types of organizations? Explain line organization. (06 Marks)

OR

4 a. Distinguish between centralization and decentralization. (04 Marks)
b. Explain Maslow's and Hertzberg's theories of motivation. (10 Marks)
c. Write a note on barriers of communication. (06 Marks)

Module-3

5 a. Who are entrepreneurs? What are their qualities? Explain any two important qualities. (07 Marks)
b. What are the various stages in the entrepreneurial process? Discuss. (09 Marks)
c. Differentiate between entrepreneur and Intrapreneur. (04 Marks)

OR

6 a. Discuss the social responsibilities of business towards different groups. (08 Marks)
b. Write a note on classification of entrepreneurs. (06 Marks)
c. What is Social Audit? List the merits and demerits of internal and external auditing. (06 Marks)

Module-4

7 a. Define SSI. What are the general characteristics of SSI? (06 Marks)
b. Discuss the role of SSI in the development of the country. (08 Marks)
c. Explain the various problems faced by SSI. (06 Marks)

OR

8 a. Write a note on the activities of SIDBI and KIADB. (08 Marks)
b. List the institutions that provide technical, marketing and training support to small industries. (06 Marks)
c. What are the important functions of NSIC? (06 Marks)

Module-5

9 a. Explain the meaning of projects. Classify them. (05 Marks)
b. What are the steps involved in the formulation of project report? Explain. (10 Marks)
c. Write a note on project life cycle. (05 Marks)

OR

10 a. Discuss the concept and importance of network analysis. (06 Marks)
b. What are the steps involved in CPM? List its merits and demerits. (08 Marks)
c. What is PERT? Explain. (06 Marks)

* * * * *

Department of Electrical and Electronics Engineering

Department Advisory Board (DAB)

07/09/2019

Minutes of Meeting

The 14th meeting of DAB is held on 7th September 2019 in the Department office for addressing the curriculum gap and Advices to fulfill the gaps.

Agenda: DAB Meeting

1. To review Course Outcome (COs) Attainments of Academic Year: 2018-19 Even Semester
2. To review Batch Articulation Matrix (BAM) and produce PO and PSO attainment after the University examination for 2018-19 pass out Batch.
3. To Identify the curricular gaps for Academic Year: 2019-20 and suggesting the department for academic activities in support of the attainment of the POs & PSOs.

The following points were discussed during the meeting and the minutes were recorded as below:

1) The DAB Member secretary was presented the curriculum gaps for academic year 2019-20.
2) The curriculum Gap was observed for PO8.
3) As per the Batch Articulation Matrix of 2018-19 passed out batch, all the POs and PSOs has attained set target.
4) The committee members suggested Industry Institute interactions in support of attainment of selected POs & PSOs.
5) The committee suggested including tutorials for course Control Systems and Computer Aided Electrical Drawings.
6) The committee members suggested few points for ongoing semester

- Suggested to provide Tutorials for the identified courses

Sl. No	Semester	Subject with code
1.	3rd	ECA- 18EE32
2.	5th	S&S – 17EE54

7) The committee members gave valuable suggestions to bridge the Curriculum Gaps & compliance of PO attainments to conduct workshops/Technical Talk/ Industry Institute Interactions on Concurrent Technologies & issues and also discussed about previous activities suggested for bridging gap.
8) The committee members suggested publishing research work of faculty members in journal.
9) The committee suggested setting target level for CO attainment as 1.85 for all courses in academic year 2019-20 with increment of 0.05for next academic years.
10) The CO attainment for any course fails to attain set target level and target level can be addressed based on historical data of previous years.
11) Suggested to provide the Assignments that induce self-learning. .
12) Informed to Program Assessment Committee for the preparation of CO Attainments of the ongoing Semester.

Department of Electrical and Electronics Engineering

Planned Activity

SL NO.	Event	No. of Days	Staff/Student	Topic/ Title
1	State Level Technical Fest "Avagamah"	1 day	EEE students	Hackathon & Technical Treasure Hunt
2	FDP	5 days	Faculty	National Level one week Online Faculty Development Program on " Contemporary scenario in power systems"
3	Industry Visit	1 day	6th Semester	Industrial visit to Techno Power Corporation, Bengaluru for VI semester students
4	Industry Visit	1 day	6th Semester	Industrial visit to Adarsha Control System Pvt. Ltd., Bengaluru for VI semester students
5	Industry Visit	1 day	4th Semester	Industrial visit to Hootagalli substation, Mysuru for IV semester students
6	Technical Talk	1 day	5^{th} and 7^{th} Semester	Smart Grid Initiatives in India
7	Technical Talk	1 day	6^{th} and 4^{th} Semester	Career Opportunities and Skillset for Engineering Graduates – Industry Expert Perspective

HoD

Dr. PARTHASARATHY L.
Professor and HOD
Dept. of Electrical & Electronics Engineering
ATME College of Engineering, Mysuru

ATME College of Engineering

ISO 9001:2015

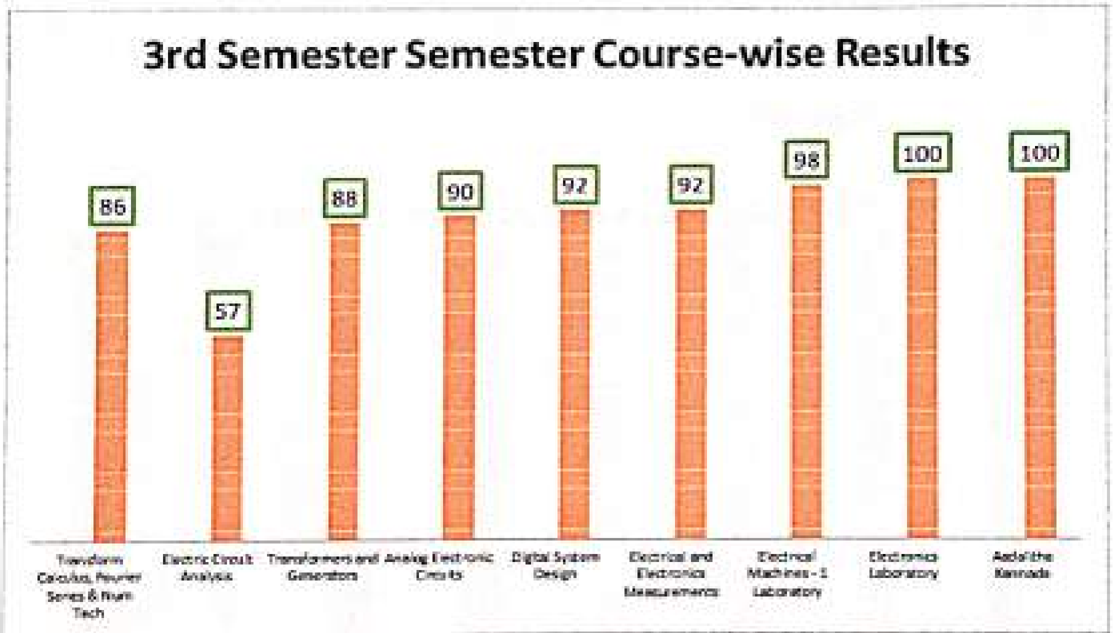
Department of EEE Evolving Elite Energy

Department of Electrical and Electronics Engineering

Result Analysis of Odd Semester- Academic Year- 2019-20

Class	No. of Students	No. of Pass	FCD	FC	SC	Pass %
3rd semester						
Regular	29	19	2	12	5	66
Lateral	30	12	1	6	5	40
Overall	59	31	03	18	10	53
5th semester	48	35	21	09	05	73
7th semester	72	63	19	28	16	88

3rd Semester Course wise result



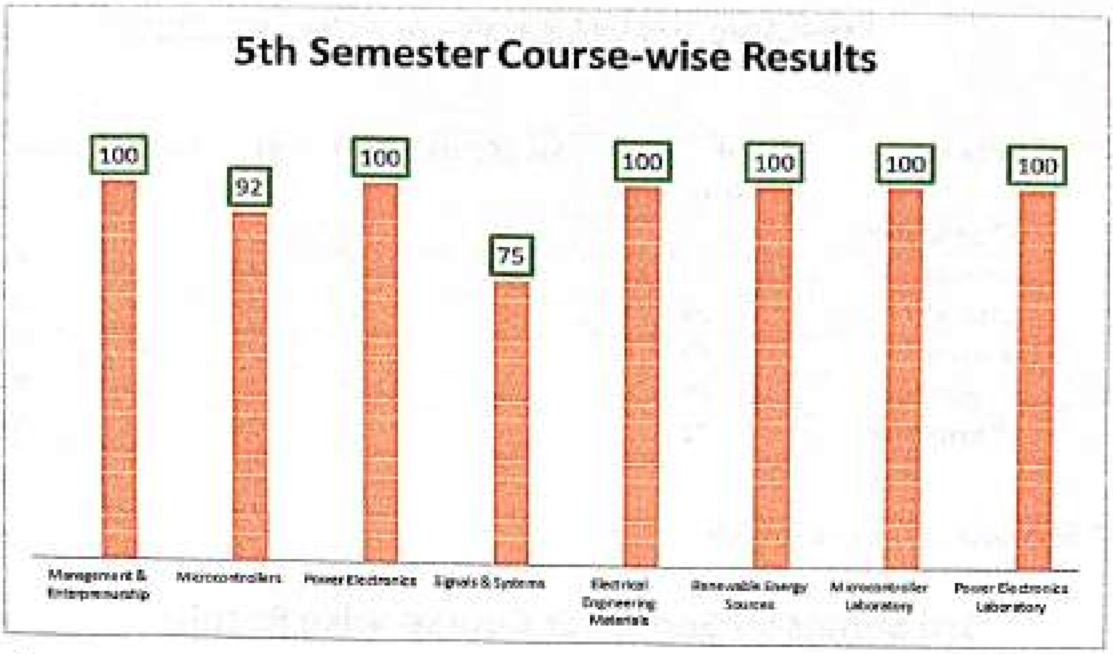
Result Analysis Coordinator

HoD

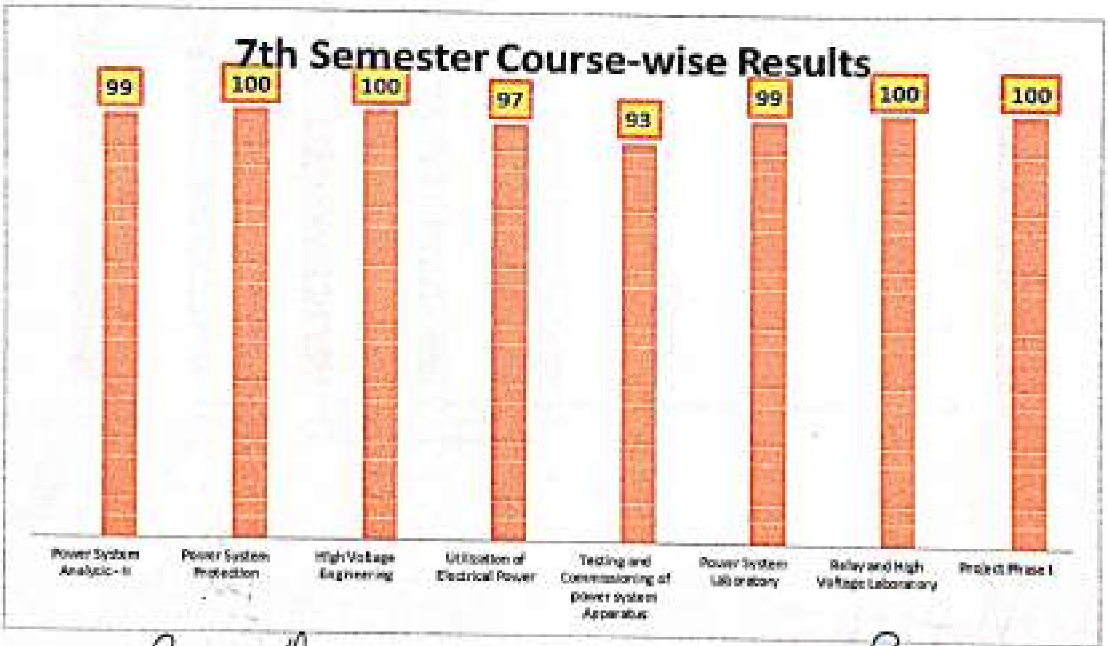
ATME COLLEGE OF ENGINEERING
13th Kilometer, Mysore-Kanakapura-Bangalore Road, Mysore – 570 028 P : 0821-2593335 F: 0821-2593328
Email: info@atme.in, Web : www.atme.in

Department of Electrical and Electronics Engineering

5th Semester Course-wise Result



7th Semester Course-wise Result



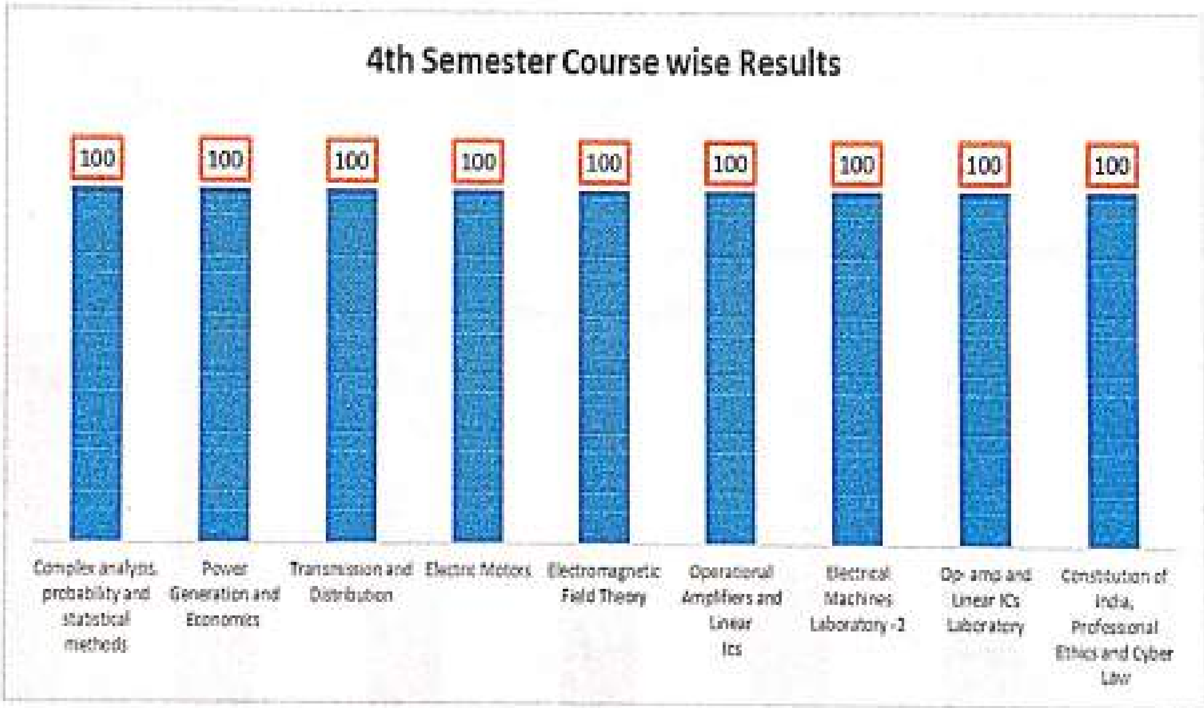
Result Analysis Coordinator

HoD

Result Analysis of Even Semester- Academic Year- 2019-20

	No. of Students	No. of Pass	FCD	FC	SC	Pass %
4th semester						
Regular	29	29	23	5	1	100
Lateral	29	29	14	13	2	100
Overall	58	58	37	18	03	100
6th semester	48	48	41	07	00	100
8th semester	72	71	40	30	01	99

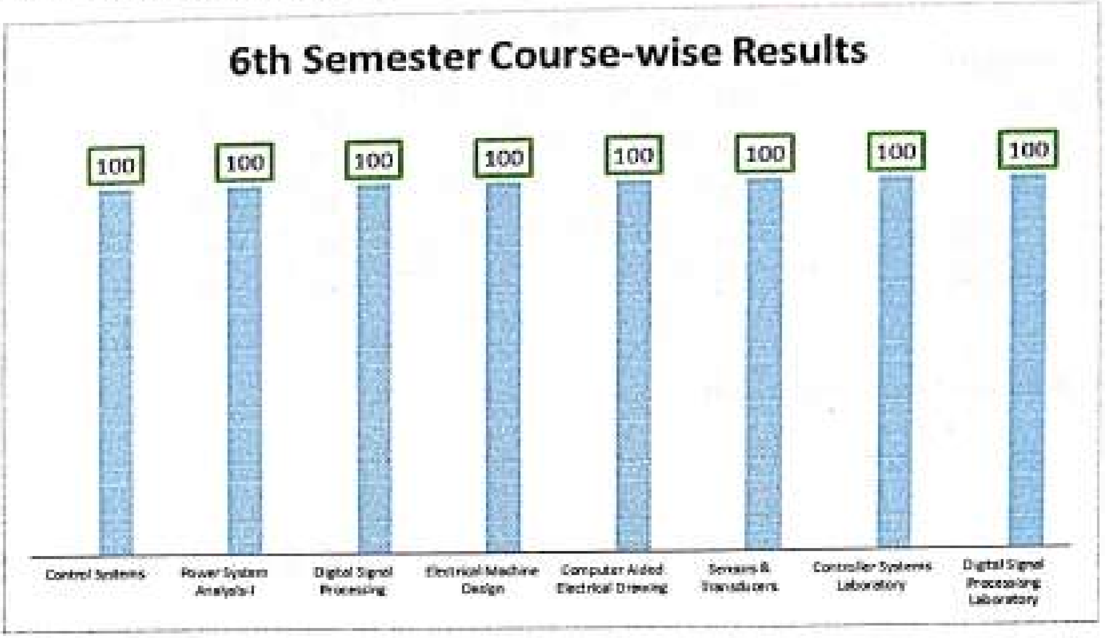
4th Semester Course wise result



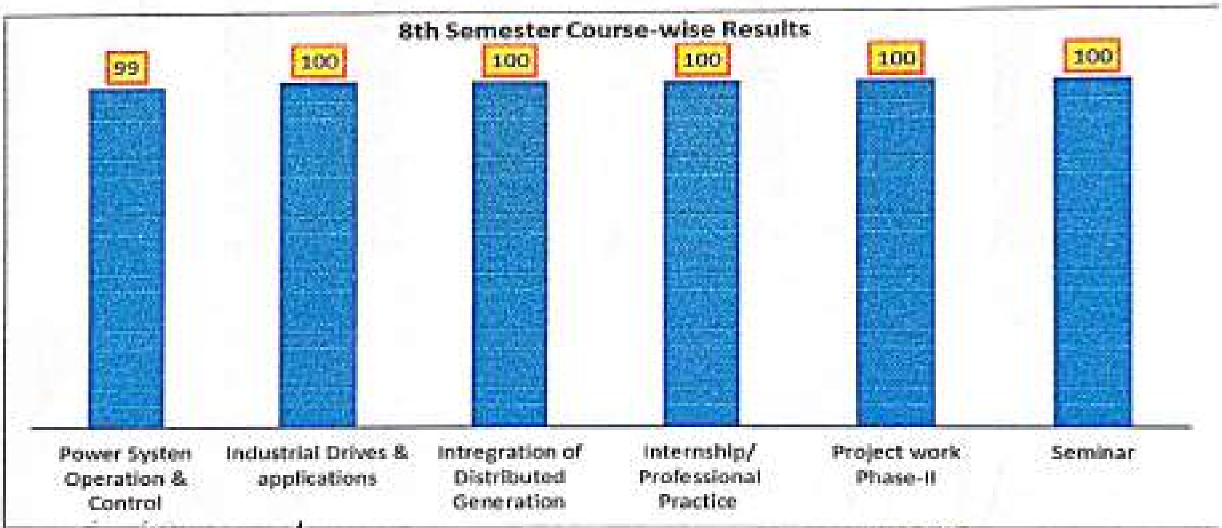
Result Analysis Coordinator

HoD

6[th] Semester Course-wise Results



8[th] Semester Course-wise Results



Result Analysis Coordinator

HoD

ATME

College of Engineering

VISION OF THE INSTITUTE

Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

MISSION OF THE INSTITUTE

- To keep pace with advancements in knowledge and make the students competitive and capable at the global level.
- To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as torch bearers of tomorrow's society.
- To strive to attain ever-higher benchmarks of educational excellence.

VISION OF THE DEPARTMENT

To create Electrical & Electronics Engineers who excel to be technically competent and fulfill the cultural and social aspirations of the society.

MISSION OF THE DEPARTMENT

- To provide knowledge to students that builds a strong foundation in the basic principles of electrical engineering, problem solving abilities, analytical skills, soft skills and communication skills for their overall development.
- To offer outcome based technical education.
- To encourage faculty in training & development and to offer consultancy through research & industry interaction.

ATME College of Engineering

Period From 29th July 2019 To 30th Nov 2019

Semester : Odd / Even

Faculty Member : Vinod Kumar. P

Designation : Assistant Professor

Department : Electrical & Electronics

Faculty Member ID : EE01012

Sl. No.	Sem. / Sec. / Branch	Course Title	Course Code
1	VIIth	Power system Analysis - II	15EE71
2	Vth	Management & Entrepreneurship	17EE51
3			
4			

	Review at the end of the				End of Semester
	1st Month	2nd Month	3rd Month	4th Month	
Staff	[signature]	[signature]	[signature]	[signature]	[signature]
HOD / Reviewer	[signature]	[signature]	[signature]	[signature]	[signature]

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Personal Timetable

DAY ↓ / TIME →	09:00 AM 10:00 AM	10:00 AM 11:00 AM	11:15 AM 12:15 PM	12:15 PM 01:15 PM		02:00 PM 02:55 PM	02:55 PM 03:50 PM	03:50 PM 04:45 PM
Monday		← Micro Controller Lab → Batch-1			Lunch Break	← Power System Simulation Lab Batch-1 →		
Tuesday		← Basic Electrical Engg Lab → G-2 batch				← Power System Simulation Lab Batch-2 →		
Wednesday	15EE71			17EE51		17EE51		
Thursday	15EE71		15EE71	17EE51			15EE71	
Friday			17EE51					
Saturday								

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Lesson Plan

Course: Power System Analysis - II (15EE71)

Semester & Section : VII th

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	8/8	Introduction to Power systems, direction of complex power	8/8	
2	8/8	Introduction to network topology, Elementary graph theory - oriented graph, tree, co-tree	8/8	
3	9/8	Elementary graph theory - basic cut sets, basic loops. Incidence matrices - B, A matrix	9/8	
4	9/8	Basic loop and Augmented loop. Primitive network - impedance form and admittance form.	9/8	
5	16/8	Ybus by singular transformation. Ybus by inspection & numerical problem.	9/8	
6	16/8	Ybus by inspection including transformer off-nominal tap setting.	16/8	
7	22/8	Introduction to load flow analysis in power system. Power flow equations, classification of buses.	16/8	
8	22/8	Gauss-Seidal method Algorithm and flow chart for PQ buses and numericals.	29/8 29/8	
9	23/8	Gauss-seidal method - Algorithm and flow chart for PV buses and numericals.	04/9 5/9	
10	28/8	Assessment & overview of module - 1	5/9	
11	29/8	Newton Raphson's method - Algorithm.	11/9	
12	29/8	Flow chart for NR method in polar coordinates	18/9	
13	29/8	Numerical problems on Newton Raphson	19/9	
14	4/9	Numerical problems on Newton Raphson.	19/9	Given assignments to solve at home
15	5/9	Numerical problems on Newton Raphson.	19/9	
16	5/9	Algorithm for fast Decoupled Load flow	19/9	
17	5/9	Numerical problems.	25/9	Given assignments to solve
18	11/9	Comparison of load flow methods	25/9	used ppt to explain both concepts
19	18/9	Control of Voltage Profile	25/9	
20	19/9	Assessment & overview of Module-2	9/10 *	Assignment through SES
21	19/9	Introduction to economic operation of power system & performance curves.	26/9	
22	19/9	Economic generation scheduling including generator limits and neglecting losses.	26/9	
23	25/9	Iterative techniques	26/9	
24	26/9	Numerical problems	26/9	One problem given assignment.
25	26/9	Numerical problems	3/10	

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26	26/9	Economic Dispatch including transmission losses - approximate penalty factor.	3/10	
27	3/10	Iterative technique for solution of economic dispatch with losses.	3/10	
28	3/10	Numerical problems	3/10	
29	3/10	Assessment & overview of Module-3	17/10	
30	9/10	Derivation of transmission loss formula	9/10	
31	10/10	Optimal scheduling for Hydrothermal plants problem formulation	10/10	
32	10/10	Optimal scheduling for hydrothermal plants solution procedure and algorithm.	10/10	
33	10/10	Numerical problems	10/10	
34	12/10	Numerical problems	12/10	
35	12/10	Numerical problems	16/10	
36	12/10	Assessment of overview of Module-4	16/10	
37	16/10	Introduction to the concept of power system stability	17/10 23/10	
38	17/10	Derivation of swing equation	07/11	
39	17/10	Numerical solution of swing equation - Euler's method	7/11	
40	23/10	Numerical problem on Runge-Kutta method.	8/11	
41	24/10	Numerical solution of swing equation - Milne's predictor corrector method.	13/11	
42	24/10	Multi-machine systems and multi-machine transient stability.	20/11	
43	30/10	Numerical solution of swing equation.	20/11	
44	31/10	Numerical problems	21/11	
45	6/11	Numerical problems.	21/11	
46	7/11	Introduction to Z-bus, finding fault current using Zbus. Relation of Zbus with Zbus	24/10	
47	7/11	Formation of bus impedance matrix by step by step building algorithm.	24/10 30/10	
48	13/11	Problem on Z-bus	31/10	
49	14/11	Problem on Z-bus	31/10 06/11	
50	21/11	Assessment & overview of module-5		

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Lesson Plan

Course: Management & Entrepreneurship - 17EE51

Semester & Section : V th

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	31/7	Management: Definition, Importance - Nature & characteristics of Management.	31/7	
2	1/8	Management function & Roles of manager	1/8	
3	2/8	Levels of Management and Managerial skills Management & Administration.	2/8	
4	2/8	Management as a science, Art & Profession	2/8	
5	7/8	Planning: Nature, Importance and purpose of planning.	7/8	
6	8/8	Types of plans.	8/8	
7	9/8	Steps in planning and limitation of planning.	14/8	
8	9/8	Decision Making.	16/8	
9	14/8	Types of Decisions - Steps in Decision Making.	16/8	
10	16/8	Assessment & overview of Module-1	21/8 9/10	
11	16/8	Organizing and staffing - Meaning, Nature & characteristics of organization process.	22/8	
12	21/8	Principles of organization - Departmentalization.	23/8	
13	22/8	Committees - Meaning, Types.	28/8	
14	23/8	Centralization Vs Decentralization of Authority and Responsibility.	28/8	
15	23/8	Span of Control.	29/8	
16	28/8	Nature & Importance of staffing & process of selection & Recruitment.	30/8	
17	28/8	Directing & Controlling: Meaning and Nature of Direction.	4/9	
18	29/8	Motivation Theories Communication - Meaning and Importance.	4/9	
19	30/8	Coordination - Meaning and Importance Techniques of coordination Controlling.	5/9	
20	4/9	Steps in Controlling & Assessment & overview of Module-2.	5/9 9/10	
21	4/9	Social Responsibilities of Business Meaning of social Responsibilities.	19/9	
22	5/9	Social Responsibilities of Business towards different groups.	26/9	
23	6/9	Social Audit, Business Ethics and Corporate Governance.	27/9	
24	11/9	Entrepreneur - Definition of Entrepreneur Importance of Entrepreneur, Concepts.	11/9	
25	11/9	Characteristics of successful Entrepreneur Classification of Entrepreneurs.	20/9	

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26	18/9	Intrapreneur - An Emerging Class, & Comparison between Entrepreneur & Intrapreneur	23/9	
27	18/9	Myths of Entrepreneurship, Entrepreneurial	23/9	
28	19/9	Development model - Entrepreneurship	25/9	
29	20/9	Entrepreneurial development cycle, problems faced by Entrepreneurs.	25/9	
30	25/9	Capacity building for Entrepreneurship	27/9	
31	25/9	Assessment & overview of Module-3.	17/10	
32	26/9	Modern Small Business Enterprises: Role of SSI	3/10	
33	27/9	Concepts & Definition of SSI Enterprise,	4/10	
34	3/10	Government policy & development of SSI in India.	9/10	
35	4/10	Growth and performance of SSI in India, sickness in SSI sector.	09/10	
36	9/10	Problems for small scale Industries. Impact of Globalization on SSI.	10/10	
37	9/10	Impact of WTO/GATT on SSI, Ancillary Industry and Tiny Industry.	11/10	
38	10/10	Institutional support for Business Enterprises - Introduction, policies & schemes.	12/10	
39	11/10	Nature of support: objectives, functions, type of help, Ancillary & Tiny Industry	12/10	
40	12/10	State level Institutions.	15/10	
41	12/10	Assessment & overview of Module-4	16/10	
42	16/10	Project Management :- Meaning of Project, Project objective & Characteristics.	23/10	
43	23/10	Project Identification - Meaning & Importance; Project life cycle.	24/10	
44	24/10	Project scheduling, Capital budgeting.	30/10	
45	30/10	Generating an Investment, Project Proposal project report - need & significance	31/10	
46	31/10	Contents, Formation, Project Analysis - Market	5/10	
47	6/11	Technical financial, Economic, Ecological Project evaluation & selection.	6/11	
48	7/11	Project Financing, Project Implementation phase. Human & administrative aspects Implementation.	7/11	
49	9/11	Prerequisites for successful project.	12/11/19	
50	13/11	Assessment & overview of module-5	19/11/19	

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WORK DONE DIARY

WEEK 1		MONDAY DATE 29/7	TUESDAY DATE 30/7	WEDNESDAY DATE 31/7
ACTIVITY	Class Hours			17EE51- Explained overview of course, course objectives, outcomes, Introduction to students about management.
	Others	Presented Importance of IA for 3rd semester & 5th semester — induction programme [illegible] attendance.	- Fastrack [illegible] - Project work idea to final year student - [illegible] - [illegible] for BEE [illegible]	- Prepared Activity schedule for 3rd year co-ordinated the group activity at afternoon 3 to 4.45 PM.

WEEK 2		MONDAY 5/8 DATE	TUESDAY 6/8 DATE	WEDNESDAY 7/8 DATE
ACTIVITY	Class Hours	MC lab - B1: Introduction to 8051, RC, A, B, PC, SP etc. Explained students about usage of Keil software. Explained Experiment 1 data movement & data exchange of external & location	–	17EE51: Definition of management, nature, levels - Taylor's Management definition, Scientific Management definition.
	Others	Took Aptitude Class for 5th semester - Delivered HCF, LCM & numerical [illegible]	- Report on OBE workshop. - Academic Calendar & Administrative Calendar - Accreditation duty	Counselling: Two student completed Action plan for admission

WEEK 3		MONDAY 12/8 DATE	TUESDAY 13/8 DATE	WEDNESDAY 14/8 DATE
ACTIVITY	Class Hours	Bakrid	Aptitude class - 7th sem - HCF, LCM. 15EEL76: PSS lab LO overview. Ybus formation by inspection & singular transformation method.	Electrical Machine lab: 1st cycle experiment OC [illegible], parallel operation, [illegible] & hysteresis of transformer. 17EE51: Types of planning, objectives of planning.
	Others		Slated HCF, LCM, study material and numerical for [illegible]	Monitored club activity for 5th semester

WORK DONE DIARY

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WEEK 1		THURSDAY DATE 1/8	FRIDAY DATE 2/8	SATURDAY DATE 3/8
ACTIVITY	Class Hours	17EE51- Nature & characteristics of Management, objectives, Diff b/w Management v/s Administration.	17EE51: Nature & functions of management, Managerial functions, Management is considered as Art, Science or profession.	—
	Others	Placement Training - Creation of action plan for 4th & 5th sem students, Aptitude + technical training.	Updated faculty profile at website.	

WEEK 2		THURSDAY 8/8 DATE	FRIDAY 9/8 DATE	SATURDAY 10/8 DATE
ACTIVITY	Class Hours	15EE71: Overview to Introduction to power system, network representation & load. A, B, C, D constant formation. 17EE51: Approaches & behavioural [illegible] of management.	15EE71: Network reduction of power system to the line & formation of A, B, C, D matrix using [illegible] - Ybus formation. 17EE51: Overview about planning & importance of it.	Induction program - I[st] year
	Others	NBA: Discussed performance indicator [illegible] - Aptitude class for 3rd sem HCF, LCM & numericals	Verified AV system for placement drive TAKO.	Placement drive - TAKO Education - Tejaswini co-ordinated till completion.

WEEK 3		THURSDAY 15/8 DATE	FRIDAY 16/8 DATE	SATURDAY 17/8 DATE
ACTIVITY	Class Hours	Independence Day	17EE51: Decision making, steps in planning & decision making. 15EE71: Ybus formation using singular transformation method.	—
	Others		- Campus vigilance - Result analysis of [illegible]	

WEEK 4		MONDAY 17/8 DATE	TUESDAY 20/8 DATE	WEDNESDAY 21/8 DATE
ACTIVITY	Class Hours	17EEL57- Explained 1. Output & Input in [illegible] element & [illegible]. 15EEL76: Ybus using inspection & singular transformation method	15EEL76 Ybus using inspection transformation. Bus current and losses of 3-bus power system.	17EE51 Module-2 Organization - Importance, principles and functions of organization.
	Others	Co-ordinated orientation class by Live company for technical training	- Prepared Result analysis ppt of Even semester. - Discussion on CO-PO	Coordinated club activities for 5th sem students.

WEEK 5		MONDAY 26/8 DATE	TUESDAY 27/8 DATE	WEDNESDAY 28/8 DATE
ACTIVITY	Class Hours	17EEL57- Experiment 2 Arithmetic operation - code & [illegible] explained. 15EEL76- Pre-placement training	18ELE17: Explained the Importance of multimeter, Working of Ammeter & Voltmeter. Working principles of mechanical & its construction.	17EE51: Committee Meaning & types, Centralization & Decentralization Authority & Responsibility
	Others	Department meeting held to approve the syllabus, [illegible] and to [illegible] the portion covered for [illegible].	Pre-placement training for 7th sem students.	Co-ordinated club activities for 3rd sem students.

WEEK 6		MONDAY 2/9 DATE	TUESDAY 3/9 DATE	WEDNESDAY 4/9 DATE
ACTIVITY	Class Hours	Gowri & Ganesh festival	18ELE17: Explained Importance of lab experiment & Ex-3,4 & 8 of BEE experiment for all batch. 15EEL76: Transmission line parameter (ABCD) is completed.	15EE71: Gauss seidel method steps for PV buses & numerical. 17EE51: Directing. & Controlling - Meaning, Nature & Features. & Theory of [illegible] Communication
	Others		Technical Training & 5th semester on enrolling for courses at NPTEL, [illegible] etc.	Department meeting - Calendar of events & activities verified.

WEEK 4		THURSDAY 22/8 DATE	FRIDAY 23/8 DATE	SATURDAY 24/8 DATE
ACTIVITY	Class Hours	17EE51: Organization Types & its features - Centralization & Decentralization. 17EEL57: Exp-1 & Exp-2 [illegible] and [illegible] code is [illegible].	17EE51 Staffing & Recruitment procedure and conducted a role play for students to participate for [illegible]. On leave - afternoon session	On Leave
	Others	Pre-placement training for 7th sem students.	Pre-placement training for the 7th sem students.	

WEEK 5		THURSDAY 29/8 DATE	FRIDAY 30/8 DATE	SATURDAY 31/8 DATE
ACTIVITY	Class Hours	15EE71- Load flow analysis, classification of buses. Load flow analysis using Gauss seidel method. 17EE51: Span of control, Communication & Co-ordinate	17EE51 Staffing Importance, method involved at Recruitments.	17EEL57- Experiment -3 code conversion is completed. 15EEL76- Bus loss, bus power & generation is completed. ABCD parameters by TL is completed.
	Others	Result Analysis PPT - preparation & verification.	Prepared Grade card for 2015 scheme students.	Workshop on ICT Teaching pedagogy by Dr. Dutta [illegible]

WEEK 6		THURSDAY 5/9 DATE	FRIDAY 6/9 DATE	SATURDAY 7/9 DATE
ACTIVITY	Class Hours	15EE71: Problems PQ & PV buses on power system using Gauss seidel. 17EE51: Controlling & Coordination in organization.	On leave Holiday	Holiday
	Others	Approved Project presentation Reviews & slides to exhibit for evaluation.		

WEEK 7		MONDAY 9/9/19 DATE	TUESDAY 10/9/19 DATE	WEDNESDAY 11/9/19 DATE
ACTIVITY	Class Hours	MC lab: Waveform generation using timer delay ALP. PSS lab: ABCD constant & salient pole synchronous m/c power angle.	Holiday	15EE71: Newton-Raphson algorithm & discussed about IA Test Important Questions. 17EE51: Discussion on Test & Entrepreneur basics & functions.
	Others	Technical training - Importance of C/C++/Java.	—	Counselling - 5th sem students advised to take IA (CIE) accordingly.
WEEK 8		**MONDAY 16/9/19 DATE**	**TUESDAY 17/9/19 DATE**	**WEDNESDAY 18/9/19 DATE**
ACTIVITY	Class Hours	MC lab: Software experiment completed to batch. PSS lab: Non-salient pole synchronous machine ALP program. Introduction to load flow studies using MiPower	Basic Electrical lab: Conducted experiment 1, 3, 5 & 7 for batch 2, 4, 6 & 8 student group. PSS lab: ABCD constant & salient pole & non-salient pole synchronous m/c power angle	15EE71: Newton Raphson algorithm & load flow studies.
	Others	SRs question prepared for PSA-2 module-1 & took with help of Mr. Praveen & Mr. Kushal.	Drafted ATMEYA closing account letter.	Project evaluation of 4 batches are examined.
WEEK 9		**MONDAY 23/9/19 DATE**	**TUESDAY 24/9/19 DATE**	**WEDNESDAY 25/9/19 DATE**
ACTIVITY	Class Hours	17EE51: Entrepreneurship and characteristics of entrepreneurship & development stages. MC lab: Test on software program. PSS lab: Load flow analysis	BEE lab: Conducted experiment 2, 4, 6 & 8 for batch 2, 4, 6 & 8 group. PSS lab: Load flow analysis for 3 bus & 5 bus system.	15EE71: Introduction to Economic operation of power s/m. 17EE51: Entrepreneur myths development & legal, social business ethics.
	Others	Prepared IA-1 analysis report & mailed to all faculty.	IA analysis for remaining subject completed.	Teacher Day & Engineer Day organized by ATME College of Engineering.

WEEK 7		THURSDAY 12/9/19 DATE	FRIDAY 13/9/19 DATE	SATURDAY 14/9/19 DATE
ACTIVITY	Class Hours	IA Test-1	IA Test-1	IA Test-1
	Others	IA Test Invigilation till 11:15 AM. NBA - preparing CO-PO threshold array on PI & competency.	NBA preparing related to CO-PO mapping for courses based on PI & competency	
WEEK 8		**THURSDAY 19/9/19 DATE**	**FRIDAY 20/9/19 DATE**	**SATURDAY 21/9/19 DATE**
ACTIVITY	Class Hours	17EE51: Assigned students to prepare question in PPT for IA scheme. 15EE71: Newton Raphson method to solve load flow problems - fast decoupled algorithm - steps.	17EE51: Entrepreneurship - Evolution, qualities of entrepreneur and classification of entrepreneurs.	—
	Others	Aptitude Test conducted for 7th sem from 12:45 - 1:45 from 1:15.	Prepared account statement for department Association	
WEEK 9		**THURSDAY 26/9/19 DATE**	**FRIDAY 27/9/19 DATE**	**SATURDAY 28/9/19 DATE**
ACTIVITY	Class Hours	15EE71: Economic operation of power s/m neglecting generator and losses. Problem. Economic operation with generator limits - steps. 17EE51: Social Responsibilities, meaning, different ways.	17EE51: Social responsibilities, social audits & social responsibilities of corporate social ethics towards society.	—
	Others	Aptitude questions preparation 15 Nos for 4th home test to 1 & 2.	Fresher Day: Organized on 27/9/19 from 2:15 to 3 PM. Interaction of seniors with the juniors.	—

WEEK 10		MONDAY 30/9/19 DATE	TUESDAY 1/10/19 DATE	WEDNESDAY 2/10/19 DATE
ACTIVITY	Class Hours	MC Lab:- Holdover experiments conducted using Lenovo; DAC experiments completed. Load flow analysis for 5, 7, 3 bus system & short circuit also solved.	PS Lab:- Load flow analysis for 5, 6, 3 bus system & short circuit studies also solved.	Gandhi Jayanthi
	Others	Update file Employee-subject excel sheet of all employee	Cross-verifying co-po matrix for odd semester (7-10) using competency & PI	

WEEK 11		MONDAY 7/10/19 DATE	TUESDAY 8/10/19 DATE	WEDNESDAY 9/10/19 DATE
ACTIVITY	Class Hours	–	–	15EE71:- Numerical on Transmission loss & Derivation on it. SPS on module-2 conducted. 17EES1:- SSI industries & impact of liberalisation, Government agencies. SPS conducted for module-2.
	Others			Record evaluation of PSS Lab & MC Lab. Updation of Academic files

WEEK 12		MONDAY 14/10/19 DATE	TUESDAY 15/10/19 DATE	WEDNESDAY 16/10/19 DATE
ACTIVITY	Class Hours	MC Lab:- LCD interface experiment & analyzed the data. PS Lab: Short circuit analysis of exercise problems.	17EES1:- Institutional support towards SSI & factors including the agency for schemes.	15EE71:- Power System Security & assessment Contingency - SPS EL Lab:- Sequence generator. 17EES1:- Institutional support & SSI m modules.
	Others	Invigilation for mock test: preparation of Mock test QP.	Meeting regarding SAR updation. HoD sir briefed about the meeting with management Morning 9:15 till 6:15 pm.	Reviewed QP of 15EE71 & 17EES1.

WEEK 10		THURSDAY 3/10/19 DATE	FRIDAY 4/10/19 DATE	SATURDAY 5/10/19 DATE
ACTIVITY	Class Hours	15EE71: Problems on economic scheduling & problems related loss co-efficients & TL losses - SPS. 17EES1:- Started Small scale industry & informed about SSI Celebration	17EES1: Discussed SSI concepts, characteristics of SSI.	Ayudha Pooja Celebration at Department.
	Others	Prepared Aptitude questions for 7th sem.	Valued Record of PS Lab & MC Lab.	

WEEK 11		THURSDAY 10/10/19 DATE	FRIDAY 11/10/19 DATE	SATURDAY 12/10/19 DATE
ACTIVITY	Class Hours	15EE71:- Modularly optimal scheduling & reliability, Contingency - SPS. 17EES1:- SSI, Impact of WTO, Analysis on SSI, Economy	17EES1: Impact of WTO/GATT, Revolution on SSI, development Indian economy	15EE71: Problem on B-coefficient & loss calculation. PS Lab: till 12:10 17EES1:- Institutional support for SSI. Govt. five year plan - SPS
	Others	Aptitude test for 7th sem.	Department Meeting: Agenda Faculty appraisal & reviewing meeting with chairman.	Result analysis after RV updated the result sheet. PPT is forwarded to principal & HoD for SSI Pm

WEEK 12		THURSDAY 17/10/19 DATE	FRIDAY 18/10/19 DATE	SATURDAY 19/10/19 DATE
ACTIVITY	Class Hours	15EE71:- optimal scheduling of hydro thermal plants & test portion revision & SPS 17EES1:- Recap of test portion & discussed as well for questions (VTU papers)	IA2	–
	Others	Advised students to take Aptitude test Aptitude for technical training test for 7th sem	Test invigilation for IA2	

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WEEK 13		MONDAY 21/10/19 DATE	TUESDAY 22/10/19 DATE	WEDNESDAY 23/10/19 DATE
ACTIVITY	Class Hours	IA-2	IA-2	15EE71:- Symmetrical fault analysis. Electronics lab: Logic design experiment. 17EE51:- Introduction about Project models discussed IEEE paper.
	Others	Test invigilation morning & afternoon. Meeting regarding appraisal.	Test invigilation Morning. Verified system [illegible] specified data.	Prepared EEA Question paper bank & submitted to Head AC.

WEEK 14		MONDAY 28/10/19 DATE	TUESDAY 29/10/19 DATE	WEDNESDAY 30/10/19 DATE
ACTIVITY	Class Hours	MC lab: One student present ask to execute any 9 experiment [illegible] performed. PSS lab: Student ask to perform experiment.	Deepavali	15EE71: Zbus building algorithm Type 1 & Type-2 explained. Electronics lab: Cycle 2 experiments. 17EE51: Classification of project & nature of work.
	Others	Coordinate with SSR to submit Hackathon & [illegible] proposal for technical fest.		Prepared academic calendar, [illegible] template & prepare template & IIDC project coordination.

WEEK 15		MONDAY 4/11/19 DATE	TUESDAY 5/11/19 DATE	WEDNESDAY 6/11/19 DATE
ACTIVITY	Class Hours	MC lab:- Hardware experiments - DAC, Stepper & DC motor LCD. PSS lab:- Zbus building algorithm & B-coefficient using MI power tool.	17EE51:- Project Meaning, feasibility, cycle & roles of it. PSS lab:- B-coefficient using MI power short circuit analysis.	15EE71:- Zbus building lab program theory calculation. Electronic lab:- Designing N-bit builder algorithms. 17EE51:- Project techniques - CPM & PERT.
	Others	Completed & consolidated CO-PO mapping of Even semester AY 2019-20.	IA-2 analysis template & data tabulation. Preparation of CO-PO matrix.	Preparation of document for meeting NBA CO-PO.

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WEEK 13		THURSDAY 24/10/19 DATE	FRIDAY 25/10/19 DATE	SATURDAY 26/10/19 DATE
ACTIVITY	Class Hours	15EE71:- Discussed IA 2 paper. Symmetrical fault analysis - Problems on it. Algorithm of fault detection - 2hrs. 17EE51:- Introduction about project, selection of project, identification of project.	15EE71: Self learning activities assigned to students. 17EE51L assigned students to prepare questions for VIVA.	Attended Vlab workshop - Resource person explained the concept of Remote (RT labs) in addition to Vlab.
	Others	Verified laboratory data [illegible] for tomorrow Infosys drive at campus.	Infosys drive coordinated the Infosys drive and performed assigned work.	Infosys pool drive coordinated with TPO & performed assigned work.

WEEK 14		THURSDAY 31/10/19 DATE	FRIDAY 1/11/19 DATE	SATURDAY 2/11/19 DATE
ACTIVITY	Class Hours	15EE71:- Type-3&4 modification explanation. Numerical on it, 2 VTP QP solved - 2hrs. 17EE51:- Project technical analysis & feasibility of it.	Holiday	—
	Others	Project review for 2 groups. Guided on project abstract [illegible] & [illegible] formatting [illegible].		

WEEK 15		THURSDAY 7/11/19 DATE	FRIDAY 8/11/19 DATE	SATURDAY 9/11/19 DATE
ACTIVITY	Class Hours	15EE71:- Power System Stability Swing Curve - 2hrs. 17EE51:- Project group activity evaluation of 2 batches - 1hr.	IA-2 analysis preparation in ppt - 2hrs. 17EE51:- Project group activity evaluation of 2 batches. 15EE71:- Swing curve.	
	Others	IA-2 analysis preparation in excel.	Updating the files in soft copy.	

WEEK 16		MONDAY 11/11/19 DATE	TUESDAY 12/11/19 DATE	WEDNESDAY 13/11/19 DATE
ACTIVITY	Class Hours	MC lab:- Conducted plenum experiment Hardware interfacing Elevator & Keypad explained. PSS lab:- Z bus building algorithm & short circuit analysis using Z bus	17EE51:- Project Technique CPM & PERT method analysed with explain using Activity. PSS lab:- Z bus building algorithm & discussed about the theory part	15EE71:- Discussed about the equal area criteria of swing curve. Electronic lab:- Logic design and AEC experiments. 17EE51:- Project network analysis & overview ckt.
	Others	Appraisal meeting with HoD sir to discuss plenum appraisal meeting		

WEEK 17		MONDAY 18/11/19 DATE	TUESDAY 19/11/19 DATE	WEDNESDAY 20/11/19 DATE
ACTIVITY	Class Hours	MC lab:- Repetition of hardware & software experiments. PSS lab:- Repetition hardware & software experiments.	17EE51:- Overview of Module 5: Project & discussed about preparation for IA-3. PSS lab:- Discussed about the Z bus algorithm & repetition experiments.	15EE71:- Problem on swing curve and solved theory on it. Electronic lab:- Repetition experiments. 17EE51:- Project experiment on Institutional supports.
	Others			

WEEK 18		MONDAY 25/11/19 DATE	TUESDAY 26/11/19 DATE	WEDNESDAY 27/11/19 DATE
ACTIVITY	Class Hours	IA-3	Finalization of assignment marks for PSA-II through self learning activities	Finalization of IA Test-3 PSA-II
	Others	Test Invigilation duty	Preparation of Attendance Report to submit for attendance shortage list to VTU.	VTU attendance shortage upload to VTU portal

WEEK 16		THURSDAY 14/11/19 DATE	FRIDAY 15/11/19 DATE	SATURDAY 16/11/19 DATE
ACTIVITY	Class Hours	Department Tech fest Hackathon & Treasure Hunt program managed & coordinated throughout the day.	Holiday	Leave
	Others			

WEEK 17		THURSDAY 21/11/19 DATE	FRIDAY 22/11/19 DATE	SATURDAY 23/11/19 DATE
ACTIVITY	Class Hours	15EE71:- Swing curve - matlab code explained and discussed portion for IA. 17EE51:- Institutional support presentation from students evaluated.	IA-3	IA-3
	Others		Test invigilation duty	Test Invigilation duty

WEEK 18		THURSDAY 28/11/19 DATE	FRIDAY 29/11/19 DATE	SATURDAY 30/11/19 DATE
ACTIVITY	Class Hours	Finalization of IA Test-3 M&E. Evaluation of self learning activities	PSS lab extends duty - Morning 8:30 to 6:40pm.	Leave
	Others	—	—	

ATME College of Engineering

LEAVE DETAILS

Sl. No.	Date	Type	Reason	Actual Class Allotted (Course Code/Time)	Substitute Faculty Member	Signature of Substitute Faculty Member
1.	23/8/19	½CL	Personal work	–	–	–
2.	24/8/19	1CL	Personal work	17EE51/3:00 to 4:45	RKS	R
3.	6/9/19	1CL	Personal work	17EE51/11:15 to 12:35	RKS	R
4.	13/9/19	½CL	Personal work	No class	–	–
5.	20/9/19	½CL	Personal work	No class	–	–
6.	30/11/19	1CL	Personal work	no class		–

PROGRAM OUTCOMES (PO'S)

PO:1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems
PO:2	**Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
PO:3	**Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
PO:4	**Conduct Investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions
PO:5	**Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations
PO:6	**The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO:7	**Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO:8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO:9	**Individual and Teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
PO:10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions

ATME College of Engineering

C1.1.1 - The Institution ensures effective curriculum delivery through a well planned and documented process

Supporting Documents

Index

Sl. No.	Academic Year	Particulars
1	**2019-20**	Academic Calendar- College & Department
2		Teaching Plan
3		Department Meeting – Sample MoM
4		Learning Outcome- Course Module
5		Time Table
6		Teaching – Learning resources
7		Attendance Record
8		Bridge & Remedial Classes
9		Question Bank-VTU Previous Year QP
10		Academic Activity and its Planning
11		Result Analysis
12		Teachers Diary

Department of Electronics and Communication Engineering

JULY 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 WORKSHOP ART OF COUNSELING START DAY	3	4	5	6
7 START OF INTERNSHIP FOR 7TH SEM STUDENTS	8	9 WORKSHOP ART OF COUNSELING END DAY	10	11	12	13
14	15 FACULTY TRAINING MS OFFICE	16 FACULTY TRAINING MS OFFICE	17	18	19	20
21	22	23	24	25	26	27 NBA CRITERIA 2 & 3 WORKSHOP
28	29 COMMENCEMENT OF ODD SEM 2019-20 III, VI , VII	30	31			

June 2019

S	M	T	W	Th	F	Sa
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2	3	4	5	6	7	8
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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

August 2019

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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

atme A T M E College of Engineering

AUGUST 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3 NON-WORKING
4	5	6	7	8	9 **COMMENCEMENT OF INDUCTION PROGRAM FOR FIRST YEAR**	10 WORKING MONDAY TT **ORIENTATION PROGRAM FIRST YEAR**
11	12 **HOLIDAY BAKRID**	13	14	15 **HOLIDAY INDEPENDENCE DAY**	16	17 NON-WORKING
18	19	20	21	22	23	24 WORKING THURSDAY TT **END OF 11 DAYS INDUCTION PRG FOR FIRST YEAR**
25	26 **COMMENCEMENT OF THEORY CLASSES FOR FIRST YEAR**	27	28	29	30	31 WORKING MONDAY TT

July 2019

S	M	T	W	Th	F	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September 2019

S	M	T	W	Th	F	Sa
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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

A T M E
College of Engineering

SEPTEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 HOLIDAY SWARNA GOWRI VRATAM GANESHA CHATHURTHI	3	4	5	6	7 NON-WORKING
8	9	10 10TH DAY OF MUHARRAM	11	12 FIRST IA SEMESTERS 3,5 & 7	13 FIRST IA SEMESTERS 3,5 & 7	14 WORKING MONDAY TT FIRST IA SEMESTERS 3,5 & 7
15	16	17	18	19	20	21 NON-WORKING
22	23	24	25	26	27	28 HOLIDAY MAHALAYA AMAVASYA
29	30					

August 2019

S	M	T	W	Th	F	Sa
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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

October 2019

S	M	T	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

ATME College of Engineering

OCTOBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 FIRST IA FOR FIRST SEMESTER	**2** HOLIDAY 150TH GANDHI JAYANTHI	**3** FIRST IA FOR FIRST SEMESTER	**4** FIRST IA FOR FIRST SEMESTER	**5** NON- WORKING
6	**7** HOLIDAY AYUDHA POOJA	**8** HOLIDAY VIJAYA DASHAMI	**9**	**10**	**11**	**12** WORKING WEDNESDAY TT
13	**14**	**15**	**16**	**17**	**18** SECOND IA SEMESTERS 3,5 & 7	**19** NON- WORKING
20	**21** SECOND IA SEMESTERS 3,5 & 7	**22** SECOND IA SEMESTERS 3,5 & 7	**23**	**24**	**25**	**26** WORKING TUESDAY TT
27	**28**	**29** HOLIDAY BALIPADYAMI	**30**	**31**		

September 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

November 2019

S	M	T	W	Th	F	Sa
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3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

A T M E College of Engineering

NOVEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 HOLIDAY KANNADA RAJYOTSAVA	**2** NON-WORKING
3	**4**	**5**	**6**	**7**	**8**	**9** WORKING FRIDAY TT
10	**11** WORLD SCIENCE DAY	**12** SECOND IA FOR FIRST SEMESTER	**13** SECOND IA FOR FIRST SEMESTER	**14** FIRST IA FOR FIRST SEMESTER	**15** HOLIDAY KANAKADASA JAYANTHI	**16** NON-WORKING
17	**18**	**19**	**20**	**21**	**22** THIRD IA SEMESTERS 3,5 & 7	**23** WORKING TUESDAY TT PTM FIRST YEAR THIRD IA SEMESTERS 3,5 & 7
24	**25** THIRD IA SEMESTERS 3,5 & 7	**26**	**27**	**28**	**29**	**30** LAST WORKING DAY HIGHER SEM WORKING FRIDAY TT

October 2019

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6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

December 2019

S	M	T	W	Th	F	Sa
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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

ATME College of Engineering

DECEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 LAB EXAM COMMENCEMENT HIGHER SEM	4	5	6	7 NON WORKING
8	9	10	11	12	13 THIRD IA FOR FIRST SEMESTER LAB EXAMS END HIGHER SEM	14 WORKING THIRD IA FOR FIRST SEMESTER
15	16 THIRD IA FOR FIRST SEMESTER THEORY EXAMS COMMENCEMENT FOR HIGHER SEM	17	18	19	20	21 NON WORKING LAST WORKING DAY FOR FIRST YEAR
22	23 LAB EXAMS COMMENCEMENT FIRST YEAR	24	25 HOLIDAY CHRISTMAS DAY	26	27	28 WORKING
29	30	31				

November 2019

S	M	T	W	Th	F	Sa
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3	4	5	6	7	8	9
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17	18	19	20	21	22	23
24	25	26	27	28	29	30

January 2020

S	M	T	W	Th	F	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

ATME College of Engineering

ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
1	JANUARY				1	2	3	4		
2		5	6	7	8	9	10	11		
3		12	13	14	15	16	17	18	MAKARA SANKRANTHI	
4		19	20	21	22	23	24	25		
5		26	27	28	29	30	31		REPUBLIC DAY	Training the Trainer Program
5	FEBRUARY							1		
6		2	3	4	5	6	7	8		
7		9	10	11	12	13	14	15		COMMENCEMENT OF EVEN SEMESTER
8		16	17	18	19	20	21	22	MAHA SHIVARATHRI	Alumni Day
9		23	24	25	26	27	28	29		ATMEYA-2020
10	MARCH	1	2	3	4	5	6	7		
11		8	9	10	11	12	13	14		International Wonmen's Day Personality Enhancement Training for 4th Sem Students
12		15	16	17	18	19	20	21		IA-1
13		22	23	24	25	26	27	28	UGADI	First PTM
14		29	30	31						

Dr. L Basavaraj

ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
14					1	2	3	4		
15		5	6	7	8	9	10	11	MAHAVEERJAYANTHI GOOD FRIDAY	ICRTST-2020
16	APRIL	12	13	14	15	16	17	18	DR. AMBEDKAR JAYANTHI	IA Test II
17		19	20	21	22	23	24	25		ATMEYA
18		26	27	28	29	30			BASAVA JAYANTHI	Second PTM
18							1	2	MAY DAY	
19		3	4	5	6	7	8	9		
20	MAY	10	11	12	13	14	15	16		
21		17	18	19	20	21	22	23		IA Test III
22		24	25	26	27	28	29	30	IDUL FITR	Lab Test Week
23		31								
23			1	2	3	4	5	6		Last Working Day
24		7	8	9	10	11	12	13		Practical Examination Schedule
25	JUNE	14	15	16	17	18	19	20		Commencement of Theory Examination, II Sem till 4th July 2020, Higher Semesters till 20th July 2020 Graduation Day
26		21	22	23	24	25	26	27		
27		28	29	30					Non Working Saturdays	The commencement of Odd Semester is from 27th July 2020

Sd-
Dr. L Basavaraj
Principal

* Weekly Mentoring as per time table.
* Attendance will be regulary sent to parents through SMS

PTM dates for higher sem left to the descreption of HoDs.

ATME College of Engineering

Department of Electronics and Communication

JULY 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 WORKSHOP ART OF COUNSELING START DAY	3	4	5	6
7 START OF INTERNSHIP FOR 7TH SEM STUDENTS	8	9 WORKSHOP ART OF COUNSELING END DAY	10	11	12	13
14	15 FACULTY TRAINING MS OFFICE FDP"Advanced Control Theory and LaTeX" START DAY	16	17	18	19 FDP"Advanced Control Theory and LaTeX" END DAY	20
21	22	23	24	25	26	27 NBA CRITERIA 2 & 3 WORKSHOP
28	29 COMMENCEMENT OF ODD SEM 2019-20 III, VI, VII Induction Program 3rd Sem Students	30 Induction Program for 5th Sem Students	31			

June 2019

S	M	T	W	Th	F	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

August 2019

S	M	T	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

ATME College of Engineering

AUGUST 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3 NON-WORKING
4	5	6	7	8 Induction Program For VII Sem Students	9 COMMENCEMENT OF INDUCTION PROGRAM FOR FIRST YEAR	10 WORKING MONDAY TT ORIENTATION PROGRAM FIRST YEAR
11	12 HOLIDAY BAKRID	13	14	15 HOLIDAY INDEPENDENCE DAY	16 Submission of LP, CM	17 NON-WORKING
18	19	20	21	22	23	24 WORKING THURSDAY TT END OF 11 DAYS INDUCTION PRG FOR FIRST YEAR
25	26 COMMENCEMENT OF THEORY CLASSES FOR FIRST YEAR	27	28 Attendance & Syllabus Coverage verification	29	30 First Counseling report verification	31 NON-WORKING

July 2019

S	M	T	W	Th	F	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

A T M E
College of Engineering

SEPTEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 HOLIDAY SWARNA GOWRI VRATAM GANESHA CHATHURTHI	3	4 Workshop on Lab VIEW	5	6	7 WORKING MONDAY TT First Phase Project Review for 7th Sem
8	9	10 10TH DAY OF MUHARRAM	11	12 FIRST IA SEMESTERS 3,5 & 7	13 FIRST IA SEMESTERS 3,5 & 7	14 WORKING TUESDAY TT FIRST IA SEMESTERS 3,5 & 7
15	16	17	18	19	20 Technical Talk on "Recent Trends in Power Electronics" for 3rd semester students	21 NON-WORKING
22	23	24	25	26	27	28 HOLIDAY MAHALAYA AMAVASYA
29	30 One day workshop on VLSI using Cadence for 5th semester students					

August 2019

S	M	T	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

October 2019

S	M	T	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

ATME College of Engineering

OCTOBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2 HOLIDAY 150TH GANDHI JAYANTHI	3 FIRST IA FOR FIRST SEMESTER	4 FIRST IA FOR FIRST SEMESTER	5 WORKING WEDNESDAY TT FIRST IA FOR FIRST SEMESTER
6	7 HOLIDAY AYUDHA POOJA	8 HOLIDAY VIJAYA DASHAMI	9	10	11	12 NON- WORKING
13	14	15	16	17	18 SECOND IA SEMESTERS 3,5 & 7	19 NON-WORKING
20	21 SECOND IA SEMESTERS 3,5 & 7	22 SECOND IA SEMESTERS 3,5 & 7	23	24	25	26 WORKING TUESDAY TT Workshop on "Power Converters using PSPICE" for 7th
27	28	29 HOLIDAY BALIPADYAMI	30	31		

September 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

November 2019

S	M	T	W	Th	F	Sa
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3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

A T M E
College of Engineering

NOVEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 HOLIDAY KANNADA RAJYOTSAVA	2 NON-WORKING
3	4	5	6	7	8	9 WORKING FRIDAY TT
10	11 WORLD SCIENCE DAY	12 SECOND IA FOR FIRST SEMESTER	13 SECOND IA FOR FIRST SEMESTER	14 FIRST IA FOR FIRST SEMESTER	15 HOLIDAY KANAKADASA JAYANTHI	16 NON-WORKING
17	18	19	20	21	22 THIRD IA SEMESTERS 3,5 & 7	23 WORKING MONDA TT PTM FIRST YEAR THIRD IA SEMESTERS 3,5 & 7
24	25 THIRD IA SEMESTERS 3,5 & 7	26	27	28	29	30 LAST WORKING DAY HIGHER SEM WORKING FRIDAY TT

October 2019

S	M	T	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

December 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

A T M E College of Engineering

DECEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 LAB EXAM COMMENCEMENT HIGHER SEM	4	5	6	7 NON WORKING
8	9	10	11	12	13 THIRD IA FOR FIRST SEMESTER LAB EXAMS END HIGHER SEM	14 WORKING THIRD IA FOR FIRST SEMESTER
15	16 THIRD IA FOR FIRST SEMESTER THEORY EXAMS COMMENCEMENT FOR HIGHER SEM	17	18	19	20	21 WORKING LAST WORKING DAY FOR FIRST YEAR
22	23 LAB EXAMS COMMENCEMENT FIRST YEAR	24	25 HOLIDAY CHRISTMAS DAY	26	27	28 NON WORKING
29	30	31				

November 2019

S	M	T	W	Th	F	Sa
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3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

January 2020

S	M	T	W	Th	F	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

ATME College of Engineering

Professor & Head
Dept. of Electronics & Communication
ATME COLLEGE OF ENGINEERING
Mysuru - 570 028

ATME COLLEGE OF ENGINEERING, MYSURU

ATME College of Engineering

Academic Calendar (EVEN SEMESTER, 2019-20)

2nd, 3rd & 4th Year of BE

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE/DEPARTMENT EVENTS
1	JANUARY				1	2	3	4		
2		5	6	7	8	9	10	11		
3		12	13	14	15	16	17	18	MAKARA SANKRANTHI	INTERNSHIP TRAINING FOR 7TH SEM STUDENTS
4		19	20	21	22	23	24	25		
5		26	27	28	29	30	31		REPUBLIC DAY	REVIEW OF PROJECT EVALUATION
5	FEBRUARY							1		
6		2	3	4	5	6	7	8		Workshop on "Recent Trends in Artificial Intelligence & Machine Learning Techniques
7		9	10	11	12	13	14	15		COMMENCEMENT OF EVEN SEMESTER
8		16	17	18	19	20	21	22	MAHA SHIVARATHRI	SEMINAR EVALUATION
9		23	24	25	26	27	28	29		PROJECT EVALUATION
10	MARCH	1	2	3	4	5	6	7		ATMEYA STAGE EVENT
11		8	9	10	11	12	13	14		FIRST IA, Women's Day 2020
12		15	16	17	18	19	20	21		FIRST IA, 2 days Skill Enrichment program (SEP) on Introduction to Swift Programming Language
13		22	23	24	25	26	27	28	CHANDRAMANA UGADI	
14		29	30	31						

ATME College of Engineering

ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
14	APRIL				1	2	3	4		PROJECT EVALUATION
15		5	6	7	8	9	10	11	MAHAVEERJAYANTHI GOOD FRIDAY	International Conference
16		12	13	14	15	16	17	18	DR. AMBEDKAR JAYANTHI	SEMINAR EVALUATION.
17		19	20	21	22	23	24	25		SECOND IA, 25th Alumni Meet
18		26	27	28	29	30			BASAVA JAYANTHI	Technical Talk on "Career Opportunities in Digital Marketing"
18	MAY						1	2	MAY DAY	Technical Talk on"Antennas and electrom Agnetics HAzArds"
19		3	4	5	6	7	8	9		PROJECT EVALUATION.
20		10	11	12	13	14	15	16		SEMINAR EVALUATION
21		17	18	19	20	21	22	23		THIRD IA / PROJECT EXHIBITION
22		24	25	26	27	28	29	30	IDUL FITR	LAB IA
23		31								Technical Talk on: Open Knowledge in Network and Security"
23	JUNE		1	2	3	4	5	6		Last Working Day of Even Semester
24		7	8	9	10	11	12	13		Practical Examination Schedule
25		14	15	16	17	18	19	20		Commencement of Theory Examination, II Sem till 4th July 2020, Higher Semesters till 20th July 2020
26		21	22	23	24	25	26	27		Graduation Day
27		28	29	30					Non Working Saturdays	Commencement of Odd Semester is from 27th July 2020

Sd-
Dr. L Basavaraj
Principal

Professor & Head
Dept. of Electronics & Communication
ATME COLLEGE OF ENGINEERING
Mysuru - 570 028

ATME College of Engineering

Department of Electronics & Communication Engineering

(Accredited by NBA, New Delhi. Validity 01.07.2019 to 30.06.2022)

Lesson Plan & Work-done Diary for AY: 2019-20, ODD Semester

Course with Code: Digital Signal Processing -17EC52				**Faculty:** PRATHIBA M K			**Semester & Section:** V & B	
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
				MODULE-1				
1	29/7/19	Introduction to Discrete Fourier Transforms (DFT)	Chalk & Talk	1	29/7/19	Introduction to DFT	Chalk & Talk	
2	30/7/19	Frequency domain sampling and reconstruction of discrete time signals.	Chalk & Talk	2	31/7/19	Frequency domain sampling & reconstruction of discrete time signals	— " —	
3	31/7/19	DFT as a linear transformation, its relationship with other transforms.	Chalk & Talk	3	1/8/19	Frequency domain sampling & reconstruction of DTS	— " —	
4	1/8/19	DFT as a linear transformation, its relationship with other transforms.	Chalk & Talk	4	5/8/19	Comparision of DTFT & DFT	— " —	
5	5/8/19	Properties of DFT	Chalk & Talk	5	6/8/19	DFT as a linear Transfor	— " —	Each session contains more sub topics
6	6/8/19	Properties of DFT	Chalk & Talk	6	7/8/19	DFT of some std signals	— " —	
7	7/8/19	Properties of DFT	Chalk & Talk	7	8/8/19	Solved two problems using DFT eqns	— " —	
8	8/8/19	Properties of DFT	Chalk & Talk	8	13/8/19	Relationship of DFT with FS/DTFT	— " —	
9	10/8/19	Multiplication of two DFTs-the circular convolution	Chalk & Talk	9	14/8/19	Realtionship of DFT with Z-transform	— " —	

10	13/8/19	Problems based on Multiplication of two DFTs- the circular convolution	Chalk & Talk	10	19/8/19	Linearity property & problem	chalk & talk	Each section contain more subtopics
				11	20/8/19	circular symmetries of a sequence	—"—	
				12	21/8/19	Symmetry properties of DFT	—"—	
				13	22/8/19	Circular convolution formula derivation	—"—	
				14	26/8/19	Difference b/w circular & linear conv & solved problems	—"—	

Course with Code: Digital Signal Processing -17EC52				Faculty: PRATHIBA M K			Semester & Section: V & B	
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
MODULE-2								
11	14/8/19	Additional DFT properties	Chalk & Talk	15	27/8/19	Circular time & frequency shift property	chalk & talk	
12	19/8/19	Additional DFT properties	Chalk & Talk	16	28/8/19	Circular time shift problems	—"—	
13	20/8/19	Use of DFT in linear filtering	Chalk & Talk	14	29/8/19	Frequency shift problems	—"—	
14	21/8/19	Overlap-save method	Chalk & Talk	18	31/8/19	Time reversal property problems	—"—	
15	22/8/19	Overlap-save method	Chalk & Talk	19	3/9/19	DFT of a complex conjugate sequence	—"—	
16	24/8/19	Overlap-add method.	Chalk & Talk	20	5/9/19	problems solved on circular time reversal, FS & time shift	—"—	

17	26/8/19	Overlap-add method.	Chalk & Talk	21	9/9/19	unit test conducted	chalk & talk	
18	27/8/19	Direct computation of DFT	Chalk & Talk	22	11/9/19	Solved the previous year question papers	— " —	
19	28/8/19	Need for efficient computation of the DFT (FFT algorithms).	Chalk & Talk	23	16/9/19	use of DFT in a linear filtering	— " —	
20	29/8/19	Need for efficient computation of the DFT (FFT algorithms algorithms).	Chalk & Talk	24	14/9/19	Problems on overlap - save method	— " —	
				25	18/9/19	Problems on overlap - add method	— " —	
				26	19/9/19	Direct computation of DFT	— " —	
				27	23/9/19	Need for an efficient computation of the DFT, FFT algorithm	— " —	

Course with Code: Digital Signal Processing -17EC52				Faculty: PRATHIBA M K			Semester & Section: V & B	
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
				MODULE-3				
21	3/9/19	Radix-2 FFT algorithm for the computation of DFT and IDFT–decimation-in-time	Chalk & Talk	20	24/9/19	Introduction to Radix 2 FFT algorithm for computation of DFT – DIT	chalk & talk	
22	5/9/19	Radix-2 FFT algorithm for the computation of DFT and IDFT–decimation-in-time algorithm.	Chalk & Talk	29	25/9/19	Derivation of Radix-2-FFT Alg (DIT)	— " —	
23	7/9/19	Radix-2 FFT algorithm for the computation of DFT and IDFT–decimation-in-time algorithm.	Chalk & Talk	30	26/9/19	continuation of DIT	— " —	

24	9/9/19	Radix-2 FFT algorithm for the computation of DFT and IDFT–decimation-in-time algorithm.	Chalk & Talk	31	3/9/19	Solved two problem on DFT DIT	Chalk & talk	
25	11/9/19	Radix-2 FFT algorithm for the computation of DFT and IDFT–decimation-in-frequency algorithm.	Chalk & Talk	32	1/10/19	Introduction to computation of DFT using DIF	—"—	
26	16/9/19	Radix-2 FFT algorithm for the computation of DFT and IDFT–decimation-in-frequency algorithm.	Chalk & Talk	33	3/10/19	continued the derivation of DFT-DIF	—"—	
27	17/9/19	Radix-2 FFT algorithm for the computation of DFT and IDFT–decimation-in-frequency algorithm.	Chalk & Talk	34	9/10/19	comparison b/w DIT & DIF, Inplace computation, problems on DIF	—"—	
28	18/9/19	Radix-2 FFT algorithm for the computation of DFT and IDFT–decimation-in-frequency algorithm.	Chalk & Talk	35	10/10/19	unit test	—"—	
29	19/9/19	Goertzel algorithm	Chalk & Talk	36	14/10/19	Solved two Previous year QP	—"—	
30	23/9/19	Chirp-z transforms.	Chalk & Talk	37	15/10/19	—"—	—"—	
				38	17/10/19	chirp Z-transform	—"—	

Course with Code: Digital Signal Processing -17EC52				Faculty: PRATHIBA M K				Semester & Section: V & B
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
				MODULE-4				
31	24/9/19	Structure for IIR Systems: Direct form	Chalk & Talk	39	23/10/19	Structure for IIR systems: DF	Chalk & talk	
32	25/9/19	Structure for IIR Systems: Direct form,	Chalk & Talk	40	24/10/19	Structure for IIR systems: Cascade form	—"—	
33	26/9/19	Structure for IIR Systems: Cascade form	Chalk & Talk	41	25/10/19	Structure for IIR Systems: Parallel form	—"—	
34	11/10/19	Structure for IIR Systems: Cascade form	Chalk & Talk	45	5/11/19	IIR filter design	—"—	
35	3/10/19	Structure for IIR Systems: Parallel form	Chalk & Talk	46	6/11/19	Analog to analog freq transformation	—"—	
36	5/10/19	IIR filter design: Characteristics of commonly used analog filter – Butterworth & Chebyshev filters	Chalk & Talk	47	7/11/19	Design of IIR filter from analog filter using Butterworth filter & impulse invariance	—"—	
37	9/10/19	Analog to analog frequency transformations.	Chalk & Talk	48	11/11/19	Impulse Invariance BT & problems	—"—	
38	10/10/19	Design of IIR Filters from analog filter using Butterworth filter:	Chalk & Talk	49	11/11/19	Impulse Invariance BT & problems	—"—	
39	14/10/19	Impulse invariance, Bilinear transformation.	Chalk & Talk	50	11/11/19	Impulse Invariance BT & problems	—"—	
40	15/10/19	Bilinear transformation.	Chalk & Talk	50			—"—	

Course with Code: Digital Signal Processing -17EC52				Faculty: PRATHIBA M K			Semester & Section: V & B	
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if ar deviation**
				MODULE-5				
41	16/10/19	Structure for FIR Systems: Direct form	Chalk & Talk	42	30/10/19	Structure of FIR Systems Direct form	chalk & talk	
42	17/10/19	Structure for FIR Systems: Linear Phase	Chalk & Talk	43	31/10/19	Structure of FIR Systems Linear phase Lattice Structure	—"—	
43	23/10/19	Structure for FIR Systems: frequency sampling structure.	Chalk & Talk	44	4/11/19	Structure for FIR Systems Frequency Sampling Structure	—"—	
44	24/10/19	Structure for FIR Systems: Lattice structure.	Chalk & Talk	51	12/11/19	FIR filter design: Rectangular window	—"—	
45	26/10/19	Structure for FIR Systems: Lattice structure.	Chalk & Talk	52	12/11/19	FIR filter design: Hanning & Hamming window	—"—	
46	28/10/19	FIR filter design: Introduction to FIR filters.	Chalk & Talk	53	12/11/19	FIR filter design: Bartlet window	—"—	
47	30/10/19	FIR filter design: Rectangular window	Chalk & Talk					
48	31/10/19	FIR filter design: Hamming window	Chalk & Talk					
49	4/11/19	FIR filter design: Hanning window	Chalk & Talk					
50	5/11/19	FIR filter design: Bartlett window.	Chalk & Talk					

	Activity	Planned	Actual	Remarks
1	Theory Classes	50	53	During the month of Nov Extra Class has been taken.
2	Assignments/ Quizzes/ Self-study	2	2	
3	Tutorials/ Extra classes	-	-	
4	Internal Assessments	3	3	
5	ICT based Teaching (% of usage in Curriculum)	-	-	

Planning	Execution
Faculty Signature:	**Faculty Signature:**
HOD Signature:	**HOD Signature:**

Minutes of Meeting

Agenda: **Date:** 21/10/2019

- **Syllabus coverage and Plan of action**
- **Attendance status**
- **NBA**

- Faculty members handling 7th semester are informed to collect CERP attendance from 7th semester class tecaher and placement attendance placement coordinator.
- By now if 3.5 modules should have been covered. If not, action plan to cover the remaining syllabus must be given to HOD.
- Lateral entry class teacher is informed to give lesson plan date wise to cover the portions by 21/10/2019.
- Ms. Anupama Shetter is given in charge to create and maintain Google form regarding the ICT based teaching carried out by faculty members every week.
- All the faculty members are informed to carry the print out of student profile to the classes.
- CERP counseling should be carried out by faculty members mandatorily.
- After revaluation results, 2 members from 3rd semester, 3 members from 5th semester and 2 members from 7th semester have been detained. Faculty members are informed to remove their names from the attendance list and improve students results to avoid detainees.
- Peer review status should be submitted to HOD sir by Dr. Bhagyashree S R, Dr. Prakash Kuravatti and Dr. Yathisha L by 21/10/2019.
- Machine Learning Workshop to be conducted to final year students with 2nd week of commencement of 2019-20 even semester. Harshitha N and Manjunath K are informed to take complete responsibility of the workshop.
- All the faculty members are informed to take print out do's and don'ts in classroom.

- Class teachers are informed to identify weak and bright students and share the google form with the counselors.
- Project committee members should finalize pending works by 21/10/2019.
- All the faculty members are informed to maintain a book regarding students project and seminar meetings.
- 2018-19 SAR should be updated. All the faculty members are informed to go through SAR as many times as possible to understand and complete the assigned work without any doubts.
- All the faculty members are informed to update SAR in Latex.
- Below is the list of allotted R-files, C-files and criteria files for 2018-19 SAR updation. The last date to complete the allotted work is 10/11/2019.

Sl No	Allotted work	Faculty members	
1	Criterion-1, all 'R' files and all 'P' files updation.	Dr. Prakash Kuravtti Ms. Anupama Shetter Mrs. Keerthi Kumbar	
2	Criterion-6	Mrs. Prathiba M K Mr. Guruprasad K N Mr. Manjunath H R	
3	Criterio-4 and criterion-5	Dr. S R Bhagyashree Mrs. A C Pavithra Mr. Guruprasad K N Mr. Pradeep Kumar Y Mr. Chandrashekar P Ms. Darshini M B	
4	Criterion-2, criterion-3 and Criterion-7	Dr. Yathisha L Mr. Abhilash G Mr. Manjunath K Mr. Prajwalasimha S N Mr. Girish M Mrs. Harshitha N Mrs. Juslin F	

ATME College of Engineering

Department of Electronics and Communication

Sl. No	Faculty Name	Signature	Sl. No.	Faculty Name	Signature
1	Dr. S R Bhagyashree		10	Mr. Prajwalasimha S N	
2	Dr. Prakash Kuravatti		11	Mr. Manjunath K	
3	Dr. Yathisha L		12	Mr. Girish M	
4	Mrs. Prathiba M K		13	Ms. Darshini M B	
5	Mr. Shashidhar S Gokhale		14	Mrs. Harshitha N	
6	Mrs. A C Pavithra		15	Mrs. Juslin F	
7	Mr. Guruprasad K N		16	Ms. Anupama shetter	
8	Mr. Pradeep Kumar.Y		17	Mrs Keerthi A Kumbar	
8	Mr. Abhilash G		18	Mrs. Shalini V S	
9	Mr. Chandrashekar P				

COURSE MODULE

Faculty Name/s: **Mr. Chandra Shekar P**			Academic Year: **2019-20**				
Department: **Electronica and Communication Engineering**							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
17EC54	**Information Theory and Coding (ITC)**	**Core**	**Knowledge about the probability theory, linear algebra, random processes and communication systems**	**4**	**-**	**-**	**50**

Course objectives: This course (17EC54) will enable students to:

CLO1: Understand the concept of Entropy, Rate of information and order of the source with reference to dependent and independent source.

CLO2: Study various source encoding algorithms.

CLO3: Model discrete & continuous communication channels.

CLO4: Study various error control coding algorithms.

Topics Covered as per Syllabus

MODULE-1

Information Theory: Introduction, Measure of information, Information content of message, Average Information content of symbols in Long Independent sequences, Average Information content of symbols in Long dependent sequences, Markov Statistical Model of Information Sources, Entropy and Information rate of Markoff Sources

(RBT: L1, L2 and L3)

MODULE-2

Source Coding: Source coding theorem, Prefix Codes, Kraft McMillan Inequality property – KMI.
Encoding of the Source Output, Shannon's Encoding Algorithm.
Shannon Fano Encoding Algorithm, Huffman codes, Extended Huffman coding, Arithmetic Coding, Lempel – Ziv Algorithm.

(RBT: L1, L2 and L3)

MODULE - 3

Information Channels: Communication Channels. Channel Models, Channel Matrix, Joint probability Matrix, Binary Symmetric Channel, System Entropies, Mutual Information, Channel Capacity, Channel Capacity of : Binary Symmetric Channel, Binary Erasure Channel, Muroga,s Theorem, Continuous Channels.

(RBT: L1, L2 and L3)

MODULE-4

Error Control Coding: Introduction, Examples of Error control coding, methods of Controlling Errors, Types of Errors, types of Codes, Linear Block Codes: matrix description of Linear Block Codes, Error Detection and Error Correction Capabilities of Linear Block Codes, Single Error Correcting Hamming Codes, Table lookup Decoding using Standard Array.

Binary Cyclic Codes: Algebraic Structure of Cyclic Codes, Encoding using an (n-k) Bit Shift register, Syndrome Calculation, Error Detection and Correction

(RBT: L1, L2 and L3)

MODULE-5

Some Important Cyclic Codes: Golay Codes, BCH Codes.

Convolution Codes: Convolution Encoder, Time domain approach, Transform domain approach, Code Tree, Trellis and State Diagram, The Viterbi Algorithm.

(RBT: L1, L2 and L3)

List of Text Books

1. **Digital and analog communication systems,** K. Sam Shanmugam, John Wiley India Pvt. Ltd, 1996.
2. **Digital communication,** Simon Haykin, John Wiley India Pvt. Ltd, 2008.
3. **Information Theory and Coding,** Muralidhar Kulkarni, K.S. Shivaprakasha, Wiley India Pvt. Ltd, 2015, ISBN:978-81-265-5305-1.

List of Reference Books

1. ITC and Cryptography, Ranjan Bose, TMH, II edition, 2007

Engineering
3. Digital Communications – Fundamentals and Applications, Bernard Sklar, Second Edition, Pearson Education, 2016, ISBN: 9780134724058.
4. Information Theory and Coding, K.N.Haribhat, D.Ganesh Rao, Cengage Learning, 2017.

List of URLs, Text Books, Notes, Multimedia Content, etc

1.http://www.cl.cam.ac.uk/teaching/exams/pastpapers/t-InformationTheoryandCoding.html
2. http://freevideolectures.com/Course/3052/Information-Theory-and-Coding/2
Printed Copy (Soft Copy): Available

Course Outcomes: Students will be able to

1. ***Explain*** concept of Dependent & Independent Source, measure of information, Entropy, Rate of Information and Order of a source
2. ***Represent*** the information using Shannon Encoding, Shannon Fano, Prefix and Huffman Encoding Algorithms
3. ***Model*** the continuous and discrete communication channels using input, output and joint probabilities
4. ***Determine*** a codeword comprising of the check bits computed using Linear Block codes, cyclic codes & convolutional codes
5. ***Design*** the encoding and decoding circuits for Linear Block codes, cyclic codes, convolutional codes, BCH and Golay codes

Internal Assessment Marks: 40 (30 Marks three Session tests are conducted during the semester and marks allotted based on the average of three performances and additional 10 Marks for Assignments /Unit tests/ written quizzes).

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	17EC54	**TITLE:** Information Theory and Coding										
List of Course Outcomes	**Program Outcomes**											
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO-1	3	2	1	1	-	-	-	2	-	-	-	2
CO-2	3	3	1	1	-	-	-	2	-	-	-	2
CO-3	3	2	2	1	-	-	-	1	-	-	-	2
CO-4	3	3	2	2	-	-	-	1	-	-	-	2
CO-5	3	2	3	2	-	-	-	1	-	-	-	2

The Correlation of Course Outcomes (CO's) and Program Specific Outcomes (PSO's)

Subject Code:	17EC54 **TITLE:** Information Theory and Coding	
List of Course Outcomes	**Program Specific Outcomes**	
	PSO1	**PSO2**
CO-1	2	2
CO-2	3	2
CO-3	2	2
CO-4	3	2
CO-5	2	2

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution

Professor & Head
Dept. of Electronics & Communication
ATME COLLEGE OF ENGINEERING
Mysuru - 570 028

A T M E
College of Engineering

ATME COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRONICS AND COMMUNICATION
TIME TABLE - 2019-20

Faculty Name: Mr. Chandrashekar P

DAY / TIME	09.00 - 10.00	10.00 -11.00	11.00 -11.15	11.15 - 12.15	12.15 - 01.15	01.15 - 2.00	02.00 - 02.55	02.55 - 03.50	03.50 - 04.45
Mon	ITC(B)		TEA BREAK	ITC(B)		LUNCH BREAK	A2:HDL LAB		
Tue		MMC(B)					ITC(B)		
Wed	A1: HDL LAB				MMC(B)		MMC(B)		
Thu				MMC(B)			B3: VLSI LAB		
Fri	B1: VLSI LAB						ITC(B)		
Sat									

Time Table Coordinators

HOD

Module:1 Information Theory

Introduction:

In the design and analysis of a Communication system two important things need to be considered. (1) If information source is given, how to evaluate the rate at which the source is emitting information (2). If a noisy communication channel is given, how do we evaluate the maximum "rate" at which reliable information transmission can take place over the channel.

Information sources can be classified into two categories (1) Analog (continuous-valued) & (2) Discrete

Analog source emits a continuous electrical waveform
Discrete source emits a sequence of symbols.
The output of the discrete information source is a string or sequence of symbol.

The meaning of the word "information" in information theory is "message". It can be an electrical msg such as vtg or current or power or speech message or picture message. A source which produces these messages is called information source.

The block diagram of an information system is shown in figure(a).

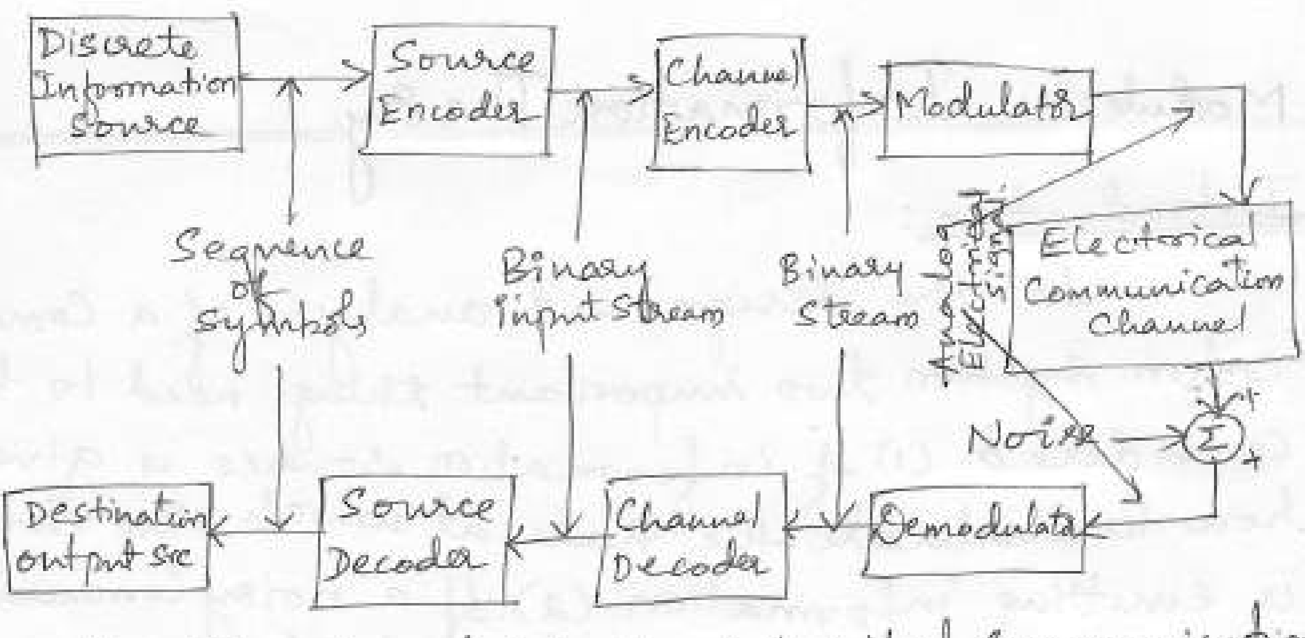
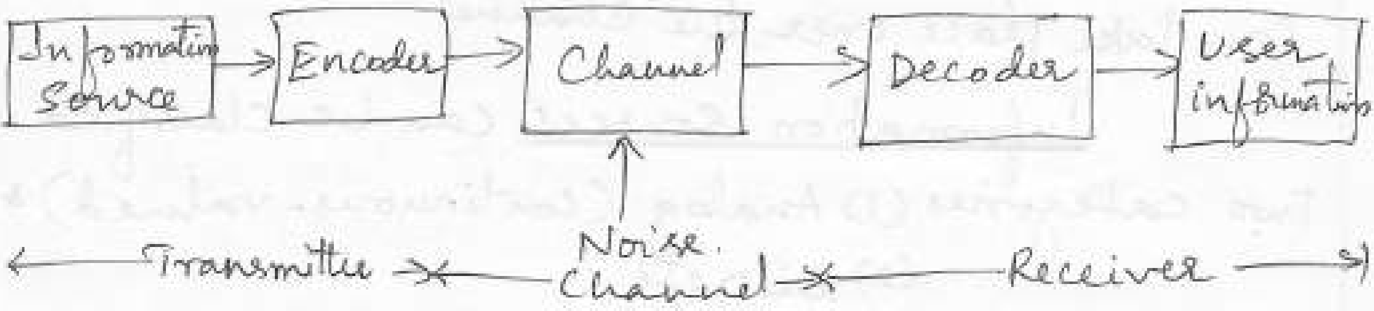


fig: Functional blocks of Digital Communication System.



fig(a): Block diagram of Information System.

In the block diagram, Let us assume that the Information Source is a discrete source emitting discrete message symbols $s_1, s_2 \ldots s_q$ with the probabilities of occurrence $p_1, p_2 \ldots p_q$ respectively. The sum of all these probabilities must be equal to unity.

Source Encoder converts the symbol sequence into a binary sequence of 0's & 1's. by assigning code-words to the symbols in the input sequence. Source Symbols occur at the rate of "r_s" symbols/second.

A <u>communication channel</u> provides electrical connection between the source & destination. The signals will be corrupted by unwanted unpredictable electrical signal referred as Noise. The main objective of a communication system design is to reduce the ill effects of noise as much as possible.

<u>Source Decoder</u> converts binary output of the channel decoder into a symbol sequence.

The <u>transmitter</u> couples the i/p message signal to the channel. And the <u>Receiver</u> will always identify the symbol sequence & match it with the correct sequence.

<u>Measure of Information</u>:

A measure is necessary to know the information content of various messages produced by an information source.

Let us consider an information source producing independent sequence of symbols from source alphabet $S = \{s_1, s_2 \ldots s_q\}$ with probabilities $P = \{p_1, p_2 \ldots p_q\}$ respectively.

Let S_K be a symbol chosen for transmission at any instant of time with a probability P_K, then the Amount of information or self information of S_K is given by

$$I_K \propto \frac{1}{P_K} \quad \text{or} \quad \boxed{I_K = \log_2 \frac{1}{P_K}} \text{ bits.}$$

Note: If the base of logarithm is 2, then the units are called **Bits**, If the base is 10, unit is Hartleys or Decits. If the base is e, units is **Nats**.

Logarithmic expression is chosen for measuring information because of the following reasons.

(1) The information content or self information of any message cannot be negative. Each message must contain certain amount of information.

(2) The lowest possible self-information is zero. Which occurs for a sure event i.e., p(sure event) = 1

(3) More information is carried by a less likely message.

(4) When independent symbols are transmitted, the total self information must be equal to the sum of individual self informations.

i.e, $I_{KJ} = I_K + I_J$.

P1. The binary symbols 0's & 1's are transmitted with probabilities 1/4 & 3/4 respectively. Find self information

Sol:

Self information of '0' symbol, $I_0 = \log_2 \frac{1}{P_0}$

$$I_0 = \log_2 4 = \underline{2 \text{ bits}}$$

Self information of '1' symbol, $I_1 = \log_2 \frac{1}{P_1}$

$$I_1 = \log_2 4/3 = \frac{\log_{10} 4/3}{\log_{10} 2} = 0.\underline{415} \text{ bits}$$

It is observed, more information is carried by less likely mess.

Average Information Content (Entropy) of Symbols in long independent sequences

Let us consider the source alphabet $S = \{s1, s2, \ldots sq\}$ with probabilities $P = \{P1, P2 - Pq\}$ respectively. Lect us consider a long independent sequence of length 'L' symbols. This long sequence then contains P_1L number of messages of type $s1$

P_2L number of messages of type $s2$

⋮

P_qL number of messages of type sq.

W.K.T self information of $s1$ is $I_1 = \log_2 \frac{1}{P_1}$ bits.

∴ P_1L no. of messages of type $s1$ contains $P_1 L \log \frac{1}{P_1}$ bits of infⁿ

P_2L no. of messages of type $s2$ contains $P_2L\log\frac{1}{P_2}$ bits of infⁿ

⋮

P_qL no. of messages of type sq contains $P_qL\log\frac{1}{P_q}$ bits of infⁿ.

Then the total self-information content of msg symbols is given by $I_{total} = P_1L\log\frac{1}{P_1} + P_2L\log\frac{1}{P_2} + \cdots + P_qL\log\frac{1}{P_q}$ bits

$$= L\sum_{i=1}^{q} P_i \log\frac{1}{P_i}$$

∴ Average self-information $= \frac{I_{total}}{L}$

$$\boxed{H(S) = \sum_{i=1}^{q} P_i \log \frac{1}{P_i}} \text{ bits/symbol}$$

Average self information is called Entropy of source 'S' is denoted by $H(S)$.

Information Rate: Average source information rate

It is defined as the product of the average information content per symbol and symbol rate "r_s".

Symbol rate "r_s" is the fixed rate at which the symbols are emitted by the source. (symbol/sec)

$$\therefore \boxed{R_s = r_s \cdot H(S) \text{ bits/sec}}$$

P2. A discrete source emits one of six symbols once every m-sec. The symbol probabilities are $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \frac{1}{32}$ & $\frac{1}{32}$ respectively. Find the source entropy and information rate.

Solⁿ: Entropy of source $H(S) = \sum_{i=1}^{6} p_i \log \frac{1}{p_i}$

$$H(S) = \frac{1}{2}\log_2 2 + \frac{1}{4}\log_2 4 + \frac{1}{8}\log_2 8 + \frac{1}{16}\log_2 16 + 2\,\frac{1}{32}\log_2 32$$

$$\boxed{H(S) = 1.9375 \text{ bits/sym}}$$

Information rate; $R_s = r_s \cdot H(S)$

$r_s = 1$ symbol/m-sec

$r_s = 10^3$ sym/sec.

$$\therefore R_s = 10^3 \times 1.9375$$

$$\boxed{R_s = 1937.5 \text{ bits/sec}}$$

P3. A code is composed of dots and dashes. Assume that a dash is 3 times as long as a dot and has one-third the probability of occurrence. Calculate
(i) The information in a dot and a dash.
(ii) The entropy of dot-dash code.
(iii) The average rate of information if a dot lasts for 10 m-sec and this time is allowed between symbols.

Sol^n:

$$P_{dot} + P_{dash} = 1$$

Given $P_{dash} = \frac{1}{3} P_{dot}$

$\therefore P_{dot} + \frac{1}{3} P_{dot} = 1$

$$\underline{P_{dot} = \frac{3}{4}} \quad \& \quad P_{dash} = \frac{1}{3} \times \frac{3}{4} = \underline{\frac{1}{4}}$$

(i) Information in a dot; $I_{dot} = \log \frac{1}{P_{dot}} = \log_2 \frac{4}{3} = \underline{\underline{0.415 \text{ bits}}}$

Information in a dash; $I_{dash} = \log \frac{1}{P_{dash}} = \log_2 4 = \underline{\underline{2 \text{ bits}}}$

(ii) Entropy of dot-dash code is $H(S) = \sum_{i=1}^{2} P_i \log \frac{1}{P_i}$

$$H(S) = P_{dot} \log_2 \frac{1}{P_{dot}} + P_{dash} \log_2 \frac{1}{P_{dash}}$$

$$= \frac{3}{4} \log_2 4/3 + \frac{1}{4} \log_2 4$$

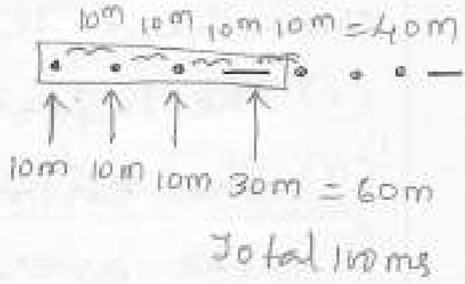
$H(S) = \underline{\underline{0.8113}}$ bits/sym

(iii) For every 4 symbols sent, there will be 3 dots and 1 dash. With dot lasts for 10 msec & dash lasts for 30 msec. & with a gap of 10m-sec b/w two successive symbols, $\therefore$ A total of 100 m-sec is required to transmit 4 symbols

$\therefore$ Symbol rate $= r_s = \dfrac{4 \text{ Symbols}}{100 \text{ m-sec}}$

$$r_s = \underline{40} \text{ sym/sec}$$

Information rate $= R_s = r_s \cdot H(S)$



$$R_s = 40 \times 0.8113$$

$$\boxed{R_s = 32.452 \text{ bits/sec}}$$

P4. A card is drawn from a deck.

(i) You are told it is a Spade. How much Information did you receive?

(ii) How much information did you receive if you are told that the card drawn is an ace?

(iii) If you are told that the card drawn is an ace of Spades, how much information did you receive?

(iv) Is is information obtained in (iii) is the sum of informations obtained in (i) & (ii)?

Soln: There will be 52 cards in a deck with

13 Spade (2, 3, 4 - - - . 10, Ace, J, K & Q)

IIIly 13 Heart, 13 Clover & 13 Diamond Shape cards.

(i) Since there are 13 Spade cards in a deck of 52 cards

$$P_{spade} = \frac{13}{52} = \frac{1}{4}$$

Self infn; $I_{spade} = \log_2 \dfrac{1}{P_{spade}} = \log_2 4 = \underline{2 \text{ bits}}$

(ii) There are 4 ace in a deck of 52 cards.

$$P_{ace} = \frac{4}{32} = \frac{1}{13}$$

$\therefore$ Self infn; $I_{ace} = \log_2 \dfrac{1}{P_{ace}} = \log_2 13 = \underline{3.7 \text{ bits}}$

(iii) There is only one ace of spades in a deck of 52 cards

$\therefore P_{\text{ace of spade}} = \frac{1}{52}$

Self information; $I_{\text{ace of spade}} = \log_2 \frac{1}{P_{\text{ace of spade}}}$

$I_{\text{ace of spade}} = \log_2 52 = \underline{5.7 \text{ bits}}$

(iv) Yes, The information obtained in (iii) is the sum of (i) & (ii) ie., Total self information must be equal to individual self information.

$$I_{\text{ace of spade}} = I_{\text{ace}} + I_{\text{spade}}$$

$$5.7 = 2 + 3.7 = 5.7$$

PS. Find the relationship between Hartleys, bits & nats.

Sol^n: W.K.T by the def^n of self information with respect to nats, bits & decits (Hartleys) is given by

$I = \log_{10} \frac{1}{p}$ Hartleys, $I = \log_2 \frac{1}{p}$ bits, $I = \log_e \frac{1}{p}$ nats.

$$1 \text{ Hartleys} = \frac{I}{\log_{10} \frac{1}{p}} = \frac{\log_e 1/p}{\log_{10} 1/p} \text{ nats}$$

$$= \frac{+\log_e p}{+\log_{10} p} \text{ nats}$$

$$= \frac{\frac{1}{\log_p e}}{\frac{1}{\log_p 10}} \qquad \log_a b = \frac{1}{\log_b a}$$

$$1 \text{ Hartleys} = \frac{\log_p 10}{\log_p e} = \log_e 10 = \ln 10 \text{ nats} = 2.30 \text{ nats}$$

$$1 \text{ Hartleys} = \log_e 10 \text{ nats}$$

$$\boxed{1 \text{ Hartleys} = 2.30 \text{ nats}}$$

III^{ly} $$1 \text{ Hartleys} = \log_2 10 \text{ bits}$$

$$\boxed{1 \text{ Hartleys} = 3.32 \text{ bits}}$$

$$1 \text{ bits} = \log_{10} 2 \text{ Hartleys} = \frac{1}{3.32} \text{ Hartleys}$$

$$\boxed{1 \text{ bits} = 0.30 \text{ Hartleys}}$$

$$1 \text{ bits} = \log_e 2 \text{ nats} = \ln 2 \text{ nats}$$

$$\boxed{1 \text{ bits} = 0.693 \text{ nats}}$$

$$1 \text{ nats} = \log_2 e \text{ bits} = \frac{1}{\log_e 2} = \frac{1}{\ln 2} = \frac{1}{0.693} \text{ bits}$$

$$\boxed{1 \text{ nats} = 1.443 \text{ bits}}$$

$$1 \text{ nats} = \log_{10} e \text{ Hartleys} = \frac{1}{\log_e 10} = \frac{1}{\ln 10} = \frac{1}{2.3} \text{ Hartleys}$$

$$\boxed{1 \text{ nats} = 0.43 \text{ Hartleys}}$$

P6. Find the entropy of a source in nats/sym. of a src. that emits one out of 4 symbols with probabilities $\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$ & $\frac{1}{8}$ resp.

Sol:
$$H(s) = \sum_{i=1}^{4} P_i \log \frac{1}{P_i} = \frac{1}{2}\log_2 2 + \frac{1}{4}\log_2 4 + \left(\frac{1}{8}\log_2 8\right)2$$

$$\boxed{H(s) = 1.75 \text{ bits/sym}}$$

W.K.T $1 \text{ bits} = 0.693 \text{ nats}$

$$\therefore H(s) = 1.75 \times 0.693 \text{ nats/sym}$$

$$\boxed{H(s) = 1.213 \text{ nats/sym}}$$

P7. A binary source is emitting an independent sequence of 0's & 1's with probabilities p & (1-p) respectively. Plot the entropy of source versus p. & Comment on result.

Sol^n: Entropy of binary source is given by

$$H(s) = \sum_{i=1}^{2} P_i \log \frac{1}{P_i}$$

$$= P_1 \log \frac{1}{P_1} + P_2 \log \frac{1}{P_2}$$

$$\boxed{H(s) = p \log \frac{1}{p} + (1-p) \log \frac{1}{1-p}}$$

$p = 0.1$, $1-p = 0.9$; $H(s) = 0.1 \log \frac{1}{0.1} + 0.9 \log \frac{1}{0.9} = 0.469$ b/s.

$p = 0.2$, $1-p = 0.8$; $H(s) = 0.2 \log \frac{1}{0.2} + 0.8 \log \frac{1}{0.8} = 0.722$ bits/sym

$p = 0.3$, $1-p = 0.7$; $H(s) = 0.3 \log \frac{1}{0.3} + 0.7 \log \frac{1}{0.7} = 0.881$ bits/sym

$p = 0.4$, $1-p = 0.6$; $H(s) = 0.4 \log \frac{1}{0.4} + 0.6 \log \frac{1}{0.6} = 0.971$ bits/sym

$p = 0.5$, $1-p = 0.5$; $H(s) = \left(0.5 \log \frac{1}{0.5}\right)^2 = 1$ bits/sym.

for $p = 0$ & $p = 1$; $H(s) = 0$.

P	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
H(s)	0	0.469	0.722	0.881	0.971	1	0.971	0.881	0.722	0.469	0

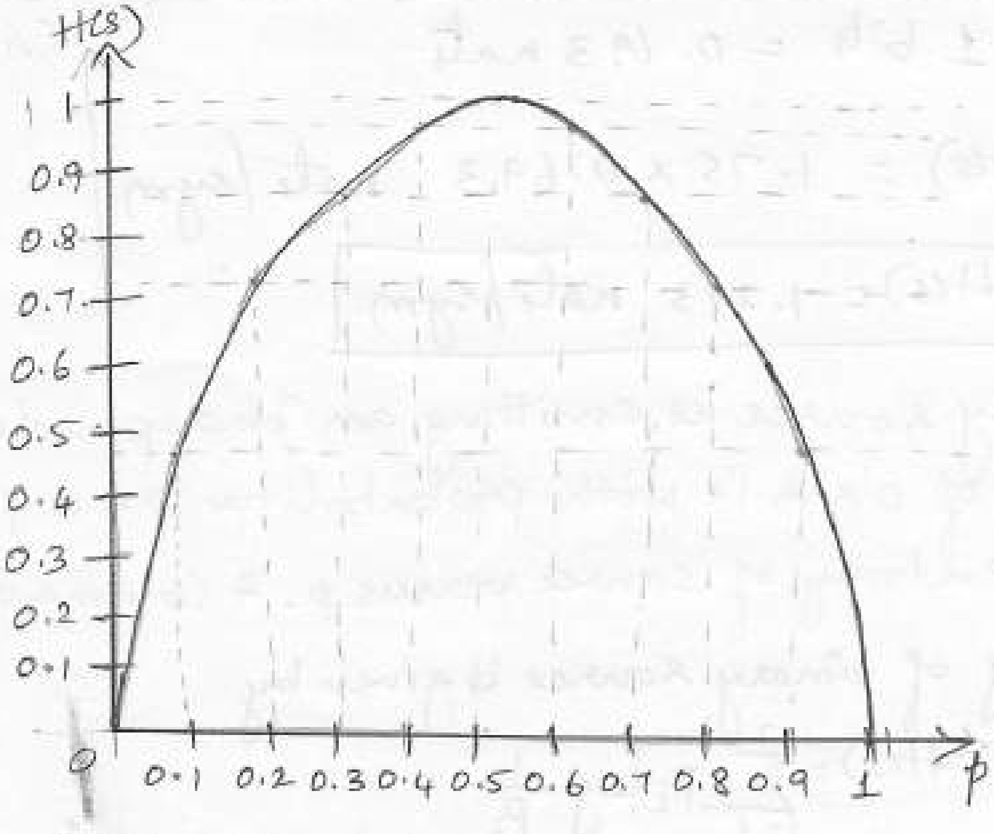


fig: plot of H(s) versus p

- Entropy function is continuous & symmetrical function of its arguments.

Properties of Entropy:

1. The entropy function is continuous for every independent variable p_k in the interval (0, 1) ie., p_k varies continuously from 0 & 1, Entropy function vanishes at both $p_k = 0$ & $p_k = 1$
2. The entropy function is symmetrical function of its arguments. ie, $H[p_k, (1-p_k)] = H[(1-p_k), p_k]$ for all $K = 1, 2, 3 \ldots q$.
3. Extremal Property: Entropy attains a "maximum value" when all the source symbols becomes equiprobable. ie, $\boxed{H(S)_{max} = \log_2 q \text{ bits/symbol}}$ where 'q' is the number of symbols in a source

4. Additive Property: The partitioning of symbols into sub-symbols cannot decrease the entropy.

ie., $H'(S) = H(S) + \text{a positive quantity}$

$$H'(S) \geq H(S)$$

5. Source Efficiency: It is the ratio of entropy of source to maximum entropy of source & is given by

$$\boxed{\eta_s = \frac{H(S)}{H(S)_{max}}}$$

Source Redundancy: $\boxed{R_{\eta_s} = 1 - \eta_s}$

Both η_s & R_{η_s} are expressed interms of percentage

P8. A black & white TV picture consists of 525 lines of picture information. Assume that each line consists of 525 picture elements (pixels) & that each element can have 256 brightness levels. Pictures are repeated at the rate of 30 frames/sec. Calculate the average rate of information conveyed by a TV set to a viewer

Soln: TV frame consisting of 525 horizontal lines with each line containing 525 pixels.

$\therefore$ Total number of pixels in one frame $= 525 \times 525$
$= 2,75,625$ pixels.

Given that each pixel has 256 different brightness level.

$\therefore$ Total no. of different frames possible $= 2^{525 \times 525}$ frames.

Let us assume that all these frames occur with equal probability $\therefore$ maximum information content per frame is

$H(S)_{max} = \log q$

$H(s)_{max} = \log_2 (256)^{585 \times 525}$

$= 2,75,625 . \log_2 256$

$H(s)_{max} = \underline{22.05 \times 10^5}$ bits/frame

Given that $r_s = 30$ frames/sec.

Avg. rate of information; $R_s = r_s . H(s)_{max}$

$R_s = 30 \times 22.05 \times 10^5$

$\boxed{R_s = 66.15 \times 10^5 \text{ bits/sec}}$

P9. A discrete source "S" emits two independent symbols X & Y with probabilities 0.55 & 0.45 respectively. Calculate the efficiency & redundancy of the source.

Sol:

$$H(s) = \sum_{i=1}^{2} P_i \log \frac{1}{P_i}$$

$$= 0.55 \log \frac{1}{0.55} + 0.45 \log \frac{1}{0.45}$$

$H(s) = \underline{0.9928}$ bits/sym

Maximum entropy $H(s)_{max} = \log_2 q = \log_2 2 = \underline{1 \text{ bits/sym}}$

Source efficiency: $\eta_s = \frac{H(s)}{H(s)_{max}}$

$$= \frac{0.9928}{1}$$

$\eta_s = \underline{99.28\%}$

Source Redundancy $R_{\eta_s} = 1 - \eta_s = 1 - 0.9928$

$R_{\eta_s} = \underline{0.72\%}$

Extension of Zero memory Source:

Zero memory source or Memoryless Source is a type of source, in which there is no connection between any two symbols and that the source has no memory.

Extension of zero memory source becomes a necessity in some of the coding situations. Let us consider a binary source 'S' emitting symbols s_1 & s_2 with probabilities p_1 & p_2 respectively such that

$$p_1 + p_2 = 1$$

Then the 2^{nd} extension of binary source will have [(number of basic source symbol)^{extension}] i.e., $2^2 = 4$ symbols.

$$s_1 s_1 \rightarrow p_1 p_1 = p_1^2$$
$$s_1 s_2 \rightarrow p_1 p_2 = p_1 p_2$$
$$s_2 s_1 \rightarrow p_2 p_1 = p_2 p_1$$
$$s_2 s_2 \rightarrow p_2 p_2 = p_2^2.$$

Sum of all probabilities of the 2^{nd} extendend source is equal to unity

$$p_1^2 + p_1 p_2 + p_2 p_1 + p_2^2 = 1$$

$$(p_1 + p_2)^2 = 1.$$

Entropy of basic binary source is given by

$$H(S) = \sum_{i=1}^{2} p_i \log \frac{1}{p_i} = p_1 \log \frac{1}{p_1} + p_2 \log \frac{1}{p_2}.$$

Entropy of 2^{nd} extended source is given by

$$H(S^2) = \sum_{i=1}^{4} P_i \log \frac{1}{P_i}$$

$$= p_1^2 \log \frac{1}{p_1^2} + p_1 p_2 \log \frac{1}{p_1 p_2} + p_1 p_2 \log \frac{1}{p_1 p_2} + p_2^2 \log \frac{1}{p_2^2}$$

$$= 2p_1^2 \log\frac{1}{p_1} + 2p_1p_2\log\frac{1}{p_1p_2} + 2p_2^2\log\frac{1}{p_2}$$

$$= 2p_1^2\log\frac{1}{p_1} + 2p_1p_2\log\frac{1}{p_1} + 2p_1p_2\log\frac{1}{p_2} + 2p_2^2\log\frac{1}{p_2}$$

$$= 2p_1\left[p_1\log\frac{1}{p_1} + p_2\log\frac{1}{p_2}\right] + 2p_2\left[p_1\log\frac{1}{p_1} + p_2\log\frac{1}{p_2}\right]$$

$$= 2\left(p_1\log\frac{1}{p_1} + p_2\log\frac{1}{p_2}\right)\left[p_1 + p_2\right] \quad \because \log\frac{1}{p_1p_2} = \log\frac{1}{p_1} + \log\frac{1}{p_2}$$

$$H(S^2) = 2.\left\{p_1\log\frac{1}{p_1} + p_2\log\frac{1}{p_2}\right\} \quad \because p_1 + p_2 = 1$$

$$\boxed{H(S^2) = 2.H(S)}$$

IIIly for 3rd extension $H(S^3) = 3.H(S)$.

In general, n^{th} extension of the basic binary source will have 2^n symbols and the entropy of the n^{th} extended source is given by

$$\boxed{H(S^n) = n.H(S)}$$

P10. Consider a discrete memoryless source with source alphabet $S = \{s1, s2, s3\}$ with probabilities $P = \{\frac{1}{2}, \frac{1}{4}, \frac{1}{4}\}$. Find the entropy of this source. Also determine the entropy of its 2nd extension & verify that $H(S^2) = 2.H(S)$

Solⁿ: Basic Source with 3 symbols;

$$H(S) = \sum_{i=1}^{3} p_i \log\frac{1}{p_i}$$

$$= \frac{1}{2}\log 2 + 2\left(\frac{1}{4}\log_2 4\right)$$

$$H(S) = \underline{1.5} \text{ bits/sym}$$

The 2nd extension of basic source with 3 symbols will have $3^2 = 9$ symbols.

$s_1 s_1 = \frac{1}{2} \cdot \frac{1}{2} = 1/4$

$s_1 s_2 = 1/2 \cdot 1/4 = 1/8$

$s_1 s_3 = 1/2 \cdot 1/4 = 1/8$

$s_2 s_1 = 1/4 \cdot 1/2 = 1/8$

$s_2 s_2 = 1/4 \cdot 1/4 = 1/16$

$s_2 s_3 = 1/4 \cdot 1/4 = 1/16$

$s_3 s_1 = 1/4 \cdot 1/2 = 1/8$

$s_3 s_2 = 1/4 \cdot 1/4 = 1/16$

$s_3 s_3 = 1/4 \cdot 1/4 = 1/16$.

$$H(S^2) = \sum_{j=1}^{9} P_i \log \frac{1}{P_i}$$

$$H(S^2) = \frac{1}{4}\log_2 4 + \left(\frac{1}{8}\log_2 8\right)4 + \left(\frac{1}{16}\log_2 16\right)4$$

$$H(S^2) = \underline{\underline{3 \text{ bits/sym.}}}$$

Also $H(S^2) = 2 \cdot H(S)$

$3 = 2 \times 1.5$

$\underline{\underline{3 = 3}}$ Proved.

<u>Note:</u> Sum of all the probabilities of 2nd extended source symbols must be equal to 1.

P11. An analog signal is band limited to 500 Hz and is sampled at "Nyquist rate". The samples are quantized into 4 levels. The quantization levels are assumed to be independent & occur with probability $P_1 = P_4 = \frac{1}{8}$, $P_2 = P_3 = \frac{3}{8}$. Find the information rate of the source.

Soln:

$$H(S) = \sum_{i=1}^{4} P_i \log \frac{1}{P_i} = \left(\frac{1}{8}\log_2 8\right)2 + \left(\frac{3}{8}\log_2 8/3\right)2$$

$H(S) = \underline{\underline{1.8113}}$ bits/sym & level

Since the signal is sampled at Nyquist rate, symbol rate "r_s" is $r_s = 2 \cdot B = 2 \times 500 = \underline{1000}$ symbols/sec.

$\therefore$ Information rate. $R_s = r_s \cdot H(S)$

$= 1000 \times 1.8113$

$\boxed{R_s = 1811 \text{ bit/sec}}$

Average Information Content of Symbols in Long dependent Sequences.

All practical sources emit sequence of symbols that are statistically dependent. In the real-life sources, there is intersymbol influence present, such that the occurrence of x_1 in the zeroth position s_0 of message depends on previous 'q' symbol. Such source is known as q^{th} order "Markoff Source & Markov Source" & are specified by a set of conditional probabilities. $p(x/s_1, s_2 .. s_q)$ Since $p(x_i)$ depends on earlier 'q' symbols, the transitional probabilities are shown in state diagram.

Entropy & Information Rate of Markoff Source:

H_i is defined as average information content of the symbols emitted from the i^{th} state.

$$\therefore \boxed{H_i = \sum_{j=1}^{n} P_{ij} \log \frac{1}{P_{ij}} \text{ bits/sym}}$$

The entropy of the source is then the average of the entropy of each state

ie., $\boxed{H = \sum_{i=1}^{M} P_i H_i}$ bits/sym.

Where P_i is the probability of the source in state "i"

The average information rate R_s for source is defined as $\boxed{R_s = r_s \cdot H \text{ bits/sec}}$

Where r_s is the no. of state transition per second & sym rate of src.

Theorem: If $p(m_i)$ is the probability of a sequence m_i of N symbols from the source if

$$\boxed{G_N = \frac{1}{N}\sum_i p(m_i)\log\frac{1}{p(m_i)} = \frac{1}{N}H(\bar{S}^N)}$$

where $H(\bar{S})$ is entropy of adjoint source.

The adjoint source "$\bar{S}$" is defined as a zero memory source that has the same source alphabet & same first order probabilities as the initial state. Then the 2^{nd} extension of adjoint source $\bar{S}^2$ will have the source alphabet & second order probabilities at the start of the 2^{nd} symbol interval & at the end of the 1^{st} symbol interval & so on...

Where the sum is over all sequences m_i containing N symbols, then G_N is monotonically decreasing function of N &

$$\boxed{\lim_{N\to\infty} G_N = H \text{ bits/sec.}}$$

P12 For the Markov source shown in figure find (i) The entropy of each state (ii) The entropy of the source (iii) G_1, G_2, G_3 & then show that $G_1 > G_2 > G_3 > H$. Draw the tree diagram representing the states at the end of second symbol interval & find the corresponding probabilities. $P(1) = P(2) = P(3) = \frac{1}{3}$

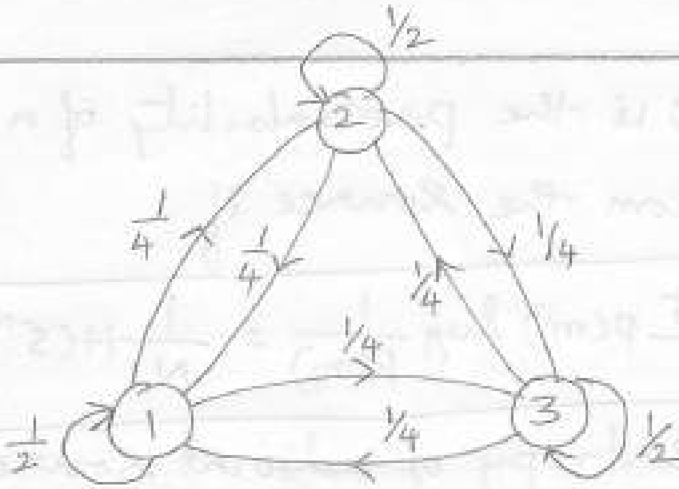


fig: Markov Source model.

Solⁿ: (i) Entropy of Each state is given by

$$H_i = \sum_{j=1}^{n} P_{ij} \log \frac{1}{P_{ij}}$$

$P_{11} \rightarrow$ state transition from state 1 to state 1.

$$H_1 = P_{11} \log \frac{1}{P_{11}} + P_{12} \log \frac{1}{P_{12}} + P_{13} \log \frac{1}{P_{13}}$$

$$H_1 = \frac{1}{2} \log 2 + \frac{1}{4} \log 4 + \frac{1}{4} \log 4$$

$$H_1 = \underline{1.5 \text{ bits/sym}}$$

$$H_2 = P_{21} \log \frac{1}{P_{21}} + P_{22} \log \frac{1}{P_{22}} + P_{23} \log \frac{1}{P_{23}}$$

$$H_2 = \frac{1}{4} \log 4 + \frac{1}{2} \log 2 + \frac{1}{4} \log 4$$

$$H_2 = \underline{1.5 \text{ bits/sym}}$$

$$H_3 = P_{31} \log \frac{1}{P_{31}} + P_{32} \log \frac{1}{P_{32}} + P_{33} \log \frac{1}{P_{33}}$$

$$H_3 = \frac{1}{4} \log 4 + \frac{1}{4} \log 4 + \frac{1}{2} \log 2$$

$$H_3 = \underline{1.5 \text{ bits/sym}}$$

(ii) Entropy of source $H = \sum_{i=1}^{3} P_i H_i$

$$H = P_1 H_1 + P_2 H_2 + P_3 H_3$$

$$H = \left(\frac{1}{3} \times 1.5\right) 3$$

$$H = \underline{1.5 \text{ bits/sym}}$$

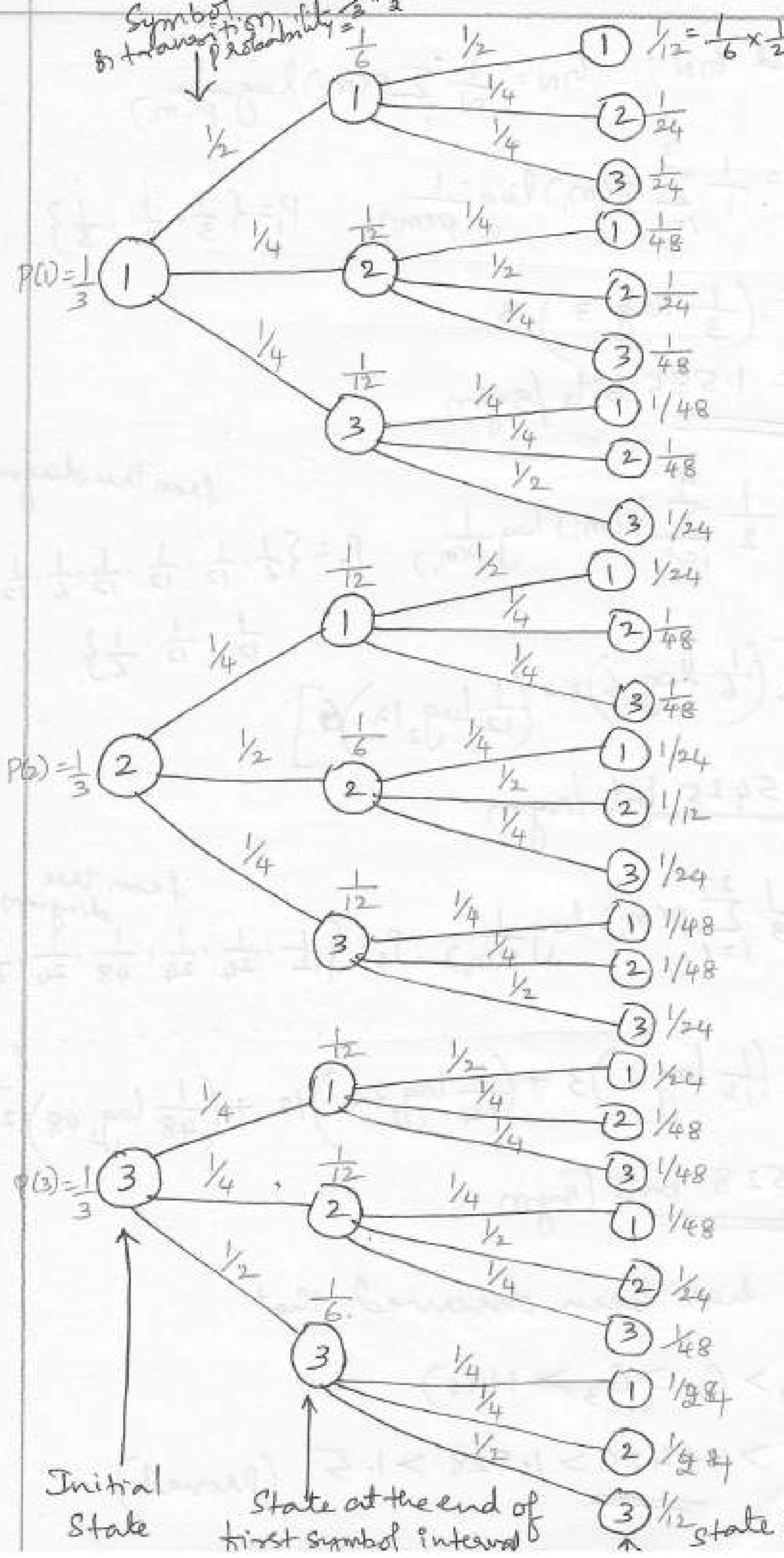


fig: Tree diagram of Markov Source

(iii) To find G_N; $G_N = \frac{1}{N}\sum_i p(m_i)\log\frac{1}{p(m_i)}$

$N=1$; $G_1 = \frac{1}{1}\sum_{i=1}^{3} p(m_i)\log\frac{1}{p(m_i)}$ $P_1 = \{\frac{1}{3}, \frac{1}{3}, \frac{1}{3}\}$

$$G_1 = \left(\frac{1}{3}\log 3\right)3$$

$$G_1 = \underline{1.585} \text{ bits/sym}$$

$N=2$; $G_2 = \frac{1}{2}\sum_{i=1}^{9} p(m_i)\log\frac{1}{p(m_i)}$ from tree diagram $P_2 = \{\frac{1}{6}, \frac{1}{12}, \frac{1}{12}, \frac{1}{12}, \frac{1}{6}, \frac{1}{12}, \frac{1}{12}, \frac{1}{12}, \frac{1}{6}\}$.

$$G_2 = \frac{1}{2}\left[\left(\frac{1}{6}\log_2 6\right)3 + \left(\frac{1}{12}\log_2 12\right)6\right]$$

$$G_2 = \underline{1.5425} \text{ bits/sym}$$

$N=3$; $G_3 = \frac{1}{3}\sum_{i=1}^{27} p(m_i)\log\frac{1}{p(m_i)}$ from tree diagram $P_3 = \{\frac{1}{12}, \frac{1}{24}, \frac{1}{24}, \frac{1}{48}, \frac{1}{24}, \frac{1}{48} \ldots\ldots\}$

$$G_3 = \frac{1}{3}\left[\left(\frac{1}{12}\log 12\right)3 + \left(\frac{1}{24}\log_2 24\right)12 + \left(\frac{1}{48}\log_2 48\right)12\right]$$

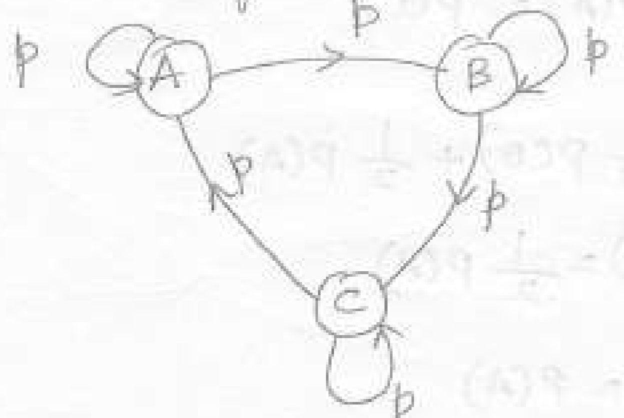
$$G_3 = \underline{1.528} \text{ bits/sym}$$

Thus it has been observed that

$$G_1 > G_2 > G_3 > H(s)$$

$$1.585 > 1.5425 > 1.528 > 1.5 \quad \text{(proved)}$$

P13. For the first order markov source with a source alphabet $S = \{A, B, C\}$ shown in figure (i) compute the probabilities of states (ii) Find $H(S)$ & $H(S^2)$.



Sol^n^:

From the state diagram, state equations can be written by considering the incoming arrows for the individual probability.

i.e., $P(A) = p\,P(A) + p\,P(C) \longrightarrow (1)$

$P(B) = p\,P(A) + p\,P(B) \longrightarrow (2)$

$P(C) = p\,P(B) + p\,P(C) \longrightarrow (3)$

W.K.T Summations of the probability is unity

$\therefore\ P(A) + P(B) + P(C) = 1$

by substituting equations (1), (2) & (3), we get

$$p\,P(A) + p\,P(C) + p\,P(A) + p\,P(B) + p\,P(B) + p\,P(C) = 1$$

$$2p\,P(A) + 2p\,P(B) + 2p\,P(C) = 1$$

$$2p\,[P(A) + P(B) + P(C)] = 1$$

$$2p = 1$$

$$\therefore \boxed{p = 1/2}$$

① $\Rightarrow$ $P(A) = \frac{1}{2} \cdot P(A) + \frac{1}{2} \cdot P(C)$

$$\frac{1}{2} P(A) = \frac{1}{2} P(C)$$

$$\therefore P(A) = P(C)$$

② $\Rightarrow$ $P(B) = \frac{1}{2} P(B) + \frac{1}{2} P(A)$

$$\frac{1}{2} P(B) = \frac{1}{2} P(A)$$

$$P(B) = P(A)$$

$$\therefore P(A) = P(B) = P(C) = \frac{1}{3}.$$

(i). $H_i = \sum_{j=1}^{n} p_{ij} \log \frac{1}{p_{ij}}$

1st state; $H_A = P_{AA} \log \frac{1}{P_{AA}} + P_{AB} \log \frac{1}{P_{AB}} + P_{AC} \log \frac{1}{P_{AC}}$

$$= \frac{1}{2} \log 2 + \frac{1}{2} \log 2 + 0 = 2\left(\frac{1}{2} \log 2\right)$$

$$\underline{H_A = 1 \text{ bits/sym}}$$

2nd state; $H_B = P_{BA} \log \frac{1}{P_{BA}} + P_{BB} \log \frac{1}{P_{BB}} + P_{BC} \log \frac{1}{P_{BC}}$

$$= 0 + \frac{1}{2} \log 2 + \frac{1}{2} \log 2 = 2\left(\frac{1}{2} \log 2\right)$$

$$\underline{H_B = 1 \text{ bits/sym}}$$

3rd state; $H_C = P_{CA} \log \frac{1}{P_{CA}} + P_{CB} \log \frac{1}{P_{CB}} + P_{CC} \log \frac{1}{P_{CC}}$

$$= \frac{1}{2} \log 2 + 0 + \frac{1}{2} \log 2 = 2\left(\frac{1}{2} \log 2\right)$$

$$H_C = 1 \text{ bits/sym}$$

Entropy of source $H(S) = \sum_{i=1}^{n} P_i H_i$

$$H(S) = P(A).H_A + P(B).H_B + P(C).H_C$$

$$= \frac{1}{3}\times 1 + \frac{1}{3}\times 1 + \frac{1}{3}\times 1$$

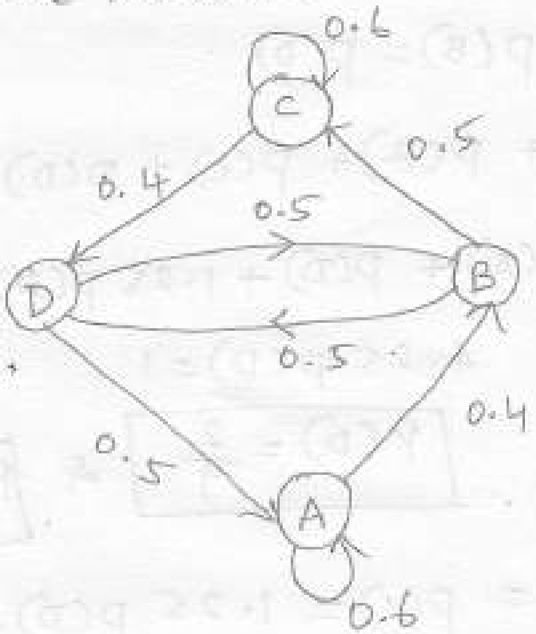
$$H(S) = \underline{\underline{1 \text{ bits/sym}}}$$

$$H(S^2) = 2.H(S)$$

$$= 2\times 1$$

$$H(S^2) = \underline{\underline{2 \text{ bits/sym}}}$$

P14. Consider the state diagram of the markov source of figure (i) compute the state probabilities (ii) Find the entropy of each state (iii) Find the entropy of the source.



Sol: From the state diagram, State equations can be written as, $P(A) = 0.6\,P(A) + 0.5\,P(D) \rightarrow (1)$

$$P(B) = 0.4\,P(A) + 0.5\,P(D) \rightarrow (2)$$

$$P(C) = 0.6\,P(C) + 0.5\,P(B) \rightarrow (3)$$

$$P(D) = 0.4\,P(C) + 0.5\,P(B) \rightarrow (4)$$

As there are four unknowns, we can represent one state in terms of other state.

i.e., $(1) \Rightarrow \quad 0.4\,P(A) = 0.5\,P(D)$

$$P(A) = 1.25\,P(D)$$

$(3) \Rightarrow \quad 0.4\,P(C) = 0.5\,P(B)$

$$P(C) = 1.25\,P(D)$$

$(4) \Rightarrow \quad P(D) = 0.4 \times 1.25\,P(D) + 0.5\,P(B)$

$$P(D) = 0.5\,P(D) + 0.5\,P(B)$$

$$0.5\,P(D) = 0.5\,P(B)$$

$$\therefore P(B) = P(D)$$

W.K.T; $P(A) + P(B) + P(C) + P(D) = 1$

$$1.25.\,P(D) + P(D) + 1.25\,P(D) + P(D) = 1$$

$$4.25\,P(D) = 1$$

$$\boxed{P(D) = \frac{2}{9}} \ \& \ \boxed{P(B) = \frac{2}{9}}.$$

$$P(A) = P(C) = 1.25\,P(D)$$

$$= 1.25 \times \frac{2}{9}$$

$$\boxed{P(A) = P(C) = \frac{5}{18}}$$

Entropy of each state is

$$H_i = \sum_{j=1}^{n} P_{ij} \log \frac{1}{P_{ij}}$$

$$H_A = P_{AA} \log \frac{1}{P_{AA}} + P_{AB} \log \frac{1}{P_{AB}} + P_{AC} \log \frac{1}{P_{AC}} + P_{AD} \log \frac{1}{P_{AD}}$$

$$H_A = \underline{\underline{0.971}} \text{ bits/sym}$$

$$H_B = P_{BA} \log \frac{1}{P_{BA}} + P_{BB} \log \frac{1}{P_{BB}} + P_{BC} \log \frac{1}{P_{BC}} + P_{BD} \log \frac{1}{P_{BD}}$$

$$H_B = \underline{\underline{1 \text{ bits}}}\text{/sym}$$

$$H_C = P_{CA} \log \frac{1}{P_{CA}} + P_{CB} \log \frac{1}{P_{CB}} + P_{CC} \log \frac{1}{P_{CC}} + P_{CD} \log \frac{1}{P_{CD}}$$

$$H_C = \underline{\underline{0.971 \text{ bits}}}\text{/sym}$$

$$H_D = P_{DA} \log \frac{1}{P_{DA}} + P_{DB} \log \frac{1}{P_{DB}} + P_{DC} \log \frac{1}{P_{DC}} + P_{DD} \log \frac{1}{P_{DD}}$$

$$H_D = \underline{\underline{1 \text{ bits}}}\text{/sym}$$

(ii) Entropy of source $H(s) = \sum_{i=1}^{4} P_i H_i$

$$H(s) = P(A) \cdot H_A + P(B) \cdot H_B + P(C) \cdot H_C + P(D) \cdot H_D$$

$$= \frac{5}{18} \times 0.971 + \frac{2}{9} \times 1 + \frac{5}{18} \times 0.971 \times \frac{2}{9} \times 1$$

$$H(s) = \underline{\underline{0.9839}} \text{ bits/sym}$$

ATME College of Engineering

ATTENDANCE

Semester & Section : 3rd 'A'

Course Title with Code : ELECTRONIC DEVICES - 18EC

Sl. No.	USN	Student Name										
		Date	01	02	06	07	08	09	13	14	16
		Month	08	08	08	08	08	08	08	08	08
			1	2	3	4	5	6	7	8	9
01	4AD17EC007	B BERNICE MATTENAI	1	2	3	4	5	6	7	8	9
02	4AD18EC001	AISHWARYA B	1	2	3	4	5	6	7	8	9
03	4AD18EC003	ANEES FATHIMA A B	1	2	3	4	5	6	6	7	8
04	4AD18EC005	ANUSHA A R	1	2	3	4	5	6	7	8	9
05	4AD18EC007	APOORVA H S	1	2	3	4	5	6	7	8	9
06	4AD18EC009	CAROLINE SYMPHONY S	1	2	3	4	5	6	7	8	9
07	4AD18EC011	CHANDANA M D	1	2	3	4	4	5	6	7	8
08	4AD18EC013	CHANDU B G	1	2	3	4	5	6	7	8	9
09	4AD18EC015	CHETHAN S	1	2	3	4	5	6	7	8	9
10	4AD18EC017	DASHARATHA A M	1	2	3	4	5	6	7	8	9
11	4AD18EC019	HAJIRA SIMRAN	1	2	3	4	5	6	6	7	8
12	4AD18EC021	HARSHITHA H J	1	2	3	4	5	6	7	8	9
13	4AD18EC023	HITHASHREE S G	1	2	3	4	5	6	7	8	9
14	4AD18EC025	KARTHIK R	1	2	3	4	5	6	7	8	9
15	4AD18EC027	LAKSHITH GOWDA J K	1	2	3	4	5	6	7	8	9
16	4AD18EC029	LIKHITH VIJAY KUMAR	1	2	3	4	5	6	7	8	9
17	4AD18EC031	MANSOOR FATHAK	0	0	1	2	3	3	3	3	4
18	4AD18EC033	MEGHANA S	1	2	2	3	4	5	6	7	8
19	4AD18EC035	NANDITHA A	1	2	3	4	5	6	6	7	8
20	4AD18EC037	NAVANEETH M	1	2	3	4	5	6	7	8	9
21	4AD18EC039	NEHA D R	1	2	3	4	5	6	7	8	8
22	4AD18EC041	P BALAKRISHNA	0	1	2	3	4	4	5	6	7
23	4AD18EC043	POOJA V	1	2	2	3	4	5	6	7	7
24	4AD18EC045	POORVA M N	1	2							
25	4AD18EC047	PRASHANTH Y S	1	2	3	4	5	6	7	8	9
	No. of Abs.		02	01	03	01	02	03	05	02	03
	Initials										

27	28	29	30	03	04	05	06	11	17	18
08	08	08	08	09	09	09	09	09	09	09
11	12	13	14	15	16	17	18	19	20	21
11	12	13	14	15	16	17	18	19	20	21
10	11	12	13	14	15	16	17	18	19	20
10	11	12	13	14	15	16	17	18	19	20
10	10	10	11	12	13	14	15	15	16	17
11	12	13	13	13	14	15	16	16	17	18
10	11	12	13	14	15	16	17	18	19	20
9	10	11	12	13	14	15	16	17	18	19
11	12	13	14	14	15	16	17	18	19	20
11	12	13	14	15	16	17	18	19	20	21
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10	11	12	13	14	15	16	17	17	18	19
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11	12	13	14	15	16	17	18	19	20	21
6	7	8	9	10	11	12	13	14	15	16
10	10	10	12	13	14	15	16	17	18	19
9	9	10	11	12	13	14	15	15	16	17
11	12	13	14	14	15	16	17	18	19	20
10	11	12	13	13	14	15	16	17	18	19
9	10	11	12	12	13	14	15	15	15	16
9	10	11	12	12	13	14	15	16	17	18
11	12	13	14	15	16	17	18	19	20	21
02	03	00	02	10	00	00	00	05	02	00

	Assignments / Internal Test Marks								SEE Marks	Total Marks
AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
	10	20	10	22	10	30		34	29	63
	10	28	10	29	10	30		39	33	72
	10	29	10	19	10	30		36	32	68
	10	24	10	11	10	26		31	24	55
	10	23	10	22	10	23		33	34	67
	10	24	10	26	10	30		37	31	68
	10	26	10	26	10	29		37	26	63
	10	19	10	15	10	21		27	AB	—
	10	30	10	27	10	30		39	36	75
	10	23	10	18	10	29		34	23	57
	10	27	10	21	10	30		36	30	66
	10	16	10	12	10	23		27	35	62
	10	26	10	22	10	25		35	39	74
	10	29	10	18	10	25		34	33	67
	10	25	10	13	10	19		29	14	43
	10	22	10	12	10	28		31	35	66
	10	20	10	08	10	19		26	15	41
	10	21	10	20	10	20		31	21	52
	10	30	10	18	10	30		36	44	80
	10	27	10	19	10	23		33	32	65
	10	26	10	21	10	29		36	42	78
	10	16	10	18	10	21		29	22	51
	10	23	10	15	10	30		33	21	54
	AB	AB	AB	AB	AB	AB		AB	—	—
	10	20	10	15	10	26		31	29	60

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A T M E
College of Engineering

ATTENDANCE

Semester & Section : 3rd 'A'

Course Title with Code : EL

Sl. No.	USN	Student Name	22	23	24	25	26	27	28	29	30
		Date	19	20	24	25	26	27	01	03	04
		Month	09	09	09	09	09	09	10	10	10
01	4AD17EC007	B BERNICE MATTENAI	22	22	23	24	25	26	27	28	29
02	4AD18EC001	AISHWARYA B	21	22	23	23	24	25	26	27	28
03	4AD18EC003	ANEES FATHIMA A B	21	22	23	24	25	25	26	27	28
04	4AD18EC005	ANUSHA A R	18	19	20	21	22	23	24	25	26
05	4AD18EC007	APOORVA H S	19	20	21	22	23	24	25	26	27
06	4AD18EC009	CAROLINE SYMPHONY S	21	22	22	22	23	24	25	26	26
07	4AD18EC011	CHANDANA M D	20	21	22	22	23	24	25	26	27
08	4AD18EC013	CHANDU B G	21	22	22	23	24	25	26	26	26
09	4AD18EC015	CHETHAN S	22	23	24	25	26	27	28	29	29
10	4AD18EC017	DASHARATHA A M	21	22	23	24	25	26	27	28	29
11	4AD18EC019	HAJIRA SIMRAN	20	21	22	23	24	24	25	26	27
12	4AD18EC021	HARSHITHA H J	20	21	22	23	23	24	25	26	27
13	4AD18EC023	HITHASHREE S G	21	22	23	24	25	26	27	28	29
14	4AD18EC025	KARTHIK R	22	23	24	25	26	27	28	29	30
15	4AD18EC027	LAKSHITH GOWDA J K	21	22	23	24	25	26	27	28	29
16	4AD18EC029	LIKHITH VIJAY KUMAR	22	23	24	25	26	27	28	28	29
17	4AD18EC031	MANSOOR FATHAK	17	18	19	20	20	21	22	23	24
18	4AD18EC033	MEGHANA S	20	21	22	23	23	24	25	26	27
19	4AD18EC035	NANDITHA A	18	19	19	20	21	22	23	24	25
20	4AD18EC037	NAVANEETH M	21	22	23	24	25	26	27	28	29
21	4AD18EC039	NEHA D R	20	21	22	22	23	24	25	26	27
22	4AD18EC041	P BALAKRISHNA	17	18	19	20	21	22	23	24	25
23	4AD18EC043	POOJA V	19	20	21	22	23	24	25	26	27
24	4AD18EC045	POORVA M N									
25	4AD18EC047	PRASHANTH Y S	22	23	24	25	26	27	28	29	30
	No. of Abs.		02	00	04	04	02	03	00	02	03
	Initials										

17	23	24	30	31	05	06	07	08	12	13
10	10	10	10	10	11	11	11	11	11	11
33	34	35	36	37	38	39	40	41	42	43
31	32	33	34	35	36	37	38	39	40	41
30	31	32	33	34	35	36	37	38	39	40
31	32	33	33	34	35	36	37	38	38	39
28	29	30	31	32	33	34	35	36	37	37
28	28	29	30	31	32	32	33	34	35	35
29	30	31	32	33	34	35	36	37	38	39
28	29	30	31	32	33	34	35	36	37	38
28	29	30	31	32	33	34	35	36	37	38
31	32	33	34	35	36	37	38	39	39	40
31	32	33	34	35	36	37	38	39	40	40
31	32	33	34	35	36	37	38	39	40	41
29	30	30	31	32	32	32	33	34	35	36
31	32	33	34	35	36	37	38	39	40	41
33	34	35	36	37	37	37	37	37	38	39
31	32	33	34	35	36	37	38	39	40	41
32	33	34	35	36	37	38	39	40	41	42
27	28	29	30	30	31	32	33	34	34	35
30	31	32	33	34	35	36	37	37	37	38
28	29	30	31	32	33	34	35	36	37	38
31	32	33	34	35	35	35	35	35	36	37
29	30	31	31	31	32	33	34	35	36	37
27	28	29	30	31	32	33	34	35	36	37
27	28	29	30	31	32	33	34	35	36	37
32	33	34	35	36	37	38	39	70	40	42
04	01	01	02	02	03	04	02	03	04	03

	Assignments / Internal Test Marks								SEE Marks	Total Marks
AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
	10	20	10	22	10	30		34	29	63
	10	28	10	29	10	30		39	33	72
	10	29	10	19	10	30		36	32	68
	10	24	10	11	10	26		31	24	55
	10	23	10	22	10	23		33	34	67
	10	24	10	26	10	30		37	31	68
	10	26	10	26	10	29		37	26	63
	10	19	10	15	10	21		27	AB	—
	10	30	10	27	10	30		39	36	75
	10	23	10	18	10	29		34	23	57
	10	27	10	21	10	30		36	30	66
	10	16	10	12	10	23		27	35	62
	10	26	10	22	10	25		35	39	74
	10	29	10	18	10	25		34	33	67
	10	25	10	13	10	19		29	14	43
	10	22	10	12	10	28		31	35	66
	10	20	10	08	10	19		26	15	41
	10	21	10	20	10	20		31	21	52
	10	30	10	18	10	30		36	44	80
	10	27	10	19	10	23		33	32	65
	10	26	10	31	10	29		36	42	78
	10	16	10	18	10	21		29	22	51
	10	23	10	15	10	30		33	21	54
	AB	AB	AB	AB	AB	AB		AB	—	—
	10	20	10	15	10	26		31	29	60

A T M E
College of Engineering

ATTENDANCE

Course Title with Code : E.

Semester & Section : 3rd 'A'

Sl. No.	USN	Student Name	44	45	46	47	48	49	50	51	52	53
		Date	13	14	14	18	20					
		Month	11	11	11	11	11					
01	4AD17EC007	B BERNICE MATTENAI	42	43	44	45	46					
02	4AD18EC001	AISHWARYA B	41	42	43	44	45					
03	4AD18EC003	ANEES FATHIMA A B	40	41	42	43	44					
04	4AD18EC005	ANUSHA A R	37	38	39	40	41					
05	4AD18EC007	APOORVA H S	35	36	37	38	39					
06	4AD18EC009	CAROLINE SYMPHONY S	40	41	42	43	44					
07	4AD18EC011	CHANDANA M D	39	40	41	42	43					
08	4AD18EC013	CHANDU B G	39	40	41	42	43					
09	4AD18EC015	CHETHAN S	41	42	43	44	43					
10	4AD18EC017	DASHARATHA A M	40	41	42	43	44					
11	4AD18EC019	HAJIRA SIMRAN	42	43	44	45	46					
12	4AD18EC021	HARSHITHA H J	37	38	39	40	41					
13	4AD18EC023	HITHASHREE S G	42	43	44	43	44					
14	4AD18EC025	KARTHIK R	40	41	42	43	44					
15	4AD18EC027	LAKSHITH GOWDA J K	42	43	44	45	46					
16	4AD18EC029	LIKHITH VIJAY KUMAR	43	44	45	46	47					
17	4AD18EC031	MANSOOR FATHAK	36	37	38	39	40					
18	4AD18EC033	MEGHANA S	39	40	41	42	43					
19	4AD18EC035	NANDITHA A	39	40	41	42	43					
20	4AD18EC037	NAVANEETH M	38	39	40	41	42					
21	4AD18EC039	NEHA D R	38	39	40	41	42					
22	4AD18EC041	P BALAKRISHNA	38	39	40	41	42					
23	4AD18EC043	POOJA V	38	39	40	41	42					
24	4AD18EC045	POORVA M N										
25	4AD18EC047	PRASHANTH Y S	43	44	45	46	47					
	No. of Abs.		03	00	00	00	00					
	Initials											

55	56	57	58	59	60	Attendance AT1	AT2	AT3	AT	Assignments / Internal Test Marks A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
										10	20	10	22	10	30		34	29	63
										10	28	10	27	10	30		39	33	72
										10	27	10	19	10	30		36	32	68
										10	24	10	11	10	26		31	24	55
										10	23	10	22	10	23		33	34	67
										10	24	10	26	10	30		37	31	68
										10	26	10	26	10	29		37	26	63
										10	19	10	15	10	21		27	AB	—
										10	30	10	27	10	30		39	36	75
										10	23	10	18	10	29		34	23	57
										10	27	10	21	10	30		36	30	66
										10	16	10	12	10	23		27	35	62
										10	26	10	22	10	25		35	39	74
										10	29	10	18	10	25		34	33	67
										10	25	10	13	10	19		29	14	43
										10	22	10	12	10	28		31	35	66
										10	20	10	08	10	19		26	15	41
										10	21	10	20	10	20		31	21	52
										10	30	10	18	10	30		36	44	80
										10	27	10	19	10	23		33	32	65
										10	26	10	21	10	29		36	42	78
										10	16	10	18	10	21		29	22	51
										10	23	10	15	10	30		33	21	54
										AB	AB	AB	AB	AB	AB		AB	—	—
										10	20	10	15	10	26		31	29	60

A T M E
College of Engineering

ATTENDANCE

Course Title with Code : ELECTRONIC DEVICES - 18E

Semester & Section : 3rd 'A'

Sl. No.	USN	Student Name	1 (Date 01, Month 08)	2 (Date 02, Month 08)	3 (Date 06, Month 08)	4 (Date 07, Month 08)	5 (Date 08, Month 08)	6 (Date 09, Month 08)	7 (Date 13, Month 08)	8 (Date 14, Month 08)
26	4AD18EC047	RAMYA K	1	2	3	4	5	5	6	7
27	4AD18EC051	RIYANKA K	1	2	3	4	5	6	7	7
28	4AD18EC053	SANGEETHA K S	1	2	3	4	5	6	7	8
29	4AD18EC055	SARA SIMRAN	1	2	3	4	5	6	7	8
30	4AD18EC057	SHEETAL K ATHREYA	1	2	3	4	5	6	7	8
31	4AD18EC059	SOMASHEKAR M N	1	2	3	4	5	6	7	8
32	4AD18EC061	SUMAN S	1	2	3	4	5	6	7	8
33	4AD18EC063	SUSHMITHA P	1	2	3	4	5	6	7	8
34	4AD18EC065	TEJASHWINI E	1	2	3	4	5	6	7	8
35	4AD18EC067	THANUSHREE D	1	2	3	4	5	6	7	8
36	4AD18EC069	THEJASWINI P	1	2	3	4	5	6	7	8
37	4AD18EC071	VAISHNAVI G	1	2	3	4	5	6	7	8
38	4AD18EC073	VARUN R S	1	2	3	4	5	6	7	8
		No. of Abs.	00	00	00	00	00	01	00	01
		Initials								

ASSESSMENT

ATME College of Engineering

27/08	28/08	29/08	30/08	03/09	04/09	05/09	06/09	11/09	17/09	18/09
11	12	13	14	15	16	17	18	19	20	21
10	11	12	13	14	15	16	17	17	18	19
10	11	12	13	14	15	16	17	18	19	20
11	12	13	14	15	16	17	18	19	20	21
11	12	13	13	14	15	16	17	17	18	19
11	12	13	14	15	16	17	18	19	20	21
11	12	13	14	15	16	17	18	19	20	21
11	12	13	14	15	16	17	17	18	19	20
11	12	13	14	15	16	17	18	19	20	21
11	12	13	14	15	16	17	17	18	19	20
11	11	12	12	13	14	15	16	17	18	19
11	12	13	14	15	16	17	18	19	20	21
11	12	13	14	15	16	17	17	18	19	20
10	11	12	12	13	14	15	16	17	18	19
00	01	00	03	00	00	00	03	02	00	00

Assignments / Internal Test Marks									SEE Marks	Total Marks
AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
	10	18	10	06	10	15		23	24	47
	10	24	10	20	10	24		33	34	67
	10	29	10	27	10	26		38	34	72
	10	15	10	17	10	23		29	26	55
	10	30	10	30	10	30		40	40	80
	10	29	10	22	10	17		33	37	70
	10	27	10	17	10	24		33	24	57
	10	25	10	AB	10	25	17	33	27	60
	10	27	10	19	10	20		32	27	59
	10	13	10	11	10	20		25	26	51
	10	28	10	17	10	29		35	28	63
	10	29	10	26	10	30		39	26	65
	10	17	10	24	10	24		29	21	50

ATME College of Engineering

ATTENDANCE

Course Title with Code : E&

Semester & Section : 3rd 'A'

Sl. No.	USN	Student Name	22	23	24	25	26	27	28	29	30	31
		Date	19	20	24	25	26	27	01	03	04	[illegible]
		Month	09	09	09	09	09	09	10	10	10	10
26	4AD18EC049	RAMYA K	20	21	21	22	23	24	25	26	26	[illegible]
27	4AD18EC051	RIYANKA K	21	22	23	24	25	26	27	27	28	[illegible]
28	4AD18EC053	SANGEETHA K S	22	23	24	25	26	27	28	29	30	[illegible]
29	4AD18EC055	SARA SIMRAN	20	21	22	23	24	25	26	27	28	[illegible]
30	4AD18EC057	SHEETAL K ATHREYA	22	23	24	25	26	27	28	29	30	[illegible]
31	4AD18EC059	SOMASHEKAR M N	22	23	24	25	26	27	28	29	30	[illegible]
32	4AD18EC061	SUMAN S	21	22	23	24	25	26	27	28	29	[illegible]
33	4AD18EC063	SUSHMITHA P	21	22	23	24	24	24	24	24	25	[illegible]
34	4AD18EC065	TEJASHINI E	21	22	23	24	25	26	27	28	29	[illegible]
35	4AD18EC067	THANUSHREE D	20	20	21	22	23	24	25	26	27	[illegible]
36	4AD18EC069	THEJASHINI P	22	23	24	25	26	27	28	29	30	[illegible]
37	4AD18EC071	VAISHNAVI G	21	22	23	24	25	26	27	28	29	[illegible]
38	4AD18EC073	VARUN R S	20	21	22	23	24	25	26	26	27	[illegible]
	No. of Abs.		01	01	01	00	01	01	01	01	01	
	Initials											

17	23	24	30	31	05	06	07	08	12	13
10	10	10	10	10	11	11	11	11	11	11
33	34	35	36	37	38	39	40	41	42	43
29	29	30	31	32	32	32	32	32	32	33
31	32	33	33	34	35	36	37	38	39	40
33	34	35	36	37	38	39	39	40	41	42
30	31	32	33	34	35	36	37	38	39	40
33	34	35	36	37	38	39	40	41	42	43
33	34	35	36	37	37	37	37	37	37	38
31	32	33	34	35	36	37	38	39	40	41
28	28	28	29	30	31	32	33	34	35	36
32	33	34	35	36	36	36	36	36	37	38
30	31	32	33	34	35	36	37	38	39	40
33	34	35	36	37	38	39	40	41	42	43
32	33	34	35	36	36	36	36	36	37	38
29	30	31	32	33	33	33	33	33	34	35
00	02	01	01	00	05	06	05	05	02	00

AT	Assignments / Internal Test Marks								SEE Marks	Total Marks
	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
	10	18	10	06	10	15		23	24	47
	10	24	10	20	10	24		33	34	67
	10	29	10	27	10	26		38	34	72
	10	15	10	17	10	23		27	26	55
	10	30	10	30	10	30		40	40	80
	10	29	10	22	10	17		33	37	70
	10	27	10	17	10	24		23	24	57
	10	25	10	AB	10	25	17	33	27	60
	10	27	10	19	10	20		32	27	59
	10	13	10	11	10	20		25	26	51
	10	28	10	17	10	29		35	28	63
	10	29	10	26	10	30		39	26	65
	10	17	10	24	10	24		29	21	50

ATME College of Engineering

ATTENDANCE

Course Title with Code : EL

Semester & Section : 3rd 'A'

Sl. No.	USN	Student Name	22	23	24	25	26	27	28	29	30	3
Date			19	20	24	25	26	27	01	03	04	0
Month			09	09	09	09	09	09	10	10	10	1
26	4AD18EC049	RAMYA K	20	21	21	22	23	24	25	26	26	2
27	4AD18EC051	RIYANKA K	21	22	23	24	25	26	27	27	28	2
28	4AD18EC053	SANGEETHA K S	22	23	24	25	26	27	28	29	30	3
29	4AD18EC055	SARA SIMRAN	20	21	22	23	24	25	26	27	28	2
30	4AD18EC057	SHEETAL K ATHREYA	22	23	24	25	26	27	28	29	30	3
31	4AD18EC059	SOMASHEKAR M N	22	23	24	25	26	27	28	29	30	3
32	4AD18EC061	SUMAN S	21	22	23	24	25	26	27	28	29	2
33	4AD18EC063	SUSHMITHA P	21	22	23	24	24	24	24	24	25	2
34	4AD18EC065	TEJASHINI E	21	22	23	24	25	26	27	28	29	3
35	4AD18EC067	THANUSHREE D	20	20	21	22	23	24	25	26	27	2
36	4AD18EC069	THEJASHINI P	22	23	24	25	26	27	28	29	30	3
37	4AD18EC071	VAISHNAVI G	21	22	23	24	25	26	27	28	29	3
38	4AD18EC073	VARUN R S	20	21	22	23	24	25	26	26	27	2
		No. of Abs.	01	01	01	00	01	01	01	01	01	
		Initials										

ATME College of Engineering

ATTENDANCE

Course Title with Code : EL

Semester & Section : 3rd 'A'

Sl. No.	USN	Student Name	44	45	46	47	48	49	50	51	52	5
		Date	13	14	14	18	20					
		Month	11	11	11	11	11					
26	4AD18EC049	RAMYA K	34	35	36	37	38					
27	4AD18EC051	RIYANKA K	41	42	43	44	45					
28	4AD18EC053	SANGEETHA K S	43	44	45	46	47					
29	4AD18EC055	SARA SIMRAN	41	42	43	44	45					
30	4AD18EC057	SHEETAL K ATHREYA	44	45	46	47	48					
31	4AD18EC059	SOMASHEKAR M N	39	40	41	42	43					
32	4AD18EC061	SUMAN S	42	43	44	43	44					
33	4AD18EC063	SUSHMITHA P	37	38	39	40	41					
34	4AD18EC065	TEJASWINI E	39	40	41	42	43					
35	4AD18EC067	THANUSHREE D	41	42	43	44	45					
36	4AD18EC069	THEJASWINI P	44	45	46	47	48					
37	4AD18EC071	VAISHNAVI G	39	40	41	42	43					
38	4AD18EC073	VARUN R S	36	37	38	39	40					
	No. of Abs.		00	00	00	00	00					
	Initials											

						Attendance				Assignments / Internal Test Marks								SEE Marks	Total Marks
55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
										10	18	10	06	10	15		23	24	47
										10	24	10	20	10	24		33	34	67
										10	29	10	27	10	26		38	34	72
										10	15	10	17	10	23		29	26	55
										10	30	10	30	10	30		40	40	80
										10	29	10	22	10	17		33	37	70
										10	27	10	17	10	24		33	24	57
										10	25	10	AB	10	25	17	33	27	60
										10	27	10	19	10	20		32	27	59
										10	13	10	11	10	20		25	26	51
										10	28	10	17	10	29		35	28	63
										10	29	10	26	10	30		39	26	65
										10	17	10	24	10	24		29	21	50

ATME College of Engineering

ATTENDANCE

Course Title with Code : ELECTRONIC DEVICES : 18EC

Semester & Section : 3rd C

Sl. No.	USN	Student Name	1 (5/9)	2 (5/9)	3 (9/9)	4 (11/9)	5 (12/9)	6 (12/9)	7 (14/9)	8 (16/9)	9 (18/9)
01	4AD17EC400	ACHUTHA							1	2	3
02	4AD17EC401	BHAVAN KUMAR N	1	2	3	4	5	6	7	8	9
03	4AD17EC402	CHAITRA M L								1	2
04	4AD17EC403	CHINMAYI R							1	2	3
05	4AD17EC404	DARSHAN H M	1	1	2	3	4	5	5	6	7
06	4AD17EC405	DARSHAN K S								1	2
07	4AD17EC406	HARSHITH G	1	2	3	4	5	6	7	8	[illegible]
08	4AD17EC407	HEMANTH KUMAR G V								1	2
09	4AD17EC408	KAVERI K M							1	2	3
10	4AD17EC409	KIRAN A								1	[illegible]
11	4AD17EC410	KRUTHI M J								1	[illegible]
12	4AD17EC411	KUPENDRA			1	2	3	4	5	6	[illegible]
13	4AD17EC413	MAMATHA M B							1	2	[illegible]
14	4AD17EC414	MANASA K R	1	2	2	3	4	5	6	7	
15	4AD17EC415	MANOJ L								1	
16	4AD17EC416	MOHAMMED YOUNUS							1	2	
17	4AD17EC417	MONISHA S								1	
18	————	NAGARAJ N M								1	
19	————	NAVEEN KUMAR C								1	
20	4AD17EC418	NITHIN L							1	2	
21	4AD17EC419	NITHIN GOWDA A M			1	2	3	4	5	6	
22	4AD17EC420	PAVAN H S			1	2	3	4	5	6	
23	4AD17EC421	PAVAN S M			1	2	3	4	5	6	
24	4AD17EC422	PRAJWAL R							1	2	
25	4AD17EC423	PRAJWAL GOWDA G K			1	2	3	4	5	6	
		No. of Abs.									
		Initials									

	25	26	26	27	30	30	03	03	17	16	17
	9	9	9	9	9	9	10	10	10	10	10
	11	12	13	14	15	16	17	18	19	20	21
1	5	6	7	8	9	10	11	12	13	14	15
2	11	12	13	14	15	16	17	18	19	20	21
3	4	5	6	7	8	9	9	9	10	11	12
4	5	6	7	7	8	9	10	11	11	12	13
5	9	10	11	12	12	12	13	14	15	15	16
6	4	4	5	6	7	8	9	10	11	11	12
7	11	12	13	14	15	16	17	18	19	20	21
8	4	5	6	7	8	9	10	11	12	12	12
9	4	5	6	7	8	9	10	11	12	13	14
10	4	5	6	7	8	9	10	11	12	13	14
11	4	5	6	7	8	9	10	11	12	13	14
12	9	10	11	12	13	14	15	16	16	17	18
13	5	6	7	8	9	10	11	12	12	13	14
14	10	11	12	13	14	15	16	17	18	19	20
15	4	5	6	7	8	9	10	11	11	12	13
16	5	6	7	8	9	10	11	12	13	14	15
17	4	5	6	7	8	9	10	11	12	13	14
18	4	5	6	7	8	9	10	10	10	10	10
19	4	5	6	7	8	9	10	10	11	11	11
20	5	6	7	7	8	9	10	11	12	13	13
21	9	10	11	12	13	14	15	16	16	17	17
22	9	10	10	10	11	12	13	13	14	15	16
23	9	10	11	12	13	14	15	16	17	18	19
24	4	5	6	7	8	9	9	9	10	11	12
25	9	10	11	12	13	14	14	15	16	17	18

T	Assignments / Internal Test Marks								SEE Marks	Total Marks
	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
	10	24	10	26	10	25		35	21	56
	10	15	10	19	10	10		25	21	46
	10	26	10	24	10	20		27	16	53
	10	12	10	06	10	03	10	20	15	35
	10	13	10	13	10	17		25	15	40
	10	13	10	15	10	17		25	15	40
	10	28	10	28	10	26		38	28	66
	10	12	10	15	10	21		26	38	64
	10	17	10	20	10	22		30	21	51
	10	26	10	23	10	29		36	30	66
	10	19	10	14	10	18		27	21	48
	10	17	10	14	10	17		26	30	56
	10	17	10	22	10	17		29	21	50
	10	20	10	24	10	17		31	27	58
	10	10	10	15	10	12		23	11	34
	10	27	10	29	10	27		38	35	73
	10	22	10	24	10	20	10	32	27	59
	10	17	10	16	10	19		28	23	51
	10	21	10	21	10	20		31	28	59
	10	07	10	09	10	07	13	20	17	37
	10	21	10	21	10	11		28	30	58
	10	21	10	14	10	20		29	30	59
	10	20	10	14	10	15		27	24	51

ATME College of Engineering

ATTENDANCE

Course Title with Code : ...E

Semester & Section : 3rd C

Sl. No.	USN	Student Name	22	23	24	25	26	27	28	29	30	31
		Date	17	23	24	24	28	28	30	31	31	04
		Month	10	10	10	10	10	10	10	10	10	11
01	4AD19EC400	ACHUTHA	16	17	18	19	20	21	21	22	23	24
02	4AD19EC401	BHAVAN KUMAR N	22	23	24	25	26	27	28	29	30	31
03	4AD19EC402	CHAITRA M L	13	14	15	16	17	18	19	20	21	22
04	4AD19EC403	CHINMAYI R	14	15	16	17	18	19	20	21	22	[illegible]
05	4AD19EC404	DARSHAN H M	16	17	18	19	20	21	22	23	24	[illegible]
06	4AD19EC405	DARSHAN K S	12	13	14	15	16	17	18	19	20	20
07	4AD19EC406	HARSHITH G	22	23	24	25	26	27	28	29	30	[illegible]
08	4AD19EC407	HEMANTH KUMAR G V	12	13	14	15	16	17	18	19	20	[illegible]
09	4AD19EC408	KAVERI K M	15	16	17	18	18	18	19	20	21	[illegible]
10	4AD19EC409	KIRAN A	15	16	17	18	19	20	21	22	23	[illegible]
11	4AD19EC410	KRUTHI M J	15	16	17	18	19	20	21	22	23	[illegible]
12	4AD19EC411	KUPENDRA	19	20	21	22	23	24	25	26	26	[illegible]
13	4AD19EC413	MAMATHA M B	15	16	17	18	19	20	21	22	23	[illegible]
14	4AD19EC414	MANASA K R	21	22	23	24	25	26	27	28	29	[illegible]
15	4AD19EC415	MANOJ L	14	15	16	17	17	17	18	19	20	[illegible]
16	4AD19EC416	MOHAMMED YOUNUS	16	17	18	19	20	21	22	23	24	[illegible]
17	4AD19EC417	MONISHA S	15	16	17	18	19	20	21	22	23	[illegible]
18	———	NAGARAJ N M	10									
19	———	NAVEEN KUMAR C	11									
20	4AD19EC418	NITHIN L	13	14	15	16	17	18	19	20	21	[illegible]
21	4AD19EC419	NITHIN GOWDA A M	17	18	19	20	20	20	21	22	23	[illegible]
22	4AD19EC420	PAVAN H S	16	17	18	19	20	21	22	23	24	[illegible]
23	4AD19EC421	PAVAN S M	20	21	22	23	24	25	26	27	28	[illegible]
24	4AD19EC422	PRAJWAL R	13	14	15	16	17	18	19	20	21	[illegible]
25	4AD19EC423	PRAJWAL GOWDA G K	19	20	21	22	22	22	23	24	25	[illegible]
	No. of Abs.											
	Initials											

33	34	35	36	37	38	39	40	41	42	43	T	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
07/11	07/11	08/11	11/11	13/11	14/11	14/11	18/11	20/11	20/11	21/11											
26	27	28	29	30	31	32	33	34	35	36		10	24	10	26	10	25		35	21	56
33	34	35	36	37	38	39	40	41	42	43		10	15	10	19	10	10		25	21	46
24	25	26	27	28	29	30	31	32	33	34		10	26	10	24	10	30		37	16	53
24	25	26	27	28	29	30	31	32	33	34		10	12	10	06	10	03	10	20	15	35
27	28	29	30	31	32	33	34	35	36	37		10	13	10	13	10	17		25	15	40
22	23	24	24	25	26	27	28	29	30	31		10	13	10	15	10	17		25	15	40
33	34	35	35	35	36	37	38	39	40	41		10	28	10	28	10	26		38	28	66
23	24	25	26	27	28	29	30	31	32	33		10	12	10	15	10	21		26	38	64
24	25	26	27	28	29	30	31	32	33	34		10	17	10	20	10	22		30	21	51
26	27	28	29	30	31	32	33	34	35	36		10	26	10	23	10	29		36	30	66
26	27	27	28	29	30	31	32	33	34	35		10	19	10	14	10	18		27	21	48
28	29	30	31	32	33	34	35	36	37	38		10	17	10	14	10	17		26	30	56
26	27	28	28	29	30	31	32	33	34	35		10	17	10	22	10	17		29	21	50
32	33	34	35	36	37	38	39	40	41	42		10	20	10	24	10	17		31	27	58
23	24	25	26	27	28	29	30	31	32	33		10	10	10	15	10	12		23	11	34
26	26	27	27	27	28	29	30	31	32	33		10	27	10	29	10	27		38	35	73
26	27	28	29	30	31	32	33	34	35	36		10	22	10	24	10	20	10	32	27	59
34	35	25	26	27	28	29	30	31	32	33		10	17	10	16	10	19		28	23	51
26	27	28	29	30	31	32	33	34	35	36		10	21	10	21	10	20		31	28	59
26	27	28	29	30	31	32	33	34	35	36		10	07	10	09	10	07	13	20	17	37
31	32	33	34	35	36	37	38	39	40	41		10	21	10	21	10	11		28	30	58
23	24	25	26	27	28	29	30	31	32	33		10	21	10	14	10	20		29	30	59
28	29	29	30	31	32	33	34	35	36	37		10	20	10	14	10	15		27	24	51

ATME College of Engineering

ATTENDANCE

Course Title with Code : ..

Semester & Section : 3rd C

Sl. No.	USN	Student Name	Date / Month									
			21/11	28/11	28/11							
			44	45	46	47	48	49	50	51	52	53
01	4AD19EC400	ACHUTHA	37	38	39							
02	4AD19EC401	BHAVAN KUMAR N	44	45	46							
03	4AD19EC402	CHAITRA M L	35	36	37							
04	4AD19EC403	CHINMAYI R	35	36	37							
05	4AD19EC404	DARSHAN H M	38	39	40							
06	4AD19EC405	DARSHAN K S	32	33	34							
07	4AD19EC406	HARSHITH G	42	43	44							
08	4AD19EC407	HEMANTH KUMAR G V	34	35	36							
09	4AD19EC408	KAVERI K M	35	36	37							
10	4AD19EC409	KIRAN A	37	38	39							
11	4AD19EC410	KRUTHI M J	36	37	38							
12	4AD19EC411	KUPENDRA	39	40	41							
13	4AD19EC412	MAMATHA M B	36	37	38							
14	4AD19EC414	MANASA K R	43	44	45							
15	4AD19EC415	MANOJ L	34	35	36							
16	4AD19EC416	MOHAMMED YOUNUS	34	35	36							
17	4AD19EC417	MONISHA S	37	38	39							
18	—	NAGARAJ N M										
19	—	NAVEEN KUMAR C										
20	4AD19EC418	NITHIN L	34	35	36							
21	4AD19EC419	NITHIN GOWDA A M	37	38	39							
22	4AD19EC420	PAVAN H S	37	38	39							
23	4AD19EC421	PAVAN S M	42	43	44							
24	4AD19EC422	PRAJWAL R	34	35	36							
25	4AD19EC423	PRAJWAL GOWDA G R	38	39	40							
	No. of Abs.											
	Initials											

ATME College of Engineering

						Attendance				Assignments / Internal Test Marks								SEE Marks	Total Marks
55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
										10	24	10	26	10	25		35	21	56
										10	15	10	19	10	10		25	21	46
										10	26	10	24	10	30		37	16	53
										10	12	10	06	10	03	10	20	15	35
										10	13	10	13	10	17		25	15	40
										10	13	10	15	10	17		25	15	40
										10	28	10	28	10	26		38	28	66
										10	12	10	15	10	21		26	38	64
										10	17	10	20	10	22		30	21	51
										10	26	10	23	10	29		36	30	66
										10	19	10	14	10	18		27	21	48
										10	17	10	14	10	17		26	30	56
										10	17	10	22	10	17		29	21	50
										10	20	10	24	10	17		31	27	58
										10	10	10	15	10	12		23	11	34
										10	27	10	29	10	27		38	35	73
										10	22	10	24	10	20	10	32	27	59
										10	17	10	16	10	19		28	23	51
										10	21	10	21	10	20		31	28	59
										10	07	10	09	10	07	13	20	17	37
										10	21	10	21	10	11		28	30	58
										10	21	10	14	10	20		29	30	59
										10	20	10	14	10	15		27	24	51

ATME College of Engineering

ATTENDANCE

Course Title with Code : ELECTRONIC DEVICES : 18EC

Semester & Section : 3rd C

Sl. No.	USN	Student Name	1 (5/9)	2 (5/9)	3 (9/9)	4 (11/9)	5 (12/9)	6 (12/9)	7 (14/9)	8 (16/9)	9 (18/9)
26	4AD19EC424	RAJUMURTHY R			1	2	3	4	5	6	7
27	4AD19EC425	RAMYA N							1	1	2
28	4AD19EC426	RONALDO RICHARD TITUS								1	3
29	———	SAGAR M			1	1	2	3	4	5	6
30	4AD19EC427	SHRIKANTH V			1	2	3	4	5	6	7
31	4AD19EC428	SOUGANDHA G							1	2	3
32	4AD19EC429	SUDEEP P							1	2	3
33	4AD19EC430	SURAJ P							1	1	2
34	4AD19EC431	SYED MOHAMED ZUBAIR	1	2	3	4	5	6	7	8	9
35	4AD19EC432	SYED MUZAMIL							1	2	3
36	———	THRIBUVAN L								1	1
37	4AD19EC433	VINEETH GOUDA B K			1	2	3	4	5	6	7
38	4AD19EC434	YASHWANTH B							1	2	3
39	4AD19EC412	MALIK REHAN S. 03/10/19									
	No. of Abs.										
	Initials										

												Assignments / Internal Test Marks									SEE Marks	Total Marks
25	26	26	27	30	30	03	03	09	16	17												
9	9	9	9	9	9	10	10	10	10	10												
11	12	13	14	15	16	17	18	19	20	21	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks			
9	10	11	12	12	12	13	14	15	16	17		10	23	10	27	10	23		35	23	58
4	5	6	7	8	9	10	11	12	13	14		10	17	10	21	10	21		30	24	54
4	5	6	7	8	9	10	11	12	13	13			27		15		AB				
8	9	10	11	11	11	12	13	—	—	—	—	—	—	—	—	—	—	—	—		
9	10	11	12	13	14	15	15	16	17	17		10	09	10	9	10	16		22	24	46
5	6	7	8	9	10	11	12	13	14	15		10	17	10	25	10	16	19	31	28	59
5	6	7	8	9	10	11	12	13	14	15		10	17	10	16	10	23		29	8	37
4	5	6	7	8	9	9	9	10	11	11		10	19	10	27	10	17		31	21	52
11	12	12	13	14	15	16	17	17	18	18		10	08	10	11	10	07	09	20	24	44
5	6	7	8	9	10	11	12	13	14	15		10	24	10	27	10	21		34	37	71
3	4	5	6	6	6	7	—	—	—	—	—	—	—	—	—	—	—	—	—		
9	10	11	12	13	14	15	16	17	18	19		10	09	10	11	10	11		21	21	42
5	6	7	8	9	10	11	12	13	14	15		10	20	10	18	10	18		29	26	55
						1	2	2	3	3		10	07	10	17	10	12	06	22	21	43

ATME College of Engineering

ATTENDANCE

Course Title with Code : ..

Semester & Section : 3rd C

Sl. No.	USN	Student Name	22	23	24	25	26	27	28	29	30
		Date	17	23	24	24	28	28	30	31	31
		Mon	10	10	10	10	10	10	10	10	10
26	4AD19EC424	RAJU MURTHY R	18	19	20	21	22	23	24	25	26
27	4AD19EC425	RAMYA N	15	16	17	18	19	20	21	22	23
28	4AD19EC426	RONALDO RICHARD TITUS	13	14	15	16	16	16	16	17	18
29	———	SAGAR M									
30	4AD19EC427	SHRIKANTH V	17	18	19	20	21	22	23	24	25
31	4AD19EC428	SOUGANDHA G	16	17	18	19	20	21	22	23	24
32	4AD19EC429	SUDEEP P	15	16	17	18	19	20	21	21	22
33	4AD19EC430	SURAJ P	11	12	13	14	14	14	15	16	17
34	4AD19EC431	SYED MOHAMED ZUBAIR	18	19	20	21	22	23	24	25	25
35	4AD19EC432	SYED MUZAMIL	16	17	18	19	20	21	22	23	24
36	———	THRIBUVAN L									
37	4AD19EC433	VINEETH GOUDA B K	20	21	22	23	24	25	26	27	28
38	4AD19EC434	YASHWANTH B	16	17	18	19	20	21	22	23	24
39	4AD19EC412	MALIK REHAN S. 03/10/19	3	4	5	6	6	6	7	7	8
	No. of Abs.										
	Initials										

07/11	07/11	08/11	11/11	13/11	14/11	14/11	18/11	20/11	20/11	21/11
33	34	35	36	37	38	39	40	41	42	43
28	29	30	31	32	33	34	35	36	37	38
25	26	27	28	29	30	31	32	33	34	35
19	20	21	22	22	23	24	25	26	27	28
28	29	30	30	31	32	33	34	35	36	37
27	28	29	30	31	32	33	34	35	36	37
25	26	27	27	27	28	29	30	31	32	33
19	20	21	22	22	23	24	25	26	27	28
27	28	29	30	31	32	33	34	35	36	37
26	26	27	27	27	28	29	30	31	32	33
31	32	33	34	35	36	37	37	38	39	40
27	28	29	30	31	32	33	34	35	36	37
11	12	12	13	13	14	15	16	17	18	19

AT	Assignments / Internal Test Marks								SEE Marks	Total Marks
	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
	10	23	10	27	10	23		35	23	58
	10	17	10	21	10	21		30	24	54
		27		15		AB				
	10	07	10	9	10	16		22	24	46
	10	17	10	25	10	16	19	31	28	59
	10	17	10	16	10	23		29	8	37
	10	19	10	27	10	17		31	21	52
	10	08	10	11	10	07	09	20	24	44
	10	24	10	27	10	21		34	37	71
	10	09	10	11	10	11		21	21	42
	10	20	10	18	10	18		29	26	55
	10	07	10	17	10	12	06	22	21	43

ATME College of Engineering

ATTENDANCE

Course Title with Code : ..

Semester & Section : 3rd C

Sl. No.	USN	Student Name	44	45	46	47	48	49	50	51	52	5
		Date	21	28	28							
		Mon	11	11	11							
26	4ADI7EC424	RAJU MURTHY R	39	40	41							
27	4ADI7EC425	RAMYA N	36	37	38							
28	4ADI7EC426	RONALDO RICHARD TITUS	29	30	31							
29	—	SAGAR M	—	—	—							
30	4ADI7EC427	SHRIKANTH V	38	39	40							
31	4ADI7EC428	SOUGANDHA G	38	39	40							
32	4ADI7EC429	SUDEEP P	34	35	36							
33	4ADI7EC430	SURAJ P	29	30	31							
34	4ADI7EC431	SYED MOHAMED ZUBAIR	38	39	40							
35	4ADI7EC432	SYED MUZAMIL	34	35	36							
36	—	THRIBUVAN L	—	—	—							
37	4ADI7EC433	VINEETH GOUDA B K	41	42	43							
38	4ADI7EC434	YASHWANTH B	38	39	40							
39	4ADI7EC412	MALIK REHAN S. 03/10/19	20	21	22							
	No. of Abs.											
	Initials											

ATME College of Engineering

						Attendance				Assignments / Internal Test Marks								SEE Marks	Total Marks
55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
										10	23	10	27	10	23		35	23	58
										10	17	10	21	10	21		30	24	54
											27		15		AB				
										10	09	10	9	10	16		22	24	46
										10	17	10	25	10	16	19	31	28	59
										10	17	10	16	10	23		29	8	37
										10	19	10	27	10	17		31	21	52
										10	08	10	11	10	07	09	20	24	44
										10	24	10	27	10	21		34	37	71
										10	09	10	11	10	11		21	21	42
										10	20	10	18	10	18		29	26	55
										10	07	10	17	10	12	06	22	21	43

Model Question Paper -1 with effect from 2020-21(CBCS Scheme)

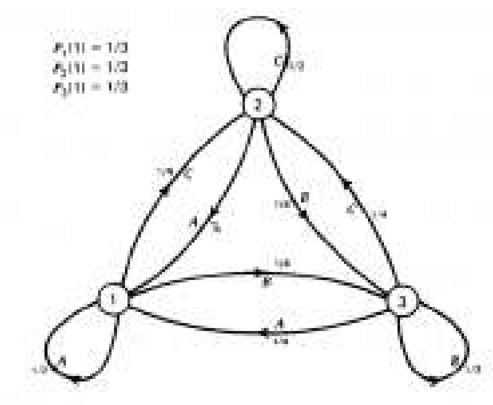
USN | | | | | | | | | | |

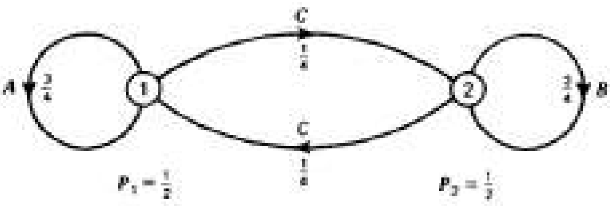
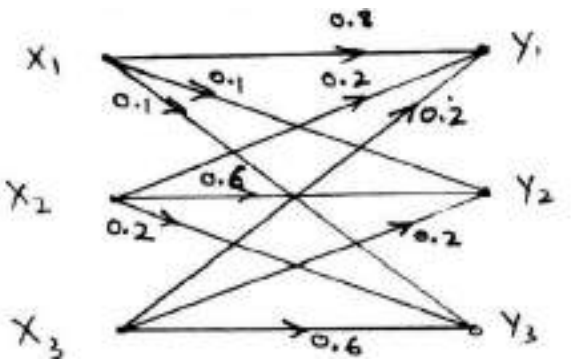
Fifth Semester B.E. Degree Examination

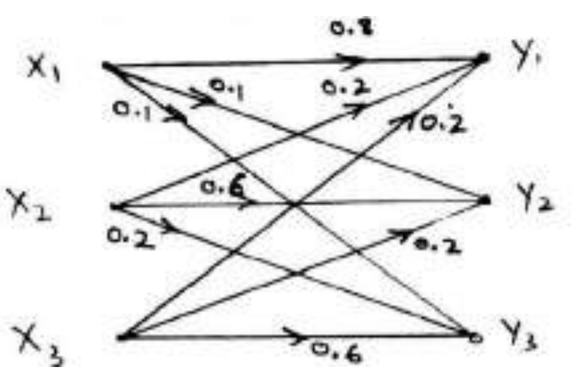
Information Theory and Coding

TIME: 03 Hours **Max. Marks: 100**

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.
02.
03.

		Module – 1	
Q.1	**(a)**	Define (i) Self information Also justify why to take logarithmic function for measurement of self-information? (ii)Entropy (iii)Rate of source	6
	(b)	(i) State the properties of entropy (ii) Drive an expression for average information content of symbols in long independent sequence.	8
	(c)	The international Morse code uses a sequence of dots and dashes to transmit letters of the English alphabet. The dash is represented by a current pulse that has a duration of 3 units and the dot has a duration of 1 unit. The probability of occurrence of a dash is l of the probability of occurrence of a dot. (i) Calculate the information content of a dot and a dash. (ii) Calculate the average information in the dot-dash code. (iii) Assume that the dot lasts 1 msec, which is the same time interval as the pause between symbols. Find the average rate of information transmission.	6
		OR	
Q.2	**(a)**	For the markov source shown below find i) State entropies ii)Source entropy iii) G1 G2 and show that G1≥G2≥H(s). 	10
	(b)	Prove that entropy of zero memory extension source is given by $H(S^n)=nH(S)$.	5
	(c)	A binary source is emitting an independent sequence of O's and 1 's with probabilities p and 1 - p, respectively. Plot the entropy of this source versus p ($0 < P < 1$).	5
		Module – 2	
	(a)	State and prove source encoding theorem	8
	(b)	A Memory less source emits six messages with probabilities {0.4, 0.2, 0.2, 0.1, 0.1}. Find the Shannon - Fano code and determine its efficiency	6

Q.3	**(c)**	Construct the Huffman code with minimum code variance for the following probabilities and also determine the code variance and code efficiency: {0.25, 0.25. 0.125, 0.125, 0.125, 0.0625, 0.0625}	6
		OR	
Q.4	**(a)**	State and prove Kraft McMillan Inequality	10
	(b)	Design a source encoder using Shannon encoding algorithm for the information source given Compare the average output bit rate and efficiency of the coder for N = 1 and 2 	10
	(c)		
		Module – 3	
Q.5	**(a)**	What is mutual information? Mention its properties.	4
	(b)	Discuss the Binary Erasure Channel and also derive channel capacity equation for BEC	8
	(c)	The noise characteristics of a channel as shown below. Find the capacity of a channel if r_s=2000 symbols/sec using Muroga's method. 	8
		OR	
Q.6	**(a)**	What is joint probability matrix? State its properties	4
	(b)	Find the Channel capacity of the channel with channel matrix shown below $$\begin{array}{c c} & \begin{array}{cccc} y_1 & y_2 & y_3 & y_4 \end{array} \\ \begin{array}{c} x_1 \\ x_2 \\ x_3 \\ x_4 \end{array} & \begin{bmatrix} 0.2 & 0 & 0 & 0.05 \\ 0 & 0.15 & 0.15 & 0 \\ 0 & 0 & 0.10 & 0.05 \\ 0.10 & 0.10 & 0 & 0.10 \end{bmatrix} \end{array}$$	6
	(c)	Consider that two sources emit messages xl , x2, x3 and y1, y2, y3 with the joint probabilities p (X, Y) as shown in the matrix form:	10

		 (i) Calculate the entropies of X and Y. (ii) Calculate the joint and conditional entropies, H (X,Y), H (X/Y), H(Y/X) between X and Y (iii) Calculate the average mutual information I(X;Y).	
		Module – 4	
Q.7	**(a)**	Consider a (6,3) linear block code whose generator matrix is given by $$\begin{bmatrix} 1 & 0 & 0 & 1 & 0 & 1 \\ 0 & 1 & 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 0 & 1 & 1 \end{bmatrix}$$ (i) Find the parity check matrix. (ii) Find the minimum distance of the code. (iii) Draw the encoder and syndrome computation circuit.	10
	(b)	In a (15,5) cyclic code, the generator polynomial is given by : $g(X) = 1+X+X^2+X^4+X^5+X^8 + X^{10}$ (i) Draw the block diagram of encoder and syndrome calculator. (ii) Find whether $r(X) = 1+X^4+X^6+X^8+X^{14}$ a valid code word or not.	10
	(c)		
		OR	
Q.8	**(a)**	Define G and H matrix and show that $CH^T = 0$.	5
	(b)	Design a linear block code with a minimum distance of 3 and a message block size of 8 bits.	5
	(c)	The generator polynomial of a (7,4) cyclic code is $g(x) = 1 + x + x^3$, find the 16 code words of this code by forming the code polynomials V(x) using $V(x) = D(x)g(x)$, where D(x) is the message polynomial.	10
		Module – 5	
Q.9	**(a)**	Explain general form of a decoder for cyclic codes with error correction procedure	8
	(b)	For (2,1,3) Convolution Encoder with $g^{(1)}$=1101, $g^{(1)}$=1011 (i) Write transition table (ii) State diagram (iii) Draw the code tree (iv) Draw the trellis diagram (v) Find the encoded output for the message(11101) by traversing the code tree	12
	(c)		

OR			
Q.10	(a)	Consider a (3,1,2) Convolution Encoder with $g^{(1)}=110$, $g^{(1)}=101$ and $g^{(1)}=111$ (i) Draw the encoder diagram (ii) Find the code word for the message sequence (11101) using Generator Matrix and Transform domain approach.	15
	(b)	Explain Viterbi decoding	5
	(c)		

Table showing the Bloom's Taxonomy Level, Course Outcome and Programme Outcome				
Question		**Bloom's Taxonomy Level attached**	**Course Outcome**	**Programme Outcome**
Q.1	(a)	L1	CO1	PO1,PO2
	(b)	L1	CO1	PO1,PO2
	(c)	L2	CO1	PO1,PO2
Q.2	(a)	L2	CO1	PO1,PO2
	(b)	L1	CO1	PO1,PO2
	(c)	L2	CO1	PO1,PO2
Q.3	(a)	L1	CO2	PO1,PO2,PO3
	(b)	L2	CO2	PO1,PO2,PO3
	(c)	L3	CO2	PO1,PO2,PO3
Q.4	(a)	L1	CO2	PO1,PO2,PO3
	(b)	L2	CO2	PO1,PO2,PO3
	(c)			
Q.5	(a)	L1	CO3	PO1,PO2,PO3
	(b)	L2	CO3	PO1,PO2,PO3
	(c)	L3	CO3	PO1,PO2,PO3
Q.6	(a)	L1	CO3	PO1,PO2,PO3
	(b)	L3	CO3	PO1,PO2,PO3
	(c)	L3	CO3	PO1,PO2,PO3
Q.7	(a)	L2	CO4	PO1,PO2,PO3
	(b)	L3	CO4	PO1,PO2,PO3
	(c)			
Q.8	(a)	L1	CO4	PO1,PO2,PO3
	(b)	L3	CO4	PO1,PO2,PO3
	(c)	L2	CO4	PO1,PO2,PO3
Q.9	(a)	L1	CO5	PO1,PO2,PO3,PO4
	(b)	L2	CO5	PO1,PO2,PO3,PO4
	(c)			
Q.10	(a)	L2	CO5	PO1,PO2,PO3,PO4
	(b)	L1	CO5	PO1,PO2,PO3,PO4
	(c)			

Bloom's Taxonomy Levels	**Lower order thinking skills**		
	Remembering(knowledge): L_1	Understanding Comprehension): L_2	Applying (Application): L_3
	Higher order thinking skills		
	Analyzing (Analysis): L_4	Valuating (Evaluation): L_5	Creating (Synthesis): L_6

Date: 27-09-2019

Department of Electronics & Communication Engineering

Department Advisory Board (DAB)

Minutes of Meeting

Agenda:

- Briefing minutes of PAC and suggestions on improving the CO, PO, and PSOs attainment
- Action plans regarding the curriculum Gaps identified for the AY 2019-20
- Comments received by the NBA committee to improve the department performance
- To discuss the redefinition of PEOs and PSOs.

Following Members were present during the meeting:

1. Dr. Mahesh P K – Chairman and Program Coordinator
2. Dr. S R Bhagyashree- Member
3. Mrs. Prathiba M K– Member
4. Mr. Shashidhar S Gokhale – Member
5. Mrs. Pavithra A C – Member
6. Mr. Sunil Kumar H V - Employer Member
7. Mr. Karthik - Alumni Member
8. Dr. Yathisha L – Member Secretary

The highlights of the meeting discussions are as follows:

- Program Coordinator & Chairman of DAB committee welcomed the DAB members assembled for the discussion of the agendas stated above.
- Dr. Yathisha L, Member secretary summarized the minutes of the PAC meeting held on 21/9/2019 before the DAB committee members.
- Dr. Mahesh P K asked the committee members to provide necessary action or suggestions to improve the Course Outcome attainment and curriculum gaps.
- Mrs. Prathibha M K said that tutorials must be conducted for the 4th sem subjects like signals & systems and control systems inorder to solve more number of problems.
- Dr. Bhagyashree S R said that students should be motivated to participate in the Smart India Hackathon or any project competitions held across the country so that students can develop the skill as an individual and as a team member which contributes the attainment of POs and PSOs as well.
- Dr. Mahesh P K said that the same will be intimated to the PSE committee to motivate students to participate in SIH 2020.

- Dr. Yathisha L noted down the suggestions and then presented the curriculum gaps identified for the AY 2019-20 and highlighted the POs that have a shortfall compared to the set target levels, namely PO4, PO6, PO7 & PO11.
- Mr. Sunil Kumar H V said that students need to take up the real-time projects to carry out their academic projects with industry trends to fill the shortfall of POs.
- Mr. Karthik M said that internship work with thrust areas like IoT, VLSI designs may increase the contribution to bridge the gaps.
- Mr. Shashidhar S Gokhale said that industry-oriented training can be conducted to the faculty and students through the MoUs which will contribute to the attainment of curricular gaps.
- Member secretary Dr. Yathisha L presented the tentatively planned activities to fill the curriculum gaps.

Sl. No.	Event	Planned Date	Relevance to PO/PSOs
1	Workshop on "Machine Learning "	3rd to 7th Feb 2020	PO-4, PSO-2
2	2 days Skill Enrichment program (SEP) on Introduction to Swift Programming Language	21st Mar 2020	PO-4, PO-5
3	Technical Talk on"Antennas and electrom Agnetics HAzArds" ,	15th April 2020	PO-6, PO-7
4	Technical Talk on "Career Opportunities in Digital Marketing" Network and Security"	29th April 2020	PO-11
5	Technical Talk on: Open Knowledge in Network and Security"	9th May 2020	PO-6

- Dr. Mahesh P K asked the member secretary to share the NBA reviewer comments.
- Dr. Yathisha L presented the weakness and deficiencies mentioned by the reviewers which is as follows:

Weakness:

1. The entry-level rank of students starts more than 8000.
2. The success rate without backlog is very low.
3. No inclination towards higher studies.
4. No inspiration towards entrepreneurship is seen from the staff to the students.
5. PEOs and PSOs are adequately defined.
6. Quality of Publication needs improvement.
7. Placement needs improvement, and the Average package is shallow.

Deficiency:

1. No Significant R&D Activities.
2. Quality of Publication needs improvement.

- Dr. Mahesh P K informed that the junior faculty members should be encouraged to take up their research work by the ph.D holders of the department which contributes to improve the publications with enhanced quality.
- Mrs. Prathibha M K said that entrepreneurship-related programs or activities to be conducted for the students to enrich the entrepreneurial skills.
- Dr. Mahesh P K said that the Department had procured the lifetime licensed LabVIEW software with which students can engage their project work in-house and the quality publications may emerge.
- Dr. Bhagyashree S R said that the faculties have to take up research-related projects or consultancy projects contributing towards the research and developmental activities under the department banner.
- Dr. Mahesh P K said that PSOs and PEOs are redefined by a group of people which includes senior members of the Department along with the necessary feedback from the stakeholders like employer and alumni members as well. The redefined PSOs and PEOs are as follows:

  - **Redefined PEOs**

    1. To produce Graduates to excel in the profession, higher education, and pursue research exercises in Electronics and Communication Engineering.
    2. To Produce technically able alumni with the capacity to examine, plan, create and execute Electronics and Communication frameworks thereby involving in deep-rooted learning.

  - **Redefined PSOs**

    1. To comprehend the fundamental ideas in Electronics and Communication engineering and apply them to identify, formulate and effectively solve complex engineering problems using the latest tools and techniques.
    2. To work effectively in a group as an independent visionary, team member, and leader, having the ability to understand any requirements and develop feasible solutions to emerge as a potential entrepreneur.

- Dr. Yathisha L noted down all the committee members action plans and the suggestions to improve the Department's overall performance & the meeting was concluded by thanking everyone.

Sl. No.	Name	Designation	Signature
1.	Dr. Mahesh P K	Chairman & Program Coordinator	
2.	Dr. S R Bhagyashree	Member	
3.	Mrs. Prathiba M K	Member	
4.	Mr. Shashidhar S Gokhale	Member	
5.	Mrs. Pavithra A C	Member	
6.	Mr. Sunilkumar H V	Employer Member	
7.	Mr. Karthik M	Alumni Member	Karthik M
8.	Dr. Yathisha L	Member Secretary	Yathisha L

Copy to:

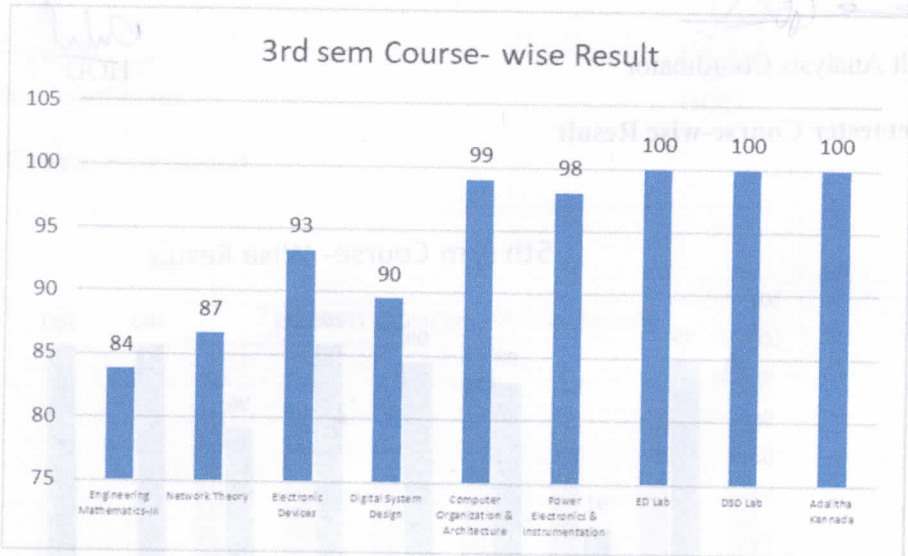
1. Principal's office
2. DAB Committee

Department of Electronics and Communication Engineering

Result analysis of Odd Semester- Academic Year- 2019-20

Class	No. of Students	No. of Pass	FCD	FC	SC	Pass %
3rd semester						
Regular	71	60	5	22	33	85
Lateral	34	19	0	7	12	56
Overall	105	79	5	29	45	75
4th Semester	105	105	72	28	5	98
5th semester	95	85	49	32	4	89
6th Semester	95	81	14	0	0	100
7th semester	129	122	77	40	5	95
8th Semester	130	129	105	24	0	99

3rd Semester Course wise result

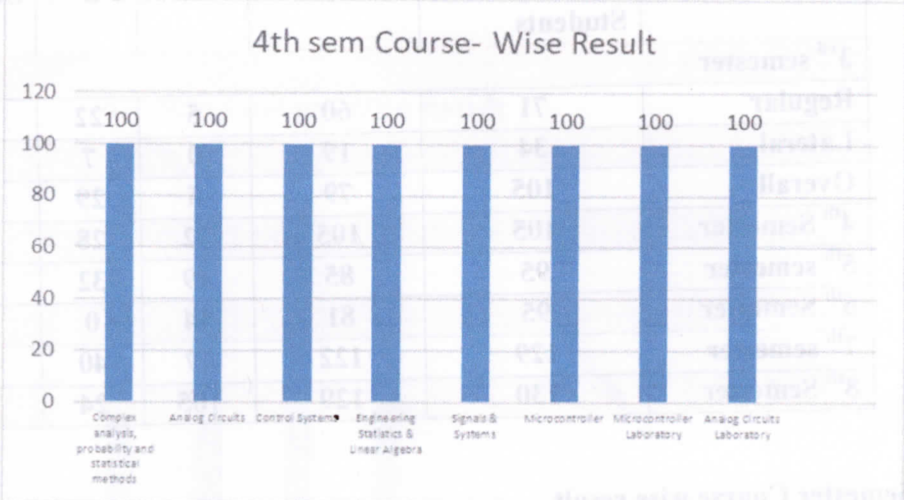


Result Analysis Coordinator

HOD

ATME COLLEGE OF ENGINEERING
13th Kilometer, Mysore-Kanakapura-Bangalore Road, Mysore – 570 028 P : 0821-2593335 F: 0821-2593328
Email: info@atme.in, Web : www.atme.in

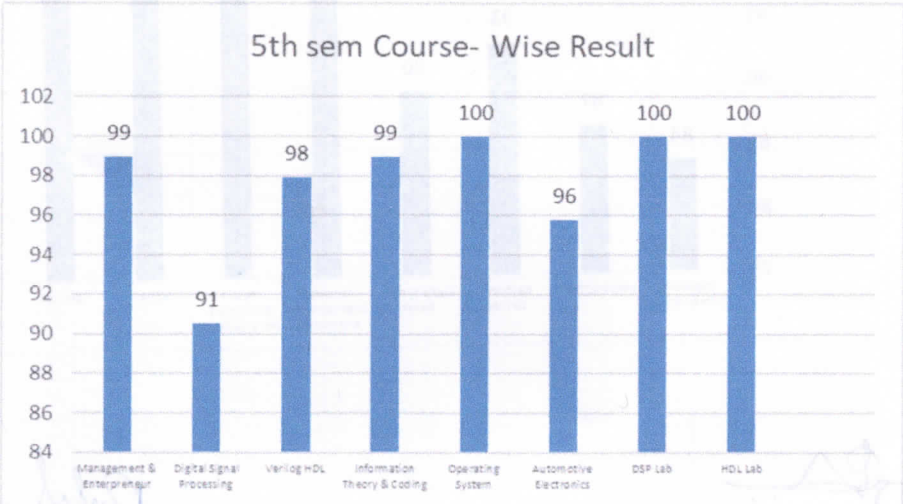
4th Semester Course-wise Result



Result Analysis Coordinator

HOD

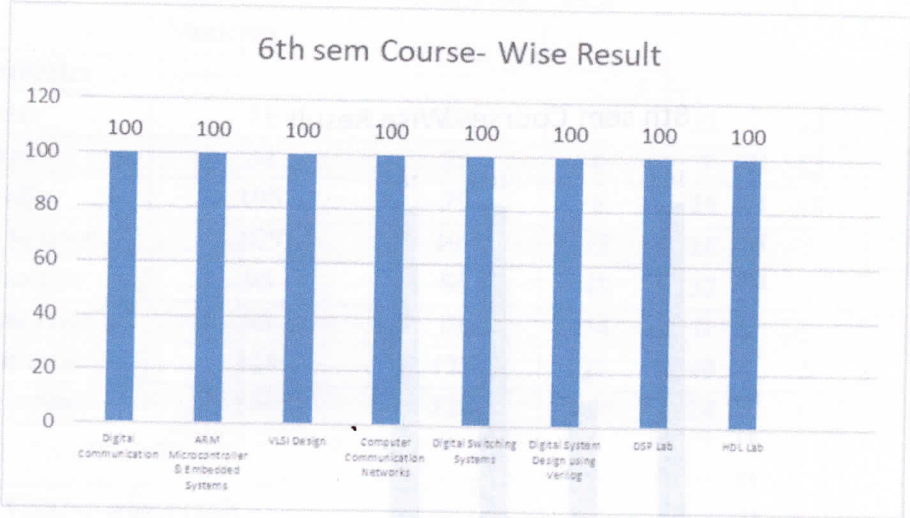
5th Semester Course-wise Result



Result Analysis Coordinator

HOD

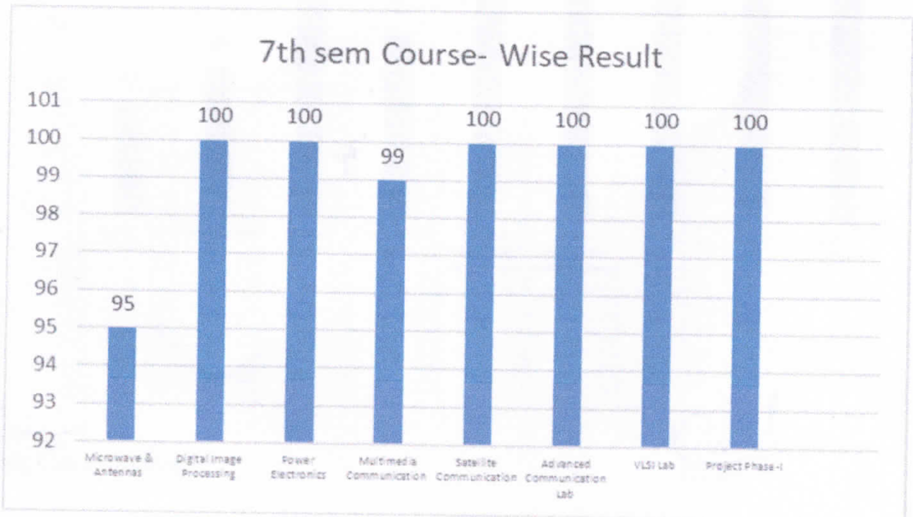
6th Semester Course-wise Result



Result Analysis Coordinator

HOD

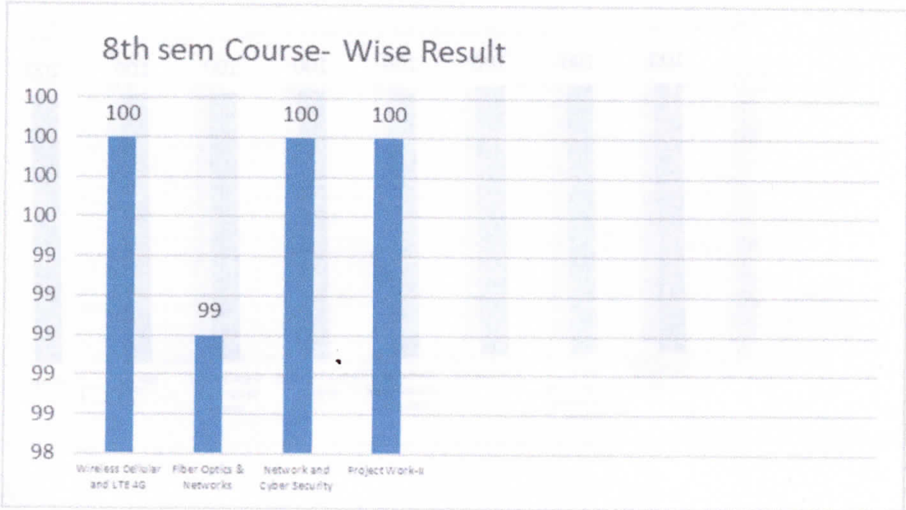
7th Semester Course-wise Result



Result Analysis Coordinator

HOD

8th Semester Course-wise Result



Result Analysis Coordinator

HOD

ATME
College of Engineering

VISION OF THE INSTITUTE

Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

MISSION OF THE INSTITUTE

- To keep pace with advancements in knowledge and make the students competitive and capable at the global level.
- To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as torch bearers of tomorrow's society.
- To strive to attain ever-higher benchmarks of educational excellence.

VISION OF THE DEPARTMENT

To develop highly skilled and globally competent professionals in the field of electronics and communication engineering to meet industrial and social requirements with ethical responsibility.

MISSION OF THE DEPARTMENT

1. To provide state-of-art technical education in Electronics and Communication at undergraduate and post-graduate levels to meet the needs of the profession and society.
2. To adopt the best educational methods and achieve excellence in teaching learning and research.
3. To develop talented and committed human resource, by providing an opportunity for innovation, creativity and entrepreneurial leadership with high standards of professional ethics, transparency and accountability.
4. To function collaboratively with technical institutes/universities industries and offer opportunities for long term interaction with academia and industry.
5. To facilitate effective interactions among faculty and students, and promote networking with alumni, industries, institutions and other stake holders.

ATME College of Engineering

Period From JULY 2019 To NOVEMBER 2019

Semester : Odd / Even

Faculty Member : GURUPRASAD K.N.

Designation : ASSISTANT PROFESSOR

Department : ELECTRONICS AND COMMUNICATION

Faculty Member ID : EC01020

Sl. No.	Sem. / Sec. / Branch	Course Title	Course Code
1	3/A/ECE	ELECTRONIC DEVICES	18EC33
2	3/C/ECE	ELECTRONIC DEVICES	18EC33
3	3/B/ECE	ELECTRONIC DEVICES AND INSTRUMENTATION LABORATORY	18ECL37
4	3/C/ECE	ELECTRONIC DEVICES AND INSTRUMENTATION LABORATORY	18ECL37

	Review at the end of the				End of Semester
	1st Month	2nd Month	3rd Month	4th Month	
Staff					
HOD / Reviewer					

Personal Timetable

DAY ↓ / TIME →	09:00 AM 10:00 AM	10:00 AM 11:00 AM	11:15 AM 12:15 PM	12:15 PM 01:15 PM		02:00 PM 02:55 PM	02:55 PM 03:50 PM	03:50 PM 04:45 PM
Monday	ED (C)				Lunch Break	←	C1: EDI LAB	→
Tuesday	←	C2: EDI LAB	→	ED(A)	Lunch Break			
Wednesday			ED(C)	ED(A)	Lunch Break			
Thursday	ED(C)	←	B1: EDI LAB	→	Lunch Break	ED(A)		
Friday	ED(A)	←	B2 EDI LAB	→	Lunch Break	ED(C)		
Saturday					Lunch Break			

Course Outcomes	Course Title	ELECTRONIC DEVICES	Course Code	18EC33
CO-1	Describe the principles of semiconductor physics			
CO-2	Explain the principles and characteristics of different types of semiconductor devices.			
CO-3	Illustrate the fabrication process of semiconductor devices.			
CO-4	Utilize the mathematical models of semiconductor junctions and MOS transistors for circuits and systems.			
CO-5				
CO-6				

Course Title with Code :	ELECTRONIC DEVICES : 18EC33											Semester : 3rd			
Course Outcomes	Program Outcomes											Program Specific Outcomes			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO-1	3	2	2	2	3	1	1	–	–	–	–	2	3	1	1	–
CO-2	3	2	2	2	1	1	1	–	–	–	–	2	3	1	1	–
CO-3	3	2	2	2	2	2	1	–	–	–	–	2	3	1	1	–
CO-4	3	2	2	2	3	2	1	–	–	–	–	2	3	1	1	–
CO-5																
CO-6																

ATME College of Engineering

Course Outcomes	Course Title	ELECTRONIC DEVICES AND INSTRUMENTATION LABORATORY	Course Code	18EC…
CO-1	Describe the characteristics of various electronic devices and measurement of parameters.			
CO-2	Design and test simple electronic circuits			
CO-3	Use of circuit simulation software for the implementati… and characterization of electronic circuits and devices.			
CO-4				
CO-5				
CO-6				

Course Title with Code :	ELECTRONIC DEVICES AND INSTRUMENTATION LABORATORY : 18ECL37											Semester : III		
Course Outcomes	Program Outcomes											Program Speci… Outcomes		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO-1	3	2	2	1	1	1	2	–	3	1	1	2	3	1	1
CO-2	3	2	2	1	1	1	2	–	3	1	1	2	3	1	1
CO-3	3	2	2	1	3	1	1	–	2	1	2	2	3	1	1
CO-4															
CO-5															
CO-6															

ATME College of Engineering

Lesson Plan

Semester & Section : 3rd

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	1-8-2019	Semiconductors: Introduction	1-8-2019	
2	2-8-2019	Bonding forces in solids	2-8-2019	
3	6-8-2019	Energy bands, metals	6-8-2019	
4	7-8-2019	Semiconductors and insulators	7-8-2019	
5	8-8-2019	Electrons and holes, intrinsic and extrinsic	8/9-8-2019	
6	9-8-2019	Conductivity and mobility	13/14-8-19	
7	13-8-2019	Effects of temp and doping on mobility	16/20-8-19	
8	14-8-2019	Hall effect	27/28-8-19	
9	16-8-2019	Numerical problems	28-8-19	
10	20-8-2019	Numerical problems and revision	30-8-19	
11	21-8-2019	PN Junctions: Forward & reverse bias junctions	3-9-19	ADE } PPT
12	22-8-2019	Qualitative description of current flow at jn.	4/5-9-19	PPT [illegible]
13	23-8-2019	Reverse bias breakdown - Zener breakdown	6-9-19	PPT
14	24-8-2019	Avalanche breakdown, Rectifiers	17/17-9-19	PPT
15	27-8-2019	Optoelectronic devices, photodiodes	18-9-19	PPT
16	28-8-2019	Current and voltage in illuminated junction	19-9-19	PPT
17	29-8-2019	Solar cells, photo-detectors	20-9-19	
18	30-8-2019	LEDs: Light emitting materials	24-9-19	
19	3-9-2019	Numerical problems	25-9-19	
20	4-9-2019	Numerical problems and revision	26-9-19	
21	5-9-2019	Bipolar Junction Transistor: Fundamentals	6-11-19	Altered B[illegible] Dr. [illegible]
22	6-9-2019	Amplification with BJTs	7-11-19	
23	11-9-2019	BJT Fabrication	7-11-19	
24	17-9-2019	The coupled diode model	8-11-19	
25	18-9-2019	Switching operation of a transistor	8-11-19	

26	19-9-2019	Cutoff, saturation, switching cycle	12-11-19	
27	20-9-2019	Drift in the base region, Base narrowing	13-11-19	
28	24-9-2019	Avalanche breakdown	13-11-19	
29	25-9-2019	Numerical problems	12-11-19	
30	26-9-2019	Numerical problems and revision	12-11-19	
31	27-9-2019	Field effect transistors : Basic PN JFET	13-11-19	Altered by YL
32	1-10-2019	Equivalent circuit and frequency limitations	14-11-19	
33	3-10-2019	MOSFET : Two terminal MOS structure	14-11-19	
34	4-10-2019	Energy band diagram	14-11-19	
35	5-10-2019	Ideal capacitance - voltage characteristics	18-11-19	
36	9-10-2019	Basic MOSFET operation	18-11-19	
37	10-10-2019	MOSFET structure	18-11-19	EL
38	11-10-2019	Current - voltage characteristics	19-11-19	EL
39	15-10-2019	Numerical problems	20-11-19	EL
40	16-10-2019	Numerical problems and revision	20-11-19	
41	17-10-2019	Fabrication of PN junctions : Thermal oxidation	02/10/19	
42	23-10-2019	Diffusion, Rapid thermal processing	03/10/19	
43	24-10-2019	Ion implantation, chemical vapour deposition	04/10/19	
44	25-10-2019	Photolithography	09/10/19	Infosys drive
45	26-10-2019	Etching, metallization	16, 17/10/19	Infosys drive
46	30-10-2019	Integrated circuits : Background	23/10/19	
47	5-11-2019	Evolution of ICs, CMOS process integration	24/10/19	
48	6-11-2019	Integration and other circuit problems	30/10/19	
49	7-11-2019	Numerical problems	31/10/19	
50	8-11-2019	Numerical problems and revision	5/10/19	

Faculty Member Signature HOD Signature

ATME College of Engineering

Lesson Plan

Semester & Section :

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	5-9-2019	Semiconductors : introduction	5-9-19	
2	5-9-2019	Bonding forces in solids	5-9-19	
3	9-9-2019	Energy bands, metals	9-9-19	
4	11-9-2019	Semiconductors and insulators	11-9-19	
5	12-9-2019	Electrons and holes, intrinsic and extrinsic	12-9-19	
6	12-9-2019	Conductivity and mobility	12-9-19	
7	16-9-2019	Effects of temperature and doping on mobility	14-9-19	Working Saturday
8	18-9-2019	Hall effect	16-9-19	
9	19-9-2019	Numerical problems	18-9-19	
10	19-9-2019	Numerical problems and revision	19-9-19	
11	23-9-2019	PN junctions : Forward and reverse bias junctions	19-9-19	
12	25-9-2019	Qualitative description of current flow at Jn	25-9-19	
13	26-9-2019	Reverse bias breakdown - zener breakdown	26-9-19	
14	26-9-2019	Avalanche breakdown, rectifiers	26-9-19	
15	30-9-2019	Optoelectronic devices, photodiodes	27-9-19	Swapped w KAK
16	03-10-2019	Current and voltage in illuminated junction	30-9-19	
17	03-10-2019	Solar cells, photodetectors	30-9-19	Swapped w Dr. PR
18	07-10-2019	LEDs : Light emitting materials	03-9-19	
19	10-10-2019	Numerical problems	03-9-19	EL
20	10-10-2019	Numerical problems and revision	07-9-19	EL
21	14-10-19	Bipolar junction transistors - fundamentals	16-10-19	EL
22	16-10-19	Amplification with BJTs	17-10-19	
23	17-10-19	BJT Fabrication	17-10-19	
24	17-10-19	The coupled diode model	23-10-19	
25	23-10-2019	Switching operation of a transistor	24-10-19	

26	24-10-2019	cutoff, saturation, switching cycle	24-10-19	
27	24-10-2019	Drift in the base region, base narrowing	28-10-19	
28	28-10-2019	Avalanche breakdown	28-10-19	Altered by Dr. PK
29	30-10-2019	Numerical problems	30-10-19	
30	31-10-2019	Numerical problems and revision	31-10-19	
31	31-10-2019	Field effect transistors: Basic pn JFET	31-10-19	
32	4-11-2019	Equivalent circuit and frequency limitations	13-11-19	
33	6-11-2019	MOSFET: Two terminal MOS structure	14-11-19	
34	7-11-2019	Energy band diagram	14-11-19	
35	7-11-2019	Ideal capacitance - voltage characteristics	18-11-19	
36	9-11-2019	Basic MOSFET operation	20-11-19	
37	9-11-2019	MOSFET structure	20-11-19	Swapped by Dr. YL
38	11-11-2019	Current - voltage characteristics	21-11-19	
39	13-11-2019	Numerical problems	21-11-19	
40	14-11-2019	Numerical problems and revision	28-11-19	
41	14-11-2019	Fabrication of pn junctions: Thermal oxidation	1-11-19	Special class
42	18-11-2019	Diffusion, Rapid thermal processing	1-11-19	Special class
43	18-11-2019	Ion implantation, chemical vapor deposition	1-11-19	Special class
44	20-11-2019	photolithography	1-11-19	Special class
45	21-11-2019	Etching, Metallization	04-11-19	
46	21-11-2019	Integrated circuits: Background	06-11-19	
47	25-11-2019	Evolution of ICs, CMOS process integration	07-11-19	
48	27-11-2019	integration and other circuit problems	7-11-19	
49	28-11-2019	Numerical Problems	8-11-19	Swapped by KAK
50	28-11-2019	Numerical problems and revision	11-11-19	

Faculty Member Signature

HOD Signature

ATME College of Engineering

WORK DONE DIARY

WEEK 1		MONDAY 29/7/19 DATE	TUESDAY 30/7/19 DATE	WEDNESDAY 31/7/19 DATE
ACTIVITY	Class Hours	LABVIEW INTERNSHIP CLASSES commencement of odd semester	LABVIEW INTERNSHIP CLASSES	CLAD EXAM
	Others			meeting with principal and other FPCs in boardroom regarding aptitude training
WEEK 2		**MONDAY 5/8/19 DATE**	**TUESDAY 6/8/19 DATE**	**WEDNESDAY 7/8/19 DATE**
ACTIVITY	Class Hours	Database preparation of final year students.	12.15 to 1.15 PM ED : 3rd A Bondings in solids Ionic and Metallic bonding	12.15 to 1.15 PM ED : 3rd A covalent bondings, Energy bands
	Others	First module and second module PPT preparation.	Lab video making Rectifiers. HWR and FWR	Half day CL
WEEK 3		**MONDAY 12/8/19 DATE**	**TUESDAY 13/8/19 DATE**	**WEDNESDAY 14/8/19 DATE**
ACTIVITY	Class Hours	HOLIDAY 'BAKRID'	12.15 to 1.15 PM ED : 3rd A metals, insulators and semiconductors	12.15 to 1.15 PM Direct and indirect semiconductors. Electrons and Holes
	Others		Lab video making shunt and series clipping.	Lab video making clampers. Positive and Negative

WEEK 1		**THURSDAY** 01/08/19 **DATE**	**FRIDAY** 02/08/19 **DATE**	**SATURDAY** 03/08/19 **DATE**
ACTIVITY	**Class Hours**	10.15 AM to 1.15 PM Batch B1 - EDI lab introduction to lab, resistor color coding, signal generation. 2.00 PM to 2.55 PM ED: 3rd A introduction, objectives	9 to 10 AM ED: 3rd A introduction to mod. I Semiconductors, orbitals, materials classification. 10.15 to 1.15 pm Batch B2: EDI lab introduction to lab	NON - WORKING SATURDAY
	Others		preparing aptitude training schedule and aptitude syllabus	
WEEK 2		**THURSDAY** 8/8/19 **DATE**	**FRIDAY** 9/8/19 **DATE**	**SATURDAY** 10/8/19 **DATE**
ACTIVITY	**Class Hours**	10.15 AM to 1.15 PM Batch B1: EDI lab Half wave rectifier with and without capacitor filter. 2.00 PM to 2.55 PM ED: 3rd A Linear combination of atomic orbitals	9 to 10 AM ED: 3rd A lab explanation 10.15 to 1.15 pm Batch B2: EDI lab Half wave rectifier with and without capacitor filter.	Non - working for students.
	Others	Assignment from module - 1 preparation and question bank preparation.	EDI Lab manual updation cycle 1 experiments.	1st year induction program. JARO campus drive for final year students
WEEK 3		**THURSDAY** 15/8/19 **DATE**	**FRIDAY** 16/8/19 **DATE**	**SATURDAY** 17/8/19 **DATE**
ACTIVITY	**Class Hours**	HOLIDAY "73RD INDEPENDENCE DAY"	9 to 10 AM ED: 3rd A (E, K) diagram and related problem 10.15 to 1.15 pm Batch B2: EDI lab Full wave rectifier and shunt positive and negative clippers.	NON - WORKING SATURDAY
	Others		preparing technical training syllabus and schedule	

ATME College of Engineering

WORK DONE DIARY

WEEK 4		MONDAY 19/8/19 DATE	TUESDAY 20/8/19 DATE	WEDNESDAY 21/8/19 DATE
ACTIVITY	Class Hours	10.15 am to 1.15 pm Batch A1: EDI Lab Swapped by Dr. SRB Half wave and full wave rectifier with and without capacitor filter.	12.15 to 1.15 pm ED: 3rd A Derivation of conductivity and mobility, problems	Aptitude and pre-placement training for 7th sem students by Carrier prime. 12.15 to 1.15 pm ED class altered to Dr. YL
	Others	Lab video making Zener diode Forward and reverse bias.	Line and Load regulation: Zener diode video making.	Talk by Mr. Arasu on soft skills at auditorium.

WEEK 5		MONDAY 26/8/19 DATE	TUESDAY 27/8/19 DATE	WEDNESDAY 28/8/19 DATE
ACTIVITY	Class Hours	Aptitude training by Mr. Raghunandan Carrier prime.	Soft skill training by Mr. Arasu, Carrier prime for final year students. 12.15 to 1.15 pm ED: 3rd A Drift and resistance, problems.	12.15 to 1.15 pm ED: 3rd A Effect of temperature and doping on mobility. Hall effect - introduction
	Others		3.55 to 4.45 pm Technical class for 5th B students. Topic: Semiconductors	Soft skill training by Mr. Arasu for final year students. Result analysis meeting with management

WEEK 6		MONDAY 02/09/19 DATE	TUESDAY 03/09/19 DATE	WEDNESDAY 04/09/19 DATE
ACTIVITY	Class Hours	HOLIDAY 'GANESHA CHATURTHI'	12.15 to 1.15 pm ED: 3rd A module 2: PN junctions introduction, qualitative description of current at a junction	12.15 to 1.15 pm ED: 3rd A Qualitative description continued.
	Others		2 pm to 3 pm Registration process of carrier prime for final year students at 401.	Lab video work. Department meeting at 3 pm.

WORK DONE DIARY

ATME College of Engineering

WEEK 4		THURSDAY 22/8/19 DATE	FRIDAY 23/8/19 DATE	SATURDAY 24/8/19 DATE
ACTIVITY	Class Hours	10.15 to 1.15 PM Batch B1: EDI Lab Full wave rectifier and shunt clippers. 2 to 2.55 PM ED class altered to Dr. P K	10.15 to 1.15 pm Batch B2: EDI Lab clippers - series, shunt and two sided. 9 to 10 AM ED class altered to AS	Thursday Timetable 10.15 to 1.15 PM Batch B1: EDI Lab Series clippers, Two sided clippers and clampers. 2 to 2.55 pm ED altered to Dr. P K
	Others	Aptitude training classes - Technical session by Mr. Yuvraj Carrier prime	Aptitude training by Mr. Raghunandan and Mr. Vignesh - Carrier prime	Verbal and Reasoning training classes by Ms. Monika and Ms. Soumya

WEEK 5		THURSDAY 29/8/19 DATE	FRIDAY 30/8/19 DATE	SATURDAY 31/8/19 DATE
ACTIVITY	Class Hours	10.15 to 1.15 pm Batch B1: EDI Lab Zener diode characteristics and voltage regulator 2.00 PM to 2.55 PM ED: 3rd A Hall effect and related problems.	9 to 10 AM ED: 3rd A Class test on 1st module 10.15 to 1.15 PM Batch B2: EDI Lab Zener diode characteristics and voltage regulator	CL
	Others	3.50 to 4.45 pm Technical class for 5th B students: Semiconductors Final year: Aptitude Morning session.	Record evaluation of Batch B2 students.	

WEEK 6		THURSDAY 05/09/19 DATE	FRIDAY 06/09/19 DATE	SATURDAY 07/09/19 DATE
ACTIVITY	Class Hours	9 to 10 AM 3rd C: Basics, Introduction 10.15 to 1.15 pm Batch B1: EDI Lab SCR characteristics 2 to 2.55 PM ED 3rd A: Diode current equation and problems 3.55 to 4.45 PM: ED 3rd C	9 to 10 AM ED: 3rd A Reverse bias and reverse bias breakdown. 10.15 to 1.15 PM Batch B2: EDI Lab SCR characteristics	NON-WORKING SATURDAY
	Others	Introduction to logarithms.	Question paper preparation for 1st IA. Coordinated aptitude class for 5th B. Question paper distribution.	

WEEK 7		MONDAY 09/09/19 DATE	TUESDAY 10/09/19 DATE	WEDNESDAY 11/09/19 DATE
ACTIVITY	Class Hours	10.15 to 11.15 AM Batch A1 : EDI Lab Altered by Dr. SRB SCR characteristics 11.15 am to 12.15 PM ED: 3rd C introduction to module 1, basics. 2.00 PM to 4.45 PM C1 Batch EDI Lab : introduction	HOLIDAY MOHARRAM	11.15 to 12.15 pm ED : 3rd C Bonding forces in solids 12.15 to 1.15 PM ED : 3rd A Zener breakdown and Revision
	Others	Placement meeting by TPO in placement office. coordinated aptitude class for 3rd B.		Lab experiment RC triggering SCR practice
WEEK 8		**MONDAY 16/09/19 DATE**	**TUESDAY 17/09/19 DATE**	**WEDNESDAY 18/9/19 DATE**
ACTIVITY	Class Hours	11.15 to 12.15 AM ED : 3rd C Direct and indirect semiconductors, Electrons and Holes. 2.00 pm to 4.45 PM EDI Lab : Batch C1 HWR and FWR with and without capacitor filter	9 to 12.00 pm EDI Lab : Batch C2 HWR and FWR with and without capacitor filter. 12.15 pm to 1.15 PM ED : 3rd A Avalanche breakdown and diode approximations. SRS Device ID allocation	11.15 to 12.15 PM ED 3rd C Electrons and Holes, Numerical problem. 12.15 to 1.15 PM ED. 3rd A Rectifiers, diode approximations. photodiode
	Others	Database preparation for JUSPAY and JUEGO studio pool drive. Updation of 1st IA marks in CERP	2.45 to 4.45 PM Technical talk for final year students. TOPIC : Ergonomics and Human interface.	9.15 to 11.00 AM Seminar by Mr. Kousuke Noguchi San on 'Japanese Language' importance.
WEEK 9		**MONDAY 23/9/19 DATE**	**TUESDAY 24/9/19 DATE**	**WEDNESDAY 25/9/19 DATE**
ACTIVITY	Class Hours	12.05 PM to 12.45 PM 3rd C : INDUCTION PROGRAM placement and training details. 2.00 PM and 4.45 PM EDI lab : Batch C1 Clippers : series, shunt	9.00 AM to 12.00 PM 3rd C : EDI Lab Batch C2 Clippers and clampers. Shunt and series clippers, two ended and double sided clippers. 12.15 pm to 1.15 PM ED: 3rd A Solar cells, working, I-V characteristics, solar panel.	11.15 to 12.15 pm 3rd C : ED Extrinsic materials. Donor binding energy. 12.15 to 1.15 PM ED : 3rd A photodetectors, working principle. parameters. LED - introduction
	Others	JUEGO drive announcement in class. Brief address for 7th A & 7th B on JUEGO drive.	peer-review form submission. Preparation of database HP drive. criteria 6 CGPA/60%. Agg.	QP preparation for Lab IA. TEACHERS DAY AND ENGINEERS DAY CELEBRAT

ATME College of Engineering

WEEK 7		THURSDAY 12/09/19 DATE	FRIDAY 13/09/19 DATE	SATURDAY 14/09/19 DATE
ACTIVITY	Class Hours	9 to 10 AM ED: 3rd C Bonding forces in solids, Energy bands. 1st INTERNALS. IA invigilation duty 3.50 to 4.45 PM ED: 3rd C Energy bands, LCAO	1st INTERNALS IA invigilation duty	1st INTERNALS IA invigilation duty. 11.15 to 12.15 PM ED: 3rd C Metals, semiconductors and insulators.
	Others	Announcement for final year students reg. WIPRO test.	Lab manual updation ED lab. Announcement in the class reg. CERA test for 3rd sem students.	Blue book valuation.

WEEK 8		THURSDAY 19/9/19 DATE	FRIDAY 20/9/19 DATE	SATURDAY 21/9/19 DATE
ACTIVITY	Class Hours	9 to 10 AM (E-K) diagram, intrinsic semiconductors 10.15 to 1.15 PM 3rd B: B1 HWR & FWR using SCR 2.00 PM to 2.55 PM ED: 3rd A Photodiode, current equation 3.50 to 4.45 PM ED 3rd C intrinsic semiconductors.	9 to 10 AM Photodiodes, solar cell construction. 10.15 to 1.15 PM ED lab: B2 batch HWR and FWR using SCR	From 9.30 AM e-Sim workshop conducted by IIT bombay. NON-WORKING SATURDAY
	Others	9.30 to 11.00 PM Survey on-line test	Aptitude class for 5th A and 5th B. Coordinated the class.	

WEEK 9		THURSDAY 26/9/19 DATE	FRIDAY 27/9/19 DATE	SATURDAY 28/9/19 DATE
ACTIVITY	Class Hours	9 to 10 AM ED: 3rd C Conductivity and mobility problems. 10.15 to 1.15 PM 3rd B: B1 LAB INTERNALS TEST 2.00 PM to 2.55 PM ED: 3rd A LED, LED materials. 3.50 to 4.45 PM ED 3rd C Drift and resistance	9 to 10 AM Class test: module 2 10.15 to 1.15 PM ED lab: B2 batch FIRST LAB INTERNALS TEST - CYCLE I 2.55 to 3.50 PM: 3rd C Swapped by KAR Drift and resistance	HOLIDAY MAHALAYA AMAVASYE
	Others	Lab IA blue book valuation. COGNIZENT drive database	Preparation of database for HPE company drive to be held on 13th & 14th Nov. 2019 @ GSSS	

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WORK DONE DIARY

WEEK 10		MONDAY 30/09/17 DATE	TUESDAY 01/10/17 DATE	WEDNESDAY 02/10/17 DATE
ACTIVITY	Class Hours	10.00 AM to 11.00 AM ED : 3rd C swapped by Dr. YL Effect of temp and Doping on mobility 11.15 to 12.15 PM ED : 3rd C Hall Effect 3.00 PM to 4.45 PM EDI LAB : Batch C1 Clampers and Zener diode	9 AM to 12 PM EDI: 3rd C: Batch C2 clampers and Zener diode. 12.15 to 1.15 PM ED: 3rd A Module 5: Fabrication of PN junctions. introduction.	HOLIDAY GANDHI JAYANTHI
	Others	preparation of data base to Techjini drive and mailed to TPO	Robosoft drive database preparation and mailed to TPO. Student data verification	

WEEK 11		MONDAY 08/10/17 DATE	TUESDAY 08/10/17 DATE	WEDNESDAY 07/10/17 DATE
ACTIVITY	Class Hours	HOLIDAY AYUDHA POOJA	HOLIDAY VIJAYA DASHAMI	10.15 to 12.15 : ED 3rd C Numerical problem on Diode equation 12.15 to 1.15 : EC 3rd A Ion implantation, chemical vapour deposition
	Others			LEAVE

WEEK 12		MONDAY 14/10/17 DATE	TUESDAY 15/10/17 DATE	WEDNESDAY 16/10/17 DATE
ACTIVITY	Class Hours	ON LEAVE 11.15 - 12.15 : ED : Dr. YL 2 - 2.55 : EDL : DMB 2.55 - 3.50 : EDL : MR 3.50 - 4.45 : EDL : DMB	ON LEAVE 9 - 10 : EDL : DMB 10 - 11 : EDL : KAK 11 - 12 : EDL : DMB 12.15 - 1.15 : Dr. YL ED	10.15 to 12.15 : ED : 3rd C Reverse bias Reverse bias breakdown 12.15 - 1.15 : ED : 3rd A Chemical vapour deposition
	Others			Question paper preparation for 1st IA of 3rd sem 'c' section

WEEK 10		THURSDAY 03/10/17 DATE	FRIDAY 04/10/17 DATE	SATURDAY 05/10/17 DATE
ACTIVITY	Class Hours	9 to 10 AM: ED: 3rd C Module 2: PN Junctions. Introduction, qualitative approach of current flow. 10.15 to 1.15: EDI Lab: B1 Expt No. 6: Kelvin and Wheat stone bridge. 2 to 2.55 PM: ED: 3rd A Thermal oxidation	9 to 10 AM: ED 3rd A Diffusion, Rapid thermal processing 10.15 to 1.15 EDI lab: B2 Expt. No. 6: Wheat stone and Kelvin Bridge experiment.	AYUDHA POOJA CELEBRATION IN COLLEGE
	Others	3.50 to 4.45 PM ED: 3rd C Problems on Hall effect.	Coordinating SRS test for 5th sem students for aptitude class. Lab action plan preparation.	

WEEK 11		THURSDAY 10/10/17 DATE	FRIDAY 11/10/17 DATE	SATURDAY 12/10/17 DATE
ACTIVITY	Class Hours	ON LEAVE 9-10: ED: KAR 10.15-1.15: EDL: JS 2-2.55: ED: AS 3.50-4.45: ED: Dr. PK	ON LEAVE 9-10: ED: AS 10.15-11.15: EDL: AB1 11.15-12.15: EDL: GM 12.15-1.15: EDL: KAR	ON LEAVE 11.15-12.15: ED: Dr. PK 12.15-1.15: ED: Dr. YL
	Others			

WEEK 12		THURSDAY 17/10/17 DATE	FRIDAY 18/10/17 DATE	SATURDAY 19/10/17 DATE
ACTIVITY	Class Hours	9-10: ED: 3rd B Zener breakdown 10.15-1.15: EDI LAB B1 Transfer and drain characteristics of a JFET 2 to 2.55: ED: 3rd A photolithography	II INTERNAL ASSESSMENT	NON WORKING SATURDAY
	Others	3.50 to 4.45 PM ED: 3rd C Avalanche breakdown comparision.	Room invigilation duty for 2nd Internal Assessment	

WORK DONE DIARY

WEEK 13		MONDAY 21/10/19 DATE	TUESDAY 22/10/19 DATE	WEDNESDAY 23/10/19 DATE
ACTIVITY	Class Hours	II internal Assessment	II internal Assessment Meeting with Principal sir regarding Infosys drive to be held on 25/10/2019 and 26/10/19	9.10 10 AM : ED : 3rd C swapped by Dr. YL Diode approximations 11.15 to 12.15 : ED : 3rd C optoelectronics, photodiode 12.15 to 1.15 : ED : 3rd A Etching
	Others	Room invigilation duty. Blue book valuation of 3rd sem 'c' section	Schedule preparation for Infosys mock test and Aptitude training on 23/10/19 and 24/10/19	Blue book valuation. Aptitude training coordination. Project synopsis correction.

WEEK 14		MONDAY 28/10/19 DATE	TUESDAY 29/10/19 DATE	WEDNESDAY 30/10/19 DATE
ACTIVITY	Class Hours	10 to 11 AM : ED : 3rd C Altered by Dr. PK Photodetectors. 11.15 to 12.15 PM : ED:3C LEDs, working, characteristics. 2 Pm to 4.45PM : EDI Lab 3rd C : Batch C1 HWR and FWR using	HOLIDAY DEEPAVALI	11.15 to 12.15 : ED : 3rd C LED materials module 5 : Fabrication of PN junctions. 12.15 to 1.15 PM: ED : 3rd A module 5(b) integrated circuits, Advantages, types of ICs.
	Others	SCR. Entering 3rd C blue book 1st IA marks to CERP.		Preparation of database for Maverick solutions. IBM drive announcement in the class. updation of IA marks in CERP.

WEEK 15		MONDAY 04/11/19 DATE	TUESDAY 05/11/19 DATE	WEDNESDAY 06/11/19 DATE
ACTIVITY	Class Hours	11.15 AM to 12.15 : ED : 3rd C integrated circuits : Background, evolution, Advantages. 2 PM to 4.45 PM : EDI LAB : Batch C1 Kelvin bridge, LDR characteristics, LED and temperature sensor using Thermistor.	9 Am to 12 PM : EDI : 3rd C Batch C2 : Kelvin and wheatstone bridge. LDR characteristics and turn on LED. Measurement of voltage and current using temp. sensor bridge. 12.15 to 1.15 PM : ED : 3rd A	9 to 10 AM : ED : 3rd C Altered by Dr. YL Twin well - self aligned CMOS process, Fabrication of N MOS on P MOS using sidewall spacers. 11.15 to 12.15 PM : ED : 3rd C 12.15 to 1.15 PM : ED : 3rd A modes, configuration and working of a transistor
	Others	Capgemini database preparation and mailed to TPO 60% in 10th/12th/BE. only women candidates.	Twin - well fabrication process, Fabrication of N - well on P - mos. module 3 : BJT introduction	1/2 Day CL

WORK DONE DIARY

ATME College of Engineering

WEEK 13		**THURSDAY** 24/10/19 **DATE**	**FRIDAY** 25/10/19 **DATE**	**SATURDAY** 26/10/19 **DATE**
ACTIVITY	Class Hours	9 to 10 AM : 3rd C: ED Solar cells - construction working principle. 10.15 to 1.15 PM: 3rd A : EDI Lab. Transfer characteristics of MOSFET. 2.00 PM to 2.55 PM: ED: 3rd A Metallization and simplified approach	INFOSYS pool DRIVE IN ASSOCIATION WITH VTU-CPC Mysore colleges.	INFOSYS pool DRIVE 2ND ROUND Technical and HR round interview
	Others	3.50 to 4.45 PM : ED: 3rd C operation of solar cell, V-I characteristics, solar panels. Numericals.	on-line test in 3 different batches. 124 students got shortlisted.	81 students got selected, out of which 12 are from ATMECE
WEEK 14		**THURSDAY** 31/10/19 **DATE**	**FRIDAY** 01/11/19 **DATE**	**SATURDAY** 02/11/19 **DATE**
ACTIVITY	Class Hours	9 to 10 AM: 3rd C: ED Thermal oxidation, Diffusion. 10.15 to 1.15 PM: 3rd A: EDI Lab LDR and Temp. sensor 2.00 to 2.55 PM: ED: 3rd A Evolution of IC, CMOS Fabrication.	HOLIDAY KANNADA RAJYOTSAVA 4 Hours Extra class	NON WORKING SATURDAY
	Others	3.50 to 4.45 PM: ED: 3rd C Rapid thermal processing, Ion implantation	Special class for 3rd sem 'C' section. ED - 18EC33 Ion implantation, CVD, Photolithography, Etching, metallization, Summary.	
WEEK 15		**THURSDAY** 07/11/19 **DATE**	**FRIDAY** 08/11/19 **DATE**	**SATURDAY** 09/11/19 **DATE**
ACTIVITY	Class Hours	9 to 10 AM : ED: 3rd C module 3 : BJT introduction, modes, configuration & working 10.15 to 1.15 PM: EDI Lab: 3rd B - UJT based FWR and RPS 2.00 PM to 2.55 PM: ED: 3rd A Amplification with BJTs Ebers - moll model.	9 to 10 AM : ED : 3rd A Eber - moll model, BJT as switch 10.15 to 1.15 PM : EDI Lab Regulated power supply and Repetition in Hardware lab. 2.55 to 3.50 PM : ED: 3rd C Swapped by KAR Amplification with BJTs	HOLIDAY DECLARED BY GOVT OF KARNATAKA FOR AYODHYA JUDGEMENT
	Others	3.50 to 4.45 PM ; ED : 3rd C movement of holes and electrons in P-n-P transistor Xmplar on-line test for registered students.	Database preparation for Accord software to be held at NIE on 12/11/19	

WORK DONE DIARY

WEEK 16		MONDAY 11/11/19 DATE	TUESDAY 12/11/19 DATE	WEDNESDAY 13/11/19 DATE
ACTIVITY	Class Hours	11.15 to 12.15 pm: ED: 3rd C Ebers moll model 2.00 pm to 4.45 pm: EDI Lab 3rd C: Batch C1 Simulation input and o/p characteristic of CE configuration. Transfer and drain characteristics of JFET	9 to 12 PM: EDI Lab: C2 I/P & o/p characteristics of CE configuration. Transfer and Drain characteristics of JFET and MOSFET. 12.15 to 1.15 PM: ED: 3rd A Transistor as switch, cut-off & saturation region	11.15 to 12.15 pm: ED: 3rd C Transistor as switch, switching cycle 12.15 to 1.15 PM: ED: 3rd A switching cycle, Drift in base region, Base Narrowing. 2.00 to 2.55 PM: ED: 3rd A Altered by Dr. YB Early effect, Avalanche
	Others	and MOSFET. JAR preparation in Latex. Criteria 4	Campus drive coordination M/s Genpact campus drive - No cut off Accord software pool drive @ NIE, Mysuru. - 70% Agg	breakdown. Mod-4 FET - introduction Special additional lab for 3rd B - Repetition 3.00 - 4.45 PM
WEEK 17		**MONDAY 18/11/19 DATE**	**TUESDAY 19/11/19 DATE**	**WEDNESDAY 20/11/19 DATE**
ACTIVITY	Class Hours	11.15 to 12.15 pm: ED: 3rd C Basic operation of n-channel pn JFET. 12.15 pm to 1.30 pm: ED: 3rd A. MOSFET, working, construction and energy band diagram. 2.00 PM to 4.45 pm: EDI: C1 I/P and o/p characteristics	9 to 10 AM: Swapped by Mr. Gopal: 3rd C 2.00 PM to 4.45 PM. 3rd C EDI Lab: Batch C2 UJT characteristics. Design and simulation of RPS.	9 to 10 AM: Swapped by Dr. YB. 3rd C Frequency limitations and cut-off frequency. 11.15 to 12.15 PM: 3rd C Numerical problems. 2.00 to 4.45 PM: 3rd B Special lab for simulati
	Others	of CE configuration	Preparatory exam for 3rd, 5th and 7th semester students.	Kannada Rajyotsava Meeting at library at 4.00 PM
WEEK 18		**MONDAY 25/11/19 DATE**	**TUESDAY 26/11/19 DATE**	**WEDNESDAY 27/11/19 DATE**
ACTIVITY	Class Hours	CL	KANNADA RAJYOTSAVA CELEBRATION IN CAMPUS	CL
	Others		Blue book valuation 3rd semester 'C' section, and updation of marks in CERP	

WEEK 16		THURSDAY 14/11/19 DATE	FRIDAY 15/11/19 DATE	SATURDAY 16/11/19 DATE
ACTIVITY	Class Hours	9 to 10 am: ED: 3rd C Specifications. Drift in the base region. 10.15 to 1.15 PM: EDI: BI RPS and UJT - Simulation 2.00 to 2.55 PM: ED: 3rd C working of n channel PN JFET. 3.50 to 4.45 PM: ED: 3rd C	HOLIDAY KANAKADASA JAYANTHI	IBM pool drive at ATME campus. coordinated the drive with TPO.
	Others	Early effect, Avalanche breakdown. Dept. meeting at 1.30PM		

WEEK 17		THURSDAY 21/11/19 DATE	FRIDAY 22/11/19 DATE	SATURDAY 23/11/19 DATE
ACTIVITY	Class Hours	9 to 10 AM: ED: 3rd C MOSFET Fabrication 10.15 to 1.15 PM: EDI: BI Repetition of experiments 3.50 to 4.45 PM: ED: 3rd C Energy band diagram	III INTERNAL ASSESSMENT "Sampoorna Kannada" Event coordination at TAP cell	III INTERNAL ASSESSMENT
	Others	Rajyostava event "Sampoorna Kannada" announcement in the classes.	IA invigilation duty from 9.30 to 11.00 AM and 3.00 to 4.30 PM. Blue book valuation of 3rd A section.	IA invigilation duty from 9.30 to 11.00 AM and 3.00 to 4.30 PM. Updating III IA marks in CERP.

WEEK 18		THURSDAY 28/11/19 DATE	FRIDAY 29/11/19 DATE	SATURDAY 30/11/19 DATE
ACTIVITY	Class Hours	LAB INTERNALS FOR 3RD B STUDENTS 9 to 10 AM: ED: 3rd C MOSFET working N-channel enhancement and depletion type MOSFET 3.50 to 4.45 PM: ED: 3rd C	LAB INTERNALS FOR 3RD B STUDENTS Lab IA duty from 9.00 AM to 4.45 PM	LAB INTERNALS FOR 3RD A STUDENTS
	Others	P-channel enhancement and depletion type MOSFET. 10 to 11.45 AM: Preparatory exam invigilation duty.		All lab experiments video links are shared with students.

LEAVE DETAILS

Sl. No.	Date	Type	Reason	Actual Class Allotted (Course Code/Time)	Substitute Faculty Member	Signature of Substitute Faculty Member
01	10/7/19	CL	personal	—	—	
02	22/7/19	CL	personal	—	—	
03	7/8/19 AN	½ CL	personal	—	—	
04	30/8/19	CL	personal	—	—	
05	09/10/19 to 15/10/19	EL	personal	→ mentioned in work done	diary →	
06	06/11/19	½ CL	personal	—	—	
07	25/11/19	CL	personal	3rd IA, No class	—	—
08	27/11/19	CL	personal	18EC34 11.15 to 12.15 PM	PRY	[signature]
09	02/12/19	½ CL	personal	—	—	—
10	24/12/19	RH	Christmas Eve	—	—	—
11	28/12/19	CL	personal	—	—	—

PROGRAM OUTCOMES (PO'S)

PO:1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to th solution of complex engineering problems
PO:2	**Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions usi first principles of mathematics, natural sciences, and engineering sciences
PO:3	**Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that me the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
PO:4	**Conduct investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analys and interpretation of data, and synthesis of the information to provide valid conclusions
PO:5	**Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction an modeling to complex engineering activities with an understanding of the limitations
PO:6	**The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues an the consequent responsibilities relevant to the professional engineering practice
PO:7	**Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, an demonstrate the knowledge of, and need for sustainable development
PO:8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO:9	**Individual and Teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
PO:10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such a being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive cle instructions
PO:11	**Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply the to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PO:12	**Life-Long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broade context of technological change

ATME College of Engineering

C1.1.1 - The Institution ensures effective curriculum delivery through a well planned and documented process

Supporting Documents

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1	**2019-20**	Academic Calendar- College & Department
2		Teaching Plan
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4		Learning Outcome- Course Module
5		Time Table
6		Teaching – Learning resources
7		Attendance Record
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9		Question Bank-VTU Previous Year QP
10		Academic Activity and its Planning
11		Result Analysis
12		Teachers Diary

Department of Civil Engineering

JULY 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 WORKSHOP ART OF COUNSELING START DAY	3	4	5	6
7 START OF INTERNSHIP FOR 7TH SEM STUDENTS	8	9 WORKSHOP ART OF COUNSELING END DAY	10	11	12	13
14	15 FACULTY TRAINING MS OFFICE	16 FACULTY TRAINING MS OFFICE	17	18	19	20
21	22	23	24	25	26	27 NBA CRITERIA 2 & 3 WORKSHOP
28	29 COMMENCEMENT OF ODD SEM 2019-20 III, VI , VII	30	31			

June 2019

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30						

August 2019

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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

ATME College of Engineering

AUGUST 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3 NON-WORKING
4	5	6	7	8	9 COMMENCEMENT OF INDUCTION PROGRAM FOR FIRST YEAR	10 WORKING MONDAY TT ORIENTATION PROGRAM FIRST YEAR
11	12 HOLIDAY BAKRID	13	14	15 HOLIDAY INDEPENDENCE DAY	16	17 NON-WORKING
18	19	20	21	22	23	24 WORKING THURSDAY TT END OF 11 DAYS INDUCTION PRG FOR FIRST YEAR
25	26 COMMENCEMENT OF THEORY CLASSES FOR FIRST YEAR	27	28	29	30	31 WORKING MONDAY TT

July 2019

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September 2019

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22	23	24	25	26	27	28
29	30					

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SEPTEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 HOLIDAY SWARNA GOWRI VRATAM GANESHA CHATHURTHI	3	4	5	6	7 NON-WORKING
8	9	10 10TH DAY OF MUHARRAM	11	12 FIRST IA SEMESTERS 3,5 & 7	13 FIRST IA SEMESTERS 3,5 & 7	14 WORKING MONDAY TT FIRST IA SEMESTERS 3,5 & 7
15	16	17	18	19	20	21 NON-WORKING
22	23	24	25	26	27	28 HOLIDAY MAHALAYA AMAVASYA
29	30					

August 2019

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11	12	13	14	15	16	17
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25	26	27	28	29	30	31

October 2019

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13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

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OCTOBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 FIRST IA FOR FIRST SEMESTER	2 HOLIDAY 150TH GANDHI JAYANTHI	3 FIRST IA FOR FIRST SEMESTER	4 FIRST IA FOR FIRST SEMESTER	5 NON- WORKING
6	7 HOLIDAY AYUDHA POOJA	8 HOLIDAY VIJAYA DASHAMI	9	10	11	12 WORKING WEDNESDAY TT
13	14	15	16	17	18 SECOND IA SEMESTERS 3,5 & 7	19 NON- WORKING
20	21 SECOND IA SEMESTERS 3,5 & 7	22 SECOND IA SEMESTERS 3,5 & 7	23	24	25	26 WORKING TUESDAY TT
27	28	29 HOLIDAY BALIPADYAMI	30	31		

September 2019

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29	30					

November 2019

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10	11	12	13	14	15	16
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24	25	26	27	28	29	30

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NOVEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 HOLIDAY KANNADA RAJYOTSAVA	**2** NON-WORKING
3	**4**	**5**	**6**	**7**	**8**	**9** WORKING FRIDAY TT
10	**11** WORLD SCIENCE DAY	**12** SECOND IA FOR FIRST SEMESTER	**13** SECOND IA FOR FIRST SEMESTER	**14** FIRST IA FOR FIRST SEMESTER	**15** HOLIDAY KANAKADASA JAYANTHI	**16** NON-WORKING
17	**18**	**19**	**20**	**21**	**22** THIRD IA SEMESTERS 3,5 & 7	**23** WORKING TUESDAY TT PTM FIRST YEAR THIRD IA SEMESTERS 3,5 & 7
24	**25** THIRD IA SEMESTERS 3,5 & 7	**26**	**27**	**28**	**29**	**30** LAST WORKING DAY HIGHER SEM WORKING FRIDAY TT

October 2019

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20	21	22	23	24	25	26
27	28	29	30	31		

December 2019

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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

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DECEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 LAB EXAM COMMENCEMENT HIGHER SEM	4	5	6	7 NON WORKING
8	9	10	11	12	13 THIRD IA FOR FIRST SEMESTER LAB EXAMS END HIGHER SEM	14 WORKING THIRD IA FOR FIRST SEMESTER
15	16 THIRD IA FOR FIRST SEMESTER THEORY EXAMS COMMENCEMENT FOR HIGHER SEM	17	18	19	20	21 NON WORKING LAST WORKING DAY FOR FIRST YEAR
22	23 LAB EXAMS COMMENCEMENT FIRST YEAR	24	25 HOLIDAY CHRISTMAS DAY	26	27	28 WORKING
29	30	31				

November 2019

S	M	T	W	Th	F	Sa
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January 2020

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26	27	28	29	30	31	

ATME College of Engineering

Dr. L Basavaraj

ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
1	JANUARY				1	2	3	4		
2		5	6	7	8	9	10	11		
3		12	13	14	15	16	17	18	MAKARA SANKRANTHI	
4		19	20	21	22	23	24	25		
5		26	27	28	29	30	31		REPUBLIC DAY	Training the Trainer Program
5	FEBRUARY							1		
6		2	3	4	5	6	7	8		
7		9	10	11	12	13	14	15		COMMENCEMENT OF EVEN SEMESTER
8		16	17	18	19	20	21	22	MAHA SHIVARATHRI	Alumni Day
9		23	24	25	26	27	28	29		ATMEYA-2020
10	MARCH	1	2	3	4	5	6	7		
11		8	9	10	11	12	13	14		International Wonmen's Day Personality Enhancement Training for 4th Sem Students
12		15	16	17	18	19	20	21		IA-1
13		22	23	24	25	26	27	28	UGADI	First PTM
14		29	30	31						

Dr. L Basavaraj

ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
14					1	2	3	4		
15		5	6	7	8	9	10	11	MAHAVEERJAYANTHI GOOD FRIDAY	ICRTST-2020
16	APRIL	12	13	14	15	16	17	18	DR. AMBEDKAR JAYANTHI	IA Test II
17		19	20	21	22	23	24	25		ATMEYA
18		26	27	28	29	30			BASAVA JAYANTHI	Second PTM
18							1	2	MAY DAY	
19		3	4	5	6	7	8	9		
20	MAY	10	11	12	13	14	15	16		
21		17	18	19	20	21	22	23		IA Test III
22		24	25	26	27	28	29	30	IDUL FITR	Lab Test Week
23		31								
23			1	2	3	4	5	6		Last Working Day
24		7	8	9	10	11	12	13		Practical Examination Schedule
25	JUNE	14	15	16	17	18	19	20		Commencement of Theory Examination, II Sem till 4th July 2020, Higher Semesters till 20th July 2020 Graduation Day
26		21	22	23	24	25	26	27		
27		28	29	30					Non Working Saturdays	The commencement of Odd Semester is from 27th July 2020

* Weekly Mentoring as per time table.
* Attendance will be regulary sent to parents through SMS

PTM dates for higher sem left to the descreption of HoDs.

Sd-
Dr. L Basavaraj
Principal

ATME COLLEGE OF ENGINEERING

ATME College of Engineering

Department Of Civil Engineering

Academic Year: JUL – NOV 2019 - 2020

Calendar of Events for ODD Semester

Week No.	Month	MON	TUE	WED	THU	FRI	SAT	No. of Working Days	Activities
1	Jul / Aug	29 CB	30	31	1 IP	2	3	6	
2	Aug	5	6	7 CR1	8	9 RH	10	6	Varamahalakshmi Vrata
3		12 H	13 RA	14 RH/ CP	15 H	16	17	4	Bakrid Rig Upakarma Independence Day
		19	20	21 IC/AS	22	23 RH	24	5	Sri Krishna Janmashtami
4		26	27	28	29	30 IV	31	6	
6	Sep	2 H	3	4	5	6 CR2	7	5	Gowri Vrata / Ganesh Chaturthi
7		9 ASP	10 H	11 RH	12 RH / T1	13 RH / T1	14 T1	5	Moharam Last Day Tiru Onam Anantha padmanabha Vrata Narayanaguru Jayanthi
8		16	17 RH	18	19	20 IV	21	6	Vishwakarma Jayanthi
		23	24	25	26 TT	27	28 H	5	Mahalaya Amavasya
	Sep / Oct	30	1	2 H	3	4	5	5	Gandhi Jayanthi
10	Oct	7 H	8 H	9	10 TT	11	12	4	Ayudhapooje Vijayadasami
11		14	15	16	17	18 RH/T2	19	6	Tula Sankramana
12		21 T2	22 T2	23	24 ASP	25	26 PTM	6	
14	Oct / Nov	28	29 H	30	31	1 H	2	4	Balipadyami Kannada Rajyotsava
15	Nov	4 IOP	5 IOP/ TT	6 CR3	7	8	9	6	
16		11	12 RH	13	14	15 H	16	5	Gurunanak B'day Kanakadasa Jayanthi
		18	19	20	21	22 T3	23 T3	6	
17		25 T3	26	27 ASP	28	29	30 LWD	6	Last Working Day
19	Dec	2	3	4	5	6	7	6	VTU Practical Exam from 3/12/19 to 13/12/19
		9	10	11	12 RH	13	14	6	Huthari
		16	17	18	19	20	21	6	VTU Theory Exam from 16/12/19 to 07/02/20
20		23	24 RH	25 H	26	27	28	5	
	Dec / Jan	30	31	1	2	3	4	6	Christmas Eve Christmas

Particulars

- CB - Commencement of BE Odd Semester
- CR- Counseling Report
- RA – Result Analysis
- CP – CO PO Assessment and attainment
- IV – Industrial Visit
- TT – Technical Talk
- IOP – Industry outreach Program
- IP –Induction Programme
- IC-National Conference
- AS- Attendance Status
- ASP – IA & Attendance Status to Parents
- PTM - Parent Teacher Meeting
- T1, T2 & T3 - 1st, 2nd & 3rd Internal Test Respectively
- LT - Lab Test
- LWD - Last Working Day for BE

HOD

DEPARTMENT OF CIVIL ENGINEERING

ATME COLLEGE OF ENGINEERING

MYSORE-570028

ATME College of Engineering

ATME COLLEGE OF ENGINEERING

Department Of Civil Engineering

Academic Year: FEB – JUN 2019 - 2020

Calendar of Events for EVEN Semester

Week No.	Month	MON	TUE	WED	THU	FRI	SAT	No. of Working Days	Activities
1	FEB	10 CB	11	12	13	14	15	5.5	
2	FEB	17	18	19	20	21 H	22	4.5	Maha Shivaratri
3	FEB	24	25	26 TT	27	28	29	5.5	
4	MAR	2	3	4	5	6 ASE	7 ASE	5.5	
5	MAR	9 RH	10	11 WD	12	13	14 T1	5.5	Holi Feast
6	MAR	16 T1	17 T1	18	19	20	21	5.5	
7	MAR	23	24	25 H	26	27	28 PTM	4.5	Chandramana Ugadi
8	MAR / APR	30	31	1	2 RH	3 TT	4	5.5	Sri Ramanavami
9	APR	6 H	7	8 INC	9 INC	10 H	11 RH	3.5	Mahaveera Jayanti Good Friday Holy Saturday
10	APR	13 RH	14 H	15	16	17	18	4.5	Sowra Ugadi Ambedkar Jayanti
11	APR	20	21	22	23 T2	24 T2	25 T2 / AM	5.5	
12	APR / MAY	27	28 RH	29	30 Datum 2k20	1 H	2	4.5	Shankaracharya / Ramanujacharya Jayanti May Day
13	MAY	4	5	6	7 RH	8	9	5.5	Buddha Poornima
14	MAY	11 IV	12 IV	13	14	15	16	5.5	
15	MAY	18 T3	19 T3	20 T3	21 RH	22 RH	23 PTM	5.5	Shab e Quadar Jumat ul Vida
16	MAY	25 H	26 LI	27 LI	28 LI	29 LI	30 LI	4.5	Qutub e Ramzan
17	JUN	1 LWD	2	3	4	5	6	5.5	Last Working Day
18	JUN	8	9	10	11	12	13	5.5	Lab Practical Exam 3/6/20 – 13/6/20
19	JUN	15	16	17	18	19	20	5.5	Commencement of Theory Exam (15/6/20 – 20/7/20)
20	JUN	22 GD	23	24	25	26	27	5.5	
21	JUN	29	30	*	*	*	*	2	

Particulars

- CB - Commencement of BE Even Semester
- ASE – ATME Stage Event
- WD – Women's Day
- INC- International Conference
- AM – Alumni Meet
- GD - Graduation Day
- TT - Technical Talk
- IV-Industrial visit
- Datum-2k20
- PTM - Parent Teacher Meeting
- T1, T2 & T3 - 1st, 2nd & 3rd Internal Test Respectively
- LI - Lab Internal Assessment
- LWD - Last Working Day for BE

HOD

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DEPARTMENT OF CIVIL ENGINEERING
ATME COLLEGE OF ENGINEERING
MYSORE-570028

ATME College of Engineering

DEPARTMENT OF CIVIL ENGINEERING

Lesson Plan & Work-done Diary for AY:2019-20, EVEN Semester

Course with Code: Elements of Civil Engineering & Mechanics (18CIV24)					Faculty: SRIVATHSA H U		Semester & Section: 2nd Sem 'C'	
Module	Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-1	1	17.2.2020	Introduction to Civil Engineering: Scope of different fields of Civil Engineering	Chalk & Talk	17.2.2020	Introduction to Civil Engg. Scope of different fields of Civil Engg	Chalk & Talk.	
	2	19.2.2020	Role of Civil Engineers in the Infrastructural development, effect of infrastructural facilities on social-economic development of a country.	Chalk & Talk	19.2.2020	Roles of Civil Engineers in the Infrastructural development, Effects of Infrastructure on socio-economy	Chalk & Talk.	
	3	19.2.2020	Introduction to Engineering Mechanics: Basic concepts of idealization- Particle, Continuum and Rigid Body, Basic Principles – Physical Independence of forces, Superposition, Transmissibility	Chalk & Talk	19.2.2020	Intro. to Engg. Mechanics: Basic concepts & Basic principles of Mechanics	Chalk & Talk	
	4	24.2.2020	Force, Systems of Forces, Newton's Laws of Motion, Resolution and Composition of forces, Law of parallelogram of forces, Polygonal law	Chalk & Talk	24.2.2020	Force, system of forces, Newton's laws, Resolution & composition Parallelogram law of forces, Polygonal law	Chalk & Talk	
	5	26.2.2020	Resultant of Concurrent coplanar force systems, Coplanar Non- Concurrent Force System, Moment of a Forces, couple-problems	Chalk & Talk	26.2.2020	Resultant of concurrent coplanar force system, coplanar non-concurrent Moment of force, couple problem	Chalk & Talk	
	6	26.2.2020	Varingon's theorem, Resultant of Coplanar non-concurrent force system, problems – Concurrent coplanar force systems	Chalk & Talk	26.2.2020	Problems on coplanar concurrent force system	Chalk & Talk.	
	7	02.3.2020	Problems- Concurrent coplanar force systems	Chalk & Talk	09.3.2020	Varignon's theorem, Resultant of coplanar non concurrent & problems	Chalk & Talk	Because of college fest activities
	8	05.3.2020	Problems- Coplanar non-concurrent force system	Chalk & Talk	10.3.2020	Problems on coplanar non-concurrent force system	Chalk & Talk	Because of college fest activities

ATME College of Engineering

DEPARTMENT OF CIVIL ENGINEERING

Course with Code: Elements of Civil Engineering & Mechanics (18CIV24)					Faculty: SRIVATHSA H U		Semester & Section: 2nd Sem 'C'	
Module	Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-2	9	09.3.2020	Equilibrium of Forces: Free body diagrams, Lami's theorem, Equations of Equilibrium	Chalk & Talk	12.3.2020	Equilibrium of forces: free body Lami's theorem, Equations of equilibrium	Chalk & Talk	Because of college fest activities
	10	12.3.2020	Equilibrium of concurrent and non-concurrent coplanar force systems, Problems	Chalk & Talk	24.3.2020	Problems on Equilibrium of concurrent coplanar force system	PPT	Because of covid Pandemic & Holiday Classes conducted online
	11	18.3.2020	Problems - Equilibrium of concurrent and non-concurrent coplanar force systems	Chalk & Talk	24.3.2020	Problems on Equilibrium of non-concurrent coplanar force system	PPT	↑
	12	18.3.2020	Friction: Types of friction, Laws of dry Friction, Limiting friction, Concept of Static and Dynamic Friction	Chalk & Talk	26.3.2020	Friction: Types, laws, concepts of static & dynamic friction	PPT	
	13	19.3.2020	Numerical problems on motion of single and connected bodies on planes	Chalk & Talk	26.3.2020	Numerical problems on motion of single & connected bodies	PPT	Because of covid Pandemic classes conducted online
	14	23.3.2020	Wedge friction -Problems	Chalk & Talk	04.06.2020	wedge friction - Problems	PPT	
	15	26.3.2020	Ladder friction - problems	Chalk & Talk	03.06.2020	Ladder friction - Problems	PPT	
	16	28.3.2020	Rope and Pulley systems - problems	Chalk & Talk	05.06.2020	Rope & pulley - problems	PPT	↓

ATME College of Engineering

DEPARTMENT OF CIVIL ENGINEERING

Course with Code: Elements of Civil Engineering & Mechanics (18CIV24)					Faculty: SRIVATHSA H U		Semester & Section: 2nd Sem 'C'	
Module	**Class No.**	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
MODULE-3	17	30.3.2020	Support Reactions: Types of Loads and Supports, statically determinate and indeterminate beams	Chalk & Talk	30.3.2020	Support reactions:- Types of loads Supports, statically determinate & indeterminate beams	PPT	
	18	01.4.2020	Support Reaction in beams, Numerical problems on support reactions for statically determinate beams - Point load, uniformly distributed	Chalk & Talk	30.3.2020	Support reaction in beams numerical problems with point load & UDL	PPT	
	19	01.4.2020	Problems on Support Reactions	Chalk & Talk	01.04.2020	Problems on support reaction	PPT	
	20	02.4.2020	Numerical problems on support reactions for statically determinate beams - uniformly varying loads and Moments	Chalk & Talk	02.04.2020	Numerical problems on support reactions for UVL & Moments	PPT	Because of covid situation classes was taken online
	21	11.4.2020	Introduction to Truss, Types of trusses	Chalk & Talk	06.4.2020	Analysis of simple trusses Types of Frame	PPT	
	22	13.4.2020	Analysis of statically determinate trusses using method of joints and method of sections	Chalk & Talk	08.4.2020 & 09.4.2020	Analysis of statically determinate trusses using method of joints	PPT	
	23	15.4.2020	Problems on trusses	Chalk & Talk	13.4.2020	Analysis of statically determinate trusses using method of section	PPT	
	24	15.4.2020	Problems on trusses	Chalk & Talk	14.4.2020 15.4.2020	Problems on trusses	PPT	

Course with Code: Elements of Civil Engineering & Mechanics (18CIV24)					Faculty: SRIVATHSA H U		Semester & Section: 2nd Sem 'C'	
Module	Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-4	25	16.4.2020	Centroid: Centroid of simple figures from first principle	Chalk & Talk	20.4.2020	Centroid :- Centroid of simple figures from 1st principle	PPT	
	26	20.4.2020	Centroid of composite/built-up sections - Problems	Chalk & Talk	21.4.2020 22.4.2020	Centroid of composite/built up sections problems	PPT	More classes required for understanding the topic
	27	22.4.2020	Problems	Chalk & Talk	24.4.2020 27.4.2020	Problems	PPT	More classes required for understanding the topic
	28	30.4.2020	Moment of Inertia: Introduction, second moment of area of plane sections from first principles	Chalk & Talk	28.4.2020	Moment of Inertia :- Intro. Second moment of area of plane figure from 1st principles	PPT	
	29	04.5.2020	Parallel axes and perpendicular axes Theorems, Radius of gyration - problems	Chalk & Talk	28.4.2020	Parallel axis & perpendicular axis theorem, Radius of gyration	PPT	
	30	06.5.2020	Moment of inertia of composite area and built-up sections - Problems	Chalk & Talk	29.4.2020 30.4.2020	Moment of Inertia of composite builtup sections - problems	PPT	More classes required for understanding the topic
	31	06.5.2020	Problems	Chalk & Talk	4.5.2020 5.5.2020 6.5.2020	Problems on Moment of Inertia	PPT	More classes required for understanding the topics
	32	07.5.2020	Concept of Product of Inertia(No Problems)	Chalk & Talk	05.06.2020	Concepts of product of Inertia	PPT	

ATME College of Engineering

DEPARTMENT OF CIVIL ENGINEERING

Course with Code: Elements of Civil Engineering & Mechanics (18CIV24)					Faculty: SRIVATHSA H U		Semester & Section: 2nd Sem 'C'	
Module	Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-5	33	11.5.2020	Definitions, Displacement Average velocity, Instantaneous velocity, Speed	Chalk & Talk	13.5.2020	Kinematics :- Defn, Displacement, Avg velocity, Instantaneous velocity, Speed	PPT	
	34	13.5.2020	Acceleration, Average acceleration, Variable acceleration, Acceleration due to gravity, Newton's Laws of Motion.	Chalk & Talk	13.5.2020	Accln, Avg accln, variable accln, newton's laws, problems on rectilinear motion	PPT	
	35	13.5.2020	Rectilinear Motion – Numerical problems	Chalk & Talk	14.5.2020	Rectilinear motion - problems	PPT	
	36	14.5.2020	Rectilinear Motion – Numerical problems	Chalk & Talk	14.5.2020 15.5.2020	Motion under gravity - problems	PPT	More classes is req for understanding
	37	18.5.2020	Motion under gravity - Numerical problems	Chalk & Talk	18.5.2020	Curvilinear motion - problems	PPT	
	38	20.5.2020	Curvilinear Motion - Numerical problems	Chalk & Talk	20.5.2020	Projectile motion - problems	PPT	
	39	21.5.2020	Projectile Motion - Numerical problems	Chalk & Talk	05.6.2020	D'Alembert's principle & its application - problems	PPT	
	40	21.5.2020	D'Alemberts principle and its applications in connected bodies including pulleys	Chalk & Talk	05.6.2020	D'Alembert's principle & its application - problems.	PPT	

	Activity	Planned	Actual	Remarks
1	Theory Classes	40	45	More classes required for understanding the topics
2	Assignments/Quizzes/ Self study	3	2+1	Two written assignments & 1 quiz assignment was assigned.
3	Tutorials/ Extra classes	-	–	
4	Internal Assessments	3	2	Because of covid pandemic situation Avg of 2 internals is considered as per VTU guidelines.
5	ICT based Teaching (% of usage in Curriculum)	0%		Because of covid pandemic situation classes were conducted in online mode.

Planning		Execution	
Faculty Signature:	[signature]	Faculty Signature:	[signature]
HoD Signature:	[signature]	HoD Signature:	[signature]

Minutes of Meeting-30

Date: - 27/05/2019

Attended by:-

1) ManuVijay (HOD) - [signature]
2) Dr.Ranganathan A -
3) Dr. Akshaya B.J - [signature] BJ
4) Dr Suresha K.J - [signature]
5) Shruthi H.G - [signature]
6) Jyothi D.N - [signature] DN
7) Srivathsa. H.U - [signature]
8) Mandeep G - [signature]
9) Bharathi B - [signature]
10) Rudresh A N - [signature]
11) Shashank P - [signature]
12) Puneeth K - [signature]

Review of previous meeting:

In the view of previous meeting the discussion was about Resource person, funding agencies, workshop, I cloud.

Agenda of the meeting : Admission, convocation, vacation slot, subject allotment & co-ordinators.

Discussion

- CET fees & college fees – 95000 Rs + transportation charges.
- Convocation on June 18th -2019
  Co- coordinators: Puneeth K &
  Shashank P
- Vacation slot from May 28th to 30th June.

- Subject allotment

3rd Sem A Section

Subject code	Subject name	Faculty name
18CV32	Strength of Materials	Jyothi D N
18CV33	Fluid Mechanics	Dr. Akshaya B J
18CV34	Basic Materials and Construction	Shruthi H G
18CV35	Basic Surveying	Mandeep G
18CV36	Engineering Geology	Dr. Suresha K J

3rd Sem B Section

Subject code	Subject name	Faculty name
18CV32	Strength of Materials	Manu Vijay
18CV33	Fluid Mechanics	Puneeth K
18CV34	Basic Materials and Construction	Shruthi H G
18CV35	Basic Surveying	Rudresh A N
18CV36	Engineering Geology	Dr. Suresha K J

5th Sem

Subject code	Subject name	Faculty name
17CV51	Design of RC Structural Elements	Shruthi H G
17CV52	Analysis of Indeterminate Structures	Manu Vijay
17CV53	Applied Geo-Technical Engineering	Jyothi DN
17CV54	Computer Aided Building Planning &Drawing	P Shashank
17CV552	Railway, Harbor, Tunneling and Airports	Rudresh AN
17CV563	Remote Sensing and GIS	Dr. Suresha K J

7th Sem

Subject code	Subject name	Faculty name
15CV71	Municipal and Industrial Waste Water Engineering	Shashank P
15CV72	Design of RCC and Steel Structures	Mandeep G
15CV73	Hydrology and Irrigation Engineering	Puneeth K
15CV742	Ground water & Hydraulics	Dr. Akshaya B J
15CV751	Urban Transportation Engineering	Rudresh A N

CO-ordinators :

Placement - Mandeep G

Test coordinators - Dr. Akshaya B J

Time Table – Puneeth K

CEA - Srivathsa H U

Project – Bharathi B

CERP - Shruthi H G

Department magazine - Shruthi H G

EMS - P Shashank

Result analysis – Mr. Manuvijay

ISO - – Bharathi B

LIC - Mr. Manuvijay

Department library - Mandeep G

NIRF, AICTE - Mr. Manuvijay

Alumni - Dr. Suresha K J

MOM – Jyothi D N

Technical Talk – Jyothi D N

NBA –

CLUB – Jyothi DN, Bharathi. B, Puneeth. K, Srivathsa

ATME COLLEGE OF ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

COURSE MODULES OF THE SUBJECT TAUGHT FOR THE SESSION AUG-DEC 2019-20 (ODD SEM)

Course Syllabi with CO's

<table>
<tr><td colspan="3">Faculty Name :</td><td colspan="5">Academic Year: 2019-2020</td></tr>
<tr><td colspan="8">Department: Civil Engineering</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Course Title</td><td rowspan="2">Core/Elective</td><td rowspan="2">Pre-requisite</td><td colspan="3">Contact Hours</td><td rowspan="2">Total Hrs/ Sessions</td></tr>
<tr><td>L</td><td>T</td><td>P</td></tr>
<tr><td>18CIV14</td><td>ELEMENTS OF CIVIL ENGINEERING AND MECHANICS</td><td>CORE</td><td>ELEMENTARY KNOWLEDGE OF PHYSICS</td><td>2</td><td>2</td><td>-</td><td>40</td></tr>
<tr><td>Objectives</td><td colspan="7">• To make students to learn Scope of various fields of Civil Engineering, basics of civil engineering concepts and importance of infrastructure development.
• To develop a student's ability to analyze the problems involving Forces and Moments with their applications, Centroid and Moment of inertia and Kinetics of bodies.</td></tr>
<tr><td colspan="8">Topics Covered as per Syllabus</td></tr>
</table>

MODULE 1:

Introduction to Civil Engineering: Scope of different fields of Civil Engineering; Surveying, Building Materials, Construction Technology, Geotechnical Engineering, Structural Engineering, Hydraulics, Water Resources & Irrigation Engineering, Transportation Engineering and Environmental Engineering. Role of Civil Engineers in the Infrastructural development, effect of infrastructural facilities on social economic Development of a country.

Introduction to Engineering Mechanics: Basic concepts of idealization- Particle, Continuum and Rigid Body; Force; Systems of Forces; Basic Principles – Physical Independence of forces, Superposition, Transmissibility, Newton's Laws of Motion, Resolution and Composition of forces, Law of parallelogram of forces, Polygonal law, Resultant of Concurrent coplanar force systems, Coplanar Non Concurrent Force System: Moment of a Forces, couple, Varignon's theorem, Resultant of Coplanar non-concurrent force system.

MODULE 2:

Equilibrium of Forces: Free body diagrams, Lami's theorem, Equations of Equilibrium, equilibrium of concurrent and non-concurrent coplanar force systems.

Friction: Types of friction, Laws of dry Friction, Limiting friction, Concept of Static and Dynamic Friction; Numerical problems on motion of single and connected bodies on planes, wedge friction, ladder friction, rope and Pulley systems

MODULE 3:

Support Reactions: Types of Loads and Supports, statically determinate and indeterminate beams, Support Reaction in beams, Numerical problems on support reactions for statically determinate beams (Point load, uniformly distributed & uniformly varying loads and Moments)

Analysis of Simple trusses: Types of trusses, Analysis of statically determinate trusses using method of Joints and method of sections.

MODULE 4:

Centroid: Centroid of simple figures from first principle, Centroid of composite/built-up sections.

Moment of Inertia: Introduction, second moment of area of plane sections from first principles, Parallel axes and perpendicular axes Theorems, Radius of gyration, Moment of inertia of composite area and built-up sections.

Concept of Product of Inertia(No Problems)

MODULE 5:

Kinematics: Definitions, Displacement, Average velocity, Instantaneous velocity, Speed, Acceleration, Average acceleration, Variable acceleration, Acceleration due to gravity, Newton's Laws of Motion. Rectilinear Motion–Numerical problems. Curvilinear Motion-Super elevation, Projectile Motion, Relative motion, Numerical problems. Motion under gravity, Numerical problems.

Kinetics: D'Alembert's principle and its applications in plane motion and connected bodies including pulleys

List of Text book

1. Elements of Civil Engineering and Engineering Mechanics by M.N. Shesha Prakash and Ganesh. B. Mogaveer, PHI Learning, 3rd Revised edition (2014)
2. Engineering Mechanics-Statics and Dynamics by A Nelson, Tata McGraw Hill Education Private Ltd, New Delhi, 2009.
3. Elements of Civil Engineering (IV Edition) by S.S. Bhavikatti, New Age International Publisher, New Delhi,

List of Reference Books

1. Engineering Mechanics by S. Timoshenko, D. H. Young, and J. V .Rao, TATA McGraw-Hill Book Company, New Delhi
2. Beer FP and Johnson ER, "Mechanics for Engineers- Dynamics and Statics"- 3rdSI Metric edition, Tata McGraw Hill. – 2008
3. Shames IH, "Engineering Mechanics – Statics & Dynamics"- PHI – 2009

List of URLs, Text Books, Notes, Multimedia Content, etc.

1. https://nptel.ac.in/courses/122104014/

	After the completion of course, students are able to	**RBT Level**
Course Outcomes	1. Mention the applications of various fields of Civil Engineering.	L1
	2. Compute the resultant of given force system subjected to various loads.	L3
	3. Comprehend the action of Forces, Moments and other loads on systems of rigid bodies and compute the reactive forces that develop as a result of the external loads.	L3
	4. Locate the Centroid and compute the Moment of Inertia of regular and built-up sections.	L3
	5. Express the relationship between the motions of bodies and analyze the bodies in motion.	L4

Continuous Internal Evaluation Marks: 40 (30 Marks three Session tests are conducted during the semester and marks allotted based on the average of three performances and additional 10 Marks for Assignments /Unit tests/ written quizzes).

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	**18CIV14**	**TITLE:** Elements of Civil Engineering and Mechanics					**Faculty Name:**		SRIVATHSA H U		
List of Course Outcomes	**Program Outcomes**										
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO-1	1	-	-	-	-	1	1	-	-	-	-	1
CO-2	3	2	-	-	-	-	-	-	-	-	-	1
CO-3	3	1	-	-	-	-	-	-	-	-	-	1
CO-4	2	1	-	-	-	-	-	-	-	-	-	1
CO-5	3	1	-	-	-	-	-	-	-	-	-	1

Note: **3** = Strong Contribution **2** = Average Contribution **1** = Weak Contribution **-** = No Contribution

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TIME TABLE FOR FOURTH SEMESTER - 2019-2020

A SEC Room No:- CV-207

DAY TIME	9.00 - 10.00	10.00 -11.00	11.00-11.15	11.15 -12.15	12.15-1.15	1.15 - 02.00	2.00 - 2.55	2.55 - 3.50	3.50 - 4.45
Mon	18CV45	18CV46	Tea Break	18CV42 (VTU e learning)	18MAT41	Lunch Break	18CVL47-B1(KJS)/18CVL48-B2(ABJ)		
Tue	18CV43	18MAT41		18CV46	18CV42(VTU e learning)		18CVL47-B2(KJS)/18CVL48-B1(JDN)		
Wed	18CV43	18CV45		AP	18CV44		TUTORIAL	CLUB ACTIVITIES	
Thu	18MAT41	18CV43		18CV44	18CV45		18CV42 (VTU e learning)	Counselling	
Fri	18CV44	18CV42 (VTU e learning)		18MAT41	18CV45		18CPC49	Counselling	
Sat	18CV42	18CV43		18CV46	TUTORIAL				

Subject Code	Subject Title	Faculty In – charge	Initials
18MAT41	Complex Analysis, Probability And Statistical Methods	Sudhakar N	SN
18CV42	Analysis of Determinate Structures	Shashank P	PS
18CV43	Applied Hydraulics	Dr. Akshaya B J	ABJ
18CV44	Concrete Technology	Jyothi D N	JDN
18CV45	Advanced Surveying	Rudresh A N	RG
18CV46	Water Supply & Treatment Engineering	Shruthi H G	SHG
18CVL47	Engineering Geology Laboratory	Dr Suresha K J	KJS
18CVL48	Fluid Mechanics and Hydraulic Machines Laboratory	-	ABJ/JDN
18CPC49	Constitution of India, Professional Ethics & Cyber Law	Chandrashekhar C	CC
AP	Aptitude Class	-	-

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TIME TABLE FOR FOURTH SEMESTER - 2019-2020

B SEC — Room No:- CV-208

DAY TIME	9.00 - 10.00	10.00 -11.00	11.00-11.15	11.15 -12.15	12.15 - 1.15	01.15 - 02.00	2.00 - 2.55	2.55 - 3.50	3.50 - 4.45
Mon	18CV42	18CV43	Tea Break	18CV42	18CV45	Lunch Break	18MAT41	18MATDIP41	Counselling
Tue	18MAT41	18CV43		18CV43	18CV42		18CV45	Counselling	
Wed	18CV43	18MATDIP41		AP	18MAT41		18CV46	CLUB ACTIVITIES	
Thu	18CV46	18CV42		18MAT41	18CV44		18CVL48-B3(KP)		
Fri	18CV44	18MATDIP41		18CV45	18CPC49		18CVL47-B3(KJS)		
Sat	18CV46	18CV42		18CV44	TUTORIAL				

Subject Code	Subject Title	Faculty In – charge	Initials
18MAT41	Complex Analysis, Probability And Statistical Methods	Sudhakar N	SN
18CV42	Analysis of Determinate Structures	Manu Vijay/Dr Syed Shakeeb Ur Rehman	MV/SSR
18CV43	Applied Hydraulics	Puneeth K	KP
18CV44	Concrete Technology	Mandeep G	MG
18CV45	Advanced Surveying	Dr. Akshaya B J	ABJ
18CV46	Water Supply & Treatment Engineering	Shruthi H G	SHG
18CVL47	Engineering Geology Laboratory	Dr. Suresha K J	KJS
18CVL48	Fluid Mechanics and Hydraulic Machines Laboratory	Puneeth K	KP
18CPC49	Constitution of India, Professional Ethics & Cyber Law	Chandrashekhar C	CC
18MATDIP41	Additional Mathematics - II	Priyanka B	PB
AP	Aptitude Class	-	-

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TIME TABLE FOR SIXTH SEMESTER - 2019-2020

Room No:- CV-107

A SEC

DAY TIME	9.00 - 10.00	10.00 -11.00	11.00-11.15	11.15 -12.15	12.15 - 1.15	01.15 - 02.00	2.00 - 2.55	2.55 - 3.50	3.50 - 4.45
Mon	17CV661	17CV64	Tea Break	17CV62	17CV61	Lunch Break	17CVL67-B1(KP+MG)/17CVL68-B2(SHG)		
Tue	17CV64	17CV654		17CV63	17CV62		17CVL67-B2(PS+MV)/17CVL68-B3(BB)		
Wed	17CV62	17CV64		17CV654	17CV61		17CV63	CLUB ACTIVITIES	
Thu	17CV61	17CV63		17CV661	AP		17CVL67-B3(SV+SHG)/17CVL68-B1(RG)		
Fri	17CV654	17CV62		17CV61	TT		17CV64	Counselling	
Sat	17CV661	17CV63		17CV62	EVS-DIP				

Subject Code	Subject Title	Faculty In – charge	Initials
17CV61	Construction Management and Entrepreneurship	Puneeth K	KP
17CV62	Design of Steel Structural Elements	Srivathsa H U	SV
17CV63	Highway Engineering	Rudresh A N	RG
17CV64	Water Supply and Treatment Engineering	Shashank P	PS
17CV654	Ground Improvemnt Techniques	Manu Vijay	MV
17CV661	Water Resource Management	Dr. Suresha K J	KJS
17CVL67	Software Application Laboratory	-	SV/SHG/PS/MV/KP/MG
17CVL68	Extensive Survey Project /Camp	-	RG/BB/SHG
EVS	Environmental Science (For Diploma)	Dr. Suresha K J	KJS
AP	Aptitude Classes	-	
TT	Technical Training	-	

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DEPARTMENT OF CIVIL ENGINEERING
TIME TABLE FOR SIXTH SEMESTER - 2019-2020

B SEC Room No:- CV-107

DAY TIME	9.00 - 10.00	10.00 -11.00	11.00-11.15	11.15 -12.15	12.15 - 1.15	01.15 - 02.00	2.00 - 2.55	2.55 - 3.50	3.50 - 4.45
Mon	15CV661	15CV64	Tea Break	15CV62	15CV61	Lunch Break	15CVL67-B1(KP+MG)/15CVL68-B2(SHG)		
Tue	15CV64	15CV654		15CV63	15CV62		15CVL67-B2(PS+MV)/15CVL68-B3(BB)		
Wed	15CV62	15CV64		15CV654	15CV61		15CV63	CLUB ACTIVITIES	
Thu	15CV61	15CV63		15CV661	AP		15CVL67-B3(SV+SHG)/15CVL68-B1(RG)		
Fri	15CV654	15CV62		15CV61	TT		15CV64	Counselling	
Sat	15CV661	15CV63		15CV62	Counselling				

Subject Code	Subject Title	Faculty In – charge	Initials
15CV61	Construction Management andEntrepreneurship	Puneeth K	KP
15CV62	Design of Steel Structural Elements	Srivathsa H U	SV
15CV63	Highway Engineering	Rudresh A N	RG
15CV64	Water Supply and Treatment Engineering	Shashank P	PS
15CV654	Ground Improvemnt Techniques	Manu Vijay	MV
15CV661	Water Resource Management	Dr. Suresha K J	KJS
15CVL67	Software Application Laboratory	-	SV/SHG/PS/MV/KP/MG
15CVL68	Extensive Survey Project /Camp	-	RG/BB/SHG
AP	Aptitude Classes	-	
TT	Technical Training	-	

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TIME TABLE FOR EIGHTH SEMESTER - 2019-2020

CIVIL ENGINEERING

A SEC | **Room No:- CV-106**

DAY TIME	9.00 - 10.00	10.00 -11.00	11.00-11.15	11.15 -12.15	12.15 - 01.15	01.15 - 02.00	02.00 - 2.55	2.55 - 3.50	3.50 - 4.45
Mon	15CV81	15CV82	Tea Break	15CV833	15CV82	Lunch Break			
Tue	1CV833	15CV81		15CV81	15CV82		15CV84-Internship/Professional Practice		
Wed	15CV82	15CV81		15CV833	Counselling		Counselling	CLUB ACTIVITIES	
Thu	15CVS86-Seminar on current trends in Engineering and Technology						15CVP85-Project Work		
Fri	15CVP85-Project Work				Counselling		15CVP85-Project Work		
Sat									

Subject Code	Subject Title	Faculty In – charge	Initials
15CV81	Quantity Surveying and ContractsManagement	Jyothi D N	JDN
15CV82	Design of Pre Stressed Concrete Elements	Mandeep G	MG
15CV833	Pavement Design	Rudresh A N	RG
15CV84	Internship/Professional Practice	-	-
15CVP85	Project Work	-	-
15CVS86	Seminar on current trends in Engineering & Technology	-	-

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DEPARTMENT OF CIVIL ENGINEERING

(ACADEMIC YEAR 2019 - 20)

SUBJECT NAME: RAILWAYS, HARBOUR, TUNNELING AND AIRPORTS

SUB CODE: 17CV552

SEMESTER: V

INSTITUTIONAL MISSION AND VISION

Vision of the Institute

Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

Mission of the Institute

- To keep pace with advancements in knowledge and make the students competitive and capable at the global level.
- To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as tourch bearers of tomorrow's society.
- To strive to attain ever-higher benchmarks of educational excellence

DEPARTMENT VISION AND MISSION

Vision of the Department

To develop globally competent Civil Engineers who excel in academics, research and are ethically responsible for the development of the society.

Mission of the Department

- To provide quality education through faculty and state of art infrastructure
- To identify the current problems in society pertaining to Civil Engineering disciplines and to address them effectively and efficiently
- To inculcate the habit of research and entrepreneurship in our graduates to address current infrastructure needs of society

Program outcomes (POs)

Engineering Graduates will be able to:

PO1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6. **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

Program Specific Outcomes (PSOs)

PSO 1 – To apply science, mathematics and mechanics to solve problems in engineering realm

PSO 2 – To analyze the techniques, skills and modern engineering tools necessary for engineering practices

PSO 3 – To develop ability to function as a leader and a team player in multidisciplinary teams

PSO 4 – To recognize of the need for and an ability to engage in research and life-long learning for developing sustainable construction practices

PSO 5 – To design and conduct experiments as well as to analyze and interpret data

Program Educational Objectives (PEOs)

PEO 1- Engaged in professional practices, such as construction, environmental, geotechnical, structural, transportation, water resource engineering by using technical, communication and management skills.

PEO 2- Engaged in higher studies and research activities in various civil engineering fields and life time commitment to learn ever changing technologies to satisfy increasing demand of sustainable infrastructural facilities.

PEO 3- Serve in a leadership position in any professional or community organization or local or state engineering board

PEO 4- Registered as professional engineer or developed a strong ability leading to professional licensure being an entrepreneur.

Course Title: Railways, Harbour, Tunnelling and Airports Professional Elective-1 **[As per Choice Based Credit System (CBCS) scheme]** **SEMESTER:V**			
Subject Code	17CV552	IA Marks	20
Number of Lecture Hours/Week	03	Exam Marks	80
Total Number of Lecture Hours	40	Exam Hours	03
CREDITS – 03		**Total Marks-100**	

Course Objectives: This course will enable students to

1. Understand the history and development, role of railways, railway planning and development based on essential criteria's.
2. Learn different types of structural components, engineering properties of the materials, to calculate the material quantities required for construction
3. Understand various aspects of geometric elements, points and crossings, significance of maintenance of tracks.
4. Design and plan airport layout, design facilities required for runway, taxiway and impart knowledge about visual aids
5. Apply design features of tunnels, harbours, dock and necessary navigational aids; also expose them to various methods of tunnelling and tunnel accessories.

Modules	**Teaching Hours**	**Revised Bloom's Taxonomy (RBT) Level**
Module -1:		
Railway Planning: Significance of Road, Rail, Air and Water transports – Coordination of all modes to achieve sustainability – Elements of permanent way – Rails, Sleepers, Ballast, rail fixtures and fastenings, – Track Stress, coning of wheels, creep in rails, defects in rails – Route alignment surveys, conventional and modern methods- – Soil suitability analysis – Geometric design of railways, gradient, super elevation, widening of gauge on curves- Points and Crossings.	8 hours	L1,L2,L3
Module -2:		
Railway Construction and Maintenance: Earthwork – Stabilization of track on poor soil, Calculation of Materials required for track laying – Construction and maintenance of tracks – Modern methods of construction & maintenance – Railway stations and yards and passenger amenities- Urban rail – Infrastructure for Metro, Mono and underground railways.	8 hours	L2, L3
Module -3:		
Harbour and Tunnel Engineering: Definition of Basic Terms: Planning and Design of Harbours: Requirements, Classification, Location and Design Principles – Harbour Layout and Terminal Facilities, Coastal Structures, Inland Water Transport – Wave action on Coastal Structures and Coastal Protection Works. **Tunnelling:** Introduction, size and shape of the tunnel, tunnelling methods in soils, tunnel lining, tunnel drainage and ventilation.	8 hours	L1,L2,L3
Module -4:		
Airport Planning: Air transport characteristics, airport classification, air port planning: objectives, components, layout characteristics, socio-economic characteristics of the catchment area, criteria for airport site selection and ICAO stipulations, typical	8 hours	L1,L2,L3

airport layouts, Parking and circulation area.		
Module -5:		
Airport Design: Runway Design: Orientation, Wind Rose Diagram, Runway length, Problems on basic and Actual Length, Geometric design of runways, Configuration and Pavement Design Principles, Elements of Taxiway Design, Airport Zones, Passenger Facilities and Services, Runway and Taxiway Markings and lighting.	8 hours	L1,L2,L3

Course Outcomes: After studying this course, students will be able to:

1. Acquires capability of choosing alignment and also design geometric aspects of railway system, runway, and taxiway.
2. Suggest and estimate the material quantity required for laying a railway track and also will be able to determine the hauling capacity of a locomotive.
3. Develop layout plan of airport, harbour, dock and will be able relate the gained knowledge to identify required type of visual and/or navigational aids for the same.
4. Apply the knowledge gained to conduct surveying, understand the tunnelling activities.

Program Objectives:

· Engineering knowledge
· Problem analysis
· Interpretation of data

Question Paper Pattern:

· The question paper will have 5 modules comprising of ten questions. Each full question carrying 16 marks
· There will be two full questions (with a maximum of three subdivisions, if necessary) from each module.
· Each full question shall cover the topics as a module
· The students shall answer five full questions, selecting one full question from each module. If more than one question is answered in modules, best answer will be considered for the award of marks limiting one full question answer in each module.

Text Books:

1. Saxena Subhash C and Satyapal Arora, “A Course in Railway Engineering”, Dhanpat Rai and Sons, Delhi,
2. Satish Chandra and Agarwal M.M, “Railway Engineering”, 2nd Edition, Oxford University Press, New Delhi,
3. Khanna S K, Arora M G and Jain S S, “Airport Planning and Design”, Nemchand and Brothers, Roorkee,
4. C Venkatramaiah, “ Transportation Engineering”, Volume II: Railways, Airports, Docks and Harbours, Bridges and Tunnels, Universities Press

Reference Books:

1. Oza.H.P. and Oza.G.H., “A course in Docks & Harbour Engineering”. Charotar Publishing Co.,
2. Mundrey J.S. “A course in Railway Track Engineering”. Tata McGraw Hill,
3. Srinivasan R. Harbour, “Dock and Tunnel Engineering”, 26th Edition 2013

Module – 1
Railway Planning

Structure

1.0 Introduction

Different Modes of Transport: Our environment consists of land, air, and water. These media have provided scope for three modes of transport-land transport, air transport and water transport. Rail transport and road transport are the two components of land transport. Each mode of transport, depending upon its various characteristics, has intrinsic strengths and weaknesses.

1.1 Objectives

- Understand the history and development, role of railways, railway planning and development based on essential criteria's.

Significance of Road, Rail, Air and Water transports – Coordination of all modes to achieve sustainability

Rail transport Owing to the heavy expenditure on the basic infrastructure required, rail transport is best suited for carrying bulk commodities and a large number of passengers over long distances. This is the most commonly used and cost effective long distance transport system of the country.

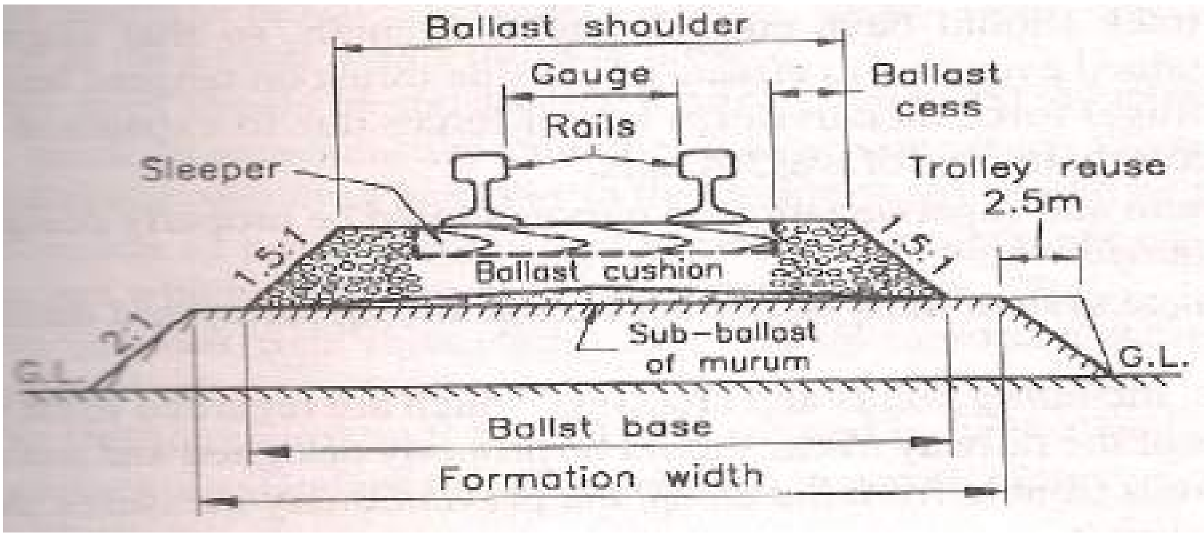
Road transport Owing to flexibility of operation and the ability to provide door-to-door service, road transport is ideally suited for carrying light commodities and a small number of passengers over short distances. The importance of roads in connecting the vast rural areas of India to form the national market and economy cannot be overstated. Connectivity provided by roads is perhaps the single most important determinant of well being and the quality of life of people living in an urban area. The efficiency of the innumerable government programmes aimed at rural development, employment generation, and local industrialization is, to large extent, determined by the connectivity provided by roads.

Air transport Owing to the heavy expenditure on the sophisticated equipment required and the high fuel costs, air transport is better suited for carrying passengers or goods that have to reach their destinations in a very short period of time. Air transport is an integral part of transport infrastructure and a significant sector of the economy. Airports are recognized for their ability to multiply business activity in their proximity and stimulate further development. Aviation creates a large number of jobs.

Water transport Owing to low cost of infrastructure and relatively slow speeds, water transport is best suited for carrying heavy and bulky goods over long distances, provided there is no consideration of the time factor. Water transport is the cheapest and the oldest mode of transport. It operates on a natural track and hence does not require huge capital investment in the construction and maintenance of its track except in case of canals. The cost of operation of water transport is also very less. It has the largest carrying capacity and is most suitable for carrying bulky goods over long distances. It has played a very significant role in bringing different parts of the world closer and is indispensable to foreign trade.

1.2 Elements of permanent way

- Sub-grade
- Ballast
- Sleepers
- Rails
- Fixture and Fastening



- The track or permanent way is the rail road on which trains run.
- The combination of rails, fitted on sleepers and resting on ballast and subgrade is called the railway track or permanent way.
- In a permanent way, the rails are joined in series by fish plates and bolts and then they are to sleepers by different types of fastenings.
- The sleepers properly spaced, resting on ballast, are suitably packed and boxed with ballast.
- The layer of ballast rests on the prepared subgrade called the formation.
- The rails act as girders to transmit the wheel load to the sleepers.

- The sleepers hold the rails in proper position with respect to the proper tilt, gauge and level, and transmit the load from rails to the ballast.
- The ballast distributes the load over the formation and holds the sleepers in position.
- On curved tracks, super elevation is maintained by ballast and the formation is levelled. Minimum cushion is maintained at the inner rail, while the outer rail gets kept more ballast cushion.
- Permanent track is regarded to be semi-elastic in nature.
- There is possibility of track getting disturbed by the moving wheel loads.
- The track should be therefore be constructed and maintained keeping the requirements of a permanent way, in view, so as to achieve higher speed and better riding qualities with less future maintenance.

Following are some of the basic requirements of a permanent way:

- The gauge should be correct and uniform.
- The rails should be in proper level. In a straight track, two rails must be at the same level. On curves, the outer rail should have proper super elevation and there should be proper transition at the junction of a straight and a curve.
- The alignment should be correct i.e., it should be free from irregularities.
- The gradient should be uniform and as gentle as possible. Any change of gradient should be followed by a smooth vertical curve, to give smooth riding quality.
- The track should be resilient and elastic in order to adsorb shocks and vibrations of running tracks.
- The radii and super elevation on curves should be properly designed and maintained.
- Drainage system must be perfect for enhancing safety and durability of track.
- Joints, including points and crossings which are regarded to be weakest points of the railway track, should be properly designed and maintained.
- There should be adequate provision for easy renewals and replacements.
- The track structure should be strong, low in initial cost as well as maintenance cost.
- The various components of track i.e., rails, fittings, sleepers, ballast and formation must fully satisfy the requirements for which they have been provided. If any component is lacking in fulfilling its requirements then either it should be improved or replaced.

Choice of Gauge: The choice of gauge is very limited, as each country has a fixed gauge and all new railway lines are constructed to adhere to the standard gauge. However, the following factors theoretically influence the choice of the gauge.

Cost Considerations: There is only a marginal increase in the cost of the track if a wider gauge is adopted. In this connection, the following points are important.

(a) There is a proportional increase in the cost of acquisition of land, earthwork, rails, sleepers, ballast, and other track items when constructing a wider gauge.

(b) The cost of building bridges, culverts, and tunnels increases only marginally due to a wider gauge.

(c) The cost of constructing station buildings, platforms, staff quarters, level crossings, signals, etc. associated with the railway network is more or less the same for all gauges.

(d) The cost of rolling stock is independent of the gauge of the track for carrying the same volume of traffic.

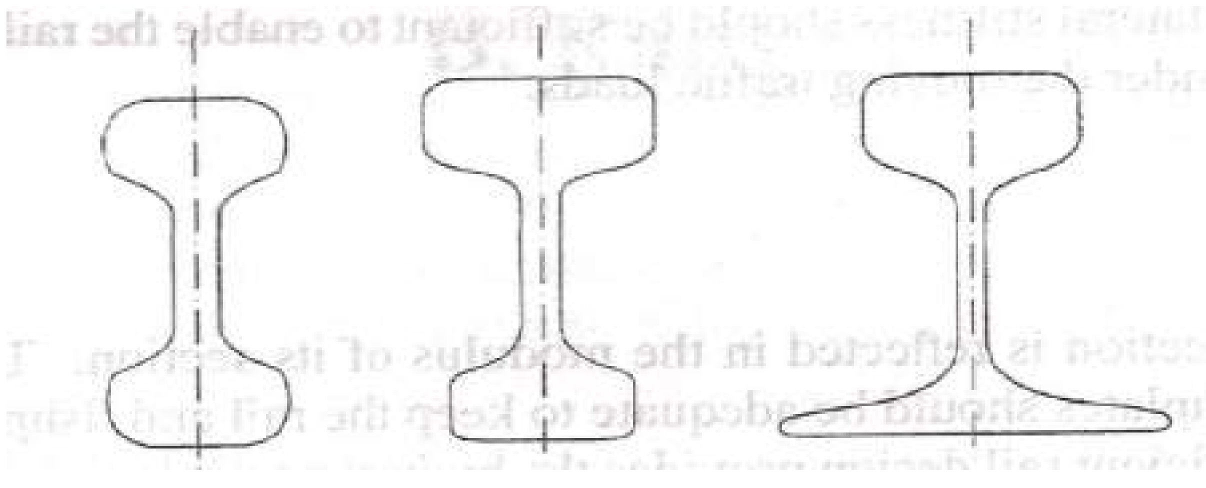
Traffic Considerations: The volume of traffic depends upon the size of wagons and the speed and hauling capacity of the train.
(a) As a wider gauge can carry larger wagons and coaches, it can theoretically carry more traffic.
(b) A wider gauge has a greater potential at higher speeds, because speed is a function of the diameter of the wheel, which in turn is limited by the width of the gauge.
(c) The type of traction and signalling equipment required are independent of the gauge.

Physical Features of the Country: It is possible to adopt steeper gradients and sharper curves for a narrow gauge as compared to a wider gauge.

Uniformity of Gauge: The existence of a uniform gauge in a country enables smooth, speedy, and efficient operation of trains. Therefore a single gauge should be adopted irrespective of the minor advantages of a wider gauge and the few limitations of a narrower gauge.

1.3 Rails

- Rails on the track can be considered as steel girders for the purpose of carrying axle loads.
- They are made of high carbon steel to withstand wear and tear.



Types of Rails
The rails used in the construction of railway track are of following types:
1. Double headed rails (D.H Rails)
2. Bull headed rails (B.H Rails)
3. Flat footed rails (F.F Rails)

Double headed rails

The rail sections, whose foot and head are of same dimensions, are called Double headed or Dumb-bell rails. In the beginning, these rails were widely used in the railway track.

The idea behind using these rails was that when the head had worn out due to rubbing action of wheels, the rails could be inverted and reused. But by experience it was found that their foot could not be used as running surface because it also got corrugated under the impact of wheel loads. This type of rail is not in use in Indian Railways now-a day.

Bull headed rails

The rail section whose head dimensions are more than that of their foot are called bull headed rails. In this type of rail the head is made little thicker and stronger than the lower part by adding more metal to it. These rails also require chairs for holding them in position. Bull headed rails are especially used for making points and crossings.

Merits

(i) B.H. Rails keep better alignment and provide smoother and stronger track.

(ii) These rails provide longer life to wooden sleepers and greater stability to the track.

(iii) These rails are easily removed from sleepers and hence renewal of track is easy.

Demerits

(i) B.H. rails require additional cost of iron chairs.

(ii) These rails require heavy maintenance cost.

(iii) B.H. rails are of less strength and stiffness.

Flat footed rails

The rail sections having their foot rolled to flat are called flat footed or vignole`s rails. This type of rail was invented by Charles Vignole in 1836. It was initially thought that the flat footed rails could by fixed directly to wooden sleepers and would eliminate chairs and keys required for the B.H. rails. But later on, it was observed that heavy train loads caused the foot of the rail to sink into the sleepers and making the spikes loose. To remove this defect, steel bearing plates were used in between flat footed rails and the wooden sleeper. These rails are most commonly used in India.

Merits

(i) F.F. rails have more strength and stiffness.

(ii) No chairs are required for holding them in position.

(iii) These rails require less number of fastenings.

(iv) The maintenance cost of track formed with F.F. rails is less.

Demerits

(i) The fittings get loosened more frequently.

(ii) These rails are not easily removed and hence renewal of track becomes difficult.

(iii) It is difficult to manufacture points and crossings by using these rails.

Functions of rails

1. Rails provide a hard, smooth and unchanging surface for passage of heavy moving loads with a maximum friction between the steel rails and steel wheels.
2. Rails bear the stresses developed due to heavy vertical loads, lateral and braking forces and thermal stresses.
3. The rail material used is such that it gives minimum wear to avoid replacement charges and failures of rails due to wear.

4. Rails transmit the loads to sleepers and consequently reduce pressure on ballast and formation below.

Composition of rail steel

- For ordinary rails: high carbon steel
- For rails on points and crossing: medium carbon steel

Requirements of Rails

1. They should be of proper composition of steel and should be manufactured by open fireplace or duplex process.
2. The vertical stiffness should be high enough to transmit the load to several sleepers underneath. The height of rail should therefore adequate.
3. Rails should be capable of withstanding lateral forces. Large width of head and foot endows the rails with high lateral stiffness.
4. The head must be sufficiently deep to allow for an adequate margin of vertical wear. The wearing surface should be hard.
5. Web of rails should be sufficiently thick to bear the load coming on it and should provide adequate flexural rigidity.
6. Foot should be wide enough so that rails are stable against overturning especially on curves.
7. Bottom of the head and top of the foot of rails should be so shaped as to enable the fish plates to transmit the vertical load efficiently from the head to the foot at rail joints.
8. Relative distribution of material of rail in head, web and foot must be balanced for smooth transmission of loads.
9. The centre of gravity of the rail section must lie approximately at mid height so that maximum tensile and compressive stresses are equal.
10. The tensile strength of the rail piece should not be less than 72kg/m^2.

1.4 Sleepers and Ballast:

Sleepers:

Sleepers are members generally laid transverse to the rails on which the rails are supported and fixed, to transfer the loads from rails to the ballast and subgrade below.

Functions of sleepers

1. To hold the rails to correct gauge.
2. To hold the rails in proper level or transverse tilt so as to provide a firm and even supports to rails.
3. To act as an elastic medium in between the ballast and rails to absorb the blows and vibrations of moving loads.
4. To distribute the load from the rails to the index area of ballast underlying it or to the girders in case of bridges.

5. Sleepers also add to the longitudinal and lateral stability of the permanent track on the whole.
6. They also provide means to rectify track geometry during service life.

Requirements of sleepers

1. The sleepers to be used should be economical i.e., they should have minimum possible initial and maintenance costs.
2. The fittings of the sleepers should be such that they can be easily adjusted during maintenance operations such as easy lifting, packing, removal and replacement.
3. The weight of sleepers should not be too heavy or excessively light i.e., they should have moderate weight for ease of handling.
4. The design of sleepers should be such that the gauge, alignment of track and levels of the rails can be easily adjusted and maintained.
5. The bearing area of sleepers below the rail seat and over the ballast should be enough to resist the crushing due to rail seat and crushing of the ballast underneath the sleeper.
6. The sleeper design and spacing should be such as to facilitate easy removal and replacement of ballast.
7. The sleepers should be capable of resisting shocks and vibrations due to passing of heavy loads of high speed trains.
8. The design of the sleepers should be such that they are not damaged during packing processes.
9. The design of sleepers should be such that they are not pushed out easily due to moving trains especially with steel sleepers.

Classification of sleepers

1. Wooden sleepers
2. Metal sleepers
   a. Cast-iron sleepers
   b. Steel sleepers
3. Concrete sleepers
   a. Reinforced concrete sleepers
   b. Pre-stressed concrete sleepers

Wooden/Timber Sleepers

- Wooden sleepers are regarded to be best as they fulfill almost all the requirements of ideal sleeper.
- Their life depends upon their ability to resist wear, decay, attack by vermin (white ants) and quality of timber used.

Advantages:

- Timber is easily available in all the parts of India.
- Fittings for wooden sleepers are few and simple in design.
- These sleepers are able to resist shocks and vibrations due to heavy moving loads and also give less noisy track.

- These are easy to lay, relay, pack, lift and maintain.
- These are suitable for all types of ballast.
- Wooden sleepers are over-all economical.

Disadvantages:

- These sleepers are subjected to wear, decay, attack by white ants, warping, cracking, end splitting, rail cutting etc.
- It is difficult to maintain gauge in the case of wooden sleepers.
- Track is easily disturbed.
- Wooden sleepers have got minimum service life (12-15 years) as compared to other types.
- Maintenance cost of wooden sleepers is highest as compared to other types.

Metal Sleepers

- Due to growing scarcity of wooden sleepers, high cost and short life metal sleepers were being used.
- Metal sleepers are either of cast-iron or steel. Cast-iron is in greater use because of its resistance to corrosion.

Advantages:

- Metal sleepers are uniform in strength and durability.
- In metal sleepers, the performance of fittings is better and hence lesser creep occurs.
- Metal sleepers are economical as life is longer and maintenance is easier.
- Gauge can be easily adjusted and maintained.
- Frequent renewal is not required.
- Have good scrap value, easy to manufacture and not susceptible to fire hazards.

Disadvantages:

- More ballast is required than other types of sleepers.
- Fittings required are greater in number and difficult to maintain/inspect.
- They are liable to rusting/corrosion.
- Metal being good conductor of electricity interferes with track circuiting.
- They are unsuitable for bridges, level crossings and in case of points and crossings.
- These are only suitable for stone ballast and for rails which they are manufactured.

Concrete Sleepers

These are made of strong homogenous material, impervious to effects of moisture, and is unaffected by the chemical attack of atmospheric gases or subsoil salts.

These can easily moulded to size and shape required to withstand stresses produced by fast and heavy traffic.

Advantages:

- These are free from natural decay and attack by vermin etc.
- They have maximum life as compared to others (40-60 years)
- These are not affected by moisture, chemical action of ballast and subsoil salts.
- There is no difficulty in track circuiting of electrified tracks.
- Increased weight helps to reduces joint maintenance, greater stability of track and better resistance against temperature variation.

- These have higher elastic modulus and hence can withstand the stresses induced by fast and heavy traffic.
- They offer an ideal track in respect of gauge, cross-level and alignment.

Disadvantages:

- The weight of concrete sleeper is as high as 2.5 to 3 times of wooden sleeper, requiring the mechanical appliances for handling.
- These require pads and plugs for spikes.
- They damage the bottom edge during packing.
- The scrap value is almost nil.
- The damages to the concrete sleepers are very heavy in case of derailment.

Spacing of sleepers and sleeper density

- The space between two adjacent sleepers determines the effective span of the rail over the sleepers.
- The spacing of sleepers, therefore in a track depends on the axle load which the track is expected to carry and lateral thrust of locomotives to which it is subjected.
- The number of sleepers in a track is indicated by the number per rail length.
- Since sleeper also provides lateral stability to the track, so more the number of sleepers more is the lateral stability.
- The number of sleepers however cannot be increased indefinitely as certain minimum space between sleepers is required for packing of ballast.
- In India, this minimum distance for manual packing of ballast is kept 30.5cm to 35.5cm
- The number of sleepers per rail varies in India from M+4 to M+7 for main tracks, where M= length of rail in metres.
- Sleeper density is the number of sleepers per rail length and it is specified as M+x or N+x, where M is the length of the rail in metres(N is the length of rail in yards) and x is a number, varying according to the factors.
- Factors governing the sleeper density are: axle load, speed, type and section of the rails, type of ballast and ballast cushion, type and strength of sleepers and nature of foundation.

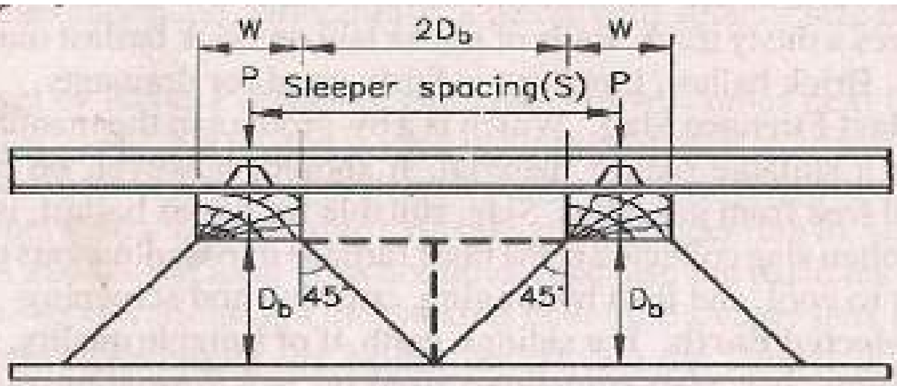


Fig. 11.1. Minimum Depth of Ballast

Sleeper Spacing (S) = width of sleeper (w) + 2 × depth of ballast (Db)

1.5 Ballast

- It is the granular material usually broken stone or brick, shingle or kankar, gravel or sand placed and packed below and around the sleepers to transmit load from sleepers, to formation and at the same time allowing drainage of the track.
- It provides a suitable foundation for the sleepers and also hold the sleepers in their correct level and position, preventing their displacement by lateral or longitudinal thrusts.
- The lateral stability of track depends on the ballast.

Functions of ballast

- It provides levelled bed or support for the railway sleepers.
- It transfers the load from sleepers to subgrade and distributes the load uniformly on subgrade.
- It holds the sleepers in a firm position while the trains pass by.
- It prevents the longitudinal and lateral movement of sleepers.
- It offers good drainage to the track

Requirements of the good ballast

- It should be tough and wear resistant.
- It should be hard so that it does not get crushed under the moving loads.
- It should be generally cubical with sharp edges.
- It should be non-porous and should not absorb water.
- It should resist both attrition and abrasion.
- It should be durable and should not get pulverized or disintegrated under adverse weather conditions.
- It should allow for good drainage of water.
- It should be cheap and economical.
- It should not make the track dusty or muddy due powder under dynamic wheel loads but should be capable of being cleaned to provide good drainage.
- It should not produce any chemical action in rail and metal sleepers
- The size of stone ballast should be 5cm for wooden sleepers, 4cm for metal sleepers and 2.5cm for turnouts and crossovers.

Types of Ballast

1. Broken stone Ballast: Broken stone is widely used ballast in railways. It is obtained by crushing hard stones like granite, hard trap, quartzite etc. In lieu of broken stones, limestone and sandstone can also be used. It is suitable for high-speed railway tracks. The broken stone selected as ballast should be hard, tough and non-porous. It should stay strong against inclement weather conditions.

Benefits of Broken Stone Ballast

- Broken stones are hard, tough and durable.
- Hold the sleepers in a strong position and provide stability to the track.
- Suitable for heavy traffic tracks and for high-speed tracks.

- Economical with respect to their durability.
- Require less maintenance.

Drawbacks of Broken Stone Ballast

- Since broken stones are not easily available, their initial cost is a little high.
- Produce noise when the train is moving on the track.
- They are sharp and angular and hence wooden sleepers may be liable to damage by these broken stones.

2. Sand Ballast: Sand can also be used as a ballast material. It is well suitable under cast iron sleepers and can be seen in desert railway tracks where plenty of sand gets accrued on the track. Coarse sand is best suitable as ballast than fine sand.

Benefits of Sand Ballast

- It provides excellent drainage facilities to the track.
- Well suitable for Cast iron sleepers and does not produce any noise while the train is moving on track.
- Cheap and abundantly available material.

Drawbacks of Sand Ballast

- Sand may blow off easily due to vibrations produced by train or due to high winds. So, a frequent renewal is required.
- Excessive wear of sleepers and moving parts can occur due to friction developed by sand.

3. Gravel Ballast: Gravel is a naturally occurring material formed by the erosion of rocks. They are suitable for all types of sleepers and are usually round and smooth and can be obtained from river beds, gravel pits etc.

Benefits of Gravel Ballast

- It occurs naturally and hence is cheap and easily available.
- Properly cleaned gravel offers excellent drainage facilities to the track.
- Well packed gravel requires less maintenance and has high durability.

Drawbacks of Gravel Ballast

- Because of their smoothness and roundness, they may get separated from the bed under vibrations.
- Since it occurs naturally, it may contain some amount of earth or clay which should be cleaned. If not cleaned, the drainage properties of gravel may get affected.
- Sieving should be done to eliminate small size gravel particles otherwise they may affect the drainage properties.
- Produce noise when the train is moving on the track.

4. Moorum Ballast: Moorum is formed by the decomposition of laterite. It is available mostly in red colour and, sometimes, in yellow. If the track is to be laid on black cotton soil, moorum can be used as a blanketing material or sub-ballast since it prevents permeability of water into the subgrade or formation.

Benefits of Moorum Ballast

- Moorum is good as sub-ballast especially in the case of weak soil sub-grades.
- Provides good aesthetics to the track.

Drawbacks of Moorum Ballast

- It is very soft and when subjected to vibrations gets converted into a powdered form and blows away.
- It requires frequent maintenance.
- Not recommended unless there is no other material available.

5. Coal Ash or Cinder Ballast: Coal ash also called cinder is the by-product of coal-fired power plants and railway locomotives. It can be used as a ballast material since it is cheaply available and also possesses good drainage properties. It is used as ballast especially for station yards and as initial ballast for newly constructed tracks.

Benefits of Coal Ash Ballast

- It is economical and abundantly available.
- It has excellent drainage properties.
- It can be handled with ease and is light in weight.

Drawbacks of Coal Ash Ballast

- Turns into dust when subjected to loads.
- Makes the track dirty and complicates the maintenance procedure.
- It is not recommended when steel sleepers are used because of its corrosive action.
- The rails may also get affected by the corrosive action of coal ash.

6. Brickbat Ballast: Brickbats are nothing but crushed pieces of bricks which are generally over-burnt. Under-burnt brickbats are not suitable since they are not as porous as over-burnt brickbats.

Benefits of Brickbat Ballast

- Porous brickbats have good drainage properties.
- Brickbats are useless products of brick industries and hence can be bought at cheap prices.

Drawbacks of Brickbat Ballast

- When subjected to loads they turn into a powder which can be easily blown away by the wind.
- The brick dust makes the track dirty and demands frequent maintenance

Size and section of ballast

- The size of the ballast varies from 1.9cm to 5.1cm
- Stones of larger size are not desirable and the maximum size as 5.1cm is preferable as interlocking of stones of this size is better than that of stone of larger sizes.
- The size of stone ballast should be 5cm for wooden sleepers, 4cm for metal sleepers and 2.5cm for turnouts and crossovers.
- The section of ballast layer consists of depth of ballast under the sleepers and the width of the ballast layer.
- The depth of the ballast under the sleepers is an important factor in the load bearing capacity and uniformity of distribution of load.

- In India, this recommendation will give unnecessarily thicker layer of ballast due to large spacing of sleepers being used.
- The lateral strength increases with increase in width of ballast layer but there is a limit beyond which no useful purpose is served by widening.
- This width limit is at 38cm to 43cm from the end of these sleepers as computed.
- Although the lines of equal pressure in ballast through wheel loads are in the shape of a bulb yet simplicity purpose, the load dispersion can be assumed at 45° to the vertical.

1.6 Track fittings and fastenings

Track fittings and fastenings are fittings requires for joining of rails end to end and also for fixing the rails to sleepers in a track.

Functions of track fittings and fastenings

Rail fixtures and fastenings have the following functions:

(i) To join the rails end to end to form full length of track.

(ii) To fix the rails to sleepers.

(iii) To maintain the correct alignment of the track.

(iv) To provide proper expansion gap between rails.

(v) To maintain the required tilt of rails.

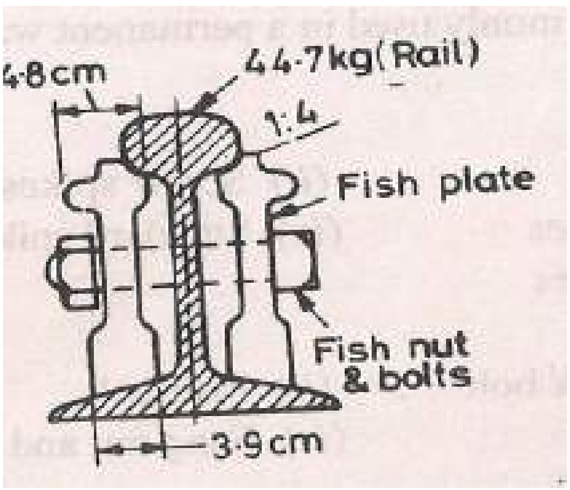
(vi) To set the points and crossings in proper position.

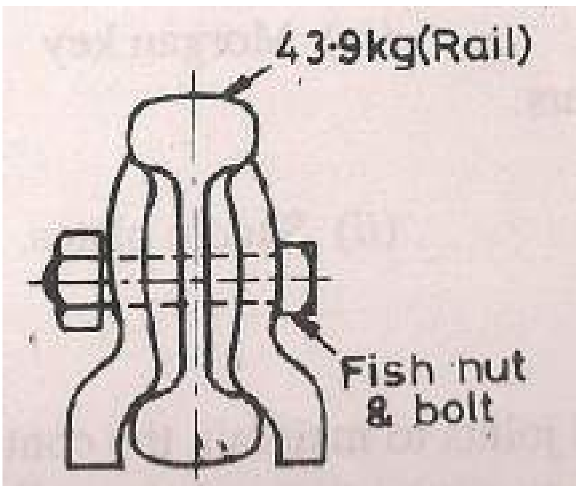
Fish plates

Fish plates are used in rail joints to maintain the continuity of the rails.

Two types of fish plates are commonly used on Indian Railways for joining F.F. and B.H. rails, each fish plate is 457 mm long and provided with four holes 32 mm at a spacing of 114 mm c/c.

These are manufactured of steel and are so designed that they fit in between the head and foot of the rail.





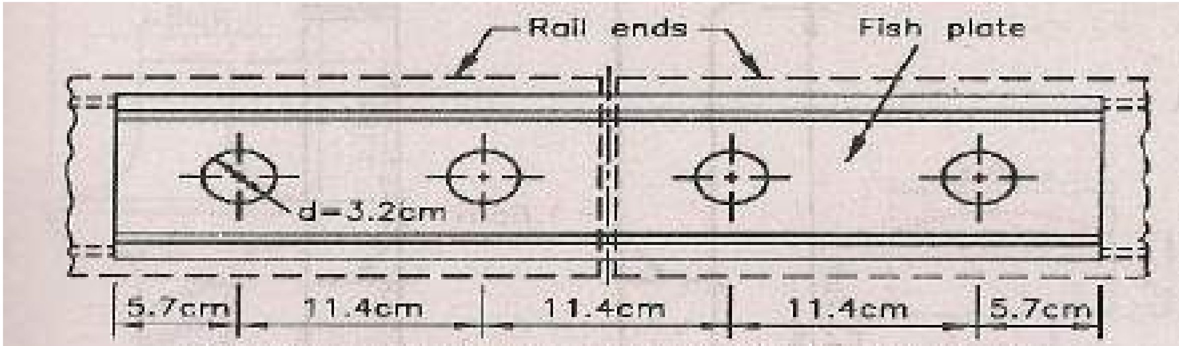


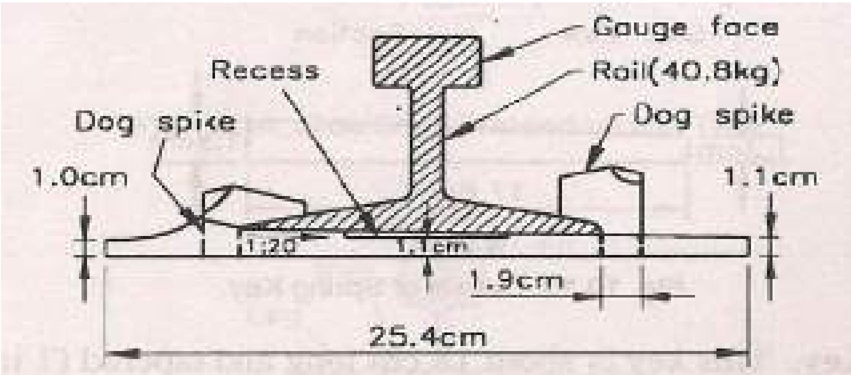
Fig. 10.3. Fish Plates with Rails. (Longitudinal Section)

Requirements of fish plates

(i) They should hold the adjoining ends of rails in correct horizontal and vertical plane.
(ii) They should allow free longitudinal movements of rails due to temperature variation.
(iii) They should be able to resist all types of wear.
(iv) They should allow easy renewal and replacement of rails in case of wear and damage.

Bearing plates

- Bearing plates are cast iron or steel plates placed in between the F.F rail and wooden sleepers of a railway track.
- F.F. rails if fixed directly on wooden sleepers sink in the sleeper due to the heavy loads of trains and thus loosen the spikes.
- To overcome this difficulty bearing plates are used under F.F. rails to distribute the load over a wider area and bring the intensity of pressure within limit.



Advantages

(i) They distribute the loads to wider area and prevent sinking of the rail to the sleeper.
(ii) They enable the spikes to remain tight and require less maintenance.
(iii) Bearing plates prevent the widening of gauge on curves.
(iv) Bearing plates increase the overall stability of the track.
(v) They prevent the destruction of the sleeper due to rubbing action of the rail.

Disadvantages

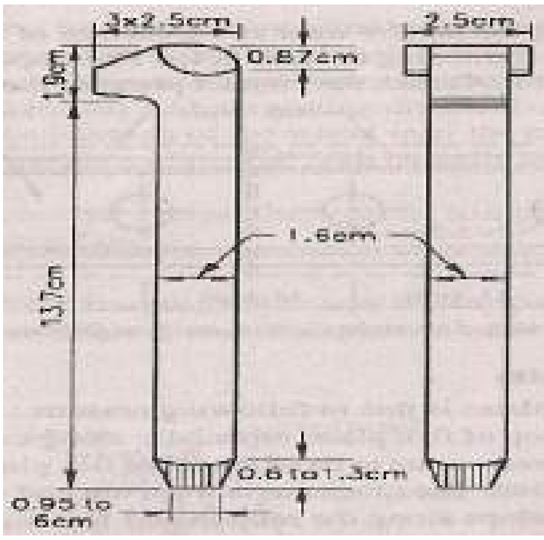
i. When the bearing plates become loose due to settlement of ballast, moisture is likely to enter between the sleepers and plates, causing sleepers to wear.
ii. If spike is damaged and it is required to be redriven at another place, all other spikes of the bearing plates have to be removed, which reduce the holding power of the spikes.

Spikes

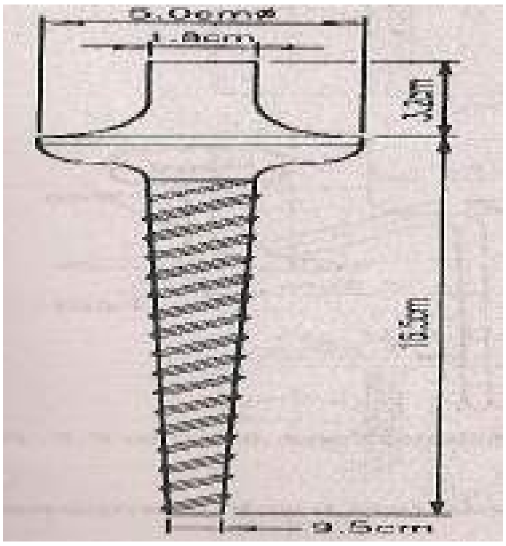
Requirements of a good spike

- It should be easy in fixing or removing from the sleepers.
- It should hold the rails and bearing plates in proper position.
- It should be cheap.
- It should require minimum maintenance.
- It should not come out of the sleepers under vibrations.

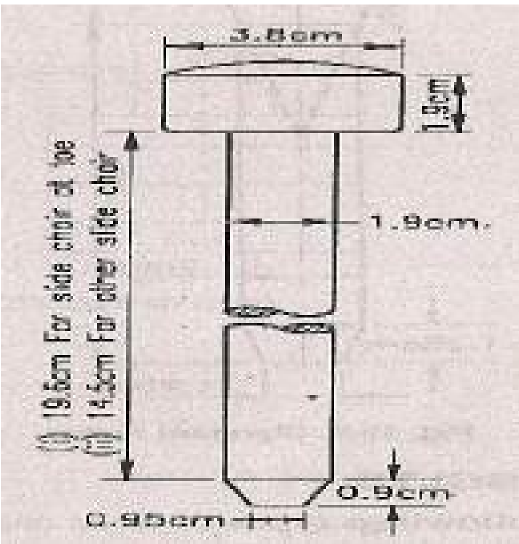
Dog spikes: Dog spikes are the cheaper type of spikes which hold the rails at correct gauge and can be easily fixed and removed. These are commonly used for holding F.F. rails. Four dog spikes are used per sleeper, two on either side of the rail.



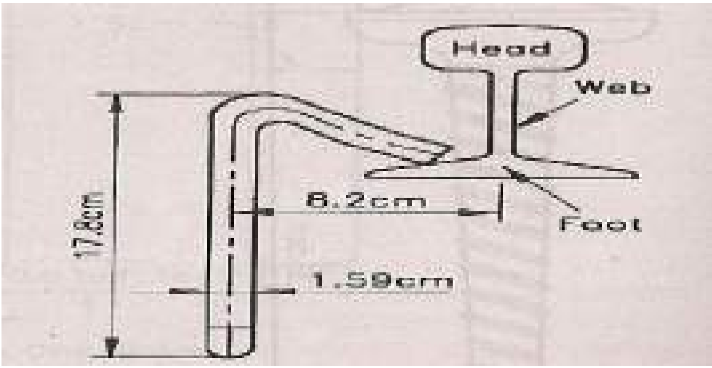
Screw spikes: Screw spikes are tapered screws with V-threads. Their head is circular with a square projection and are used to fasten rails with wooden sleepers. The holding power of these spikes is more than double to that of dog spikes and can resist the lateral thrust better than the dog spikes.



Round spikes: Round spikes are used for fixing chairs of B.H. rails to wooden sleepers and also for fixing slide chairs of points and crossings. These have both cylindrical or hemispherical head and blunt end.



Elastic spikes: Elastic spikes are used for fixing F.F. rails to wooden sleepers. These give better grip and result in reduction of wear and tear of rail. The advantage of this type of spike is that it is not pulled up by the wave action of the moving train.



Bolts

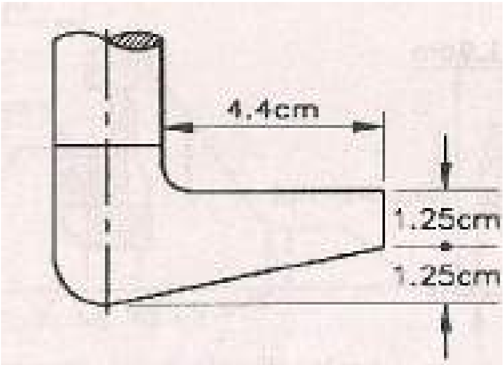
Fish bolts: Fish bolts are used for connecting fish plates with the rails. Four bolts are required for each pair of fish plates. These bolts are inserted from outside the track and bolted on the inside of the track.

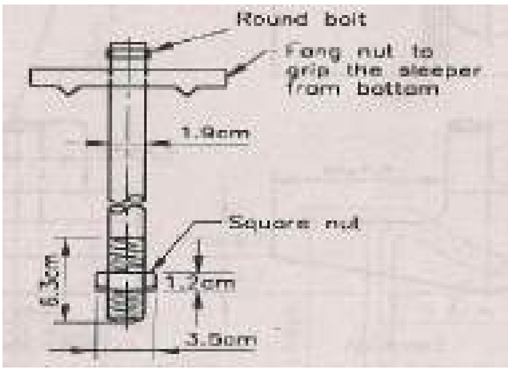
Hook bolts: Hook bolts are also known as dog bolts due to the shape of their heads. These bolts are used to fix sleepers which rest directly on a girder. Two bolts per sleeper are used. Dog bolts are of two types.

(i) Sloping lips- for fixing sleepers to plate girder spans.

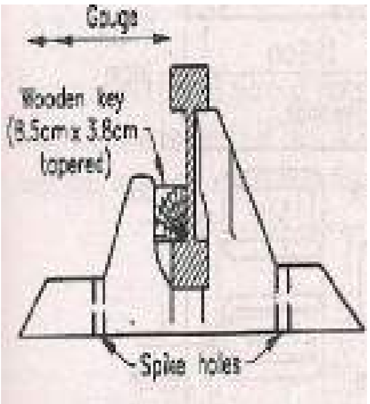
(ii) Straight lips- for fixing sleepers to joint spans.

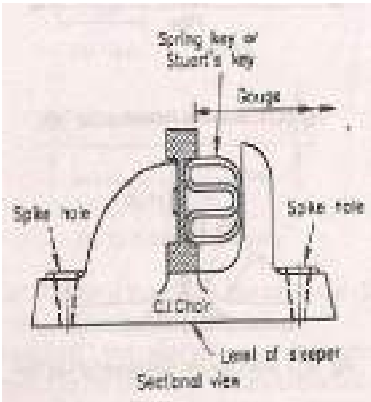
Fang bolts: Fang bolts are used for fixing side chairs to sleepers. These are alternative to screw or round spikes. The fang bolts are found to be more effective but are not generally used, because fixing and removal of these bolts are difficult.

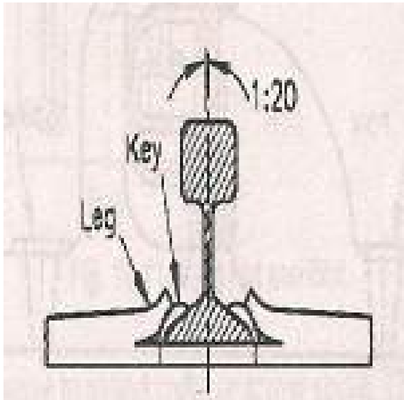




Chairs







Keys: These are small tapered pieces of timber or steel used to fix rails to chairs on metal sleepers.

Keys are of two types

(i) Wooden keys

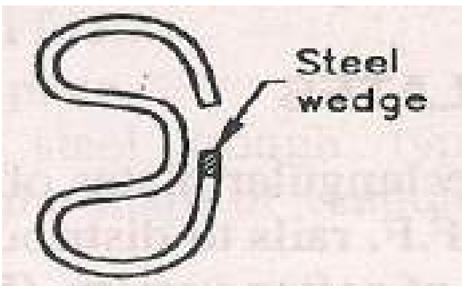
(ii) Metal keys

Wooden keys are small straight or tapered pieces of timber. These are cheap and easily prepared. These are not strong and become loose under vibrations. These require frequent maintenance. Wooden keys are not used now-a day in Indian Railways.

Metal keys are small tapered or spring like pieces of steel. These keys are much more durable than wooden keys. Metal keys are of two types.

(i) Stuart`s key and

(ii) Morgan key



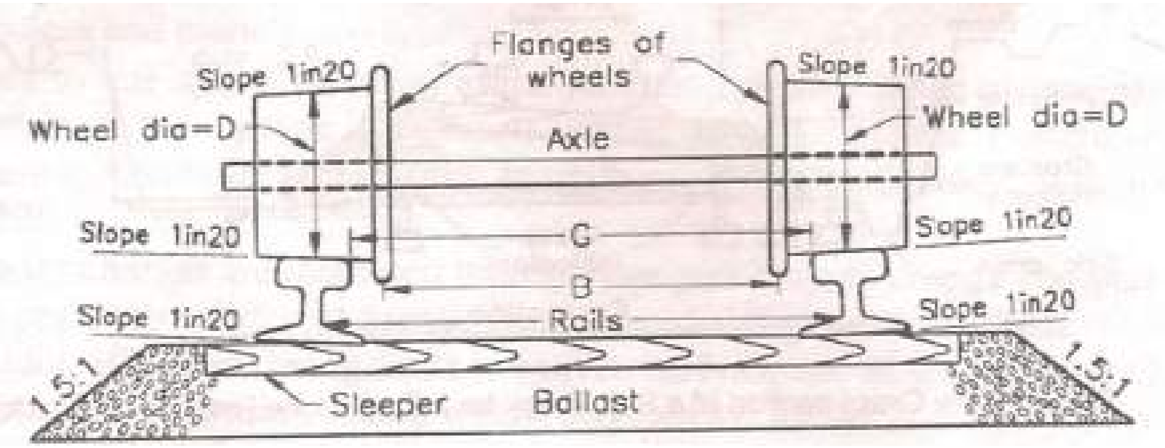
1.7 Track stress:

The wheel loads: The static load due to wheel is transmitted to the point of contact of the wheel and the rail

Dynamic effect of wheel loads: The dynamic effect is caused due to speed and hammer blows by the moving wheels.
Hammer blow: Due to over balance of driving wheels of locomotive.
The horizontal thrust: Due to nosing action of the locomotive.
The pressure by the flanges of wheels on the sides of the rail: There is lateral pressure due to flanges collision with the rails because the locomotive or train moves in zig-zag manner.
Stresses due to irregularities in the track: When ballast or subgrade are not evenly laid, non-uniformity in the gauge and top of the rails are not in one level.
Additional stresses on curves: Lateral bending due to rigid wheel base of the vehicle and non-uniform distribution of pressure over outer and inner wheels.

Coning of wheels

- The distance between the inside edges of wheel flanges is generally kept less than the gauge of the track.
- So there is a gap between the wheel flanges and running edges of the rails, nearly equal to 1cm on either side.
- These wheels are coned at a slope of 1 in 20.

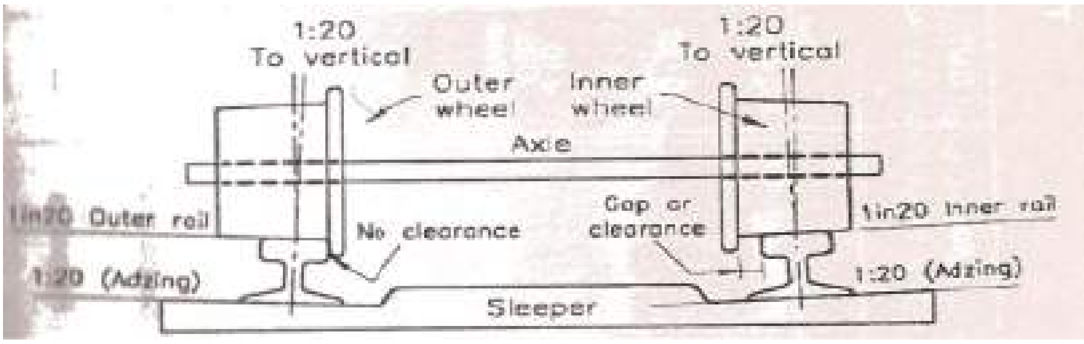


The advantages of coning of the wheels are

- To reduce the wear and tear of the wheel flanges and rails.
- To provide a possibility of lateral movement of the axle with its wheels.
- To prevent the wheels from slipping to some extent.
- It provides a smooth ride.
- It helps the train to negotiate a curve smoothly.

Tilting of rails

- Rails are tilted inward at an angle of 1 in 20 to reduce wear and tear on the rails as well as on the tread of the wheels.
- As the pressure of the wheel acts near the inner edge of the rail, there is heavy wear and tear of the rail.
- Lateral bending stresses are also created due to eccentric loading of rails.
- To reduce the wear and tear as well as lateral stresses, rails are tilted at a slope of 1 in 20, which is also the slope of wheel cone.



Creep of rails

- It is defines as the longitudinal movement of rails with respect to sleepers in a track.
- Creep is common to all railway tracks, but varies in magnitude considerably, the rail in some places moves by several centimetres in a month while in other location the movement of rails may be negligible.
- It is observed that the rails have tendency to move gradually in the direction of dominant traffic.
- Indications of creep can be noticed from the following observations:
  - Closing of successive expansion spaces at rail joints in the direction of creep and opening out of joints at the point from where creep starts.
  - Marks on flanges and webs of rails made by spike heads, by scraping or scratching as the rail slide.

Causes:

- Wave action.
- Drag theory.
- Starting, accelerating, slowing/stopping of train.
- Expansion or contraction of rail.
- Unbalanced traffic.
- Alignment of track.
- Grade of track.
- Type of rails.
- Poor maintenance of track components and ill design.

Remedies:

- Pulling back the rails.
- Provision of Anti-creepers.
- Use of Steel Sleepers.

Wear on rails

- Wear is one of the prominent defects of rails.
- When the axle loads are abnormally heavy and the train moves with very fast speed then the concentrated stresses exceed the elastic limit resulting in metal flow, on the gap or joint the ends are battered and at the curves the occurrence of skidding, slipping and striking of wheel flanges with rails results in wear and tear of rails.
- Classification of wear
  - On the basis of location.
  - On the basis of position of wear on rails.

- On the basis of location
  - On sharp curves
  - On gradients
  - On approaches to stations, where brakes are frequently applied.
  - In tunnels
  - Coastal areas(sea breeze)
  - Weak foundations
- On the basis of position of wear
  - Wear on the top or head of rail
  - Wear at the ends of rails
  - Wear on the sides of the head.

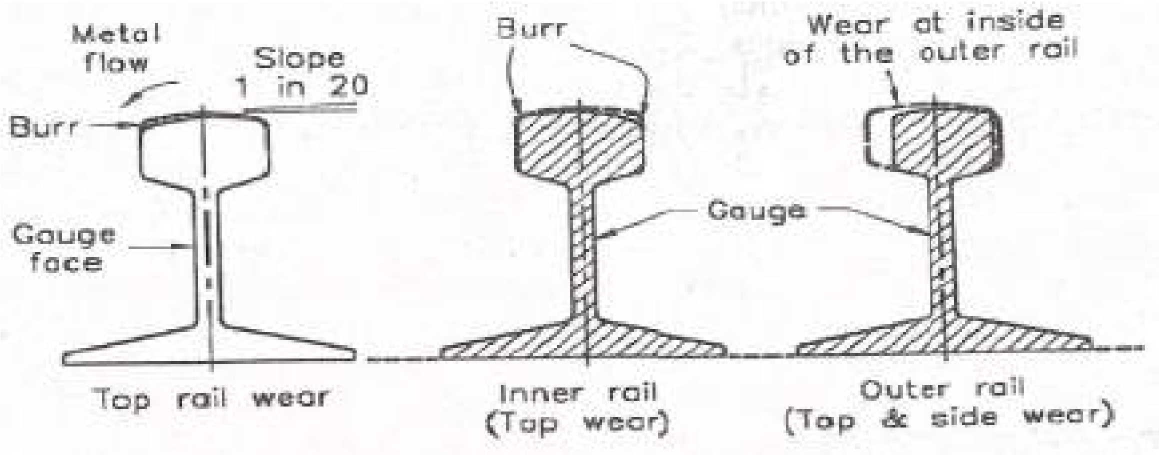
Wear on the top or head of rail: This type of wear occurs on straight i.e., tangent tracks and at curves.

On tangent tracks: the following are the factors which cause or encourage the wear on the top of rails on tangent lengths:

- Due to flow of metal- this is because the heavy loads concentrated on small area produce the stresses which exceed the elastic limit and hence plastic flow of the metal takes place and burrs are formed which later get chipped of by moving wheel flanges
- Heavy axle load and its recurring impact cause the wear at the top of rails.
- Due to abrasion of rolling wheels, the rails generally get worn out at the top of rails.
- Due to constant brake application, which results in skidding and burning of the rail head? This finally results in excessive wear and abrasion.
- Due to use of sand which is spread to produce friction in case of dampness in tunnels. The grinding action of sand particles with rails gives rise to wear.
- Due to fluctuations in gradients.
- Due to corrosion of rails by the action of sea breeze, this also gives rise to wear on top of rails.

On curves: the wear on top of rails at curves is due to the following causes:

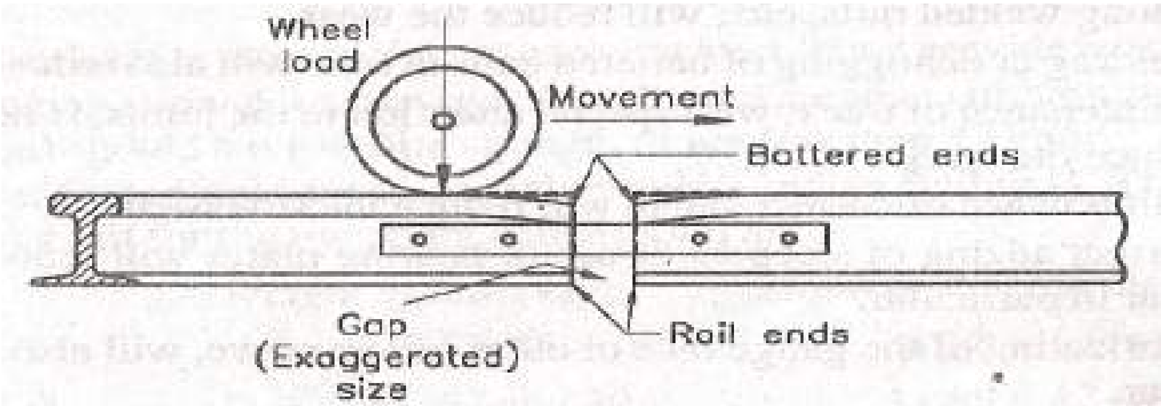
i. Due to slipping or skidding of wheels
ii. Due to effect of centrifugal force and improper super elevation, load on one rail is greater than the other.



Wear on the ends of the rails:

- This type of wear occurs, when a wheel jumps over the gap, giving blow to the end of the rail, as rough riding in the track, loosens the ballast under the joints and even disturbs the sleeper.

- This type of wear is occurs due to following factors:
  - Due to lose fish plates and fish bolts
  - Due to heavy loads and large joint openings
  - Difference in levels at joints
  - Bad conditions of the vehicle springs
  - Poor maintenance of the track



- **Wear on sides of the rail head**
  - This type of wear is only prominent when the rails are laid at curves.
  - This wear is more than first two types of wear and is most destructive in nature.
  - This wear occurs due to following causes
    - At curves, there is greater thrust on inner rail, when trains run at lesser speed than equilibrium speed.
    - Due to the rigidity of the wheel base.
    - Slipping and skidding of wheel at curves.
- Allowable limits of wear**:** in India prescribed limit of wear is 5% of rail weight.

Wear Prevention

- Better maintenance of track
- Reducing number of joints
- Use of special alloy steel
- Interchanging inner and outer rails
- Regular maintenance of rail joints
- Maintenance of correct gauge
- Application of heavy mineral oil-corrosion
- Lubricating gauge face
- Using check rails in sharp curves

1.8 Route alignment surveys

1.8.1 Conventional method: In the manual method how we can get generate railway alignment by the following various surveys which consume a huge time and money and sources too. In order to have a proper and satisfactory new route, various surveys are carried out:

1. Reconnaissance Survey
2. Preliminary Survey
3. Location Survey

Reconnaissance Survey: It is the first engineering survey. It is a rough and visual identification about location and check map data to live location.

A reconnaissance survey can divided into two parts:

1. Traffic survey
2. Engineering survey

Traffic survey: This consists of collection of the information regarding the following:

- The general scenario of the location.
- Information of the local industries.
- The general information of agriculture, crop types and any mineral sources are there or not.
- The probable scenario of traffic to divert or used by new railway alignment.
- General study of existing transportation facilities and which mode is mostly used.
- Planning forecasting of economic and social growth of area that would be covered by this new railway line.

Engineering survey:

- Physical features of the country;
- The surface of the ground;
- Types of soil and its classification
- Streams and rivers, those which will cross the proposed railway line;
- Positions of valleys, mountains and rivers.
- Availability of materials and man power and transportation facilities of material for use during construction.

Preliminary Survey:

Object of preliminary survey

- To conduct the survey work along the alternative routes found out by reconnaissance survey and;
- To determine with greater accuracy the cost of the railway line along these alternative routes.

Importance of preliminary survey

- It decides the final route and recommends only one particular route in preference to other alternative routes
- Thus, should be carried out with great precision as on it depends the alignment of the final route.

Location Survey:

Object of location survey

• To carry out the detailed survey of the selected route to find whether it is economical and feasible? From preliminary surveys data. It the centre-line of the alignment track to be laid.

• As soon as the location survey is completed, the construction work is started.

Work of location survey

It is carried out in two stages:

1. Paper location

• The final route selected is put up on paper and details such as gradient, curves, contours, etc. are worked out;

• All the working drawings are prepared, even of minor structures such as signal cabins.

• After the paper location is over, the field work is started and the centre-line of the track is fixed.

2. Field location:

• The field location transfers paper location on the ground.

• It gives all the requirements of the construction engineer such as bench-marks, levels, measurements, etc.

• The centre-line pegs are driven at every 300 meters along the centre-line of the track.

• Every change of direction, the beginning and end of the curve and also the intersecting points are clearly marked.

• In addition to the fixing up of the centre-line of the track, the centre-lines of bridges, culverts, tunnels, station buildings, signal cabins, etc. should also be fixed.

1.8.2 Modern methods of designing of railway alignment

GIS study: This how we can generate various thematic maps for any particular area

Planning of proposed railway alignment with the help by generating thematic maps:

• Safety: The track should be aligned so as to ensure that goods and passengers are transported with minimal chances of accidents and derailment.

• Aesthetic aspect: The railway line should be constructed to provide a memorable and pleasant railway journey to train passengers by keeping the track within beautiful natural surroundings.

• Economy: The track should be as short and direct as possible with minimal construction, maintenance and operating costs from an engineering perspective.

• Linking of centres: A new railway line should connect and inter link important town centers and cities so as to provide the necessary transportation services.

In view of the above alignment requirements, minimal evaluation factors and constraints are identified as follows:

ϖ Slope Factor: The slope of terrain is considered very critical in railway routing as it directly influences the construction and operating costs. The higher the slope, the higher the costs and vice-versa

ϖ Soil Factor: Soils that are susceptible to erosion and unconsolidated materials cost more to construct a railway line on. Poorly drained soils are also undesirable for railway line construction. It is therefore comparatively cheaper to construct a railway on ground with soil that is unconsolidated and well drained. Rocky grounds should be avoided as they increase construction costs due to heavy excavation of rocks.

Proximity to Rivers Factor
Railways should be constructed as far away from rivers as possible because of the following Reasons:
• To avoid constructing many bridges that may arise because of the meandering of the rivers.
• Rivers have the propensity to flood and this could cause damage to the railway line.
• Rivers often change their course and this could cause rerouting of the railway which is a very expensive affair.

ϖ Important Towns and Cities constraint
Town centres form important obligatory nodes and the track should pass through important town centres for economic, social and political reasons. Quarries and human habitats are found in the neighbourhood of town centres and therefore construction materials and labour are easily available.
Even though a town centre may neither be economically nor industrially active, socio-political considerations may still constrain the construction of a railway line through it.

ϖ Areas the Route must not pass through constraint
These are areas in which the railway track must be completely avoided since they result in very high construction and operation costs. They also pose a danger to the safety in operations of the rail vehicles. Such undesirable areas include:
• Areas with ground slopes greater than 4.5%.
• Areas within 100m of the centrelines of rivers.
• Flood plains or swampy grounds.
• Areas within 50m of the centres of existing roads (to avoid accidents).

Multi-Criteria Evaluation: A MCE technique is a multi-criteria method which combines different data of different variable in to one indexed form and make fair decision with more alternatives in consistent and precise way. The main use of it is a rather than doing differently calculation for different parameter we can do it in to a one way with combination of different variables in to one indexed form and by MCE and AHP method.

The importance of network analysis in GIS: Networks are all around us. Roads, railways, cables, pipelines, streams, arteries, metro and etc.
Networks are used to transport freight, people, goods and communication and water too, even network of retail markets to home and from retail markets to sources, networks are everywhere.

Network analysis enables you to solve problems, such as finding the most efficient travel route, generating travel Directions, finding the closest facility, defining service areas based on travel time, travel cost and traffic too.

What is network analysis arc GIS used for design of railway alignment?
• Finding the best route in order of consume less time and money through passing of various stops.

• Finding the closest facility in order to minimize travel cost between incidents and multiple facilities.
• Driving direction in order to generated closest facility and consumes less time path.
• Finding and origin and cost o-d matrix.
• On basis of all this thematic maps and generated data in network analysis we can generate an alignment which is best and accurate comparatively on conventional methods.

Soil Suitability Analysis

Many different types of soils may be suitable for use in the construction of an embankment or fill, ranging from granular soils (sand and gravel), which are highly desirable, to the more finely sized soils (silt and clay), which are usually somewhat less desirable. Certain types of soils (such as saturated clays and highly organic soils) are considered unsuitable for use as materials in embankment or fill construction. Regardless of the type(s) of soil(s) used to construct embankments or fills, the material should be well graded, capable of being well compacted, be within a proper range of moisture to optimize compaction, and be free of unsuitable or deleterious materials, such as tree roots, branches, stumps, sludge, metal, or trash.

Material Properties and Testing Methods

Some of the more important properties of materials that are used for the construction of embankments or fills include:

- **Gradation**: Well-graded fill materials that consist of two or more soil types, usually a mixture of granular and fine-grained soils, are most suitable for embankment construction. Because of the wide variety of soils that may be encountered, there is no universally recommended range of gradation for fill materials, although the maximum particle size should be less than 100 mm so that it can be readily placed within a 200 mm layer.
- **Unit Weight and Specific Gravity:** Fill materials can vary in unit weight over a fairly wide range, depending on the type of material and its moisture content. Fill materials that are relatively low in unit weight offer the advantage of transmitting less dead load to the underlying soil that supports an embankment. There are usually no specified requirements for a minimum or maximum unit weight, either before or after compaction.
- **Moisture-Density Characteristics:** The compaction characteristics (optimum moisture content and maximum dry density) of a soil fill material are the most important single property that affects embankment performance. Most specifications for embankment construction require the compacted fill material to have an in-place density that is within a certain percentage (usually 95 percent or greater) of the maximum dry density at a moisture content that is within a certain percentage (usually 3 percent or less) of optimum. The optimum moisture and maximum dry density of fill material(s) are determined in advance in the laboratory by means of either standard or modified moisture-density compaction tests. These tests methods are applicable for soils or earthen fill materials. Moisture-density characteristics cannot usually be determined for oversize (over 100 mm materials) materials.

- **Shear Strength:** The shear strength characteristics (cohesion and/or internal friction) are indicative of the ability of a fill material to support loads that are imposed upon it under given drainage conditions. Shear strength characteristics are not always specified for earthen fill materials, but are determined by tri-axial compression or direct shear testing and are used to compute the slope stability of an embankment.
- **Compressibility:** Compressibility refers to the consolidation or settlement characteristics of a material under long-term loading conditions. The compressibility of a fill material is related to its shear strength, degree of compaction, void ratio, permeability, and degree of saturation. The settlement characteristics of an earthen fill material are determined by one-dimensional consolidation testing. Some settlement of an embankment or fill will occur during its construction, while the remainder of the settlement (if any) will occur in the post construction period.
- **Bearing Capacity –** bearing capacity refers to the ability of a fill material to support the loadings imposed upon it over the life of the facility without undue settlement, volume change, or structural damage. Bearing capacity can be determined by laboratory testing and by field load tests.
- **Permeability:** Permeability or hydraulic conductivity refers to the ability of a soil to transmit water through the pore structure of the fill material at a given rate. This property is indicative of the ability of a compacted fill material to provide drainage for excessive moisture.
- **Corrosion Resistance:** Corrosion is a basic chemical or electro-chemical property of a material that can induce damage to concrete structures, steel piles, or metal appurtenances with which the embankment or fill material may come in contact.

1.9 Geometric Design of Track

Necessity of geometric design of a railway track

The need for proper geometric design of a track arises because of the following considerations:

(a) To ensure the smooth and safe running of trains
(b) To achieve maximum speeds
(c) To carry heavy axle loads
(d) To avoid accidents and derailments due to a defective permanent way
(e) To ensure that the track requires least maintenance
(f) For good aesthetics

Gradients:

Gradients are provided to negotiate the rise or fall in the level of the railway track. A rising gradient is one in which the track rises in the direction of movement of traffic and in a down or falling gradient the track loses elevation the direction of movement of traffic.

A gradient is normally represented by the distance travelled for a rise or fall of one unit. Sometimes the gradient is indicated as per cent rise or fall. For example, if there is a rise of 1 m in 400 m, the gradient is 1 in 400 or 0.25 per cent.

Gradients are provided to meet the following objectives:

(a) To reach various stations at different elevations
(b) To follow the natural contours of the ground to the extent possible
(c) To reduce the cost of earthwork

The following types of gradients are used on the railways: (a) Ruling gradient (b) Pusher or helper gradient (c) Momentum gradient (d) Gradients in station yards

Ruling Gradient: The ruling gradient is the steepest gradient that exists in a section. It determines the maximum load that can be hauled by a locomotive on that section. While deciding the ruling gradient of a section, it is not only the severity of the gradient, but also its length as well as its position with respect to the gradients on both sides that have to be taken into consideration. The power of the locomotive to be put into service on the track also plays an important role in taking this decision, as the locomotive should have adequate power to haul the entire load over the ruling gradient at the maximum permissible speed.

In plain terrain: 1 in 150 to 1 in 250
In hilly terrain: 1 in 100 to 1 in 150

Once a ruling gradient has been specified for a section, all other gradients provided in that section should be flatter than the ruling gradient after making due compensation for curvature.

Pusher or Helper Gradient: In hilly areas, the rate of rise of the terrain becomes very important when trying to reduce the length of the railway line and, therefore, sometimes, gradients steeper than the ruling gradient are provided to reduce the overall cost. In such situations, one locomotive is not adequate to pull the entire load, and an extra locomotive is required. When the gradient of the ensuing section is so steep as to necessitate the use of an extra engine for pushing the train, it is known as a pusher or helper gradient. A Pusher gradient of 1 in 75, 1 in 100 with additional one engine is generally used.

Momentum Gradient: The momentum gradient is also steeper than the ruling gradient and can be overcome by a train because of the momentum it gathers while running on the section. In valleys, a falling gradient is sometimes followed by a rising gradient. In such a situation, a train coming down a falling gradient acquires good speed and momentum, which gives additional kinetic energy to the train and allows it to negotiate gradients steeper than the ruling gradient. In sections with momentum gradients there are no obstacles provided in the form of signals, etc., which may bring the train to a critical juncture.

Gradients in Station Yards: The gradients in station yards are quite flat due to the following reasons:
(a) It prevents standing vehicles from rolling and moving away from the yard due to the combined effect of gravity and strong winds.
(b) It reduces the additional resistive forces required to start a locomotive to the extent possible.

ATTENDANCE

ATME College of Engineering

Course Title with Code : Urban Transportation & planning 15CV761

Semester & Section : 7 A

Sl. No.	USN	Student Name	8/8 (1)	19/8 (2)	29/8 (3)	30/8 (4)	31/8 (5)	4/9 (6)	5/9 (7)	6/9 (8)	6/9 (9)	16/9 (10)
1	14CV002	Adithya Aradhya KR	A	1	2	3	4	5	6	7	8	9
2	14CV023	Mamatha MK	A	1	2	3	4	5	6	7	8	9
3	14CV027	Meghana N	A	1	2	3	4	A	5	6	7	8
4	14CV050	Soujanya R	A	A	1	2	3	4	5	6	7	8
5	14CV053	Suprith S	A	1	2	3	4	5	6	7	8	9
6	15CV009	Deekshith VV	A	1	A	2	A	3	4	5	6	7
7	15CV010	Dwarraju C	A	1	2	3	4	5	6	7	8	9
8	15CV040	Sachin C	A	1	A	2	A	3	4	5	6	7
9	15CV040	Chaluvatha R	1	A	2	3	4	5	6	7	8	9
10	16CV001	A Kruthi	1	2	3	4	5	6	7	8	9	10
11	16CV003	Akash TC	A	1	A	2	3	4	5	6	7	8
12	16CV004	Alen Joe	A	1	2	3	4	5	6	7	8	9
13	16CV005	Arti GN	1	2	3	4	5	6	7	8	9	10
14	16CV006	Anjana ML	1	2	A	3	4	5	6	7	8	9
15	16CV007	Anusha AS	1	2	3	4	5	6	7	8	9	10
16	16CV008	Anusha MS	1	2	3	4	5	6	7	8	9	10
17	16CV009	Ashwitha ML	A	1	2	3	4	5	6	7	8	9
18	16CV010	Bhagyajyothi	A	1	A	2	3	A	4	5	6	7
19	16CV011	Chandana N	1	2	3	4	5	6	7	8	9	10
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21	16CV013	Darshan MD	A	1	2	3	4	5	A	6	7	8
22	16CV014	Deepak MP	A	1	2	3	4	5	6	7	8	9
23	16CV015	Dileep Kumar S	A	1	2	3	4	5	6	7	8	9
24	16CV016	Harsha NR	A	1	2	3	4	5	6	7	8	9
25	16CV017	Hemanth	A	1	2	3	4	5	6	7	8	9
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Sl. No.	19/9 (11)	20/9 (12)	25/9 (13)	26/9 (14)	27/9 (15)	30/9 (16)	1/10 (17)	3/10 (18)	3/10 (19)	4/10 (20)	10/10 (21)
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No. of Abs.	4	2	2	2	2	2	-	2	2	1	6
Initials											

ASSESSMENT

ATME College of Engineering

Sl. No.	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
1		5	ab	5	08	05	13		16		
2		5	03	5	15	05	12		19		
3		5	13	5	11	05	13		18		
4		5	ab	5	11	05	15		18		
5		5	07	5	15	05	14		20		
6		5	06	5	15	05	15		20		
7		5	06	5	15	05	15		20		
8		5	ab	5	15	05	15		20		
9		5	04	5	15	05	12		19		
10		5	ab	5	15	05	15		20		
11		5	06	5	09	05	15		17		
12		5	ab	5	15	05	15		20		
13		5	08	5	15	05	15		20		
14		5	10	5	09	05	15		18		
15		5	14	5	15	05	0		20		
16		5	08	5	15	05	15		20		
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20		5	07	5	15	05	15		20		
21		5	1	5	14	05	14		19		
22		5	10	5	15	05	15		20		
23		5	ab	5	13	05	15		19		
24		5	09	5	15	05	15		20		
25		5	08	5	15	05	15		20		
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Initials											

ATME College of Engineering

ATTENDANCE

Semester & Section : 7 A

Course Title with Code : U?k

Sl. No.	USN	Student Name	11/10 (22)	14/10 (23)	16/10 (24)	17/10 (25)	24/10 (26)	25/10 (27)	26/10 (28)	30/10 (29)	31/10 (30)	4/11 (31)	7/11 (32)
1	14CV002	Adithya Aradhya K R	18	19	20	21	22	23	24	25	A	26	27
2	14CV023	Mamatha M K	17	18	19	20	21	A	A	22	23	24	25
3	14CV027	Meghana N	A	18	19	20	21	A	A	22	23	24	25
4	14CV050	Soujanya R	18	19	20	21	22	A	A	23	24	25	26
5	14CV053	Supritha S	20	21	22	23	24	A	A	25	26	27	28
6	15CV009	Deekshith VV	19	20	21	A	22	23	24	25	26	27	28
7	15CV010	Dwarraju C	19	20	21	22	23	A	A	24	25	26	27
8	15CV040	Sachin C	18	19	20	21	22	23	24	25	26	27	28
9	15CV040	Charuwatha R	20	21	22	23	24	A	A	25	26	27	28
10	16CV001	A Nrutha	21	22	23	24	25	26	27	28	29	30	31
11	16CV003	Akash T C	20	21	A	22	23	A	A	24	25	26	27
12	16CV004	Alen Joe	A	19	20	21	22	23	24	25	26	27	28
13	16CV005	Anty G N	22	23	24	25	26	27	28	29	30	31	32
14	16CV006	Anjana M C	19	20	21	22	23	24	25	A	26	27	28
15	16CV007	Anusha A S	18	19	20	21	22	A	A	23	24	25	26
16	16CV008	Anusha M S	22	23	24	A	25	26	27	28	A	29	30
17	16CV009	Ashwitha M L	21	22	23	24	25	26	27	A	28	29	30
18	16CV010	Bhagyajyothi	18	19	20	21	22	A	A	23	24	25	26
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21	16CV013	Darshan M D	19	20	21	22	23	24	25	26	27	28	29
22	16CV014	Deepak M P	20	21	22	23	24	25	26	27	28	29	30
23	16CV015	Dileep Kumar S	21	22	23	24	25	26	27	28	29	30	31
24	16CV016	Harsha N R	20	21	22	23	24	A	A	25	26	27	28
25	16CV017	Hemanth	21	22	23	24	25	26	27	28	29	30	31
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		Initials											

Sl. No.	8/11 (33)	11/11 (34)	13/11 (35)	14/11 (36)	16/11 (37)	18/11 (38)	21/11 (39)	40	41	42	43
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6	29	30	31	32	33	34	35				
7	28	29	30	31	32	33	34				
8	29	30	31	32	33	34	35				
9	29	30	31	32	33	34	35				
10	32	33	34	35	36	37	38				
11	28	29	30	31	32	33	34				
12	29	30	31	32	33	34	35				
13	33	34	35	36	37	38	39				
14	29	30	31	32	33	34	35				
15	27	28	29	30	31	32	33				
16	31	32	33	34	35	36	37				
17	31	32	33	34	35	36	37				
18	27	28	29	30	31	32	33				
19	29	30	31	32	33	34	35				
20	30	31	32	33	34	35	36				
21	30	31	32	33	34	35	36				
22	31	32	33	34	35	36	37				
23	32	33	34	35	36	37	38				
24	29	30	31	32	33	34	35				
25	32	33	34	35	36	37	38				
No. of Abs.	-	-	-	-	-	-	-				
Initials											

ASSESSMENT

ATME College of Engineering

Sl. No.	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
1	5	ab	5	08	05	13		16		
2	5	03	5	15	05	12		19		
3	5	13	5	11	05	13		18		
4	5	ab	5	11	05	15		18		
5	5	07	5	15	05	14		20		
6	5	06	5	15	05	15		20		
7	5	06	5	15	05	15		20		
8	5	ab	5	15	05	15		20		
9	5	04	5	15	05	12		19		
10	5	ab	5	15	05	15		20		
11	5	06	5	09	05	15		17		
12	5	ab	5	15	05	15		20		
13	5	08	5	15	05	15		20		
14	5	10	5	09	05	15		18		
15	5	14	5	15	05	0		20		
16	5	08	5	15	05	15		20		
17	5	07	5	11	05	15		18		
18	5	11	5	14	05	ab		18		
19	5	09	5	15	05	15		20		
20	5	07	5	15	05	15		20		
21	5	1	5	14	05	14		19		
22	5	10	5	15	05	15		20		
23	5	ab	5	13	05	15		19		
24	5	09	5	15	05	15		20		
25	5	08	5	15	05	15		20		
No. of Abs.	-	06	-	-	-	01				
Initials										

ATTENDANCE

ATME College of Engineering

Semester & Section : 7 A

Course Title with Code : Urban Transportation & planning. 16CV761

Sl. No.	USN	Student Name	8/8 (1)	19/8 (2)	29/8 (3)	30/8 (4)	31/8 (5)	4/9 (6)	5/9 (7)	6/9 (8)	7/9 (9)	16/9 (10)
26	16CV018	Hemanth BM	A	1	2	3	4	5	6	7	8	9
27	16CV019	Jeevith My M	1	2	3	4	5	5	7	8	9	10
28	16CV020	Kusuma RE	1	A	2	3	4	5	6	7	8	9
29	16CV021	Madhura C	1	2	3	4	5	A	A	A	6	7
30	16CV023	Manaf SL	A	1	2	3	4	5	6	7	8	9
31	16CV024	Mohd. Hannan	A	1	A	2	3	4	5	6	7	8
32	16CV025	Namitha RV	1	2	3	4	5	6	A	7	8	9
33	16CV026	Nandeesh KR	A	1	2	3	4	5	6	7	8	9
34	16CV027	Navya TJ	1	2	A	3	A	4	5	6	7	8
35	16CV029	Parthana MY	1	2	3	4	5	6	7	8	9	10
36	16CV030	Prasad AR	A	1	A	2	A	3	A	4	5	6
37	16CV033	Rajitha BL	A	1	2	3	A	A	A	A	A	A
38	16CV034	Ramya HE	A	1	2	3	4	5	6	7	8	9
39	16CV035	Sachin Gowda GK	A	1	2	3	4	5	6	7	9	10
40	16CV036	Sahil Khan	A	1	2	3	4	5	6	7	8	9
41	16CV037	Sahana P	A	1	A	2	3	4	5	6	7	8
42	16CV038	Sanjay Gowda RS	A	1	A	2	A	3	A	4	6	7
43	16CV039	Shubhashree KV	A	1	2	3	A	4	A	5	6	7
44	16CV040	Spoorthi U	A	1	2	3	A	4	5	A	6	A
45	16CV041	Surabhi KN	1	2	3	4	A	5	6	7	8	9
46	16CV044	Uday Prasad GR	1	2	A	3	A	4	5	6	7	8
47	16CV046	Yashwanth MK	A	1	2	3	4	5	6	7	8	9
48	16CV047	Zeeshan HA	A	1	2	3	4	5	6	7	8	9
49	16CV048	Yashwin MJ	A	1	2	A	3	A	4	5	6	7
50	17CV400	Akash R	A	A	A	A	A					
	No. of Abs.		17	2	7	2	9	3	6	3	1	2
	Initials											

ASSESSMENT

ATME College of Engineering

Sl. No.	19/9 (11)	23/9 (12)	25/9 (13)	26/9 (14)	27/9 (15)	30/9 (16)	1/10 (17)	3/10 (18)	3/10 (19)	4/10 (20)	10/10 (21)	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
26	10	11	12	13	14	15	16	17	18	19	20		5	ab	5	14	05	14		19		
27	11	12	13	14	15	16	17	A	A	18	19		5	05	5	15	05	15		20		
28	10	11	12	12	14	15	16	17	18	19	20		5	08	5	15	05	15		20		
29	8	9	10	11	12	13	14	15	16	17	18		5	07	5	09	05	15		17		
30	10	11	12	12	14	15	16	17	18	19	20		5	13	5	15	05	15		20		
31	9	10	11	12	13	14	15	16	17	A	18		5	ab	5	13	05	11		17		
32	A	10	11	12	13	14	15	A	A	16	17		5	14	5	14	05	ab		19		
33	10	11	12	12	14	15	16	17	18	19	A		5	09	5	08	05	14		17		
34	9	10	11	A	12	13	14	15	16	17	A		5	08	5	13	05	14		19		
35	A	11	12	12	14	15	16	A	A	17	18		5	14	5	15	05	8		20		
36	7	8	9	10	11	12	13	14	15	A	A		5	13	5	14	05	ab		19		
37	4	5	6	7	8	9	10	11	12	13	14		5	ab	5	15	05	15		20		
38	10	11	12	12	14	15	16	17	18	19	20		5	13	5	14	05	15		20		
39	11	12	13	14	15	16	17	18	19	20	A		5	08	5	12	05	15		19		
40	A	10	11	12	13	14	15	A	A	16	17		5	ab	5	14	05	15		20		
41	9	A	10	11	12	13	14	15	16	17	18		5	07	5	15	05	15		20		
42	8	9	10	11	12	13	14	15	16	A	A		5	12	5	13	05	ab		18		
43	8	9	10	11	12	13	14	15	16	A	17		5	ab	5	15	05	15		20		
44	7	8	9	10	11	12	13	14	15	16	17		5	08	5	15	05	15		20		
45	10	11	12	12	14	15	16	17	18	A	19		5	05	5	14	05	15		20		
46	9	10	11	12	13	14	15	16	17	18	19		5	11	5	14	05	15		20		
47	10	11	12	13	14	15	16	17	18	19	20		5	07	5	14	05	15		20		
48	10	11	12	13	14	15	16	A	A	17	18		5	ab	5	14	05	15		20		
49	8	9	10	11	12	13	14	15	16	17	18		5	13	5	12	05	15		19		
50													5	-	-	-						
No. of Abs.	3	1	-	1	-	-	-	5	5	6	5		-	06	-	-	-	02		-		
Initials																						

ATME College of Engineering

Course Title with Code : Un

Semester & Section : 7 A

Sl. No.	USN	Student Name	22	23	24	25	26	27	28	29	30	31	32
		Date	11	14	15	17	24	25	28	30	31	4	7
		Month	10	10	10	10	10	10	10	10	10	11	11
26	16CV018	Hitesh BM	21	22	23	24	25	A	A	24	A	27	28
27	16CV019	Jeevith Raj M	20	21	A	A	22	23	24	25	26	27	28
28	16CV020	Kusuma RE	21	22	23	24	25	26	27	28	29	30	31
29	16CV021	Madhura C	19	20	21	A	22	23	24	25	26	27	28
30	16CV023	Manoj SL	21	22	23	A	24	25	26	27	A	28	29
31	16CV024	Mohd. Hannan	19	20	21	A	22	23	24	A	25	26	27
32	16CV025	Namitha RV	18	19	20	21	22	23	24	25	A	26	27
33	16CV026	Nandeesh KR	20	21	22	A	23	24	25	26	A	A	27
34	16CV027	Navya TJ	A	18	19	20	21	22	23	24	25	26	27
35	16CV029	Pavithra MY	19	20	21	22	23	A	A	24	25	26	27
36	16CV030	Prasad AR	16	17	18	19	20	A	A	21	22	23	24
37	16CV033	Rajatha BL	15	16	17	18	19	20	21	22	23	24	25
38	16CV034	Ramitha HE	21	22	23	A	24	A	A	25	26	27	28
39	16CV035	Sachin Gowda GK	21	22	23	24	25	A	A	26	A	27	28
40	16CV036	Rahul Chan	18	19	20	21	22	23	24	25	26	27	28
41	16CV037	Sahana P	19	20	21	22	23	24	25	26	27	28	29
42	16CV038	Sanjay Gowda RS	17	18	19	20	21	A	A	22	23	24	25
43	16CV039	Shubhashree KV	18	19	20	21	22	A	A	23	24	25	26
44	16CV040	Spoorthi U	A	18	19	20	21	22	23	24	25	26	27
45	16CV041	Surabhi KN	20	21	22	23	24	25	26	27	28	29	30
46	16CV044	Uday Prasad GR	20	21	22	23	24	25	26	27	28	29	30
47	16CV046	Yeshwanth MK	21	22	23	24	25	A	A	A	26	27	28
48	16CV047	Zeeshan HA	19	20	21	A	22	23	24	25	26	27	28
49	16CV048	Yashwan MJ	18	19	20	21	22	A	A	23	24	25	26
50	17CV400	Akash R											
	No. of Abs.		3	–	1	7	–	9	9	2	5	–	–
	Initials												

Sl. No.	33	34	35	36	37	38	39	40	41	42	43
Date	8	11	13	14	16	18	21				
Month	11	11	11	11	11	11	11				
26	29	30	31	32	33	34	35				
27	29	30	31	32	33	34	35				
28	32	33	34	35	36	37	38				
29	29	30	31	32	33	34	35				
30	30	31	32	33	34	35	36				
31	28	29	30	31	32	33	34				
32	28	29	30	31	32	33	34				
33	28	29	30	31	32	33	34				
34	28	29	30	31	32	33	34				
35	28	29	30	31	32	33	34				
36	25	26	27	28	29	30	31				
37	26	27	28	29	30	31	32				
38	29	30	31	32	33	34	35				
39	29	30	31	32	33	34	35				
40	29	30	31	32	33	34	35				
41	30	31	32	33	34	35	36				
42	26	27	28	29	30	31	32				
43	27	28	29	30	31	32	33				
44	28	29	30	31	32	33	34				
45	31	32	33	34	35	36	37				
46	31	32	33	34	35	36	37				
47	29	30	31	32	33	34	35				
48	29	30	31	32	33	34	35				
49	27	28	29	30	31	32	33				
50											
No. of Abs.	–	–	–	–	–	–	–				
Initials											

Assignments / Internal Test Marks

Sl. No.	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
26		5	ab	5	14	05	14		19		
27		5	05	5	15	05	15		20		
28		5	08	5	15	05	15		20		
29		5	07	5	09	05	15		17		
30		5	13	5	15	05	15		20		
31		5	ab	5	13	05	11		17		
32		5	14	5	14	05	ab		19		
33		5	09	5	08	05	14		17		
34		5	08	5	13	05	14		19		
35		5	14	5	15	05	8		20		
36		5	13	5	14	05	ab		19		
37		5	ab	5	15	05	15		20		
38		5	13	5	14	05	15		20		
39		5	08	5	12	05	15		19		
40		5	ab	5	14	05	15		20		
41		5	07	5	15	05	15		20		
42		5	12	5	13	05	ab		18		
43		5	ab	5	15	05	15		20		
44		5	08	5	15	05	15		20		
45		5	05	5	14	05	15		20		
46		5	11	5	14	05	15		20		
47		5	07	5	14	05	15		20		
48		5	ab	5	14	05	15		20		
49		5	13	5	12	05	15		19		
50		5	–	–	–						
No. of Abs.		–	06	–	–	–	02			–	
Initials											

ATTENDANCE

ATME College of Engineering

Course Title with Code : Urban Transportation & planning 15CV7C1

Semester & Section : 7 A

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10
		Date	8	19	29	30	31	4	5	6	6	14
		Month	8	8	8	8	8	9	9	9	9	9
51	17CV401	Akash S	A	1	A	2	A	2	4	5	6	7
52	17CV402	Anjitha H P	A	1	A	2	3	A	4	5	6	7
53	17CV403	Ayman Mehraj	A	A	1	2	3	4	5	6	7	A
54	17CV404	Dhakar M	1	2	A	3	4	5	6	7	8	9
55	17CV405	Ghanavi M R	1	2	A	3	4	A	5	6	7	8
56	17CV406	Harish K R	A	1	A	2	A	3	4	A	5	6
57	17CV407	Harsharaj J	1	1	A	3	4	5	6	7	8	9
58	17CV408	Harshith Kumar K S	1	A	2	3	4	5	6	7	8	9
59	17CV410	Manikanta R	A	1	A	2	A	3	4	5	6	7
60	17CV411	Manjunath K S	A	1	A	2	A	3	4	5	6	7
61	17CV412	Mithunchan B J	A	1	A	2	A	3	4	5	6	A
62	17CV413	Mohd Saqib	A	1	2	3	4	5	6	7	8	A
63	17CV414	Mohd Sagibulla	A	1	2	3	A	4	5	A	6	7
64	17CV415	Pavithra H C	A	1	2	3	A	4	5	6	7	8
65	17CV416	Prafful B V	1	2	3	4	5	6	7	8	9	10
66	17CV417	Prafful K N	A	1	2	3	4	5	6	7	8	9
67	17CV418	Prafful M R	A	1	A	2	3	4	5	6	7	A
68	17CV419	Puneeth M	A	1	2	3	4	5	6	7	8	9
	17CV420	Ravikumar S	A	1	2	3	4	5	6	7	8	9
	17CV421	Salman Sharif	A	1	2	3	4	5	A	A	6	7
	17CV422	Santhosh Kumar B S	A	1	2	3	A	4	5	A	6	7
	17CV423	Santhosh P	A	1	2	3	A	4	5	6	7	8
	17CV424	Shalini	A	1	A	2	3	4	5	6	8	9
	17CV425	Shilpa R R	1	2	3	4	5	6	7	8	9	10
	17CV426	Shilpashree K S	1	1	2	3	4	5	6	7	8	9
		No. of Abs.	19	2	11	0	8	2	1	4	-	4
		Initials										

Sl. No.	11	12	13	14	15	16	17	18	19	20	21
Date	19	23	25	26	27	30	1	3	2	4	10
Month	9	9	9	9	9	9	10	10	10	10	10
51	8	9	10	11	12	13	14	15	16	17	A
52	8	A	9	10	A	11	12	13	14	15	16
53	8	9	11	12	13	14	15	16	17	18	19
54	10	11	12	13	14	15	16	17	18	19	20
55	9	10	11	12	A	A	13	14	15	16	A
56	7	8	9	10	11	12	13	14	15	16	17
57	10	A	11	12	13	14	15	16	17	18	19
58	10	11	A	12	13	14	15	16	17	A	18
59	8	9	10	11	12	13	14	15	16	17	18
60	8	9	10	11	12	13	14	15	16	17	18
61	7	8	9	10	11	12	13	14	15	16	17
62	9	10	11	12	13	14	15	16	17	18	19
63	8	9	10	11	12	13	14	15	16	17	A
64	9	10	A	11	12	13	14	15	16	17	18
65	11	12	13	14	15	16	17	A	A	18	19
66	10	11	12	13	14	A	15	16	17	18	19
67	8	9	10	11	12	13	14	15	16	A	17
68	10	11	12	13	14	15	16	17	18	19	20
	10	11	12	13	14	15	16	17	18	19	20
	8	9	10	11	12	13	14	15	16	A	17
	8	9	10	11	12	13	14	15	16	17	18
	9	A	A	10	11	12	13	14	15	16	17
	10	11	A	12	13	14	15	16	17	18	19
	11	12	13	14	15	16	17	18	19	20	21
	10	11	12	13	14	15	16	17	18	19	20
No. of Abs.	-	3	4	[illegible]	2	-	-	1	1	3	3
Initials											

ASSESSMENT

ATME College of Engineering

	Assignments / Internal Test Marks									SEE Marks	Total Marks
AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks			
	5	ab	5	11	5	15		18		
	5	ab	5	14	5	13		19		
	5	15	5	15	5	ab		20		
	5	13	5	15	05	ab		19		
	5	08	5	14	5	15		20		
	5	15	5	14	5	ab		20		
	5	14	5	14	5	15		20		
	5	11	5	11	5	14		18		
	5	06	5	13	5	14		19		
	5	13	5	12	5	15		19		
	5	10	5	11	5	14		18		
	5	ab	5	14	5	15		20		
	5	ab	5	14	5	11		18		
	5	11	5	13	5	15		19		
	5	11	5	15	5	15		20		
	5	09	5	14	5	15		20		
	5	ab	5	13	5	15		19		
	5	14	5	15	5	06		20		
	5	15	5	15	5	06		20		
	5	ab	5	08	05	15		17		
	5	ab	5	10	5	13		17		
	5	10	5	14	5	ab		16		
	5	11	5	11	5	15		18		
	5	ab	5	14	5	15		20		
	5	ab	5	14	5	14		19		
	-	09	-	-		04		-		

ATTENDANCE

ATME College of Engineering

Course Title with Code : W

Semester & Section : 7 A

Sl. No.	USN	Student Name	22	23	24	25	26	27	28	29	30	31	32
		Date	11	14	16	17	24	28	28	30	31	4	7
		Month	10	10	10	10	10	10	10	10	10	11	11
	17CV401	Akash S	18	19	20	21	22	A	A	23	24	25	26
	17CV402	Anjitha H P	17	18	19	20	21	22	23	24	25	26	27
	17CV403	Ayman Mehraj	20	21	22	23	24	25	26	27	28	29	30
	17CV404	Diwakar M	21	22	23	24	25	A	A	26	27	28	29
	17CV405	Ghanavi M K	17	18	19	20	21	A	A	22	23	24	25
	17CV406	Harish K R	18	19	20	21	22	A	A	23	24	25	26
	17CV407	Harshraj J	20	21	22	23	24	A	A	25	26	27	28
	17CV408	Harshith Kumar H S	19	20	21	22	23	A	A	24	25	26	27
	17CV410	Manikanta R	19	20	21	22	23	A	A	24	25	26	27
	17CV411	Manjunath K S	19	20	21	22	23	A	A	24	25	26	27
	17CV412	Mithravadhan B J	18	19	20	21	22	A	A	23	24	25	26
	17CV413	Mohd. Saqib	20	21	22	A	23	24	25	26	27	28	29
	17CV414	Mohd. Saqibulla	18	19	20	21	22	A	A	23	24	25	26
	17CV415	Pavithra H C	19	20	21	22	23	24	25	26	27	28	29
	17CV416	Praful B U	20	21	22	23	24	A	A	25	26	27	28
	17CV417	Praful K M	20	21	22	23	24	A	A	25	26	27	28
	17CV418	Praful M R	18	19	20	21	22	A	A	23	24	25	26
	17CV419	Pinesh M	21	22	23	24	25	A	A	26	27	28	29
	17CV420	Ravikumar S	21	22	23	24	25	A	A	26	27	28	29
	17CV421	Salman Shariff	18	19	20	21	22	A	A	23	24	25	26
	17CV422	Santhosh Kumar A S	19	20	21	22	23	A	A	24	25	26	27
	17CV423	Santhosh P	18	19	20	21	22	A	A	23	24	25	26
	17CV424	Shalini	20	21	22	23	24	A	A	25	26	27	28
	17CV425	Shilpa R R	22	23	24	25	26	A	A	27	28	29	30
	17CV426	Shilpashree K S	21	22	23	24	25	A	A	26	27	28	29
		No. of Abs.	-	-	-	1	-	21	21	-	-	-	-
		Initials											

USN	33	34	35	36	37	38	39	40	41	42	43
Date	8	11	12	14	16	18	21				
Month	11	11	11	11	11	11	11				
17CV401	27	28	29	30	31	32	33				
17CV402	28	29	30	31	32	33	34				
17CV403	31	32	33	34	35	36	35				
17CV404	30	31	32	33	34	35	36				
17CV405	26	27	28	29	30	31	32				
17CV406	27	28	29	30	31	32	33				
17CV407	29	30	31	32	33	34	36				
17CV408	28	29	30	31	32	33	34				
17CV410	28	29	30	31	32	33	34				
17CV411	28	29	30	31	32	33	34				
17CV412	27	28	29	30	31	32	33				
17CV413	30	31	32	33	34	35	36				
17CV414	27	28	29	30	31	32	33				
17CV415	30	31	32	33	34	35	36				
17CV416	29	30	31	32	33	34	35				
17CV417	29	30	31	32	33	34	35				
17CV418	27	28	29	30	31	32	33				
17CV419	30	31	32	33	34	35	36				
17CV420	30	31	32	33	34	35	36				
17CV421	27	28	29	30	31	32	33				
17CV422	28	29	30	31	32	33	34				
17CV423	27	28	29	30	31	32	33				
17CV424	29	30	31	32	33	34	35				
17CV425	31	32	33	34	35	36	37				
17CV426	30	31	32	33	34	35	36				
No. of Abs.	-	-	-	-	-	-	-				
Initials											

ASSESSMENT

ATME College of Engineering

USN	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
17CV401		5	ab	5	11	5	15		18		
17CV402		5	ab	5	14	5	13		19		
17CV403		5	15	5	15	5	ab		20		
17CV404		5	13	5	15	05	ab		19		
17CV405		5	08	5	14	5	15		20		
17CV406		5	15	5	14	5	ab		20		
17CV407		5	14	5	14	5	15		20		
17CV408		5	11	5	11	5	14		18		
17CV410		5	06	5	13	5	14		19		
17CV411		5	13	5	12	5	15		19		
17CV412		5	10	5	11	5	14		18		
17CV413		5	ab	5	14	5	15		20		
17CV414		5	ab	5	14	5	11		18		
17CV415		5	11	5	13	5	15		19		
17CV416		5	11	5	15	5	15		20		
17CV417		5	09	5	14	5	15		20		
17CV418		5	ab	5	13	5	15		19		
17CV419		5	14	5	15	5	06		20		
17CV420		5	15	5	15	5	06		20		
17CV421		5	ab	5	08	05	15		17		
17CV422		5	ab	5	10	5	13		17		
17CV423		5	10	5	11	5	ab		16		
17CV424		5	11	5	11	5	15		18		
17CV425		5	ab	5	14	5	15		20		
17CV426		5	ab	5	14	5	14		19		
No. of Abs.		-	09	-	-		04		-		
Initials											

ATTENDANCE

A T M E College of Engineering

Course Title with Code : Urban Transportation & planning 15CV751

Semester & Section : 7 A

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10
		Date	8	19	29	30	21	4	5	6	6	14
		Month	8	8	8	8	8	9	9	9	9	9
76	17CV427	Tejas DP	A	1	A	2	3	4	5	6	7	8
77	17CV428	Zaib Khan	A	1	2	3	A	4	5	6	7	8
78	17CV429	Zaban Pasha	A	1	2	3	4	5	6	7	8	9
No. of Abs.			3	0	1	0	2	0	0	-	-	1
Initials												

	11	12	13	14	15	16	17	18	19	20	21
Date	19	22	25	26	27	30	1	2	3	4	10
Month	9	9	9	9	9	9	10	10	10	10	10
76	9	10	11	12	13	14	15	16	17	18	19
77	9	10	11	12	13	A	14	14	16	17	18
78	9	11	11	12	13	A	14	15	16	18	18
No. of Abs.	-	-	-	-	-	-	-	-	-		
Initials											

ASSESSMENT

A T M E College of Engineering

	3 AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
		Assignments / Internal Test Marks									
76		5	05	5	11	5	15		18		
77		5	ab	5	11	5	13		17		
78		5	ab	5	14	5	15		20		
No. of Abs.		-	02	-	-	-	-		-		
Initials											

ATME College of Engineering

ATTENDANCE

Course Title with Code : U...

Semester & Section : 7 A

Sl. No.	USN	Student Name												
		Date	11	14	16	17	24	28	29	30	31	4	7
		Month	10	10	10	10	10	10	10	10	10	11	11
			22	23	24	25	26	27	28	29	30	31	32
76	17CV427	Tejas DP	A	20	21	22	23	24	A	24	25	26	27
77	17CV428	Zaki Khan	A	19	20	21	22	23	A	23	24	25	26
78	17CV429	Zafran Pasha	19	20	21	22	23	24	25	24	25	26	27
	No. of Abs.		1	–	–	–	–	2	3	–	–	–	–
	Initials												

4/10/19

8	11	13	14	16	18	21				
11	11	11	11	11	11	11				
33	34	35	36	37	38	39	40	41	42	43
28	29	30	31	32	33	34				
27	28	29	30	31	32	33				
30	29	30	31	32	33	34				
–	–	–	–	–	–					

ASSESSMENT

ATME College of Engineering

AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
	5	05	5	11	5	15		18		
	5	ab	5	11	5	13		17		
	5	ab	5	14	5	15		20		
	–	02	–	–	–	–	–		–	

Semester & Section : 3rd 'A'.

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	29.07.19	Concept of fluid, System of units, properties of fluid.	29.07.19	
2	01.08.19	Newtons law of Viscosity (theory & problems)	01.08.19	
3	01.08.19	Capillary rise, Compressibility, bulk modulus, Surface tention, Pressure inside a droplet soap bubble	01.08.19 02.08.19	
4	02.08.19	Pascals law, Variation of pressure with depth.	05.08.19	
5	05.08.19	Types of pressure, Measurement of pressure	08.08.19 08.08.19	
6	08.08.19	Numerical problems on Measurement of pressure.	09.08.19 16.08.19	
7	08.08.19	Simple, differential & inclined manometer (theory)	19.08.19 21.08.19	
8	09.08.19.	Simple, differential & inclined manometer (problems)	22.08.19 23.08.19.	
9	10.08.19	Numerical problems on	24.08.19	orientation day program
10	16.08.19	Numerical problems.	26.08.19	
11	19.08.19	Definition of total pressure, centre of pressure total pressure on horizontal plane.	29.08.19	
12	22.08.19	Total pressure on vertical & inclined plane	29.08.19	
13	22.08.19	Total pressure on curved plane.	30.08.19 31.08.19	
14	23.08.19	Water pressure on gravity dams, lock gates.	05.09.19	
15	24.08.19	Problems on lock gates	05.09.19 06.09.19	
16	24.08.19	Methods of describing fluid motion velocity & total acceleration of fluid particle.	19.09.19	
17	26.08.19	Description of flow pattern, 3-dimensional continuity eq in cartesian co-ordinate system	19.09.19	
18	29.08.19	Potential function, Stream function	23.09.19	
19	30.08.19	Orthoganality of streamlines and equipotential	23.09.19	
20	31.08.19	Numerical problems on stream function and velocity function.	20.09.19	
21	05.09.19.	Forces acting on fluid in motion, Eulers eq of motion along a streamline.	26.09.19	
22	05.09.19	Bernoulli's eq, Assumptions & limitations, Modified Bernoulli's eq	27.09.19	
23	09.09.19	Problems on Bernoulli's eq	27.09.19	
24	16.09.19	Problems on Bernoulli's eq.	03.10.19	
25	19.09.19	Forced vortex, free vortex, Momentum eq	03.10.19	

ATME College of Engineering

26	20.9.19	Problems on free & forced vortex.	08.10.19	
27	23.09.19	Problems on Momentum eq	10.10.19	
28	26.09.19	Problems on pipe bends.	10.10.19.	
29	26.09.19	Venturimeter, orifice meter, pitot tube.	10.10.19 11.10.19	
30	27.09.19	problems on Venturimeter, orifice meter, pitot tube	15.10.19.	
31	30.09.19	Classification of orifice, flow through orifice, hydraulic coeff.	24.10.19	
32	03.10.19	Numerical problem on orifice	31.10.19.	
33	04.10.19	Classification of Mouthpiece	31.10.19.	
34	10.10.19	Notches & weirs	04.11.19	
35	10.10.19	Discharge over rectangular notch	04.11.19 06.11.19	
36	11.10.19	Discharge over triangular notch	06.11.19	
37	14.10.19	Discharge over a trapezoidal notch.	07.10.19	
38	17.10.19	Dis Cippoletti notch, broad crested weirs	07.10.19	
39	17.10.19	Numerical problems	08.11.19	
40	24.10.19	Ventilation of weirs, submerged weirs	08.10.19.	
41	24.10.19	Major & Minor losses in pipe flow, Darcy-weisbach eq	11.11.19	
42	25.10.19	Pipes in series, pipes in parallel, equivalent pipe	14.11.19	
43	28.10.19	Eq for head loss due to expansion	14.11.19.	
44	31.10.19	Hydraulic gradient line, Energy gradient line	14.11.19.	
45	31.10.19	Numerical problems on pipes	15.11.19	
46	04.11.19	Numerical problems on head loss due to sudden expansion, Major & minor losses.	16.11.19	
47	07.11.19	pipe networks, hardy cross method.	18.11.19	
48	07.11.19	water hammer in pipes	18.11.19	
49	08.11.19	Eq for pressure rise due to gradual valve closure for rigid & elastic pipes	21.11.19	
50	14.11.19	Eq for pressure rise due to sudden closure for rigid & elastic pipes.	21.11.19	

Faculty Member Signature

HOD Signature

ATME College of Engineering

Lesson Plan

Semester & Section : 7th A

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	09.08.19	Introduction to ground water, Importance	14.08.19	
2	10.08.19	Vertical distribution of subsurface water	16.08.19	
3	14.08.19	Occurrence in diff. types of rocks & soils.	20.08.19	
4	16.08.19	Defn. Aquifers, Aquifuge, Aquitard, Aquiclude	21.08.19	
5	19.08.19	Confined & Unconfined aquifers.	30.08.19	
6	21.08.19	Basic defn & terms in Ground water	03.09.19	
7	23.08.19	Statistics on ~~water~~ G.W. in India.	03.09.19	
8	26.08.19	Aquifer parameters	03.09.19 04.09.19	
9	28.08.19	Specific yeild & Specific retention, porosity	06.09.19	
10	30.08.19	Storage coefficient, Derivation	11.09.19	
11	03.09.19	Darcy's law, hydraulic conductivity	11.09.19	
12	04.09.19	Transmissibility, permeability in isotropic layered soils	11.09.19.	
13	06.09.19	Permeability unisotropic layered soils.	16.09.19.	
14	11.09.19	Steady one dimensional flow.	17.09.19	
15	17.09.19	Steady flow in confined and unconfined aquifers	18.09.19	
16	18.09.19	Radial flow in confined & Unconfined aquifer	20.09.19 24.09.19	
17	20.09.19	Pumping test & Unsteady flow.	25.09.19.	
18	24.09.19	General eq unsteady flow.	27.09.19	
19	25.09.19	Derivation Theis's method.	04.10.19	
20	27.09.19	Derivation Coopers & Jacob method.	09.10.19	
21	01.10.19	Derivation in chow's method.	11.10.19	
22	04.10.19	Soln. of unsteady flow eq	12.10.19	
23	09.10.19	Leaky aquifer, interference of well.	15.10.19	
24	11.10.19	Image well thedy.	16.10.19 23.10.19	
25	12.10.19	Ground water Exploration: Seismic Method.	30.10.19	

26	15.10.19	Electrical resistivity Method	05.11.19	
27	16.10.19	Geo-physical techniques	05.11.19	
28	23.10.19	Geo-physical techniques	06.11.19	
29	25.10.19	Electrical logging	06.11.19.	
30	26.10.19	Radioactive logging and induction logging	08.10.19.	
31	30.10.19	Sonic and fluid logging	12.11.19	
32	05.11.19	Types of wells, Method of construction	16.11.19	
33	06.11.19	Tube well design	16.11.19	
34	08.11.19	dug wells, pumps for lifting water.	16.11.19	
35	09.11.19	Working ~~[illegible]~~ principles power req	18.11.19	
36	12.11.19	Conjuctive use necessity techniques	18.11.19	
37	13.11.19	Conjuctive use economics	19.11.19	
38	19.11.19	Ground water recharge: Artificial recharge	20.11.19	
39	20.11.19	Ground water runoff.	20.11.19	
40	26.11.19.	Mathematical modelling Introduction.	26.11.19	
41				
42				
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Faculty Member Signature

HOD Signature

CBCS SCHEME

USN | | | | | | | | | |

15CV552

Fifth Semester B.E. Degree Examination, Dec.2018/Jan.2019
Railways, Harbours, Tunneling and Airports

Time: 3 hrs. Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Discuss the significance of road, rail, water and air transport. **(06 Marks)**
b. What are the functions and requirements of ballast? **(05 Marks)**
c. Illustrate the constituents of right hand turnout in detail. **(05 Marks)**

OR

2 a. Explain the conventional methods of route alignment survey. **(08 Marks)**
b. What should be the equilibrium Cant on a M.G curve of 5° for an average speed of 60 kmph? Also find out the maximum permissible speed after allowing the maximum Cant deficiency. **(08 Marks)**

Module-2

3 a. Describe the stabilization of track on poor soil. **(08 Marks)**
b. Explain the modern methods of maintenance of railway track. **(08 Marks)**

OR

4 a. Define yards. Explain the types of yards. **(08 Marks)**
b. Evaluate the quantity of materials required to construct 1.5km long BG track. Take sleeper Density = (m + 6), Length of Rail = 13m. **(08 Marks)**

Module-3

5 a. List and briefly explain the classification of harbour based on protection needed, and location. **(08 Marks)**
b. Define tunnel. Explain the shapes of tunnel with neat sketch. **(08 Marks)**

OR

6 a. Describe the components of harbour with neat sketch. **(08 Marks)**
b. Write a note on tunnel ventilation and tunnel lining. **(08 Marks)**

Module-4

7 a. Discuss the characteristics of air transport? **(04 Marks)**
b. Enumerate the classification of airports based on ICAO and FAA. **(06 Marks)**
c. Mention the objectives of airport planning. **(06 Marks)**

OR

8 a. Sketch the typical airports showing different types of runways. **(08 Marks)**
b. Explain the various factors which you would keep in view while selecting a suitable site for an airport. **(08 Marks)**

Module-5

9 a. Define orientation of runway. Briefly explain the procedure of plotting Type-II wind Rose diagram. **(08 Marks)**

b. Explain the different types of Markings used in airport. **(08 Marks)**

OR

10 a. Describe the elements of taxiway geometric design. **(08 Marks)**

b. Calculate the actual length of runway from the following data:

(i) Airport elevation : R.L 100

(ii) Airport Reference Temperature : 28°

(iii) Basic Runway length : 600 m

(iv) Highest Point along the length : R.L 98.2

(v) Lowest point along the length : R.L 95.2 **(08 Marks)**

* * * * *

ATME College of Engineering

DEPARTMENT OF CIVIL ENGINEERING

Date: 16/09/2020

CIRCULAR

The following members are identified as Department Advisory Board (DAB) members for the smooth conduction of departmental activities to promote development, cooperation and other policies so as to contribute for the sustainable development of the department during the year 2020.

Sl No.	Name	Designation/Stake holders
1.	Mr. Manu Vijay	Chairman & Program Coordinator
2.	Dr Suneeth Kumar S M	Member
3.	Dr. Akshaya B J	Member Secretary
4.	Mr Srivathsa H U	Member
5.	Mrs. Shruthi H G	Member
6.	Er. Deepak	Proprietor – Deepak Consultants - Industry Expert
7.	Ms. Jayashree T L	Meritorious Alumni

HOD

HOD
DEPARTMENT OF CIVIL ENGINEERING
ATME COLLEGE OF ENGINEERING
MYSORE-570028

A T M E
College of Engineering

DEPARTMENT OF CIVIL ENGINEERING

Date: 30/09/2020

Department Advisory Board (DAB)

Minutes of the Meeting

The 11th meeting of Department Advisory Board committee of civil department was held on 30th September 2020 in the Department meeting room.

Agenda

- Review the Minutes of Meeting of Program Assessment Committee (PAC) dated on 23/09/2020.
- Identification of Curriculum gap for the next even semester of the academic year 2020-21 and to give necessary suggestions.
- To analyse the surveys carried in the department to assess COs, POs & PSOs.
- To analyse and suggest improvements for increasing student placement.

During the meeting the following members were present,

1. Mr. Manu Vijay, Chairman & Program Coordinator
2. Dr. Akshaya B J, Member Secretary
3. Dr. Suneeth Kumar S M, Member
4. Mrs. Shruthi H G, Member
5. Mr. Srivathsa H U, Member
6. Er. Deepak – Proprietor Deepak Consultants – Industry Expert
7. Ms. Jayashree T L, Meritorious Aluminous Jayashree. T.L

The following points were discussed during the meeting and the minutes were recorded as below,

1. HOD, welcomed the members of the committee who had assembled for reviewing the assessment method of PEOs, PSOs and POs.
2. Mr. Manu Vijay, HOD informed Mr. Akshaya B J, Member Secretary to provide the previous minutes of meeting of PAC and necessary documents for discussion.

3. HOD congratulated the members that POs & PSOs attainment has reached the set target level for the batch 2016-20.
4. The committee resolved that average CO attainment values of the previous year may be set as a target for 5th & 7th semester courses and a target of 1.8 may be set for 3rd semester courses for analyzing the gaps. For 5th & 7th semesters if the CO attainment score exceeds '2' then same might be retained as target, if it is lower than 2 then the average of CO attainment might be set as an target.
5. Er. Deepak, Industry Expert suggested to organize Industry Interaction & Industrial Tours for the final year students which will be helpful for them to have an idea about the recent advancements in the civil engineering field.
6. Ms. Jayashree T L, Meritorious alumni congratulated the department for showing interest in organizing technical talks and workshops which will be helpful in enriching the knowledge of the students.
7. HOD informed the members as a part of "Decennial Celebrations" various activities have been planned and will be conducted throughout the academic year at various timelines.
8. Dr. Akshaya B J, Member Secretary stated that all the above points will be noted and it will be forwarded to the Internal Quality Assurance cell (IQAC).
9. HOD, thanked the members of the committee who had assembled for reviewing the Program outcome of the civil department.

HOD

Copy to

- Internal Quality Assurance cell (IQAC)

HOD
Department of Civil Engineering
ATME College of Engineering
Mysore-570 028

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9001:2015

DEPARTMENT OF CIVIL ENGINEERING

Date: 30/09/2019

Department of Civil Engineering

Department Advisory Board (DAB)

Minutes of the Meeting

The 9th meeting of Department Advisory Board committee of civil department was held on 30th September 2019 in the Department meeting room.

Agenda

- Review the Minutes of Meeting of Program Assessment Committee (PAC) dated on 25/09/2019.
- Identification of Curriculum gap for the next even semester of the academic year 2019-20 and to give necessary suggestions.
- To analyse the surveys carried in the department to assess COs, POs & PSOs.
- To analyse and suggest improvements for increasing student placement.

During the meeting the following members were present,

1. Mr. Manu Vijay, Chairman & Program Coordinator
2. Dr. Akshaya B J, Member Secretary
3. Mr. Mandeep G, Member
4. Mrs. Shruthi H G, Member
5. Mr. Srivathsa H U, Member
6. Er. Badrinath – Proprietor Subadra Constructions – Industry Expert
7. Ms. Sukrutha K N, Meritorious Aluminous Sukrutha. KN

The following points were discussed during the meeting and the minutes were recorded as below,

1. HOD, welcomed the members of the committee who had assembled for reviewing the assessment method of PEOs, PSOs and POs.

2. HOD informed the members that the PSOs were revised with proper approvals as per the discussions of previous meet held on 16.04.2019. These revised PSOs has been suitably disseminated and conveyed to all the stake holders
3. HOD congratulated the members that POs & PSOs attainment has reached the set target level for the batch 2015-19.
4. Mr. Manu Vijay, HOD informed Mr. Akshaya B J, Member Secretary to provide the previous minutes of meeting of PAC and necessary documents for discussion.
5. The committee mentioned about the curriculum gap for the academic year 2019-20 where there were gaps related to PO4, PO6, PO7, PO8, PO10, PO11 & PSO2 and discussed to conduct activities in order to fulfill the above PO & PO's.
6. Mr. Srivathsa H U informed the committee members that in 4th, 6th semester some of the subjects didn't attain target level w.r.t the Course Outcome for which the committee suggested for academic activities in the next year to attain those COs.
7. The committee resolved that average CO attainment values of the previous year may be set as a target for 5th & 7th semester courses and a target of 1.8 may be set for 3rd semester courses for analyzing the gaps. For 5th & 7th semesters if the CO attainment score exceeds '2' then same might be retained as target, if it is lower than 2 then the average of CO attainment might be set as an target.
8. Committee verified the Course exit survey, Team rubrics, Employer, alumni, Exit, Background surveys (Indirect Assessment) for the attainment of POs & PSOs and came to the conclusion as below:
   A. The Course exit survey indicates overall the POs & PSOs, PEOs attainments are satisfactory.
   B. The Background survey of 2019-20 batch students indicates that the students admitted via lateral entry are more from rural & Kannada medium.
   C. Team rubrics survey shows the excellent contribution from the students in the team work tasks carried out in final year projects.
9. Er. Badrinath, Industry Expert suggested to organize Industry Interaction for the final students which will be helpful for them to have an idea about the recent advancements in the civil engineering field.

12. HOD, thanked the members of the committee who had assembled for reviewing the Program outcome of the civil department.

HOD

HOD
Department of Civil Engine...
ATME College of En...
Mysore-570 02..

Copy to

- Internal Quality Assurance cell (IQAC)

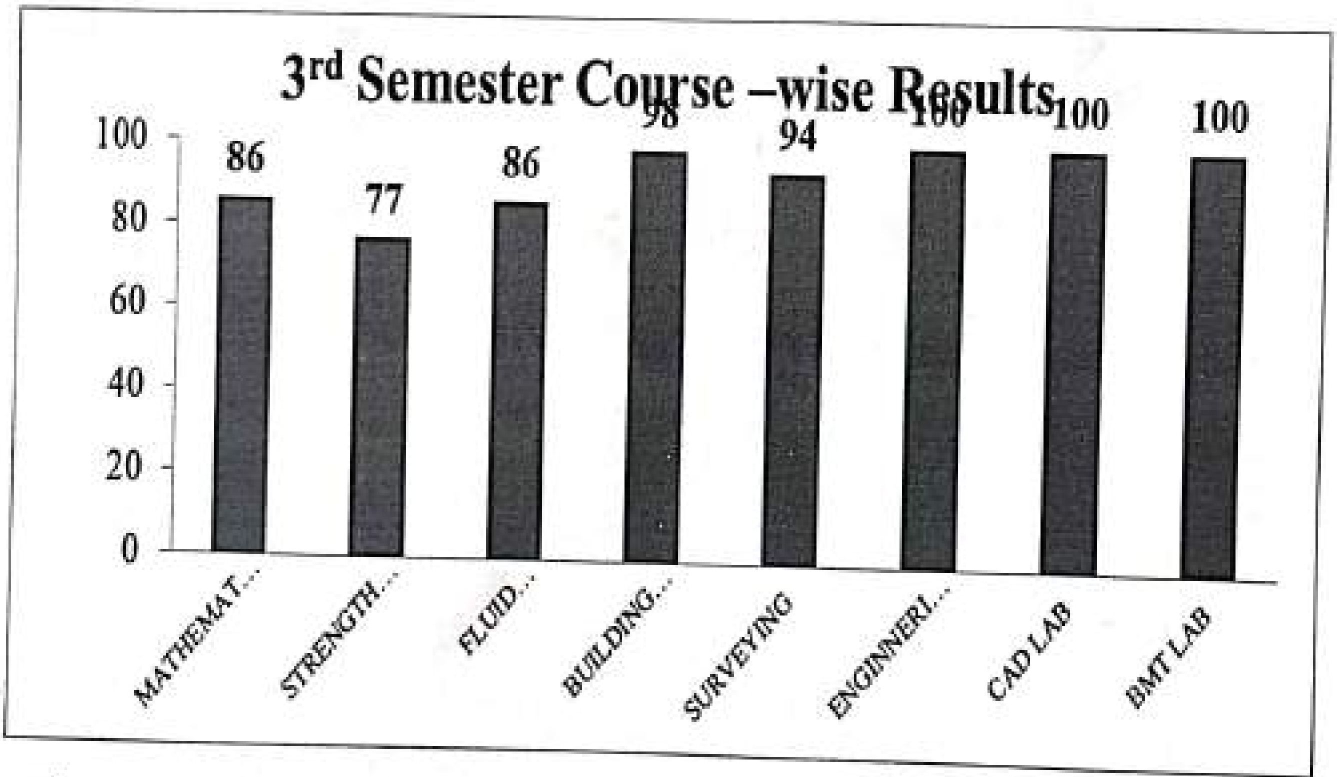
ATME College of Engineering

Department of Civil Engineering

Result analysis of Odd Semester- Academic Year- 2019-20

Class	No. of Students	No. of Pass	FCD	FC	SC	Pass %
3rd semester						
Regular	45	32	18	12	2	71
Lateral	19	14	11	3	0	74
Overall	64	46	29	15	2	72
5th semester	65	54	44	7	3	83
7th semester	77	69	55	14	0	90

3rd Semester Course wise result



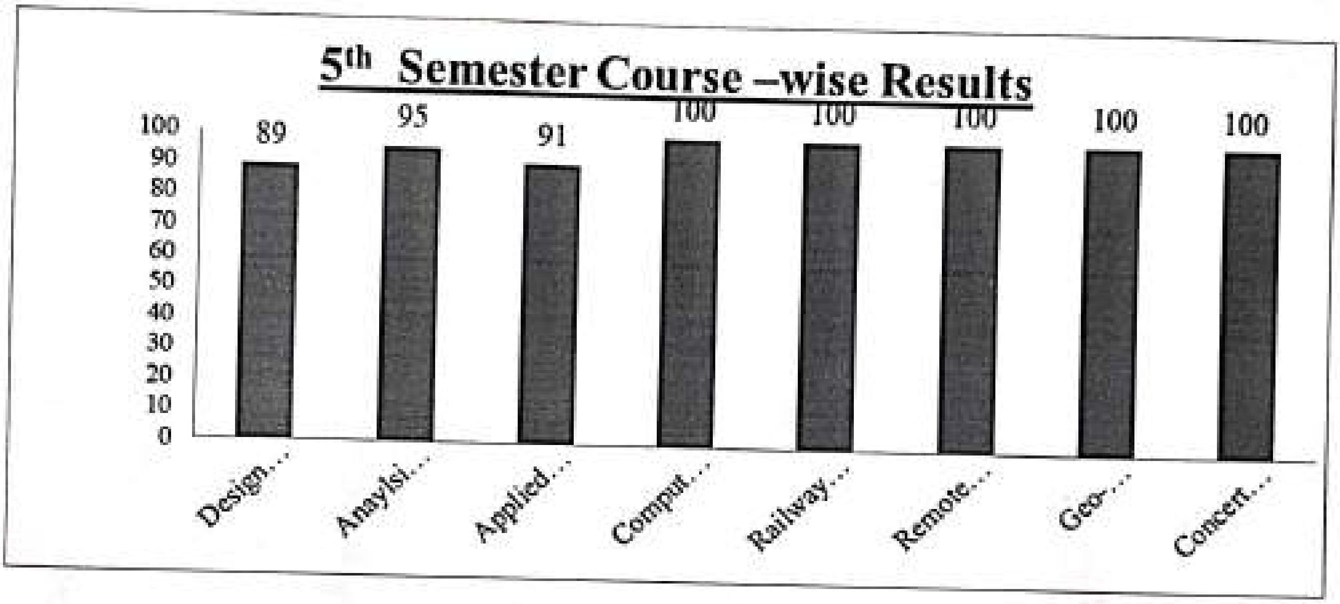
Result Analysis Coordinator

HoD
DEPARTMENT OF CIVIL ENGINEERING
ATME COLLEGE OF ENGINEERING
MYSORE-570028

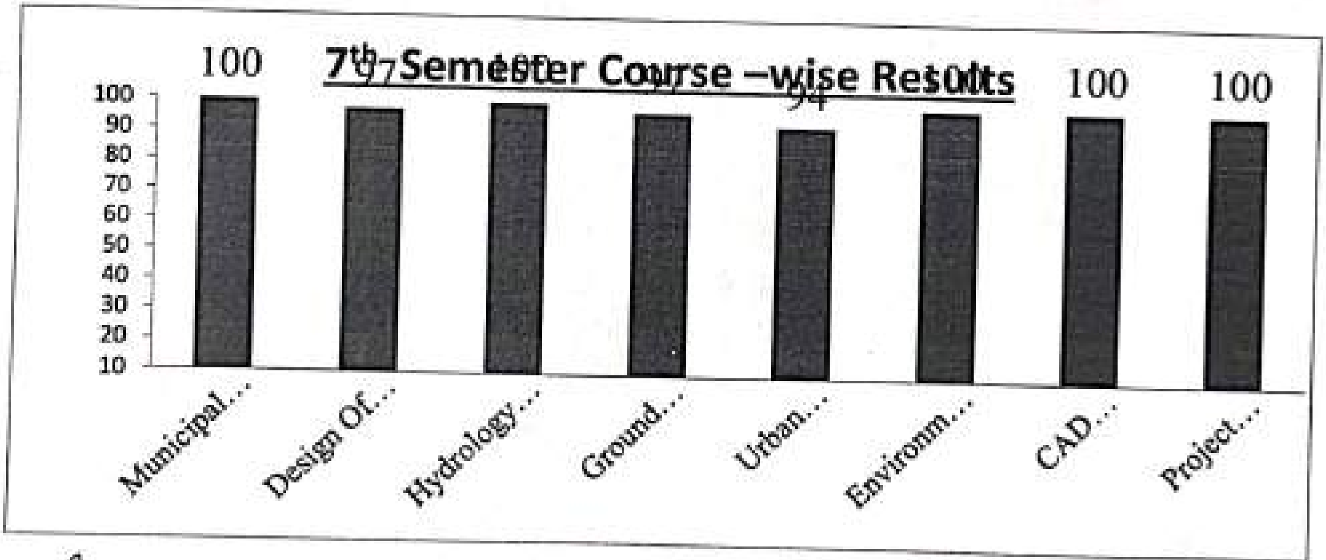
ATME College of Engineering

Department of Civil Engineering

5th Semester Course-wise Result



7th Semester Course-wise Result



Result Analysis Coordinator

HOD
DEPARTMENT OF CIVIL ENGINEERING
ATME COLLEGE OF ENGINEERING
MYSORE-570028

atme

A T M E
College of Engineering

Period From Aug - 2019. To Dec - 2019

Semester : Odd / Even

Faculty Member : Dr. Akshaya B. J.

Designation : Associate Professor.

Department : Civil Engineering.

Faculty Member ID : CV01029

Sl. No.	Sem. / Sec. / Branch	Course Title	Course Code
1	3rd. A	Fluid Mechanics	18CV33
2	7th. A	Ground Water and Hydraulics	15CV742
3			
4			

	Review at the end of the				End of Semester
	1st Month	2nd Month	3rd Month	4th Month	
Staff	Akshaya BJ	Akshaya BJ	Akshaya BJ	Akshaya BJ	Akshaya B.J
HOD / Reviewer					

ATME College of Engineering

Personal Timetable

DAY ↓ / TIME →	09:00 AM 10:00 AM	10:00 AM 11:00 AM	11:15 AM 12:15 PM	12:15 PM 01:15 PM		02:00 PM 02:55 PM	02:55 PM 03:50 PM	03:50 PM 04:45 PM
Monday						18CV33 (A)		
Tuesday	←	18CVL38 (B1)	→	15CV742		←	15CVL76 (B2)	→
Wednesday	15CV742				Lunch Break			
Thursday	←	18CVL38 (B3)	→	18CV33 (A)		18CV33 (A)		
Friday		15CV742		18CV33 (A)		←	17CVL57 (B1)	→
Saturday								

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Course Outcomes	Course Title	FLUID MECHANICS	Course Code	18CV33
CO-1	Demonstrate a sound knowledge on fundamental properties of fluids and fluid continuum.			
CO-2	Slove problems of hydrostatics, including practical problems			
CO-3	Apply principles of Mathematics to represent kinematic concepts related to fluid flow			
CO-4	Apply fundamental laws of fluid mechanics and Bernoullis principle for practical applications.			
CO-5	Compute the discharge through pipes and over notches & weirs.			
CO-6	—			

Course Title with Code :	FLUID MECHANICS (18CV33).											Semester : 3^{rd}			
Course Outcomes	Program Outcomes											Program Specific Outcomes			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO-1	3	3	1	1	-	-	-	-	-	-	-	1				
CO-2	3	3	1	1	-	-	-	-	-	-	-	1				
CO-3	3	3	1	2	-	-	-	-	-	-	-	1				
CO-4	3	3	1	1	-	-	-	-	-	-	-	2				
CO-5	3	3	1	1	-	-	-	-	-	-	-	2				
CO-6																

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Course Outcomes	Course Title	GROUND WATER AND HYDRAULICS.	Course Code	15CV742
CO-1	Identify the characteristics of a aquifer.			
CO-2	Estimate the quantity of ground water by various numerical methods.			
CO-3	Locate the zones of ground water resources.			
CO-4	select particular type of well and augment the ground water storage.			
CO-5	—			
CO-6	—			

Course Title with Code: GROUND WATER AND HYDRAULICS **Semester:** 7th.

Course Outcomes	Program Outcomes												Program Specific Outcomes			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO-1	2	-	-	-	-	-	-	-	-	-	-	1				
CO-2	3	2	-	-	2	-	-	-	-	-	-	1				
CO-3	3	1	2	-	-	-	-	-	-	-	-	2				
CO-4	3	2	2	1	-	-	-	-	-	-	-	2				
CO-5																
CO-6																

A T M E
College of Engineering

WORK DONE DIARY

WEEK 1		MONDAY DATE [illegible]	TUESDAY DATE [illegible]	WEDNESDAY DATE [illegible]
ACTIVITY	Class Hours	[illegible] [illegible] Introduction to fluid mechanics	[illegible] [illegible] properties of fluids [illegible] [illegible] Introduction to fluids	
	Others	→ class preparation	→ class preparation	→ class preparation

WEEK 2		MONDAY DATE [illegible]	TUESDAY DATE [illegible]	WEDNESDAY DATE [illegible]
ACTIVITY	Class Hours	[illegible] pascals law	on leave	
	Others			→ class preparation

WEEK 3		MONDAY DATE [illegible]	TUESDAY DATE [illegible]	WEDNESDAY DATE [illegible]
ACTIVITY	Class Hours	Bakrid Holiday		
	Others		→ Preparation of class materials →	

WORK DONE DIARY

A T M E
College of Engineering

WEEK 1		THURSDAY DATE [illegible]	FRIDAY DATE [illegible]	SATURDAY DATE [illegible]
ACTIVITY	Class Hours	[illegible] properties of fluids [illegible] properties of fluids	[illegible] pressure inside droplet & soap bubble.	
	Others	→ class preparation	→ class preparation	

WEEK 2		THURSDAY DATE [illegible]	FRIDAY DATE [illegible]	SATURDAY DATE [illegible]
ACTIVITY	Class Hours	[illegible] Variation of pressure with depth [illegible] types of pressure	[illegible] problems on variation of pressure	Orientation program for 1 year students
	Others	→ Preparation for class	→ student study material preparation	

WEEK 3		THURSDAY DATE [illegible]	FRIDAY DATE [illegible]	SATURDAY DATE [illegible]
ACTIVITY	Class Hours	Independence day Holiday	[illegible] Measurement of pressure	Holiday
	Others		→ class preparation	

WEEK 4		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	18CV33 Numerical problems of pressure measurement & Introduction to manometers.		18CV33 Manometers.
	Others			

WEEK 5		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	2:00 to 3:55 18CV33 → Problems on pressure measurement.	09:00 to 12:00 18CVL38 → Expt:- Rockwell Hardness No. → Expt:- Izod Impact test. 2:00 to 4:45 15CVL76 → No class due to placement training.	10:00 to 11:00 (15CV742) No classes due to placement training
	Others	→ class preparation, → Study material preparation	Class preparation, preparation of Study material (15CV742) Result updation in CRR	Preparation of Study material for 15CV742, class preparation.

WEEK 6		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	Holiday Ganesha Chaturthi	9 to 12 PM 18CVL38 → Expt: Compression test on mild steel. → Expt: Brinell's Hardness test. 12:15 to 1:15 15CV742 → Hydraulic conductivity 2:00 to 4:45 15CVL76 → Expt: Dissolved oxygen.	9 to 10 AM 15CV742 1) Problems of aquifer parameters.
	Others			2:00 to 3:00 PM → Technical training - Report writing. Preparation for class, NPTEL assignment,

WEEK 4		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	18CV33 Measurement of pressure Types of Manometers 18CV33 Types of Manometers	10:00 to 11:00 15CV742 (Placement training) 12:15 to 1:15 18CV33 Types of Manometers. 2 to 4:45 15CVL47 Expt: Sand replacement.	9:00 to 12:00 18CVL38-48 (Diploma batch) 12:15 to 1:15 18CV33 problems on Manometers, pressure measurement 2:00 to 2:55 18CV33 → Problems on measurement of pressure in manometers.
	Others		- Class preparation	→ Class preparation. →

WEEK 5		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE 31
ACTIVITY	Class Hours	9:00 to 12:00 18CVL38-88 → (Diploma batch) 12:15 to 1:15 18CV33 Hydrostatic forces on vertical plane, inclined plane. 2:00 to 2:55 18CV33 Hydrostatic force on Horizontal plane, curved planes.	10 to 11:00 15CV742 - Aquifer parameters, Darcy's law. 12:15 to 1:15 18CV33 Hydrostatic pressure on curved planes, Introduction to lock gate 2:00 to 4:45 15CVL57 Expt: Modified, std compaction	2:00 to 2:55 18CV33 → Problems on pressure measurement & Revision of module 1.
	Others		- Class preparation	Preparation of study materials for students

WEEK 6		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	9 to 12 18CVL38 (Diploma) 12:15 to 1:15 18CV33 Force on lock gates, problems on hydrostatic force on surfaces 2:00 to 2:55 18CV33 Problems on hydrostatic forces on lock gate.	11:00 to 11:55 15CV742 - Problems on specific yield, storage coefficient of GW. 12:15 to 1:15 18CV33 Problems on curved surfaces. 2:00 to 4:45 15CVL57 (Class was suspended)	Holiday
	Others	Preparation of test time table, Class preparation, NPTEL	- Class preparation	

ATME College of Engineering

WORK DONE DIARY

WEEK	ACTIVITY	MONDAY	TUESDAY	WEDNESDAY
WEEK 7		DATE [illegible]	DATE [illegible]	DATE [illegible]
	Class Hours	18CV33 ([illegible]) Problems on loss of [illegible]	Holiday [illegible]	[illegible] 18CV[illegible] Problems on [illegible] coefficient
	Others	- Preparation of Student Study material - Test arrangements.		- Preparation of [illegible]. - Preparation for Test [illegible].
WEEK 8		DATE [illegible]	DATE [illegible]	DATE [illegible]
	Class Hours	18CV[illegible] [illegible] Stening of [illegible] [illegible] [illegible] 18CV33 Stening of I IA [illegible]	[illegible] 18CV[illegible] [illegible] test on mild [illegible] 12:15 to 1:15 18CV[illegible] Steady flow in confined & unconfined aquifer [illegible] [illegible] [illegible] in a [illegible] sample	[illegible] 18CV[illegible] Steady flow in aquifer, well hydraulics
	Others	→ Blue books evaluation → Class preparation	–	- Blue books evaluation - International conference reading.
WEEK 9		DATE [illegible]	DATE [illegible]	DATE [illegible]
	Class Hours	[illegible] 18CV33 Stream function, velocity potential function	[illegible] 18CV[illegible] Expt. Torsion test on mild steel. 12:15 to 1:15 18CV[illegible] problem on radial flow in confined aquifer [illegible] –	[illegible] 18CV[illegible] Derivation of [illegible] radial flow in unconfined aquifer.
	Others	→ Class preparation → Preparation for Student [illegible] program	→ program of [illegible] at [illegible]	→ NPTEL Assignment. → Class preparation. → "Teachers day" celebration

WORK DONE DIARY

ATME College of Engineering

WEEK	ACTIVITY	THURSDAY	FRIDAY	SATURDAY
WEEK 7		DATE [illegible]	DATE [illegible]	DATE [illegible]
	Class Hours	IA - 1	IA - 1	IA 1.
	Others	- Co-ordination for IA test - Evaluation of blue books	- Co-ordination for test - Evaluation of blue books	- Co-ordination of test - Evaluation of blue books.
WEEK 8		DATE [illegible]	DATE [illegible]	DATE [illegible]
	Class Hours	[illegible] 18CV38 Expt: [illegible] size distribution of coarse [illegible] 12:15 to 1:15 18CV33 Fundamentals of fluid flow [illegible] 18CV33 Rate of flow, continuity eq. in 3D.	[illegible] 18CV[illegible] → Steady flow in confined [illegible] ([illegible]) 12:15 to 1:15 18CV33 Stream function & velocity potential function [illegible] 18CV[illegible] Expt: Compaction	HOLI DAY.
	Others	- Blue books evaluation		
WEEK 9		DATE [illegible]	DATE [illegible]	DATE [illegible]
	Class Hours	[illegible] 18CV38 Expt: Bulking of sand & bulk density of aggregates [illegible] 18CV33 problems on stream function & velocity potential function [illegible] 18CV33 Euler's eq. of motion.	[illegible] 18CV[illegible] → [illegible] of unsteady flow 12:15 [illegible] 18CV33 Bernoulli's eq. [illegible] to 4:45 18CV[illegible] Expt: consistency limits	Mahalaya Amavasya Holiday
	Others	→ Class preparation →	- Class preparation	

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WORK DONE DIARY

WEEK 10	MONDAY DATE 30/09	TUESDAY DATE 01/10	WEDNESDAY DATE 02/10
ACTIVITY – Class Hours	Leave (personal work)	leave (personal work)	Gandhi Jayanti Holiday
ACTIVITY – Others			

WEEK 11	MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE 09/10
ACTIVITY – Class Hours	Ayudha pooja	Vijayadashami	9to10 AM 15CV742 Problem on jacobs method 02 to 2:15 TMS wood training to 9th Sem
ACTIVITY – Others			→ Class preparation →

WEEK 12	MONDAY DATE 14/10	TUESDAY DATE 15/10	WEDNESDAY DATE 16/10
ACTIVITY – Class Hours	18CV33 problems on venturimeter	18CV… → Repetition of Expt. 15CV742 Interference of well, Image well theory 17CVL742 Traces of Manganese using Spectrophotometer.	15CV742 Interference of wells, Image well theory
ACTIVITY – Others	– class preparation – conference discussion		→ Test preparation → conference meeting

ATME College of Engineering

WORK DONE DIARY

WEEK 10	THURSDAY DATE 03/10	FRIDAY DATE 04/10	SATURDAY DATE 05/10
ACTIVITY – Class Hours	9:00 to 12:00 18CVL45 Expt: – Hardness test (Rockwell) ② Impact test (Izode) 12:15 to 1:15 18CV33 free & forced vortex. 2:00 to 2:55 18CV33 Problems on bernoulli's eq	10:00 to 11:00 15CV742 Theis graphical soln 12:15 to 1:15 18CV33 – Unit test on fluid kinematics 2:00 to 4:45 17CVL57 Expt: Permeability test	(Ayudha Pooja)
ACTIVITY – Others	→ class preparation	→ class preparation	

WEEK 11	THURSDAY DATE 10/10	FRIDAY DATE 11/10	SATURDAY DATE 12/10
ACTIVITY – Class Hours	9 to 12:00 18CVL35 → Brinells hardness test → Single shear → Charpy impact test 12:15 to 1:15 18CV33 Calc of flow of venturimeter, Momentum eq 2:00 to 2:15 18CV33 Venturimeter & pitot tube	10:00 to 11:00 15CV742 → Chows method 12:15 to 1:15 18CV33 orifice meter & pitot tube 2:00 to 4:45 17CVL57 → unconfined compression test	Working day TT 9:00 to 10:00 15CV742 problems on Chow's method 2:00 to 4:15 17CVL57 → shrinkage limit.
ACTIVITY – Others		– class preparation.	→ SES for 9th Sem. → conference meeting with ESC HOD

WEEK 12	THURSDAY DATE 17/10	FRIDAY DATE 18/10	SATURDAY DATE
ACTIVITY – Class Hours	9 to 12 18CVL35 → Tension test on mild steel. 12:15 to 1:15 18CV33 Problems on venturimeter 2:00 to 2:55 18CV33 Repetition & Revision.	II IA	Non working Saturday
ACTIVITY – Others	→ Test preparation.		

ATME College of Engineering

WORK DONE DIARY

WEEK 13	MONDAY DATE 3/10	TUESDAY DATE 3/10	WEDNESDAY DATE 4/10
ACTIVITY – Class Hours	II IA	II IA	9:00 to 10:00 15CV7?? Discussion of QPs & scheme
ACTIVITY – Others			→ Evaluation of blue books

WEEK 14	MONDAY DATE 30/10	TUESDAY DATE 31/10	WEDNESDAY DATE 30/10
ACTIVITY – Class Hours	On Leave	Bali Padyami	9:00 to 10:00 15CV742 Introduction to ground-water exploration
ACTIVITY – Others			→ NIRF data assimilation → evaluation of blue books

WEEK 15	MONDAY DATE 6/11	TUESDAY DATE 07/10	WEDNESDAY DATE 8/10
ACTIVITY – Class Hours	18CV33 → flow in notches & rectangular notch derivation	9 to 12 18CVL46 Expt: water absorption test on bricks 12:15 to 1:15 15CV742 Geological methods of GW exploration	9 to 10 15CV742 Geophysical methods of GW exploration 10 11:15 to 12:15 15CV742 Test drilling, logging 2:00 to 2:55 18CV33 Triangular notch
ACTIVITY – Others	→ conference discussion → class preparation.	→ conference discussion → class preparation	→ class preparation

WORK DONE DIARY

ATME College of Engineering

WEEK 13	THURSDAY DATE 2?/10	FRIDAY DATE 1/10	SATURDAY DATE 2?/10
ACTIVITY – Class Hours	9:00 to 12:00 18CVL46 Compression test on mild steel. 12:15 to 1:15 18CV33 Q.P. & scheme discussion 2:00 to 2:55 18CV33 Introduction to orifices.	12:15 to 1:15 18CV33 Hydraulic coefficients	No classes
ACTIVITY – Others		→ Pool drive in campus (Co-ordination)	→ evaluation of blue books

WEEK 14	THURSDAY DATE 3/10	FRIDAY DATE 4/10	SATURDAY DATE 5/10
ACTIVITY – Class Hours	9 to 12:00 18CVL46 Expt: 12:15 to 1:15 18CV33 Hydraulic forces, Introduction to notches & weirs, problems. 2:00 to 2:55 18CV33 Notches - rectangular notch.	10 to 11 15CV742 Geophysical & geological methods of G W exploration	No class.
ACTIVITY – Others			

WEEK 15	THURSDAY DATE 07/10	FRIDAY DATE 8/10	SATURDAY DATE 9/10
ACTIVITY – Class Hours	9 to 12 18CVL46 Expt: Torsion test on mild steel. 12:15 to 1:15 18CV33 Triangular notch, 2:00 to 2:55 18CV33 Trapezoidal notch, stepped notch	10 to 11 15CV742 Various application of logging 12:15 to 1:15 18CV23 Problems on notches, Broad crested weirs, ogee weir.	Govt. declared Holiday
ACTIVITY – Others	→ class preparation	→ class preparation	

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WORK DONE DIARY

WEEK 16		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	[illegible] → Introduction [illegible] Losses in pipes.	[illegible] Expt: [illegible] [illegible] [illegible] [illegible] logging [illegible] [illegible] [illegible] Expt:- [illegible] & alkalinity test on water.	On leave
	Others	→ NBA [illegible] → class preparation.	→ conference meeting.	

WEEK 17		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	[illegible] Water hammer in pipes pipe networks. [illegible] working principles of pumps & power measurements Conjunctive use of [illegible]	[illegible] Artificial recharge types Conjunctive use of [illegible]	[illegible] Ground water runoff Artificial recharge.
	Others			

WEEK 18		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours		S.F discussion, Introduction to mathematical modelling.	[illegible]
	Others			

WORK DONE DIARY

ATME College of Engineering

WEEK 16		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	[illegible] Tension test on mild steel. [illegible] pipes in series & parallel [illegible] HGL & TEL.		[illegible] well construction [illegible] well design. [illegible] Numerical problems on pipes, sudden expansion contraction.
	Others	[illegible]		

WEEK 17		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	[illegible] Repetition of [illegible] [illegible] [illegible] for sudden expansion & [illegible] contraction [illegible] [illegible] for [illegible] [illegible] pipes.		
	Others			

WEEK 18		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours			
	Others			

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LEAVE DETAILS

Sl. No.	Date	Type	Reason	Actual Class Allotted (Course Code/Time)	Substitute Faculty Member	Signature of Substitute Faculty Member
1	06.05.2019	CL	Personal work.	9to12 18CVL38 15CVL76, (2:00to4:45)	Mrs. Jyothi DN. Mr. Puneeth K.	
2	30.09.2019	CL	Personal work.	18CV33. (2 to 2:55)	Mrs. Jyothi DN.	
	01.10.2019	CL		18CVL38, 9to12. 15CVL76, 2:00to4:45	Mrs. Jyothi DN Mr. Puneeth K.	
3.	28.10.2019	CL	Personal work.	18CV33, 9:00 to 2:55	Dr. Suresha K J.	

PROGRAM OUTCOMES (PO'S)

PO:1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems
PO:2	**Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
PO:3	**Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
PO:4	**Conduct investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions
PO:5	**Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations
PO:6	**The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO:7	**Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO:8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO:9	**Individual and Teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
PO:10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO:11	**Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PO:12	**Life-Long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

ATME College of Engineering

C1.1.1 - The Institution ensures effective curriculum delivery through a well planned and documented process

Supporting Documents

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4		Learning Outcome- Course Module
5		Time Table
6		Teaching – Learning resources
7		Attendance Record
8		Bridge & Remedial Classes
9		Question Bank-VTU Previous Year QP
10		Academic Activity and its Planning
11		Result Analysis
12		Teachers Diary

Department of Basic Science & Humanities

JULY 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 WORKSHOP ART OF COUNSELING START DAY	3	4	5	6
7 START OF INTERNSHIP FOR 7TH SEM STUDENTS	8	9 WORKSHOP ART OF COUNSELING END DAY	10	11	12	13
14	15 FACULTY TRAINING MS OFFICE	16 FACULTY TRAINING MS OFFICE	17	18	19	20
21	22	23	24	25	26	27 NBA CRITERIA 2 & 3 WORKSHOP
28	29 COMMENCEMENT OF ODD SEM 2019-20 III, VI, VII	30	31			

June 2019

S	M	T	W	Th	F	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

August 2019

S	M	T	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

ATME College of Engineering

AUGUST 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3 NON-WORKING
4	5	6	7	8	9 COMMENCEMENT OF INDUCTION PROGRAM FOR FIRST YEAR	10 WORKING MONDAY TT ORIENTATION PROGRAM FIRST YEAR
11	12 HOLIDAY BAKRID	13	14	15 HOLIDAY INDEPENDENCE DAY	16	17 NON-WORKING
18	19	20	21	22	23	24 WORKING THURSDAY TT END OF 11 DAYS INDUCTION PRG FOR FIRST YEAR
25	26 COMMENCEMENT OF THEORY CLASSES FOR FIRST YEAR	27	28	29	30	31 WORKING MONDAY TT

July 2019

S	M	T	W	Th	F	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

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SEPTEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 HOLIDAY SWARNA GOWRI VRATAM GANESHA CHATHURTHI	3	4	5	6	7 NON-WORKING
8	9	10 10TH DAY OF MUHARRAM	11	12 FIRST IA SEMESTERS 3,5 & 7	13 FIRST IA SEMESTERS 3,5 & 7	14 WORKING MONDAY TT FIRST IA SEMESTERS 3,5 & 7
15	16	17	18	19	20	21 NON-WORKING
22	23	24	25	26	27	28 HOLIDAY MAHALAYA AMAVASYA
29	30					

August 2019

S	M	T	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

October 2019

S	M	T	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

A T M E College of Engineering

OCTOBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 FIRST IA FOR FIRST SEMESTER	2 HOLIDAY 150TH GANDHI JAYANTHI	3 FIRST IA FOR FIRST SEMESTER	4 FIRST IA FOR FIRST SEMESTER	5 NON- WORKING
6	7 HOLIDAY AYUDHA POOJA	8 HOLIDAY VIJAYA DASHAMI	9	10	11	12 WORKING WEDNESDAY TT
13	14	15	16	17	18 SECOND IA SEMESTERS 3,5 & 7	19 NON- WORKING
20	21 SECOND IA SEMESTERS 3,5 & 7	22 SECOND IA SEMESTERS 3,5 & 7	23	24	25	26 WORKING TUESDAY TT
27	28	29 HOLIDAY BALIPADYAMI	30	31		

September 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

November 2019

S	M	T	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

A T M E College of Engineering

NOVEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 HOLIDAY KANNADA RAJYOTSAVA	2 NON-WORKING
3	4	5	6	7	8	9 WORKING FRIDAY TT
10	11 WORLD SCIENCE DAY	12 SECOND IA FOR FIRST SEMESTER	13 SECOND IA FOR FIRST SEMESTER	14 FIRST IA FOR FIRST SEMESTER	15 HOLIDAY KANAKADASA JAYANTHI	16 NON-WORKING
17	18	19	20	21	22 THIRD IA SEMESTERS 3,5 & 7	23 WORKING TUESDAY TT PTM FIRST YEAR THIRD IA SEMESTERS 3,5 & 7
24	25 THIRD IA SEMESTERS 3,5 & 7	26	27	28	29	30 LAST WORKING DAY HIGHER SEM WORKING FRIDAY TT

October 2019

S	M	T	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

December 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

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DECEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 LAB EXAM COMMENCEMENT HIGHER SEM	4	5	6	7 NON WORKING
8	9	10	11	12	13 THIRD IA FOR FIRST SEMESTER LAB EXAMS END HIGHER SEM	14 WORKING THIRD IA FOR FIRST SEMESTER
15	16 THIRD IA FOR FIRST SEMESTER THEORY EXAMS COMMENCEMENT FOR HIGHER SEM	17	18	19	20	21 NON WORKING LAST WORKING DAY FOR FIRST YEAR
22	23 LAB EXAMS COMMENCEMENT FIRST YEAR	24	25 HOLIDAY CHRISTMAS DAY	26	27	28 WORKING
29	30	31				

November 2019

S	M	T	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

January 2020

S	M	T	W	Th	F	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

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ATME College of Engineering

ATME COLLEGE OF ENGINEERING, MYSURU
Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
1	JANUARY				1	2	3	4		
2		5	6	7	8	9	10	11		
3		12	13	14	15	16	17	18	MAKARA SANKRANTHI	
4		19	20	21	22	23	24	25		
5		26	27	28	29	30	31		REPUBLIC DAY	Training the Trainer Program
5	FEBRUARY							1		
6		2	3	4	5	6	7	8		
7		9	10	11	12	13	14	15		COMMENCEMENT OF EVEN SEMESTER
8		16	17	18	19	20	21	22	MAHA SHIVARATHRI	Alumni Day
9		23	24	25	26	27	28	29		ATMEYA-2020
10	MARCH	1	2	3	4	5	6	7		
11		8	9	10	11	12	13	14		International Wonmen's Day Personality Enhancement Training for 4th Sem Students
12		15	16	17	18	19	20	21		IA-1
13		22	23	24	25	26	27	28	UGADI	First PTM
14		29	30	31						

Dr. L Basavaraj

ATME College of Engineering

ATME COLLEGE OF ENGINEERING, MYSURU
Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
14	APRIL				1	2	3	4		
15		5	6	7	8	9	10	11	MAHAVEERJAYANTHI GOOD FRIDAY	ICRTST-2020
16		12	13	14	15	16	17	18	DR. AMBEDKAR JAYANTHI	IA Test II
17		19	20	21	22	23	24	25		ATMEYA
18		26	27	28	29	30			BASAVA JAYANTHI	Second PTM
18	MAY						1	2	MAY DAY	
19		3	4	5	6	7	8	9		
20		10	11	12	13	14	15	16		
21		17	18	19	20	21	22	23		IA Test III
22		24	25	26	27	28	29	30	IDUL FITR	Lab Test Week
23		31								
23	JUNE		1	2	3	4	5	6		Last Working Day
24		7	8	9	10	11	12	13		Practical Examination Schedule
25		14	15	16	17	18	19	20		Commencement of Theory Examination, II Sem till 4th July 2020, Higher Semesters till 20th July 2020 Graduation Day
26		21	22	23	24	25	26	27		
27		28	29	30					Non Working Saturdays	The commencement of Odd Semester is from 27th July 2020

* Weekly Mentoring as per time table.
* Attendance will be regulary sent to parents through SMS
PTM dates for higher sem left to the descreption of HoDs.

Sd-
Dr. L Basavaraj
Principal

A T M E College of Engineering

Lesson Plan

Semester & Section : I E

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	26/8/19	Introduction: 2018 CBCS Scheme & Syllabus, Regulations (VTU)	26/8/19	
Module 1 → 2	27/8/19	Introduction: Engineering physics	27/8/19	
3	28/8/19	Free oscillations, Defn of SHM, Derivation of eqn for SHM, Mechanical SH oscillator	28/8/19	
4	29/8/19	Characteristics of SHM, Natural frequency, Spring Constant	29/8/19	
5	30/8/19	Springs in Series and Parallel, Complex notation & Phasor representation of SHM	30/8/19	I took 2 classes as 3rd (ELE)
6	30/8/19	Theory of Damped oscillations, types of Damping, Quality factor	30/8/19	
7	03/09/19	Theory of forced oscillations, Different Condn of forced oscillations	31/8/19	Class swapped to ELE
8	04/09/19	Sharpness of resonance, Helmholtz Resonator Numerical Problems	04/9/19	
9	05/09/19	Numerical Problems	11/9/19	kept absent for ...
10	06/09/19	Shock waves: Classification of Shock waves, Mach No., Mach regimes, Properties of Shock waves	05/9/19	
11	09/09/19	Applications of shock waves, Basic laws of Conservation for the fluid flow	06/9/19	
Module 2 → 12	11/09/19	Construction & working of Reddy Shock Tube Applications, Numerical Problems	09/9/19	
13	12/09/19	Elasticity: Concept, Plasticity, Stress, Strain Types of Stress & Strain	12/9/19	
14	13/09/19	Hooke's law, Stress strain Curve, Strain hardening and Strain softening, fracture/fatigue failure	13/9/19	
15	16/09/19	Elastic moduli, Longitudinal & Lateral Strain Co-eff, Poisson's ratio, Relation b/n Y, η & σ	14/9/19	On leave on 16th
16	17/09/19	Relation b/n Y, k & σ, Relation b/n k, η & σ Relation b/n Y, k & η, Rel	18/9/19 19/9/19	Partial Completion on 18th
17	18/09/19	Limits of Poisson's ratio, Numerical Prob	19/9/19	
18	19/09/19	Numerical Problems	24/9/19	
19	20/09/19	Bending of beams, Neutral Surface, Neutral plane Types of beams	20/9/19	
20	23/09/19	Expression for bending moment, Single Cantilever Expression for Young's modulus	20/9/19	Swapped by Sathish KL
21	24/09/19	Numerical Problems	24/9/19	
22	25/09/19	Torsion of a Cylinder: Expression for Couple Per Unit twist of a Solid Cylinder	23/9/19	
Module 3 → 23	26/09/19	Torsional pendulum, Exprn for T, Numerical Problems	25/9/19	Vector Introduction
24	27/09/19	Fundamentals of Vector Calculus, gradient, Divergence Curl of $\vec{E}$ and $\vec{H}$ (Static), Physical significance	26/9/19	27/9/19 Problems
25	30/09/19	Concepts of line, Surface & Volume Integral Gauss' flux Theorem	10/10/19	9/10/19 Scheme and Solution.

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Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
26	09/10/19	Gauss' Divergence Theorem, Stoke's Theorem Gauss' law of Magnetostatics	11/10/19	
27	10/10/19	Ampere's law Biot-Savart law Faraday's laws of Electromagnetic induction	12/10/19	
28	11/10/19	Current density & Eqn of Continuity and displacement Current	14/10/19	
29	12/10/19	Maxwell's equations, Numerical problems.	15/10/19	
30	14/10/19	The wave equation in differential form in free space for EM waves EM wave (Using Maxwell's Equations)	16/10/19	
31	15/10/19	Plane Electromagnetic Waves in Vacuum, Transverse nature, Polarization of EM Waves, Numerical Prob	16/10/19	
32	16/10/19	Optical Fibers, Propagation Mechanism, angle of acceptance, Numerical aperture, Modes of Propagation	17/10/19	
33	17/10/19	Types of optical fibers, Numerical problems	18/10/19	
34	18/10/19	Attenuation in fiber, Point to Point Communication Merits and demerits	21/10/19	
Module 4 → 35	21/10/19	Numerical problems	22/10/19	
36	22/10/19	Quantum Mechanics – Introduction, discussion on Planck's law of Energy density	23/10/19	
37	23/10/19	Wave nature of Particles, de-broglie hypothesis, Heisenberg's Uncertainty Principle.	24/10/19	
38	24/10/19	Statement, Explaination, Application, Non existence of electron inside the nucleus.	25/10/19	
39	25/10/19	Significance of wave Function, Probability density Max-Born approximation, Normalization,	28/10/19	
40	26/10/19	Properties of WF, Setting up of Schrodinger Wave equation Application – Particle in one dimn Potential well of height	29/10/19	26th Class Suspended.
41	28/10/19	Energy Eigen values and Eigen functions, Probability densities. Numerical problems	30/10/19	2 theory classes = Sathish KL
42	30/10/19	Numerical problems	31/10/19	19/11/19 Bridge ...
43	31/10/19	LASER: Interaction of radiation with matter Boltzmann relation.	4/11/19	
44	04/11/19	Einstein's Co-efficients and Exprn for Energy density Laser action, Population inversion, Metastable state	5/11/19	06/11/19
45	05/11/19	Requisites of a Laser System, Numerical problems	06/11/19	
46	06/11/19	CO_2 Laser, Construction, Working Energy level diagram Applications	07/11/19	06/11/19 Cancelled
47	07/11/19	Semi Conductor Laser, Principle, Construction, Working Energy level diagram, Application of LASER	08/11/19	11/11/19
Module 5 → 48	08/11/19	Numerical Problems		
49	09/11/19	QFET, Failures of Classical free e- theory of metals Assumptions of QFET	16/11/19 18/11/19	Holiday Ayodhya Verdict
50	18/11/19	Density of States, FD Statistics, Fermi level, Fermi factor.	20/11/19	

Faculty Member Signature

HOD Signature

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Lesson Plan

Semester & Section :

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
51	19/11/19	Dependence of Fermi factor on Temp. Expression for Fermi Energy derivation	21/11/19	
52	20/11/19	Success of QFET, Numerical problems	22/11/19	Kept above for the last class
53	21/11/19	Numerical problems		
54	22/11/19	Semiconductors - Fermi level in Intrinsic SC, Carrier Concentration Expsn in CB and VB	25/11/19	
55	25/11/19	Conductivity in SC derivation, Hall effect, Exprn for Hall Co-efficient	25/11/19 27/11/19	
56	26/11/19	Numerical problems		Kept above
57	27/11/19	Dielectric Materials, Fundamentals, Polarization, Relation b/w Er and P, Polar and Nonpolar dielectrics	27/11/19	Kept above
58	28/11/19	Internal field in Solids, Mention of Expression 1D and 3D, Lorentz field, Clausius Mossotti relation	29/11/19	
59	29/11/19	Solid, Liquid and gaseous dielectrics, application of dielectrics in transformers, Numerical problems	30/11/19	
60	30/11/19	Numerical problems	2/12/19	
11			Syllabus Completed	
12		2/12/19 to 11/12/19 Revision, QP, discussion was done.		
13				
14				
15				
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24				
25				

ATME College of Engineering
DEPARTMENT OF BASIC SCIENCES AND HUMANITIES

PERSONAL TIME TABLE FOR ODD SEMESTER 2019-2020

STAFF NAME: Dr Mahesh Lohith K S

DAY / TIME	9.00 10.00	10.00 11.00	11.00 11.15	11.15 12.15	12.15 1.15	1.15 2.00	2.00 2.55	2.55 3.50	3.50 4.45
Mon	E	E-1 Batch				Lunch Break			
Tue			Tea Break				E		
Wed		E							
Thu	E						E-2 Batch		
Fri				E					
Sat									

Curricular		Units	Co-curricular	Units
Lecture	4h*2units	8	HOD	6
Lab	6h*1unit	6	NBA coordinator	2
Tutorial	1h*2unit	2		
Lab Co	6h*1units	6		
Total		22		8

30

HOD

A T M E College of Engineering

DEPARTMENT OF BASIC SCIENCES AND HUMANITIES

Course Syllabi with CO's

Faculty Name : Dr. Mahesh Lohith K S			Academic Year: 2019-20 (Odd Semester)				
Department: Physics							
Course Code	Course Title	Core / Elective	Prerequisite	Contact Hours L	T	P	Total Hrs/ Sessions
18PHY12	Engineering Physics	Core	Pre-University Physics, Electricity & Magnetism, Properties of Matter, Waves and Sound, Radiation	3	2		50

Course Learning Objectives: This course will enable students to

- Learn the basic concepts in Physics which are very much essential in understanding and solving engineering related challenges.
- Gain the knowledge of newer concepts in modern physics for the better appreciation of modern technology.

Topics Covered as per Syllabus

Module -1: Oscillations and Waves

Free Oscillations: Definition of SHM, derivation of equation for SHM, Mechanical and electrical simple harmonic oscillators (mass suspended to spring oscillator), complex notation and phasor representation of simple harmonic motion. Equation of motion for free oscillations, Natural frequency of oscillations.

Damped and forced oscillations: Theory of damped oscillations: over damping, critical & under damping, quality factor. Theory of forced oscillations and resonance, Sharpness of resonance. One example for mechanical resonance.

Shock waves: Mach number, Properties of Shock waves, control volume. Laws of conservation of mass, energy and momentum. Construction and working of Reddy shock tube, applications of shock waves. Numerical problems

Module -2: Elastic properties of materials:

Elasticity: Concept of elasticity, plasticity, stress, strain, tensile stress, shear stress, compressive stress, strain hardening and strain softening, failure (fracture/fatigue), Hooke's law, different elastic moduli: Poisson's ratio, Expression for Young's modulus (Y), Bulk modulus (K) and Rigidity modulus (n) in terms of ^ and β. Relation between Y, n and K, Limits of Poisson's ratio.

Bending of beams: Neutral surface and neutral plane, Derivation of expression for bending moment. Bending moment of a beam with circular and rectangular cross section. Single cantilever, derivation of expression for young's' modulus

Torsion of cylinder: Expression for couple per unit twist of a solid cylinder (Derivation), Torsional pendulum-Expression for period of oscillation. Numerical problems

Module -3: Maxwell's equations, EM waves and Optical fibers

Maxwell's equations: Fundamentals of vector calculus. Divergence and curl of electric field and magnetic field (static), Gauss' divergence theorem and Stokes' theorem. Description of laws of electrostatics, magnetism and Faraday's laws of EMI. Current density & equation of Continuity; displacement current (with derivation) Maxwell's equations in vacuum.

EM Waves: The wave equation in differential form in free space (Derivation of the equation using Maxwell's equations), Plane electromagnetic waves in vacuum, their transverse nature, polarization of EM waves (Qualitative).

Optical fibers: Propagation mechanism, angle of acceptance. Numerical aperture. Modes of propaga-

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DEPARTMENT OF BASIC SCIENCES AND HUMANITIES

tion and Types of optical fibers. Attenuation: Causes of attenuation and Mention of expression for attenuation coefficient. Discussion of block diagram of point to point communication. Merits and demerits. Numerical problems.

Module -4: Quantum Mechanics and Lasers

Quantum mechanics: Introduction to Quantum mechanics, Wave nature of particles, Heisenberg's uncertainty principle and applications (non confinement of electron in the nucleus), Schrodinger time independent wave equation, Significance of Wave function, Normalization, Particle in a box, Energy Eigen values of a particle in a box and probability densities.

Lasers: Review of spontaneous and stimulated processes, Einstein's coefficients (derivation of expression for energy density). Requisites of a Laser system. Conditions for laser action. Principle, Construction and working of CO2 and semiconductor Lasers. Application of Lasers in Defense (Laser range finder) and Engineering (Data storage). Numerical problems.

Module -5: Material science

Quantum Free electron theory of metals: Review of classical free electron theory, mention of failures. Assumptions of Quantum Free electron theory, Mention of expression for density of states, Fermi-Dirac statistics (qualitative), Fermi factor, Fermi level, Derivation of the expression for Fermi energy, Success of QFET.

Physics of Semiconductor: Fermi level in intrinsic semiconductors, Expression for concentration of electrons in conduction band, Hole concentration in valance band (only mention the expression), Conductivity of semiconductors (derivation), Hall effect, Expression for Hall coefficient (derivation).

Dielectric materials: polar and non-polar dielectrics, internal fields in a solid, Clausius- Mossotti equation (Derivation), mention of solid, liquid and gaseous dielectrics with one example each. Application of dielectrics in transformers. Numerical problems.

List of Text Books:

1. A Text book of Engineering Physics- M.N. Avadhanulu and P.G. Kshirsagar, 10th revised Ed, S. Chand & Company Ltd, New Delhi.
2. Engineering Physics-Gaur and Gupta-Dhanpat Rai Publications-2017.
3. Concepts of Modern Physics-Arthur Beiser: 6th Ed;Tata McGraw Hill Edu Pvt Ltd- New Delhi 2006.

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2. Lasers and Non Linear Optics – BB laud, 3rd Ed, New Age International Publishers 2011.
3. Solid State Physics-S O Pillai, 8th Ed- New Age International Publishers-2018.
4. Shock waves made simple- Chintoo S Kumar, K Takayama and KPJ Reddy: Willey India Pvt. Ltd. New Delhi 2014
5. Introduction to Electrodynamics- David Griffiths: 4th Ed, Cambridge University Press 2017
6. S.O.Pillai, Solid State Physics, New Age International. Sixth Edition.
7. Prof. S. P. Basavaraju, Engineering Physics, Subhas Stores, Bangalore – 2
8. Dr. Shaila U.D, Rathnaprabha P.A, Engineering Physics, Eastern Book Promoters Belgaum.
9. P K Mittal, Applied Physics, I K International Publishing House Pvt Ltd.
10. H.J Sawant, Engineering Physics, Technical publications.

List of URLs, Text Books, Notes, Multimedia Content, etc

https://www.researchgate.net/publication/259574083_Lecture_Notes_on_Engineering_Physics
file:///C:/Users/abc/Downloads/EEE-I-ENGINEERING-PHYSICS-15PHY12-NOTES.pdf

A T M E College of Engineering

DEPARTMENT OF BASIC SCIENCES AND HUMANITIES

Course Outcomes	Upon completion of this course, students will be able to 1. **Memorize** the setup of differential equations for the types of oscillations and **analyze** the solutions and also to **recognize** the importance of shock waves and its applications. **RBT – L_1, L_2, L_3.** 2. **Describe** the Elastic properties and Electrical properties of the materials and identify their applications in Engineering. **RBT - L_1, L_2, L_3.** 3. **Summarize** the Basic theorems of Electricity and Magnetism, interrelation between time varying electric field and magnetic fields and the transverse nature of the EM waves . **RBT - L_1, L_2 .** 4. **Explain** the principle, conditions , requisites and generation of laser and its different applications mainly optical fiber communication through the study of construction, working and types of optical fibers. **RBT - L_1, L_2, L_3.** 5. **Discuss** the basic principles and hypothesis in quantum mechanics and to **Apply** it to study the motion of particles in a potential well. **RBT - L_1, L_2, L_3.**
Internal Assessment Marks: 40 (30 Internal Assesment Test + 10 Assignment). Three Sessional Tests are conducted for a Maximum Marks of 50 each during the semester and the average of the three tests is reduced to a Maximum of 30. CIE is the sum of the performances in IA Test and Assignment.	

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	18PHY12	TITLE: Engineering Physics						Faculty Name:		Mr. Dr. Mahesh Lohith K S			
List of Course Outcomes	Program Outcomes												Total
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO-1	3	2	-	-	-	-	-	-	-	-	-	1	6
CO-2	3	2	1	-	-	1	-	-	-	-	-	1	8
CO-3	3	2	-	-	-	-	-	-	-	-	-	1	6
CO-4	3	2	-	-	-	-	-	-	-	-	-	1	6
CO-5	3	2	-	-	-	-	-	-	-	-	-	1	6
Total	15	10	1	-	-	1	-	-	-	-	-	5	32

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution

A T M E College of Engineering DEPARTMENT OF BASIC SCIENCES AND HUMANITIES

Course Syllabi with CO's

Faculty Name : Dr. Mahesh Lohith K S			Academic Year: 2019-20 (Even Semester)				
Department: Physics							
Course Code	Course Title	Core / Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
18PHY12	Engineering Physics	Core	Pre-University Physics, Electricity & Magnetism, Properties of Matter, Waves and Sound, Radiation	3	2		50

Course Learning Objectives: This course will enable students to

- Learn the basic concepts in Physics which are very much essential in understanding and solving engineering related challenges.
- Gain the knowledge of newer concepts in modern physics for the better appreciation of modern technology.

Topics Covered as per Syllabus

Module -1: Oscillations and Waves

Free Oscillations: Definition of SHM, derivation of equation for SHM, Mechanical and electrical simple harmonic oscillators (mass suspended to spring oscillator), complex notation and phasor representation of simple harmonic motion. Equation of motion for free oscillations, Natural frequency of oscillations.

Damped and forced oscillations: Theory of damped oscillations: over damping, critical & under damping, quality factor. Theory of forced oscillations and resonance, Sharpness of resonance. One example for mechanical resonance.

Shock waves: Mach number, Properties of Shock waves, control volume. Laws of conservation of mass, energy and momentum. Construction and working of Reddy shock tube, applications of shock waves. Numerical problems

Module -2: Elastic properties of materials:

Elasticity: Concept of elasticity, plasticity, stress, strain, tensile stress, shear stress, compressive stress, strain hardening and strain softening, failure (fracture/fatigue), Hooke's law, different elastic moduli: Poisson's ratio, Expression for Young's modulus (Y), Bulk modulus (K) and Rigidity modulus (n) in terms of ^ and β. Relation between Y, n and K, Limits of Poisson's ratio.

Bending of beams: Neutral surface and neutral plane, Derivation of expression for bending moment. Bending moment of a beam with circular and rectangular cross section. Single cantilever, derivation of expression for young's' modulus

Torsion of cylinder: Expression for couple per unit twist of a solid cylinder (Derivation), Torsional pendulum-Expression for period of oscillation. Numerical problems

Module -3: Maxwell's equations, EM waves and Optical fibers

Maxwell's equations: Fundamentals of vector calculus. Divergence and curl of electric field and magnetic field (static), Gauss' divergence theorem and Stokes' theorem. Description of laws of electrostatics, magnetism and Faraday's laws of EMI. Current density & equation of Continuity; displacement current (with derivation) Maxwell's equations in vacuum.

EM Waves: The wave equation in differential form in free space (Derivation of the equation using Maxwell's equations), Plane electromagnetic waves in vacuum, their transverse nature, polarization of EM waves (Qualitative).

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Optical fibers: Propagation mechanism, angle of acceptance. Numerical aperture. Modes of propagation and Types of optical fibers. Attenuation: Causes of attenuation and Mention of expression for attenuation coefficient. Discussion of block diagram of point to point communication. Merits and demerits. Numerical problems.

Module -4: Quantum Mechanics and Lasers

Quantum mechanics: Introduction to Quantum mechanics, Wave nature of particles, Heisenberg's uncertainty principle and applications (non confinement of electron in the nucleus), Schrodinger time independent wave equation, Significance of Wave function, Normalization, Particle in a box, Energy Eigen values of a particle in a box and probability densities.

Lasers: Review of spontaneous and stimulated processes, Einstein's coefficients (derivation of expression for energy density). Requisites of a Laser system. Conditions for laser action. Principle, Construction and working of CO2 and semiconductor Lasers. Application of Lasers in Defense (Laser range finder) and Engineering (Data storage). Numerical problems.

Module -5: Material science

Quantum Free electron theory of metals: Review of classical free electron theory, mention of failures. Assumptions of Quantum Free electron theory, Mention of expression for density of states, Fermi-Dirac statistics (qualitative), Fermi factor, Fermi level, Derivation of the expression for Fermi energy, Success of QFET.

Physics of Semiconductor: Fermi level in intrinsic semiconductors, Expression for concentration of electrons in conduction band, Hole concentration in valance band (only mention the expression), Conductivity of semiconductors (derivation), Hall effect, Expression for Hall coefficient (derivation).

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12. Lasers and Non Linear Optics – BB laud, 3rd Ed, New Age International Publishers 2011.
13. Solid State Physics-S O Pillai, 8th Ed- New Age International Publishers-2018.
14. Shock waves made simple- Chintoo S Kumar, K Takayama and KPJ Reddy: Willey India Pvt. Ltd. New Delhi 2014
15. Introduction to Electrodynamics- David Griffiths: 4th Ed, Cambridge University Press 2017
16. S.O.Pillai, Solid State Physics, New Age International. Sixth Edition.
17. Prof. S. P. Basavaraju, Engineering Physics, Subhas Stores, Bangalore – 2
18. Dr. Shaila U.D, Rathnaprabha P.A, Engineering Physics, Eastern Book Promoters Belgaum.
19. P K Mittal, Applied Physics, I K International Publishing House Pvt Ltd.
20. H.J Sawant, Engineering Physics, Technical publications.

List of URLs, Text Books, Notes, Multimedia Content, etc

https://www.researchgate.net/publication/259574083_Lecture_Notes_on_Engineering_Physics
file:///C:/Users/abc/Downloads/EEE-1-ENGINEERING-PHYSICS-15PHY12-NOTES.pdf

A T M E College of Engineering
DEPARTMENT OF BASIC SCIENCES AND HUMANITIES

Course Outcomes	Upon completion of this course, students will be able to 6. **Memorize** the setup of differential equations for the types of oscillations and **analyze** the solutions and also to **recognize** the importance of shock waves and its applications. **RBT – L_1, L_2, L_3.** 7. **Describe** the Elastic properties and Electrical properties of the materials and identify their applications in Engineering. **RBT - L_1, L_2, L_3.** 8. **Summarize** the Basic theorems of Electricity and Magnetism, interrelation between time varying electric field and magnetic fields and the transverse nature of the EM waves . **RBT - L_1, L_2 .** 9. **Explain** the principle, conditions , requisites and generation of laser and its different applications mainly optical fiber communication through the study of construction, working and types of optical fibers. **RBT - L_1, L_2, L_3.** 10. **Discuss** the basic principles and hypothesis in quantum mechanics and to **Apply** it to study the motion of particles in a potential well. **RBT - L_1, L_2, L_3.**

Internal Assessment Marks: 40 (30 Internal Assesment Test + 10 Assignment). Three Sessional Tests are conducted for a Maximum Marks of 50 each during the semester and the average of the three tests is reduced to a Maximum of 30. CIE is the sum of the performances in IA Test and Assignment.

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	18PHY22	TITLE: Engineering Physics						Faculty Name:		Mr. Dr. Mahesh Lohith K S			
List of Course Outcomes	Program Outcomes												Total
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
CO-1	3	2	-	-	-	-	-	-	-	-	-	1	6
CO-2	3	2	1	-	-	1	-	-	-	-	-	1	8
CO-3	3	2	-	-	-	-	-	-	-	-	-	1	6
CO-4	3	2	-	-	-	-	-	-	-	-	-	1	6
CO-5	3	2	-	-	-	-	-	-	-	-	-	1	6
Total	15	10	1	-	-	1	-	-	-	-	-	5	32

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution

2019-20 Odd Sem

Faculty Meeting, 23/8/19, 4:00 PM

Dr. Mahesh Lohith K S

1. Thejkumar J - ME
2. Mohanakumara - ME
3. Sathish K.R. - EEE
4. Nandan P - Phy
5. Ramachandra M.N. - Phy
6. R. Bharathi - English
7. Ramanuja C M - ME
8. Sudhakar. N
9. Madhusudhan K.V
10. Divya K
11. Lakshmi. K.

Agenda
1) Attendance status
2) Flipped Classroom
3) SRS usage
4) Portion of the syllabus Completed

Faculty Meeting, 18/9/19, 4:00 PM

1. Dr. Mahesh Lohith K.S
2. Ramachandra M.N
3. Nandan. P
4. Srivathsa H U - CV
5. R. Bharathi
6. Bharathi B - CV
7. Sudhakar. N maths
8. Thejkumar. J (mechanical)
9. Sathish K.R. EEE
10. Madhusudhan K.V
11. Divya K
12. Lakshmi K was present and came late.

Agenda
1) Attendance status
2) Flipped Classroom
3) SRS usage
4) Portion of the syllabus Completed

DATE 14 | 2 | 20

Department of Physics Meeting — 2:10 PM

Agenda: Section allocation
Lab allocation
Lab preparedness
Lab Manual
Subject Notes

Attendee
1) Nandan. P — [signature] 14/2/2020
2) Ramachandra M.N — [signature] 14/2/2020
3) Mahesh Lohith KS — [signature] 14/2/20

Minutes

1) It was decided to engage theory classes section wise
Mr. Ramachandra — A sec
Mr. Nandan — B sec
Dr. Mahesh Lohith KS — C sec

2) Lab batch allocation was done.
Mr. Ramachandra — 5 batches
Mr. Nandan — 3 batches
Dr. Mahesh Lohith KS — 2 batches

3) Lab preparedness was discussed. New setup idea for Transistor characteristics was briefed by Dr. MLK

4) The responsibility of preparing the manual was assigned to Mr. Nandan P

5) The responsibility of getting the lab manual printed was assigned to Dr. MLK

6) It was discussed to refine the subject notes of Engineering physics.

— " —

MODULE 1: Electrochemistry and Battery Technology

Structure: Electrochemistry	Battery and Fuel Cells
1.1 Thermodynamic functions (Entropy & Free energy)	1.7 Construction & principle of Glass electrode
1.2 Nernst Equation derivation	1.8 Determination of pH using GE
1.3 Numerical problems (E, E° & E_{Cell})	1.9 Introduction & Classifications of battery.
1.4 Reference Electrodes	1.10 Nickel – Metal Hydride Battery
1.5 Calomel electrode	1.11 Lithium ion Batteries
1.6 Glass Electrode (Determination of pH)	

1.1 Thermodynamic Function

Four important and useful thermodynamic functions will be considered in this section (two of them have been encountered in the previous sections). These are the internal energy U, the enthalpy H, the Helmholtz free energy (or simply the free energy) Ψ and the Gibbs free energy (or simply the Gibbs function) G.

1.1.1. Entropy: Measure of amount of disorderness in the system. Boltzmann proposed the following equation to describe the relationship between entropy and the amount of disorder in a system.

$$S = k \ln W$$

Where S is the entropy of the system, k is a proportionality constant equal to the ideal gas constant divided by Avogadro's constant, and W is the number of equivalent ways of describing the state of the system.

1.1.2 Enthalpy: It is the measure of energy in a thermodynamic system which is defined to be the sum of the internal energy U plus the product of the pressure p and volume V.

$$H=U+PV$$

1.1.3 Helmholtz free energy: The part of internal energy which is used in useful work at constant temperature and volume.

$$\Psi= G-PV$$

1.1.4 Gibbs free energy: The energy associated with a chemical reaction that can be used to do work. The free energy of a system is the sum of its enthalpy (H) plus the product of the temperature (Kelvin) and the entropy (S) of the system

$$G = H - TS$$

SINGLE ELECTRODE POTENTIAL

"The measure of tendency of a given half-cell reaction to undergo reduction when it is at equilibrium with other half-cell".

- The potential arises at single electrode due to reduction.
- The half-cell having lower reduction potential undergoes oxidation.
- The half-cell having higher reduction potential undergoes reduction.

The EMF of the cell is due to the difference between the potentials of the cathode and the anode.

$$EMF_{cell} = E_{reductionelectrode} - E_{oxidationelectrode}$$
$$\boldsymbol{EMF_{cell} = E_{cathode} - E_{anode}}$$

1.2 Nernst equation

Nernst equation is a thermodynamic equation which relates the cell potential with concentrations M^{n+} using standard free energy equation.

The decrease in free energy change (-ΔG) is given by the maximum amount of work done by an electrochemical cell.

$$-\Delta G = W_{max} ---\rightarrow 1$$

The maximum work done by the electrochemical cell depends on, Number of coulombs that flow and the energy available per coulomb.

$$W_{max} = No\ of colombs\ X\ Energy\ available\ per\ Coulomb$$

The number of coulombs that flow is equal to the number of moles of electrons (n) and the faraday (F).

$$\therefore No\ of coulombs = nF$$

Energy available per coulomb is the emf of the cell E.

The maximum work done for an electrochemical cell is given by

$$W_{max} = nFXE \text{ ------- } 2$$

Substituting equation 2, in 1 we have,

$$\Delta G = -nFE ---\rightarrow 3$$

When the concentrations of all species is unity at 25^{0}C the standard free energy change ΔG^0 is given as

$$\Delta G^0 = -nFE^0 ---\rightarrow 4$$

Where E^0 is the standard electrode potential

"Standard electrode potential is the potential when a metal is dipped in 1M solution of its ions or when an inert electrode is in contact with a gas at temperature at 298K"

Consider a red-ox reaction involved in an electrochemical cell,

$$M^{n+} + ne^- \xrightarrow{K_c} M$$

The equilibrium constant K_c is given by change in free energy by the equation,

$$\Delta G = \Delta G^0 + RTlnK_c \qquad where\ K_c = \frac{[M]}{[M^{n+}]}$$

Therefore the above equation becomes,

$$\Delta G = \Delta G^0 + RTln\frac{[M]}{[M^{n+}]}$$

$$\Delta G = \Delta G^0 + RTln[M] - RTln[M^{n+}] ---\rightarrow 5$$

Substituting equations 3 and 4 in equation 5 we have,

$$-nFE = -nFE^0 + RTln[M] - RTln[M^{n+}]$$

Dividing throughout by –nF, and under standard conditions M=1. Hence the above equation becomes,

$$\therefore E = E^0 + \frac{RT}{nF}ln[M^{n+}]$$

Where E= electrode potential, E^0 = std. electrode potential, R = gas constant = 8.314 j/k/mole,
T= temperature, F= Faraday = 96500 coulombs, n= no. of electron involved in the reaction

Nernst equation at 298K and converting natural log to the base 10 is,

$$E = E^0 + \frac{2.303\ X\ 8.314\ X\ 298}{nX\ 96500}\log[M^{n+}]$$

$$\boxed{E = E^0 + \frac{0.0591}{n}\log[M^{n+}]}$$

This is the Nernst equation for single electrode potential

1.3 Nernst equation for cell potential:

$$E_{cell} = E^0{}_{cell} + \frac{0.0591}{n}log\frac{[species\ at\ cathode]}{[species\ at\ anode]}$$

1.4 Reference electrode

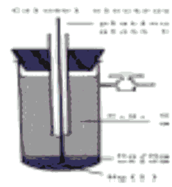
A Reference electrode is an electrode whose electrode potential is known and remains constant. Reference electrodes are of two types

Primary reference electrodes: The electrodes whose potential is arbitrarily taken as zero, for example Hydrogen electrode. It is used to measure potential of all other electrodes.

Secondary reference electrodes: The electrodes whose potential is known w.r.t SHE and it is used to measure potential of other electrodes. Ex; Calomel, Ag-AgCl electrode etc.

- It is simple to construct.
- The cell potential is reproducible and constant for long period.
- The cell potential does not vary with temperature.

1.5 Calomel Electrode



Construction:

Calomel Electrode is a Secondary Reference electrode. It consists of a drop of mercury at the bottom, over which a paste of mercury-mercurous chloride is placed. A solution of Saturated solution of potassium chloride is filled inside the glass tube. A platinum wire sealed to the bottom of glass tube is taken out for making the electrical contact. This reference electrode is connected to other electrode system by the help of the side tube which serves as salt bridge.

Working: It is a reversible electrode. It undergoes both oxidation and reduction depending upon the other electrode (Half-cell) in contact. If it acts as anode, undergoes oxidation add vice versa.

It is represented as $KCl_{(satd)}$ | $Hg_2Cl_{2(satd)}$ | Hg

Half-cell for Calomel Electrode:

The net reaction involving both anode and cathode is,

$$Hg_2Cl_2 + 2e^- \underset{Oxidation}{\overset{Reduuctio}{\rightleftarrows}} 2Hg + 2Cl^-$$

The potential of the calomel electrode depends upon the concentration of the potassium chloride solution. The reduction potentials of the calomel electrodes on hydrogen scale at 298K are as follows: **Saturated KCl 0.2415 V1.0N, KCl 0.2800 V& 0.1NKCl 0.3338 V.**

Advantages:

- Simple to Construct.
- Electrode potential is reproducible and constant for long period.
- Used as reference electrode to measure pH.

1.6 ION – SELECTIVE ELECTRODES

"The electrodes that are selectively sensitive to certain ions and develop potential proportional to the concentration of ions".

An ion selective membrane electrode consists of generally a membrane which is capable of exchanging the ions with solutions with which it is in contact.

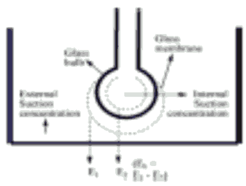
Some of the ion selective membranes are,

1. Glass membranes   2. Solid state membranes   3. Heterogeneous membranes

Application of Ion selective electrodes

1. Concentration of several cations such as H^+, Na^+, Li^+, K^+, Ag^+ etc.,
2. Concentration of some anions such as NO_3^-, CN^- etc.,
3. pH of a solution using glass electrode.

1.6.1 Glass Electrode Principle



Thin walled glass bulb containing an acid is immersed in another solution as shown in figure 1.4. A potential is developed across the glass membrane. This is called boundary potential E_b. The potential is due to the difference in potential (E_1-E_2) developed between the two liquids across the layer of the glass membrane.

Glass Electrode showing boundary potential due to different concentration of H^+ ion

E_b gives the difference in the hydrogen ion concentration of the two solutions and is given by the relation.

$$E_b = E_1 - E_2 = \frac{RT}{F} log_{10}\frac{C_2}{C_1}$$

Where, C_1& C_2 are the concentrations of H^+ ions of the acid solution inside and outside the glass bulb respectively. The concentration of H^+ (C_1) ions inside the solution is constant

$$\therefore \boldsymbol{E_b = L + 0.0591 log_{10} C_2}$$

Where L is constant, since $p^H = -log_{10}[H^+]$

$$\therefore \boldsymbol{E_b = L - 0.0591 p^H}$$

1.6.2 Construction of glass electrode:

Glass electrode is pH sensitive electrode which can selectively detect and measures H^+ ions in a system. Thus it is widely used for pH measurements.

Glass electrode consists of a long glass tube with a thin walled glass bulb at one end as shown in figure 1.6. The bulb contains 0.1M HCl. Ag/AgCl electrode (internal reference electrode) is placed in the solution and connected by a platinum wire for external contact.

The electrode is represented as,

Ag | AgCl | 0.1 M HCl | Glass membrane

Working of glass electrode

When the glass electrode is dipped in the test solution (xM), the Na^+ ions of the glass membrane are exchanged for H^+ ions of the solution inside & outside. The reaction is ion-exchange.

$$\underset{\text{solution}}{H^+} + \underset{\text{membrane}}{Na^+Gl^-} \longleftrightarrow \underset{\text{solution}}{Na^+} + \underset{\text{membrane}}{H^+\,Gl^-}$$

The boundary potential E_b is established due to the above reaction. The glass electrode potential E_G is given by.

$$E_G = E_b + E_{Ag/AgCl}$$

When E_b=o, when $C_1=C_2$, But even when $C_1=C_2$ a small potential is developed called as *asymmetric potential* (E_{asy}).

$$E_G = E_b + E_{Ag/AgCl} + E_{asy}$$

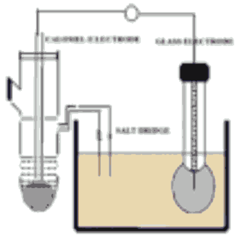
WKT $\boldsymbol{E_b = L - 0.0591p^H}$

$$E_G = L - 0.0591p^H + E_{Ag/AgCl} + E_{asy}$$

$$E_G = L_1 - 0.0591p^H$$

Where $L_1 = L - E_{Ag/AgCl} + E_{asy}$

1.7 Determination of pH using glass electrode



The glass electrode is immersed in the solution whose pH is to be determined. It is combined with external reference electrode such as calomel electrode through a salt bridge to complete the cell. The emf is determined using pH meter as shown in figure.

The cell is represented as,

Saturated calomel electrode | solution of unknown pH || glass | 0.1MHCl | AgCl | Ag

E_{cell} is the difference between E_G and the calomel electrode E_{SCE}.

$$E_{cell} = E_G - E_{SCE}$$

Conventionally, glass electrode always acts as cathode

$$\text{W.K.T,} \quad E_G = L - 0.0591p^H$$

$$\therefore E_{cell} = L - 0.0591p^H - E_{SCE}$$

$$p^H = \frac{L - E_{SCE} - E_{cell}}{0.0591}$$

The above equation may be written by replacing the constants $L-E_{SCE}$ by another term K (*electrode assembly constant*).

$$p^H = \frac{K - E_{cell}}{0.0591}$$

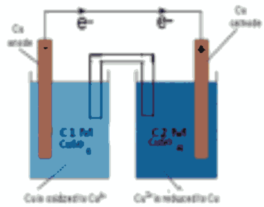
In order to calculate K, a known pH of solution is used and the potential of the cell is measured.

Application of Ion selective electrodes

- Concentration of a number of cations such as H^+, Na^+, Li^+, K^+, Ag^+ etc.,
- Concentration of some anions such as NO_3^-, CN^- etc.,
- pH of a solution using glass electrode.

1.8 Concentration cells

"Concentration cells are the electrochemical devices in which both the electrodes are made up of same metal and are in contact with their own electrolyte, but of different concentrations".



Electrolyte concentration cell (Difference in the concentration of electrolyte): Example: An electrochemical cell, where two copper electrodes are submerged in two copper (II) sulfate solutions as shown in figure 1.8, whose concentrations are C_1 M and C_2 M, (C_2>C_1) connected through a salt bridge. Le Chatelier's principle indicates that the reaction is more favorable to reduction as the concentration of Cu^{2+} ions increases. Reduction take place in the cell's compartment where concentration is higher and oxidation occur on the more dilute side.

The following cell diagram describes the cell mentioned above:

$$Cu(s) \mid Cu^{2+}(C_1M) \parallel Cu^{2+}(C_2M) \mid Cu_{(s)}$$

Where the half-cell reactions for oxidation and reduction are:

Oxidation $Cu_{(s)} \longrightarrow Cu^{2+}_{(0.05M)} + 2e^-$

Reduction $Cu^{2+}_{(2M)} + 2e^- \longrightarrow Cu_{(s)}$

Overall reaction $Cu^{2+}_{(2M)} \longrightarrow Cu^{2+}_{(0.05M)}$

Where the cell's emf is calculated through Nernst equation as follows:

$$E_{cell} = E^0{}_{cathode} - E^0{}_{anode}$$

$$E_{cell} = \left[E^0{}_{\frac{Cu^{n+}}{Cu}} + \frac{0.0591}{2} log\,(C_2)\right] - \left[E^0{}_{\frac{Cu^{n+}}{Cu}} + \frac{0.0591}{2} log\,(C_1)\right]$$

$$E_{cell} = \left[\frac{0.0591}{2}\right][\log(C_2) - log\,(C_1)]$$

E^0's value of concentration cell is zero, as electrodes and ions are the same.

Generally, $\boxed{E = \frac{0.0591}{n} log \frac{C_2}{C_1}}$ Where C_2> C_1

1.9 Batteries: Introduction

Battery is an electrochemical device which converts stored chemical energy into electrical energy.

Classification of Batteries:

Batteries are classified as primary (non-rechargeable), secondary (rechargeable) and reserve (inactive until activated):

Primary batteries	Secondary batteries	Reserve batteries
→Primary batteries are those which cannot be recharged. →The net cell reaction is not reversible. →Primary batteries are relatively inexpensive. →Example: Dry cell.	→Secondary batteries are those which can be recharged. →Net cell reaction is reversible. →Example: Lead acid, Li-Ion batteries etc →Used in cell phones, laptops etc	→Reserve batteries are special purpose primary batteries designed for emergency use and for long term storage. →The vital part of the battery is stored separately & is activated when it is needed. →Self-Discharge is eliminated. →Eg: Magnesium-AgCl, zinc-silver oxide batteries, etc. →Used in Missiles, space ships, etc.

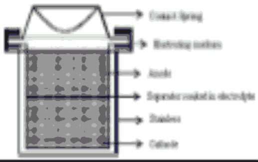
1.10 Nickel-Metal Hydride Batteries:

The nickel metal hydride battery is similar to those of the nickel–cadmium battery. Due to the environmental problems resulted due to the presence of cadmium. In 1970's cadmium compounds was replaced by metal hydride. These are reversible, alkaline batteries. Schematic diagram of nickel metal hydride is shown in figure

Cell Representation: MH | KOH | NiO(OH), $Ni(OH)_2$

It consist of

- ***Anode*** : Porous nickel wire gauge coated with a paste of metal hydrides (VH_2, TiH_4 etc) and hydrogen storage metal alloys such as TiNi or $LaNi_5$. The metal alloy is capable of undergoing reversible reaction when the battery is charging or discharging.



- ***Cathode*** : made up of highly porous sintered NiO(OH) with nickel hydroxide $[Ni(OH)_2]$ which acts as electro active material.
- ***Electrolyte:*** 5.35M KOH or 30%KOH.
- ***Seperator:*** Polypropylene is used as separator which has capacity to hold the electrolyte

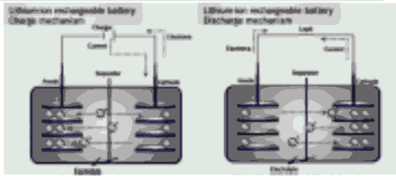
Cell reactions:

Discharging		Applications
Anode	$MH + OH^- \longrightarrow M + H_2O + e^-$	Higher capacity than nickel cadmium batteries
Cathode	$NiO(OH) + H_2O + e^- \longrightarrow Ni(OH)_2 + OH^-$	Cadmium free, minimal environmental problems.
Overall reaction	$MH + NiO(OH) \longrightarrow M + Ni(OH)_2$	Long cycle life
		Used in laptop, cellular phones & camcorders

Overall discharging and charging is represented as shown below. And the emf of the cell is 1.35V.

$$MH + NiO(OH) \underset{Charging}{\overset{Discharging}{\rightleftharpoons}} M + Ni(OH)_2$$

1.11 Lithium Batteries:



Lithium metal is an attractive anode material because of its lightweight, high voltage, very low electrode potential, high electrical equivalence & good conductivity. A lithium cell can produce voltage from 1.5 V to 3.5 V based on the types of materials used. There are two types of lithium-based batteries are available. Schematic diagram Lithium ion Battery is shown in fig.

1.14.1 Construction and working of Li-Ion Batteries:

The cell is represented as, $C, Li^+ \mid Li^+ \mid LiMn_2O_4$

It consist of

- ***Anode***: is made of graphite (C_6)
- ***Cathode*** : The cathode material is made of intercalated lithium compound, such as multi layered lithium cobalt oxide($LiCoO_2$), lithium iron phosphate($LiFePO_4$), lithium manganese oxide($LiMn_2O_4$) etc
- ***Electrolyte:*** A non-coordinating electrolyte salt such as $LiPF_6$/ $LiAsF_6$/ or lithium $LiBF_4$ is dissolved in an organic solvent like ethylene carbonate or diethyl carbonate etc.
- ***Separator:*** Polypropylene soaked with electrolyte.

Working: *During charging;* an external load forces the Li^+ ions to travel from cathode (lithium compound of $LiMn_2O_4$) to anode and accumulates on the surface of graphite. During discharge, Li^+ spontaneously starts migrating back to lithium compound ($LiMn_2O_4$) at cathode and electrons flow through the external circuit.

Probable cell reactions		Applications
Anode	$Li_xC_6 \rightarrow xLi^+ + 6C + xe^-$	Light weight and compact, low maintenance
Cathode	$Mn_2O_4 + xLi^+ + xe^- \longrightarrow Li_xMn_2O_4$	High voltage and high energy density
Overall reaction	$Li_xC_6 + Mn_2O_4 \rightarrow Li_xMn_2O_4 + 6C$	Used in medical devices, electric cars, auto mobiles
Overall charging and discharging. $Li_xC_6 + Mn_2O_4 \underset{Charging}{\overset{Discharging}{\rightleftharpoons}} Li_xMn_2O_4 + 6C$		Used in mobile phones, tabs, laptops, wireless communication devices

1.17 Expected Questions

Electrochemistry

1. Derive Nernst equation for single electrode potential.
2. Explain the construction and working of a. Calomel electrode
3. What are ion selective electrodes? Explain the construction and working of Glass electrode.
4. Write a note on concentration cells?

Battery Technology & Fuel Cells

1. Explain the construction and working of Ni-MH battery.
2. Explain the construction and working of Lithium-Ion .

1.18 Module Outcome

1. Students acquire the knowledge of Electrochemistry and Batteries.
2. Students will be able to know the basics like electrode potential, Electrode systems, Battery terminologies. Primary and secondary battery working principle.
3. Students can analyse the need of developing new batteries for future development.

1.12 Further Studies

1. https://en.wikipedia.org/wiki/Electrochemistry
2. https://www.corrosionpedia.com/definition/206/calomel-electrode
3. www.horiba.com/application/.../measuring-ph-using-a-glass-electrode/
4. https://www.batterystuff.com/kb/articles/battery-articles/battery-basics.html
5. batteryuniversity.com/learn/archive/understanding_lithium_ion
6. https://www.myprivatetutor.com/questions/details/8065/discuss-the-construction-and-working-of-methanol-oxygen-fuel

Vision & Mission of ATME College of Engineering

Vision

Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

Mission

- To keep pace with advancements in knowledge and make the students competitive and capable at the global level.
- To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as torchbearers of tomorrow's society.
- To strive to attain ever-higher benchmarks of educational excellence.

PROGRAMME EDUCATIONAL OBJECTIVES AND PROGRAMME OUTCOMES

PROGRAMME OUTCOMES:

Engineering Graduates will be able to:

PO1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2. Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of EXPERIMENTs, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

A T M E College of Engineering

ATTENDANCE

Course Title with Code : Engineering Physics 18PHY12

Semester & Section : I Sem "E"

USN	Student Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	Date	26	27	28	28	29	30	30	31	04	05	06	09	11	12	13	14	17	18	19	20	20
	Month	08	08	08	08	08	08	08	08	09	09	09	09	09	09	9	9	9	9	9	9	9
4AD19CV001	Abhishek K	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
002	Afaq Ahmed Khan	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
003	Amith Yashas R G	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
004	Ananya S P	1	2	3	4	5	6	7	8	A	9	10	A	A	A	11	12	13	14	15	16	17
005	Anigowda B	A	1	2	3	4	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
006	Arpitha Belli	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	15	16	17	18	19
007	Bhanupriya M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
008	Bhargava P V	1	2	A	A	3	6	7	8	9	10	11	A	A	12	13	14	15	16	17	18	19
009	Chirag N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
010	Dhanush V	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
011	Dheeraj D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
012	Dinakar K Dev	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
013	Divisha K R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
014	Govardhan Nayaka S J	A	1	A	A	A	A	A	A	1	2	3	4	5	6	7	8	9	10	11	12	14
015	Guruprasad K M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
016	Harsha Vardhan S H S	1	2	3	4	5	6	7	8	9	10	A	11	13	14	15	16	17	18	19	20	21
017	Harshitha B	1	2	A	A	3	4	5	6	A	7	8	9	10	11	12	13	14	15	16	17	18
018	Harshitha N	A	1	2	3	4	5	6	A	7	8	9	A	A	10	11	12	13	14	15	16	17
019	Hruthik R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
020	Jhenkar G	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
4AD19CS001	Akshay Gujjal	1	2	3	4	5	6	7	8	9	10	11	A	12	13	14	15	16	17	18	19	20
4AD19CS002	Aman Kumar D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	A	18	19
003	Amogh P	1	2	3	4	5	6	7	8	9	10	11	12	A	A	A	A	13	14	15	16	17
004	Amshu V Jain	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
005	Ananya B R	A	1	2	3	4	6	7	8	A	A	9	10	11	12	14	15	16	17	18	19	20
No. of Abs.		4	0	3	3	1	01	01	2	3	1	1	4	4	2	1	1	0	0	1	0	0
Initials																						

A T M E
College of Engineering

ATTENDANCE

Course Title with Code : Ev

Semester & Section : I Sem "E"

USN	Student Name	Date	23	24	25	26	27	30	9	10	11	12	14
		Month	9	9	9	9	9	9	10	10	10	10	10
			22	23	24	25	26	27	28	29	30	31	32
A019CV001	Abhishek K		22	23	24	25	26	27	A	28	29	30	31
002	Afaq Ahmed Khan		22	23	24	25	26	27	28	29	30	31	32
003	Amith Yashas R G		22	23	24	25	26	27	28	29	30	31	32
004	Ananya S P		18	R	20	21	22	23	24	25	26	27	28
005	Anigowda B		22	23	24	25	26	27	28	29	A	30	31
006	Arpitha Belli		20	21	A	22	23	24	A	25	26	27	28
007	Bhanupriya M		22	23	24	25	26	27	A	28	29	30	31
008	Bhargava P V		20	21	22	A	A	A	23	24	25	26	27
009	Chirag N		22	23	24	25	26	A	27	28	29	30	31
010	Dhanush V		22	23	A	24	25	26	A	27	A	28	29
011	Dheeraj D		22	23	24	25	26	27	28	29	30	31	32
012	Dinakar K Dev		22	23	24	25	26	27	28	29	30	31	32
013	Divisha K R		22	23	24	25	26	27	28	29	30	31	32
014	Govardhan Nayaka SJ		15	A	16	17	18	19	20	21	22	23	24
015	Guruprasad K M		22	23	24	25	26	27	28	29	30	31	32
016	Harsha Vardhan S HS		22	23	24	25	26	27	28	29	30	31	32
017	Harshitha B		19	20	21	22	23	A	A	24	25	26	27
018	Harshitha N		18	A	19	20	21	22	23	24	25	26	27
019	Hruthik R		22	23	24	25	26	27	28	29	30	31	32
020	Jhenkar G		22	A	23	24	25	26	A	27	28	29	30
AD19CS001	Akshay Gujjal		21	22	23	24	25	26	A	27	28	29	30
AD19CS002	Aman kumar D		20	A	A	A	21	22	23	24	25	26	27
003	Amogh P		18	19	20	21	22	23	24	25	26	27	28
004	Amshu V Jain		22	23	24	25	26	27	28	29	30	31	32
005	Ananya B R		21	22	23	24	25	26	27	28	29	30	31
No. of Abs.			0	4	3	2	1	3	7	0	2	0	0
Initials													

USN	15	16	17	18	21	22	23	24	25	28	30
Month	10	10	10	10	10	10	10	10	10	10	10
	33	34	35	36	37	38	39	40	41	42	43
A019CV001	32	33	34	35	36	A	37	38	39	40	41
002	33	34	35	36	37	38	39	40	41	42	43
003	33	A	34	35	36	37	A	38	39	40	41
004	29	30	31	32	33	34	35	36	A	37	38
005	32	33	34	35	36	36	37	38	39	40	41
006	29	30	31	32	33	34	35	36	37	A	38
007	32	33	A	A	34	35	36	37	38	39	40
008	28	27	28	29	30	31	32	33	34	35	36
009	32	33	34	35	36	37	38	39	40	41	42
010	30	31	A	32	33	34	35	36	37	38	39
011	33	34	35	36	37	38	39	40	41	A	42
012	33	A	34	35	36	37	38	39	40	41	A
013	33	34	35	36	37	38	39	40	A	A	41
014	25	26	27	28	29	30	31	32	33	34	35
015	33	34	35	36	37	38	39	40	41	42	43
016	33	34	35	36	37	38	39	40	41	42	43
017	28	29	30	A	31	32	33	34	A	35	36
018	28	29	30	31	32	33	34	35	36	37	38
019	33	34	35	36	37	38	39	40	41	A	42
020	31	A	32	33	34	35	36	37	38	39	40
AD19CS001	31	32	33	34	35	36	37	38	39	40	41
AD19CS002	28	29	30	31	32	33	34	A	35	36	37
003	29	30	31	32	33	34	35	36	A	37	38
004	33	34	35	36	37	38	39	40	41	42	41
005	32	33	34	35	36	37	38	39	40	41	A
No. of Abs.	0	3	4	2	0	1	1	1	4	4	2
Initials											

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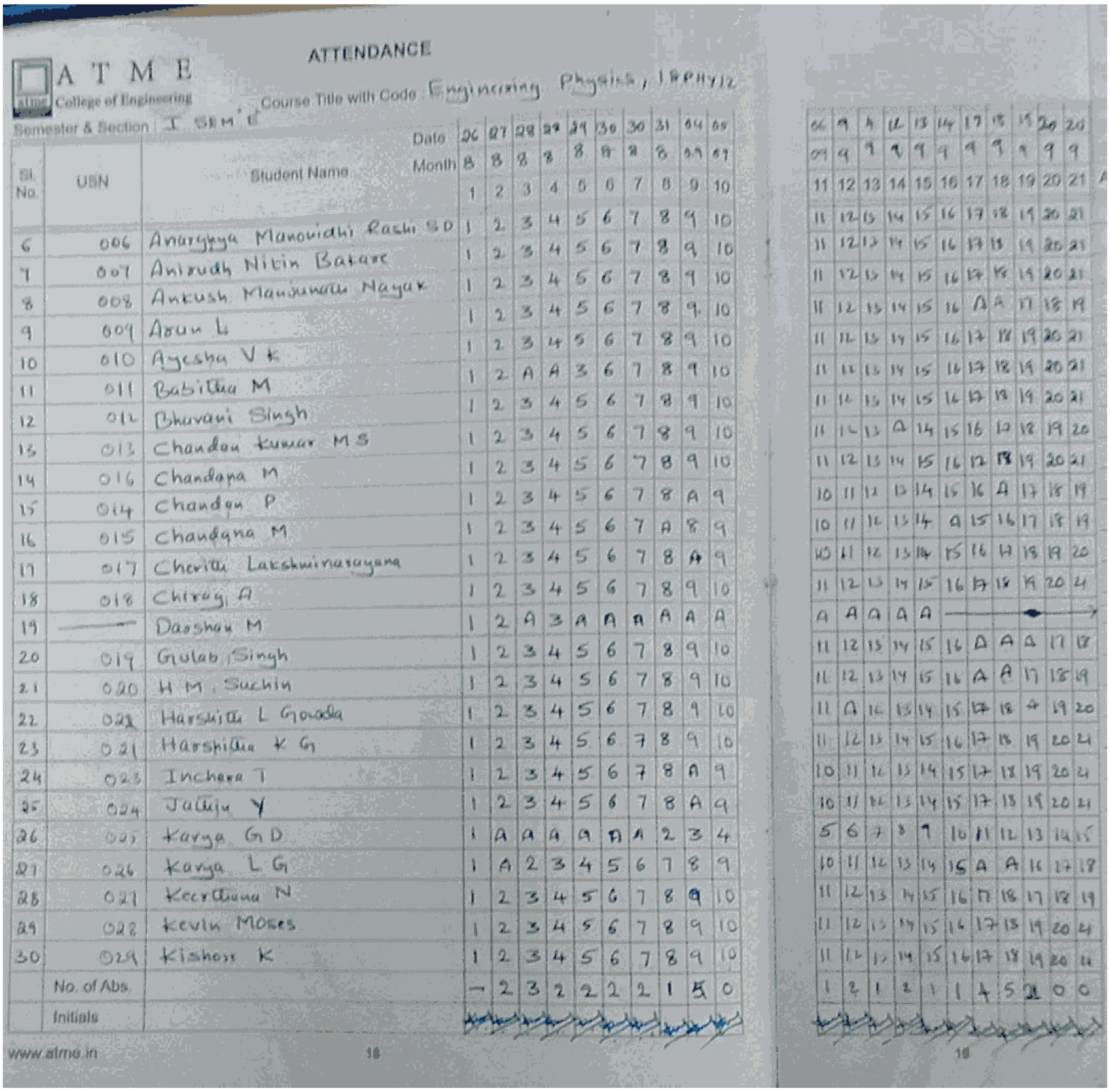
A T M E College of Engineering

ATTENDANCE

Semester & Section : I Sem "E" Course Title with Code : E

ASSESSMENT

	Sl. No.	USN	Student Name	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
			Date	30	31	4	5	6	7	8	11	14	16	18	19	20	21	22	25	27														
			Month	10	10	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11														
CV	1	4AO19CV001	Abhishek K	42	45	44	45	46	A	47	A	48	49	50	A	51	52	53	54	55		94				36	24			09				
	2	002	Afaq Ahmed Khan	44	45	46	47	48	49	50	51	52	53	54	55	56	57	57	A	59		100				18	13			13				
	3	003	Anitha Yashas R G	42	A	43	44	45	46	47	48	A	A	49	50	51	A	52	A	53		94				12	12			17				
	4	004	Ananya S P	39	40	41	42	43	44	45	46	A	A	A	A	A	A	A	55	56		90				23	17			13				
	5	005	Anigouda B	42	43	44	45	46	47	48	49	50	51	52	53	54	55	A	A	56		96				26	41			29				
	6	006	Arpitha Belli	A	39	A	A	40	41	42	43	44	45	46	47	48	49	50	51	52		84				10	19			29				
	7	007	Bhanupriya M	41	42	43	A	44	45	46	47	48	49	50	51	52	53	54	55	56		92				25	18			22				
	8	008	Bhargava P V	37	38	39	40	41	42	43	A	44	45	46	47	48	49	50	51	52		86				22	13			08				
	9	009	Chirag N	43	44	45	46	47	48	49	A	50	51	52	53	54	55	56	57	A		98				25	18			11				
	10	010	Dhanush V	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	A		92				16	13			12				
	11	011	Dheeraj D	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59		98				14	10			17				
	12	012	Dinakar K Dev	42	43	A	A	44	45	46	47	48	49	50	A	51	A	52	53	54		92				12	07			22				
	13	013	Divisha K R	42	43	44	45	46	47	48	A	A	A	49	50	51	52	53	54	55		96				23	23			16				
	14	014	Govardhan Nayaka S S	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52		84				15	13			18				
	15	015	Guruprasad K M	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60		100				15	21			16				
	16	016	Harsha Vardhan S H S	44	45	46	47	48	49	50	51	A	A	52	53	54	A	55	56	57		100				20	18			04				
	17	017	Harshitha B	31	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53		86				17	43			36				
	18	018	Harshitha N	39	40	41	42	43	44	45	46	A	A	47	48	49	50	51	52	53		90				28	13			24				
	19	019	Hruthik R	43	A	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58		96				35	20			21				
	20	020	Jhenkar G	41	42	43	44	45	46	47	A	48	49	A	50	51	52	53	54	55		94				23	21			29				
CS	1	4AD19CS001	Akshay Gujjal	42	43	44	45	46	47	48	A	A	A	A	A	49	50	51	52	53		96				24	16			24				
	2	4AD19CS002	Aman Kumar D	38	39	40	41	42	43	44	A	45	46	47	48	49	50	51	52	53		88				31	26			28				
	3	003	Amogh P	39	40	41	42	43	44	45	A	46	47	48	49	50	51	52	53	54		90				49	48			50				
	4	004	Anshu V Jain	42	43	44	45	A	46	47	48	49	50	51	52	53	54	55	56	57		94				35	47			30				
	5	005	Ananya B R	A	A	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56		92				29	14			28				
			No. of Abs.	2	3	2	3	1	1	0	7	6	5	3	04																			
			Initials																															



A T M E College of Engineering

ATTENDANCE

Semester & Section: I SEM 'E'

Course Title with Code: Engineering Physics, 18PHY12

Sl. No.	USN	Student Name	26/8	27/8	28/8	29/8	29/8	30/8	30/8	31/8	04/09	05/09	06/09	9/9	4/9	12/9	13/9	14/9	17/9	18/9	19/9	20/9	20/9
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
6	006	Anarghya Manonidhi Rashi S D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
7	007	Anirudh Nitin Bakare	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
8	008	Ankush Manjunath Nayak	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
9	009	Arun L	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	A	A	17	18	19
10	010	Ayesha V K	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
11	011	Babitha M	1	2	A	A	3	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
12	012	Bhavani Singh	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
13	013	Chandan Kumar M S	1	2	3	4	5	6	7	8	9	10	11	12	13	A	14	15	16	17	18	19	20
14	016	Chandana M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
15	014	Chandan P	1	2	3	4	5	6	7	8	A	9	10	11	12	13	14	15	16	A	17	18	19
16	015	Chandana M	1	2	3	4	5	6	7	A	8	9	10	11	12	13	14	A	15	16	17	18	19
17	017	Charitha Lakshminarayana	1	2	3	4	5	6	7	8	A	9	10	11	12	13	14	15	16	17	18	19	20
18	018	Chirag A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
19	—	Darshan M	1	2	A	3	A	A	A	A	A	A	A	A	A	A	A						
20	019	Gulab Singh	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	A	A	A	17	18
21	020	H M Suchin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	A	A	17	18	19
22	022	Harshitha L Gowda	1	2	3	4	5	6	7	8	9	10	11	A	12	13	14	15	17	18	[illegible]	19	20
23	021	Harshitha K G	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
24	023	Inchara T	1	2	3	4	5	6	7	8	A	9	10	11	12	13	14	15	17	18	19	20	21
25	024	Jathin Y	1	2	3	4	5	6	7	8	A	9	10	11	12	13	14	15	17	18	19	20	21
26	025	Kavya G D	1	A	A	A	A	A	A	2	3	4	5	6	7	8	9	10	11	12	13	14	15
27	026	Kavya L G	1	A	2	3	4	5	6	7	8	9	10	11	12	13	14	15	A	A	16	17	18
28	027	Keerthana N	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	17	18	19
29	028	Kevin Moses	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
30	029	Kishore K	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
	No. of Abs.		—	2	3	2	2	2	2	1	5	0	1	2	1	2	1	1	4	5	2	0	0
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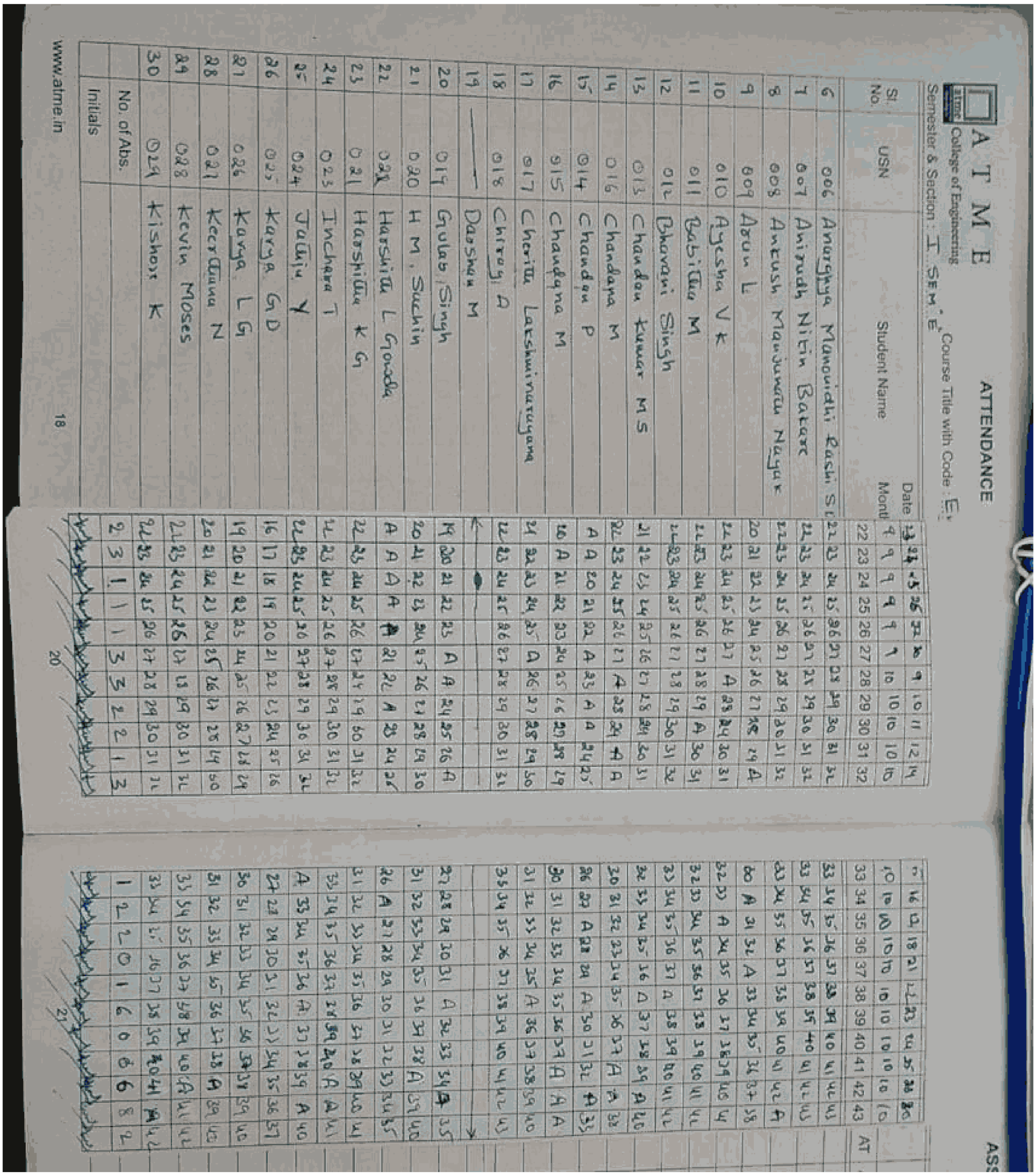

ATTENDANCE

Semester & Section : I SEM 'E' Course Title with Code : E

Sl. No.	USN	Student Name
6	006	Anaghya Manouidhi Rashi S
7	007	Anirudh Nitin Batkar
8	008	Anush Manjunath Nayak
9	009	Arun L
10	010	Ayesha V K
11	011	Babitha M
12	012	Bhavani Singh
13	013	Chandan Kumar M S
14	016	Chandana M
15	014	Chandan P
16	015	Chandana M
17	017	Charitha Lakshminarayana
18	018	Chiraj A
19	—	Darshan M
20	019	Gulab Singh
21	020	H M Sachin
22	022	Harshitha L Gowda
23	021	Harshitha K G
24	023	Inchara T
25	024	Jahnu Y
26	025	Karya G D
27	026	Kavya L G
28	027	Keerthana N
29	028	Kevin Moses
30	029	Kishore K
		No. of Abs.
		Initials

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ATME College of Engineering

ATTENDANCE

Semester & Section : I SEM 'E'   Course Title with Code : E

Sl. No.	USN	Student Name											
		Date	30	31	4	5	6	7	8	11	14	16	18
		Month	10	10	11	11	11	11	11	11	11	11	11
			44	45	46	47	48	49	50	51	52	53	54
6	006	Anarghya Manonidhi Rashi S	44	45	46	47	48	49	50	51	52	53	54
7	007	Anirudh Nitin Batare	44	45	46	47	48	49	50	51	52	53	54
8	008	Ankush Manjunath Nayak	43	A	44	45	46	47	48	49	50	51	52
9	009	Arun L	39	40	41	42	43	44	45	40	A	A	47
10	010	Ayesha V K	42	43	44	45	46	47	48	49	50	51	52
11	011	Babitha M	43	44	45	46	47	48	49	A	50	51	52
12	012	Bhavani Singh	43	44	43	44	45	46	47	A	48	49	50
13	013	Chandan Kumar M S	41	42	43	44	45	46	47	A	48	49	50
14	016	Chandana M	39	40	41	42	44	45	46	A	47	48	49
15	014	Chandan P	34	35	36	37	38	A	39	40	A	A	A
16	015	Chandana M	A	A	38	39	40	41	42	43	44	45	46
17	017	Charitha Lakshminarayana	41	42	43	44	45	46	47	48	49	50	51
18	018	Chirag A	44	45	46	47	48	49	50	A	51	52	53
19	—	Darshan M											
20	019	Gulab Singh	36	37	38	39	40	41	42	43	44	45	46
21	020	H M, Sachin	41	42	43	44	45	46	47	48	A	A	49
22	022	Harshitha L Gowda	36	37	38	39	40	41	42	43	A	A	44
23	021	Harshitha K G	42	43	44	45	46	47	48	49	50	51	52
24	023	Inchara T	42	43	44	45	46	47	48	A	49	50	51
25	024	Jathin Y	41	42	43	44	45	A	46	A	47	48	A
26	025	Kavya G D	38	39	40	41	42	43	44	A	45	46	47
27	026	Kavya L G	41	42	43	A	A	44	45	46	47	48	49
28	027	Keerthana N	41	42	43	44	45	46	47	48	49	50	51
29	028	Kevin Moses	43	44	45	46	A	A	47	48	49	50	51
30	029	Kishore K	43	44	45	46	47	48	49	50	A	A	51
	No. of Abs.		01	2	0	1	2	3	0	8	5	4	2
	Initials												

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ASSESSMENT

ATME College of Engineering

Sl. No.	55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
Date	19	20	21	22	23	27	Attendance				Assignments / Internal Test Marks									
Month	11	11	11	11	11	11														
6	55	56	57	58	59	60	-	100			10	16	46		30					
7	55	56	57	58	59	60	-	100			10	49	48		50					
8	63	64	65	66	67	68	-	96			10	42	35		38					
9	A	48	A	49	A	50		96			10	17	23		11 I					
10	53	54	55	56	57	58	-	96			10	36	42		44					
11	53	54	55	56	57	58	-	98			10	42	45		44					
12	51	52	53	54	55	A		94			10	48	44		43					
13	51	52	53	54	55	56		94			10	49	42		25					
14	50	51	57	58	59	60		92			10	26	32		38					
15	41	42	43	44	45	46		78			10	08	02		16 18 III					
16	47	48	49	50	51	52		84			10	20	24		19					
17	A	52	53	54	55	56		94			10	13	15		20					
18	54	55	56	57	58	59		100			10	24	24		16					
19																				
20	47	48	49	50	A	51		84			10	18	27		27					
21	50	51	A	52	53	54		94			10	32	32		39					
22	45	46	A	47	A	48		84			10	13	16		12					
23	53	54	55	56	57	58		96			10	20	35		18					
24	52	53	54	55	56	57		96			10	48	41		33					
25	49	50	51	52	53	54		92			10	33	30		19					
26	48	49	50	51	52	53		88			10	33	37		27					
27	50	51	A	52	53	54		90			10	38	35		18					
28	52	53	54	55	56	A		94			10	41	35		30					
29	52	53	54	55	56	A		94			10	37	23		19					
30	52	53	54	55	56	57		100			10	40	41		36					
No. of Abs.	2	9	4	0	3	3					1									
Initials																				

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ATME College of Engineering

ATTENDANCE

Course Title with Code : Engineering Physics, 18PHY12

Semester & Section : I SEM "E"

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	AT
		Date	26	27	28	28	29	30	30	31	31	02	06	09	11	12	13	14	17	18	19	20	20	
		Month	8	8	8	8	8	8	8	8	8	09	09	09	09	9	9	9	9	9	9	9	9	
31	030	Kruthvik K S	1	2	3	4	5	6	7	8	9	10	11	12	13	A	14	15	16	17	18	19	20	
32	031	Kusmitha H D	1	2	3	4	5	6	7	8	A	9	10	11	12	13	14	15	16	17	18	19	20	
33	032	Lavita Joyce	1	2	3	4	5	6	7	8	9	10	11	12	13	14	14	15	16	17	18	19	20	
34	033	Likhitha D M	1	2	A	A	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
35	034	M S Spoorthi	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
36	035	Madhusudhan K S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
	4AD18CV025	Nikitha Prakash						1	2	3	4	5	6	7	8	9	10	11	12	A	13	14	15	
	No. of Abs.		–	–	1	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	
	Initials																							

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A T M E College of Engineering

ATTENDANCE

Semester & Section : I SEM 'E'   Course Title with Code : E

Sl. No.	USN	Student Name
31	030	Kruthvik K S
32	031	Kusmitha H D
33	032	Lavita Joyce
34	033	Likwitha D M
35	034	M S Spoorthi
36	035	Madhusudhan K S
	4AD18CV035	Nikitha Prakash
	No. of Abs.	
	Initials	

Date	23	24	25	26	3	30	9	10	11	12	14
Month	9	9	9	9	9	9	10	10	10	10	10
	22	23	24	25	26	27	28	29	30	31	32
	21	22	23	24	25	26	27	28	29	30	31
31	21	22	23	24	25	26	27	28	29	30	31
32	21	22	23	24	25	26	27	A	28	29	30
33	20	21	22	23	24	25	26	27	A	28	29
34	22	23	24	25	26	27	28	29	30	31	32
35	22	23	24	25	26	27	29	19	30	31	32
36	16	17	18	19	20	A	21	A	22	23	24
No. of Abs.	0	0	0	0	0	1	0	2	1	0	0

Date	5	6	12	13	11	18	23	24	25	26	30
Month	10	10	10	10	10	10	10	10	10	10	10
	33	34	35	36	37	38	39	40	41	42	43
	32	33	34	35	A	A	A	A	A	A	38
31	32	33	34	35	36	37	38	39	40	41	42
32	31	32	33	34	35	36	37	38	A	39	40
33	30	31	32	33	34	35	36	37	38	39	40
34	33	34	35	36	37	38	39	40	41	A	42
35	33	34	35	36	37	38	39	40	41	42	43
36	25	26	27	28	29	30	31	32	33	A	34
No. of Abs.	0	0	0	0	1	1	1	1	2	3	0

A T M E College of Engineering

ATTENDANCE

Semester & Section : I SEM 'E'   Course Title with Code : E

Sl. No.	USN	Student Name	44 (30/10)	45 (31/10)	46 (2/11)	47 (5/11)	48 (6/11)	49 (7/11)	50 (8/11)	51 (11/11)	52 (14/11)	53 (16/11)	54 (18/11)
31	030	Kruthik K S	39	40	41	42	43	44	45	A	A	A	46
32	031	Kusmitha H D	43	44	45	46	47	48	49	A	50	51	52
33	032	Lavita Joyce	41	42	A	43	44	45	46	A	47	48	49
34	033	Likhitha D M	41	42	43	44	45	46	47	A	48	49	50
35	034	M S Spoorthi	43	44	45	46	47	48	49	50	51	52	53
36	035	Madhusudhan K S	44	45	A	46	47	48	49	A	50	51	52
	4AD15CV035	Nikitha Prakash	35	36	37	A	A	38	39	A	40	41	42
		No. of Abs.	0	0	2	1	1	0	0	6	1	1	0
		Initials											

ASSESSMENT

A T M E College of Engineering

Sl. No.	55 (19/11)	56 (20/11)	57 (21/11)	58 (22/11)	59 (23/11)	60 (27/11)	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
31	47	48	49	50	51	52		90				26	11			27				
32	53	54	55	56	57	58		98				29	39			36				
33	50	51	52	53	54	55		92				38	41			43				
34	51	52	53	54	55	56		94				28	30			31				
35	54	55	56	57	58	59		98				32	33			32				
36	53	54	55	56	57	58		98				31	20			40				
(Nikitha Prakash)	43	44	45	46	47	48		96				24	25			25				
No. of Abs.	0	0	0	0	0	0														

CBCS SCHEME

USN | | | | | | | | | | |

18CHE12/22

First/Second Semester B.E. Degree Examination, Dec.2019/Jan.2020

Engineering Chemistry

Time: 3 hrs. Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. Define Free Energy. Derive Nernst equation for single electrode potential. **(07 Marks)**

b. What are Reference Electrodes? Describe the construction and working of Calomel electrode. **(06 Marks)**

c. Explain the construction and working of Ni – Metal Hydride battery. Give the reaction during charging and discharging mode. Give any two applications. **(07 Marks)**

OR

2 a. Describe the construction and working of Lithium – ion battery. Give its applications. **(07 Marks)**

b. Write a note on Primary , Secondary and Reserve batteries. **(06 Marks)**

c. What are Concentration Cells? EMF of the cell $Ag/AgNO_3(C_1)$ // $AgNO_3$ (C_2 = 0.2m) / Ag is 0.8V. Calculate C_1 of the cell. $C_1 = 5.821\times10^{-15}$ M **(07 Marks)**

Module-2

3 a. What is Corrosion? Explain the Electrochemical theory of corrosion by taking iron as an example. **(07 Marks)**

b. Explain i) Differential Metal Corrosion ii) Pitting Corrosion. **(07 Marks)**

c. What do you mean by metal finishing? Mention any five technological importances. **(06 Marks)**

OR

4 a. Define and explain any two terms :
i) Polarisation ii) Decomposition potential iii) Over voltage. **(06 Marks)**

b. What is Electroless Plating? Explain the Electroless plating of copper. **(07 Marks)**

c. Explain the process of Galvanization. **(07 Marks)**

Module-3

5 a. What is Knocking? Explain the mechanism. **(07 Marks)**

b. On burning 0.96 grams of solid fuel in bomb calorimeter the temperature of 3500 grams of water increased by 2.7°C water equivalent of calorimeter and latent heat of steam are 385 grams and 587 cal/gram respectively. If the fuel contains 5% H_2 , calculate its gross and net calorific value. Specific heat of water = 4.187 kJ/kg K. **(06 Marks)**

c. What are Fuel Cells? Describe the construction and working of $CH_3OH – O_2$ fuel cell. **(07 Marks)**

GCV = 4671534.032 KJ/kg , NCV = 4670428 KJ/kg
HAS = 1105.96 KJ/kg

OR

6 a. What are Solar Cells? Explain the construction and working of a typical P.V. Cell. **(07 Marks)**

b. Explain the production of solar grade Si by Union Carbide Process. **(07 Marks)**

c. Write a note on : i) Power alcohol ii) Unleaded petrol. **(06 Marks)**

Module-4

7 a. What are the main sources, effects and control of lead pollution? (07 Marks)
b. Mention the various causes, effects and disposal methods of e – waste. (07 Marks)
c. 50 mℓ of an industrial sewage has consumed 11.5 mℓ of 0.4N $K_2Cr_2O_7$ solution for complete oxidation. Calculate C.O.D of industrial sewage. - 736 Mg/lt (06 Marks)

OR

8 a. Explain the activated sludge treatment of sewage water. (07 Marks)
b. What is Desalination? Describe the desalination of seawater by reverse Osmosis process. (07 Marks)
c. Write a note on Ozone depletion. (06 Marks)

Module-5

9 a. Explain the theory, Instrumentation and Application of Calorimetry. (06 Marks)
b. What is Potentiometric titration? Explain the principle involved in Potentiometric titration. (07 Marks)
c. Write a note on Fullerene. Mention its application. (07 Marks)

OR

10 a. What are Nano – materials? Give their synthesis by Sol – gel techniques. (07 Marks)
b. Write a note on Graphenes. Mention their applications. (07 Marks)
c. Explain the theory and applications of Atomic Absorption Spectroscopy. (06 Marks)

* * * * *

A T M E College of Engineering

Result Analysis I SEM 2019-20

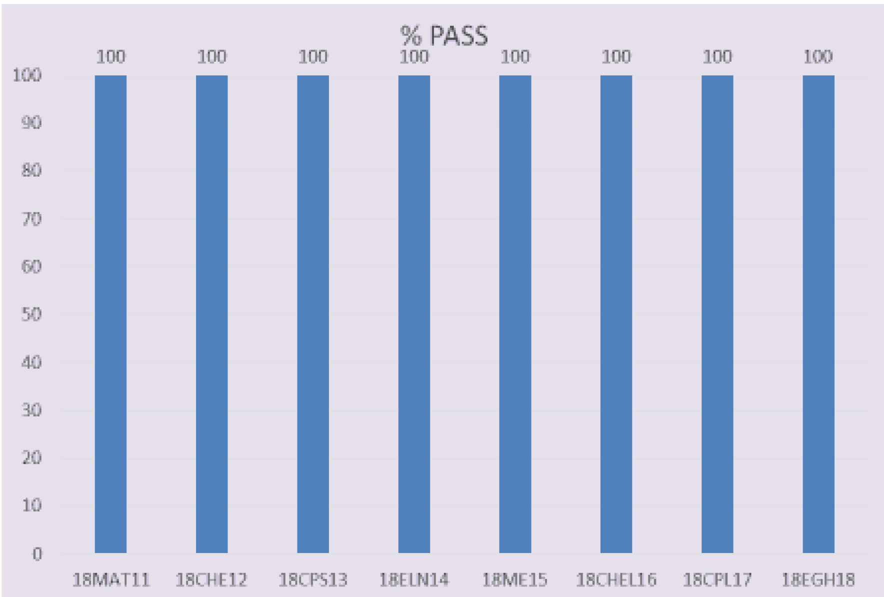
Vidyaasare Scheme Students				Branch: ECE, EEE & ME			
Subject	TA	PASS	FAIL	FCD	FC	SC	%P
18MAT11	12	12	0	6	6	0	100
18CHE12	12	12	0	5	6	1	100
18CPS13	12	12	0	0	10	2	100
18ELN14	12	12	0	4	6	2	100
18ME15	12	12	0	1	8	3	100
18CHEL16	12	12	0	10	2	0	100
18CPL17	12	12	0	11	1	0	100
18EGH18	12	12	0	0	11	1	100

A T M E College of Engineering

Result Analysis I SEM 2019-20

Graphical representation of % pass

Vidyaasare Scheme Students **Branch: ECE, EEE & ME**



A T M E College of Engineering

VISION OF THE INSTITUTE

Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

MISSION OF THE INSTITUTE

- To keep pace with advancements in knowledge and make the students competitive and capable at the global level.
- To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as torch bearers of tomorrow's society.
- To strive to attain ever-higher benchmarks of educational excellence.

VISION OF THE DEPARTMENT

Development of Academically Excellent, Culturally vibrant, Socially responsible and Globally Competent human resources.

MISSION OF THE DEPARTMENT

→ To keep pace with advancements in knowledge and make the students Competitive and Capable at the global level

→ To Create an Environment for the students to acquire the right physical, intellectual emotional and Moral foundations and shine as torch bearers of tomorrow's Society.

→ To strive to attain ever-higher benchmarks of Educationals excellence.

A T M E College of Engineering

Period From 26 Aug 2019 To Dec 2019 Semester : Odd ✓ / Even

Faculty Member : Dr. Mahesh Lohith K S

Designation : Associate Professor & Head

Department : PHYSICS

Faculty Member ID : PH01007

Sl. No.	Sem. / Sec. / Branch	Course Title	Course Code
1	I A (CV+CSE)	Engineering Physics	18PHY12
2			
3			
4			

	Review at the end of the				End of Semester
	1st Month	2nd Month	3rd Month	4th Month	
Staff					
HOD / Reviewer	3/9/19	3/10/19	3/11/19	3/12/19	

WORK DONE DIARY

AUG - 2019

WEEK 1		MONDAY AUG DATE 26	TUESDAY DATE 27	WEDNESDAY DATE 28
ACTIVITY	Class Hours	9-10 Theory Class Introduction (Scheme) 10-15 To 1-15 E, Batch Lab Introduction 2-00 To 4:45 F, Batch Lab Introduction	2-3 Introduction to Engineering Physics	10-11, Mechanical SH oscillator, Equation for Simple harmonic motion 12-15 → 1:15 (Swapped from 15 dates) Characteristics of SHM, Force Constant
	Others		Mentor - Mentee allocation for Iyear E, F A G Sec HoD's Meeting with Chairman	1) Minutes of Meeting HoDs with Chairman 2) Email list for Correction prepared.

WEEK 2		MONDAY SEP DATE 02	TUESDAY DATE 03	WEDNESDAY DATE 04
ACTIVITY	Class Hours	Holiday Ganesha Chathurthi	Classes swapped to KR Sathish Compensating for 30th Aug 2019.	Variation of Amplitude and phase with forced to driver frequency Helmholtz resonator
	Others	— " —	Email IDs of 'E', F and 'G' Sections updated with the corrected one. Note:- pending updation	Reallocation of Mentor Co-po Redefinition II attempt. LCC finalization

WEEK 3		MONDAY DATE 09	TUESDAY DATE 10	WEDNESDAY DATE 11
ACTIVITY	Class Hours	Reddy Shock Tube Numericals 9-10 Lab E1 10:15 → 1:15 Lab E2 2-10 → 4:45	Muharram Holiday	Numerical problems 10-11
	Others	—		HoD's Meeting with Chairman

WORK DONE DIARY

WEEK 1		THURSDAY DATE 29	FRIDAY DATE 30	SATURDAY DATE 31
ACTIVITY	Class Hours	9-10 - Spring Constant Springs in Series and Parallel Phasor representation of SHM 10-15 - 1:15 F2 Batch LAB 2:10 - 4:45 E2 Batch LAB	10-11 - Damped oscillations Theory of Damped oscillations 11:15 → 12:15 - Types of damping Quality factor. ↑ Swapped class from Sathish K R	Monday TT 9-10 AM → Forced oscillations Theory of forced oscillations 10:15 → 1:15 - E1 Batch LAB 2:10 → 5:10 - F1 Batch Lab
	Others	Updation and freezing the time table	Students Email updation	CO-PO Meeting, HoD's and Principal.

WEEK 2		THURSDAY DATE 05	FRIDAY DATE 06	SATURDAY DATE
ACTIVITY	Class Hours	Shock waves, Classification of waves, Types, Mach regimes, Generation of shock waves. Properties of Shock waves. 9 to 10 10:15 → 1:15 Lab F2 Batch 2:00 → 5:10 Lab E2 Batch	Application of shock waves Basic Conservation laws, Shock Tubes, Reddy Shock Tube.	Non-Working.
	Others		Result analysis at HO preparation (5:00 PM)	

WEEK 3		THURSDAY DATE 12	FRIDAY DATE 13	SATURDAY DATE 14
ACTIVITY	Class Hours	Elasticity, plasticity Stress Strain, Types of Stress and Strain LAB - F2 10:15 to 1:15 LAB - E2 2:10 to 4:45	Stress Strain Curve. Hooke's law LAB - G2 2:10 to 4:45	Variation of Stress in Strain, Stress-Strain Curve, importance of Elasticity, fatigue fracture, Elastic moduli Poisson ratio, Law β LAB E1, LAB F1
	Others	—	Torsional Characteristics New apparatus, Setup Trial.	—

A T M E College of Engineering

WORK DONE DIARY

WEEK 4		MONDAY DATE 16	TUESDAY DATE 17	WEDNESDAY DATE 18
ACTIVITY	Class Hours	ON Leave	Numerical problems on Shockwaves. (Additional problems)	Strain hardening and Strain softening, Compressive strain + Elongation Strain = Shearing Strain, Relation b/w Y, n and σ
	Others		Transistor characteristics New apparatus Set up Trial 2.	R-Cycle Meeting Document preparation for the meeting, Agenda, Points to etc

WEEK 5		MONDAY DATE 23	TUESDAY DATE 24	WEDNESDAY DATE 25
ACTIVITY	Class Hours	Torsion of a cylinder Expression for Couple per unit twist, Torsional Pendulum (9:10 to 10) LAB E1 10:15 to 1:15 LAB F1 2:00 to 4:45	Numerical problems on Elasticity. 2:00 to 3:00 PM Aptitude class Civil III Sem A sec 3:50 to 4:45 Number Series	Numerical problems Vectors. 10 to 11 AM Aptitude class CSE III Sem A and B 3:50 to 4:45 Number Series
	Others	Aptitude class III Sem EC - B sec Number Series	Parents of Students <75% att were called MoM of R-cycle meeting was prepared and mailed to all	Teacher's day and Engineer's day Celebrations

WEEK 6		MONDAY DATE 30	TUESDAY (OCT) DATE 01	WEDNESDAY DATE 02
ACTIVITY	Class Hours	9 to 10 → Revision of Topics for the test 10:15 to 1:15 Lab E1 2:00 to 4:45 Lab F1 HOD's Meeting with Chairman	I IA for First year Aptitude class ME III Sem 'A' 3:50 to 4:45 Number Series	Gandhi Jayanthi Holiday
	Others	—	Test Squad. Minutes of Meeting	

WORK DONE DIARY

A T M E College of Engineering

WEEK 4		THURSDAY DATE 19	FRIDAY DATE 20	SATURDAY DATE 21
ACTIVITY	Class Hours	Relation b/w Y, K, σ Relation b/w K, n, σ Relation b/w Y, K, n. LAB - F2 LAB - E2 Limiting values of σ Numerical Problems	Limiting values of σ Numerical problems Bending of Beams, Bending moment Expression for Y using Cantilever (2 periods) 10:00 AM to 12-15 PM Swapped by Sathish	Non Working
	Others	—	—	

WEEK 5		THURSDAY DATE 26	FRIDAY DATE 27	SATURDAY DATE 28
ACTIVITY	Class Hours	Multiplication of Vectors, Dot product, Cross Product, Scalar and Vector fields 9 to 10 AM Aptitude EEE III A Sec Number Series 3:50 to 4:45	Gradient, Divergence and Curl Gradient of V Divergence of E Curl of H 11-15 to 12-15	Mahalaya Amavasya Holiday
	Others	Resume Updation (Student Resume) 3 students	Budget Reappropriation letter submission.	—

WEEK 6		THURSDAY DATE 03	FRIDAY DATE 04	SATURDAY DATE 05
ACTIVITY	Class Hours	First IA for First year	First IA for First year	Ayudha Pooja
	Others	Aptitude question CERP upload.	Valuation of Blue Books	Valuation of Blue Books

ATME College of Engineering

WORK DONE DIARY

WEEK	ACTIVITY	MONDAY	TUESDAY	WEDNESDAY
WEEK 7		DATE 07	DATE 08	DATE 09
	Class Hours	Holiday Ayudha Pooja Mahanavami	Holiday Vijaya Dashami	Scheme and Solution, First IA, Discussion
	Others	—	—	Aptitude & RS Question Preparation
WEEK 8		DATE 14	DATE 15	DATE 16
	Class Hours	Equation of Continuity, Discussion, Dc and Ac Circuits, Displacement Current, Expression for Displacement Current 9-10 AM LAB E1 10:15 to 1:15 LAB F1 2:10 to 4:05	Numerical Problems 2 to 2:55	Electromagnetic Wave Eqn → E variation in Vacuum → Plane EM wave Polarization. 10 to 11 AM
	Others	—	IA Test Marks Analysis.	Minutes of meeting Aptitude Test from 2 to 4
WEEK 9		DATE 21	DATE 22	DATE 23
	Class Hours	Types of OF (Green) Communication System 9 to 10 LAB E1 – 10:15 to 1:15 LAB F1 – 2:10 to 5:10	Numerical Problems 2 to 2:55 PM	Quantum Mechanics Introduction 10-11 AM Planck's law de Broglie hypothesis
	Others	—	Request letter 1) Communicable 2) Prison 3) [illegible]	½ day leave

WORK DONE DIARY

ATME College of Engineering

WEEK	ACTIVITY	THURSDAY	FRIDAY	SATURDAY
WEEK 7		DATE 10	DATE 11	DATE 12
	Class Hours	Line Integral, Surface & Volume Integral 09 to 10 AM Lab E1 10:15 to 1:15 Lab F1 2:10 to 4:05	Gauss' flux theorem, Gauss divergence theorem — Gauss' theorem in magnetostatics 11:15 to 12:15	10 to 11 AM Stoke's theorem, Ampere's law, Biot-Savart law, Faraday's law of EMI
	Others	—	Evaluation, Result analysis and PPT	Aggregation of CO-PO of first year Subjects for PAM.
WEEK 8		DATE 17	DATE 18	DATE
	Class Hours	Optical fiber → Refraction Introduction, Structure of OF, Principle (TIR) Acceptance angle and NA 9 to 10 Lab F2 → 10:15 to 1:15 Lab G1 → 1:15 to 4:05	Expression for NA and Condition for propagation, Fractional RI Change, Relation between ∆ and NA, Modes of Propagation V Number, Types of OF (2 types) 11:15 to 12:15	Non Working
	Others	—	MoM typing, Revisit of CO-PO Mapping of 18PHY12 18PHY16.	
WEEK 9		DATE 24	DATE 25	DATE 26
	Class Hours	Matter wave Group and phase velocity, properties of matter wave, Expression for de Broglie wavelength. 9-10 LAB - PL LAB - EL	Heisenberg's Uncertainty principle, application, Wave function, Schrodinger wave equation. 11-15 to 12:15	No Theory Class Class Suspended
	Others	—	MOM - HOD's meeting with Principal.	

A T M E College of Engineering

WORK DONE DIARY

WEEK 10		MONDAY DATE 28	TUESDAY DATE 29	WEDNESDAY DATE 30
ACTIVITY	Class Hours	Schrodinger wave equation (Time independent) 9 to 10 and dimensions Physical significance Lab - E1 10:15 → 1:15 Lab - F1 2:00 - 4:45	Holiday Balipadyami	10-11 and 11:15 to 12:15 Probability density, Max born approximation, Normalization of w.f, Eigen function and Eigen value, Motion of particle in 1D potential well of infinite ht
	Others	—		HOD's Meeting with Chairman. Aptitude Test, CSE III Sem 'A' Sec.

WEEK 11		MONDAY DATE 04	TUESDAY DATE 05	WEDNESDAY DATE 06
ACTIVITY	Class Hours	Laser, Interaction of radiation with matter, Einstein's A & B Coefficients 9 to 10 LAB E1 10:15 to 1:15 LAB F1 2:00 to 4:45	2 to 3 PM Numerical problems	Expression for Energy density, Population inversion, Metastable state, Requisites of Laser 10-11 AM
	Others	—	Header design for Criterion - 8 - SAC Preparing Index page. HOD's Meeting. Staff Meeting Food Fest	HOD's Meeting on CO-PO with chairman

WEEK 12		MONDAY DATE 11	TUESDAY DATE 12	WEDNESDAY DATE 13
ACTIVITY	Class Hours	Revision of syllabus for Test (II IA) 9 to 10 LAB E1 10:15 to 1:15 LAB F1 2:00 to 4:45	II IA	II IA
	Others	—	—	Valuation of II IA Blue Books HOD's Meeting.

WORK DONE DIARY

A T M E College of Engineering

WEEK 10		THURSDAY DATE 31	FRIDAY (NOV) DATE 01	SATURDAY DATE 02
ACTIVITY	Class Hours	9-10 - Particle in 1D potential well Numerical problems Lab F2 10:15 to 1:15 Lab E2 2:00 to 4:45	Holiday Kannada Rajyotsava	Non-Working
	Others	—	MOM Preparation aptitude quiz preparation	—

WEEK 11		THURSDAY DATE 07	FRIDAY DATE 08	SATURDAY DATE 09
ACTIVITY	Class Hours	Carbon Dioxide Laser Semiconductor Laser 9-10 AM LAB-F2 10:15 to 1:15 LAB-G2 2:00 to 4:45	Applications of Laser Laser Range finder Compact disk. 11:15 to 12:15	Central Govt holiday Ayodhya verdict.
	Others	—	Video lecture.	—

WEEK 12		THURSDAY DATE 14	FRIDAY DATE 15	SATURDAY DATE 16
ACTIVITY	Class Hours	II IA	Holiday	I 10-11 → Classical free electron theory of metals - Failure of CFT II 11:15 - 12:15 - II IA QP → Scheme and Solution discussion
	Others	MOM - Co-PO, Mapping, Competency and PI Meeting	Valuation of Blue Book.	MOM - HOD's Meeting with chairman

Make

A T M E College of Engineering

WORK DONE DIARY

WEEK 13	MONDAY DATE 18	TUESDAY DATE 19	WEDNESDAY DATE 20
ACTIVITY – Class Hours	9-10 → Quantum free e theory, assumptions, Formulation and Energy. 10:15 to 1:15 – Lab E1 2:00 to 4:45 – Lab F1	Numerical problems on Lasers 2 to 3:15 PM	Density of states Formulation, Dependency on Energy and Temp. 10 to 11 AM
ACTIVITY – Others	—	Aptitude Test for III Sem ME HOD's Meeting	SAL (Latex format) Preparation

WEEK 14	MONDAY DATE 25	TUESDAY DATE 26	WEDNESDAY DATE 27
ACTIVITY – Class Hours	Fermi level in semi-conductor, Relation b/w Eg and EF in SC. Expression for σ. 9 to 10 AM Lab E1 – 10:15 to 1:15 PM Lab F1 – 2:00 to 4:45 PM	Kannada Rajyotsava Celebrations	Hall Effect, Dielectric displacement, polarization Polar and non polar dielectrics, polarizability 10 AM – 11 AM
ACTIVITY – Others	—	SAL – Tex – typing Meeting with Chairman reg attendance.	SAL – Text typing typing.

WEEK 15	MONDAY Dec DATE 2	TUESDAY DATE 3	WEDNESDAY DATE 4
ACTIVITY – Class Hours	Clausius – Mossotti relation, types of dielectrics, solid liquid and gas dielectrics 9 to 10 LAB E1 – 10:15 to 1:15 LAB F1 – 2 to 4:45	Revision	QP discussion
ACTIVITY – Others	—	Discussion with Parents Till 5:30	

WORK DONE DIARY

A T M E College of Engineering

WEEK 13	THURSDAY DATE 21	FRIDAY DATE 22	SATURDAY DATE 23
ACTIVITY – Class Hours	Fermi dirac distribution Expression for Fermi-Energy at 0 K, effective mass 9 to 10 AM LAB F2 LAB E2	Expression for σ Using QFET, Success of QFET, Semiconductors Introduction.	Class assigned to Mr Sachin
ACTIVITY – Others	—	Preparation for PTM.	Parents - Teachers meeting from 11 to 1

WEEK 14	THURSDAY DATE 28	FRIDAY DATE 29	SATURDAY DATE 30
ACTIVITY – Class Hours	Electrical polarization Mechanisms. Internal field. 9 to 10 LAB - F2 10:15 to 1:15 pm LAB - E2 2 to 4:45 PM	Expression for Internal field, local field Numerical problems	On leave
ACTIVITY – Others		HOD's Meeting with Chairman	

WEEK 15	THURSDAY DATE 5	FRIDAY DATE	SATURDAY DATE
ACTIVITY – Class Hours	QP – discussion.		
ACTIVITY – Others			

ATME College of Engineering

LEAVE DETAILS

Sl. No.	Date	Type	Reason	Actual Class Allotted (Course Code/Time)	Substitute Faculty Member	Signature of Substitute Faculty Member
1	16/9/19	CL	Running fever Sinusitis	18ELE13	Mr. Sathish K R	
2						
3						
4						

PROGRAM OUTCOMES (PO'S)

PO:1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems
PO:2	**Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
PO:3	**Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
PO:4	**Conduct investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions
PO:5	**Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations
PO:6	**The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO:7	**Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO:8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO:9	**Individual and Teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
PO:10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO:11	**Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PO:12	**Life-Long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

ATME College of Engineering

C1.1.1 - The Institution ensures effective curriculum delivery through a well planned and documented process

Supporting Documents

Index

Sl. No.	Academic Year	Particulars
1	**2019-20**	Academic Calendar- College & Department
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4		Learning Outcome- Course Module
5		Time Table
6		Teaching – Learning resources
7		Attendance Record
8		Bridge & Remedial Classes
9		Question Bank-VTU Previous Year QP
10		Academic Activity and its Planning
11		Result Analysis
12		Teachers Diary

Department of Computer Science and Engineering

JULY 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 WORKSHOP ART OF COUNSELING START DAY	3	4	5	6
7 START OF INTERNSHIP FOR 7TH SEM STUDENTS	8	9 WORKSHOP ART OF COUNSELING END DAY	10	11	12	13
14	15 FACULTY TRAINING MS OFFICE	16 FACULTY TRAINING MS OFFICE	17	18	19	20
21	22	23	24	25	26	27 NBA CRITERIA 2 & 3 WORKSHOP
28	29 COMMENCEMENT OF ODD SEM 2019-20 III, VI , VII	30	31			

June 2019

S	M	T	W	Th	F	Sa
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2	3	4	5	6	7	8
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23	24	25	26	27	28	29
30						

August 2019

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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

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AUGUST 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3 NON-WORKING
4	5	6	7	8	9 **COMMENCEMENT OF INDUCTION PROGRAM FOR FIRST YEAR**	10 WORKING MONDAY TT **ORIENTATION PROGRAM FIRST YEAR**
11	12 **HOLIDAY BAKRID**	13	14	15 **HOLIDAY INDEPENDENCE DAY**	16	17 NON-WORKING
18	19	20	21	22	23	24 WORKING THURSDAY TT **END OF 11 DAYS INDUCTION PRG FOR FIRST YEAR**
25	26 **COMMENCEMENT OF THEORY CLASSES FOR FIRST YEAR**	27	28	29	30	31 WORKING MONDAY TT

July 2019

S	M	T	W	Th	F	Sa
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21	22	23	24	25	26	27
28	29	30	31			

September 2019

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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

ATME College of Engineering

SEPTEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 HOLIDAY SWARNA GOWRI VRATAM GANESHA CHATHURTHI	3	4	5	6	7 NON-WORKING
8	9	10 10TH DAY OF MUHARRAM	11	12 FIRST IA SEMESTERS 3,5 & 7	13 FIRST IA SEMESTERS 3,5 & 7	14 WORKING MONDAY TT FIRST IA SEMESTERS 3,5 & 7
15	16	17	18	19	20	21 NON-WORKING
22	23	24	25	26	27	28 HOLIDAY MAHALAYA AMAVASYA
29	30					

August 2019

S	M	T	W	Th	F	Sa
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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

October 2019

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13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

A T M E College of Engineering

OCTOBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 FIRST IA FOR FIRST SEMESTER	**2** HOLIDAY 150TH GANDHI JAYANTHI	**3** FIRST IA FOR FIRST SEMESTER	**4** FIRST IA FOR FIRST SEMESTER	**5** NON- WORKING
6	**7** HOLIDAY AYUDHA POOJA	**8** HOLIDAY VIJAYA DASHAMI	**9**	**10**	**11**	**12** WORKING WEDNESDAY TT
13	**14**	**15**	**16**	**17**	**18** SECOND IA SEMESTERS 3,5 & 7	**19** NON- WORKING
20	**21** SECOND IA SEMESTERS 3,5 & 7	**22** SECOND IA SEMESTERS 3,5 & 7	**23**	**24**	**25**	**26** WORKING TUESDAY TT
27	**28**	**29** HOLIDAY BALIPADYAMI	**30**	**31**		

September 2019

S	M	T	W	Th	F	Sa
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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

November 2019

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17	18	19	20	21	22	23
24	25	26	27	28	29	30

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College of Engineering

NOVEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 **HOLIDAY KANNADA RAJYOTSAVA**	**2** NON-WORKING
3	**4**	**5**	**6**	**7**	**8**	**9** WORKING FRIDAY TT
10	**11** **WORLD SCIENCE DAY**	**12** **SECOND IA FOR FIRST SEMESTER**	**13** **SECOND IA FOR FIRST SEMESTER**	**14** **FIRST IA FOR FIRST SEMESTER**	**15** **HOLIDAY KANAKADASA JAYANTHI**	**16** NON-WORKING
17	**18**	**19**	**20**	**21**	**22** **THIRD IA SEMESTERS 3,5 & 7**	**23** WORKING TUESDAY TT PTM FIRST YEAR **THIRD IA SEMESTERS 3,5 & 7**
24	**25** **THIRD IA SEMESTERS 3,5 & 7**	**26**	**27**	**28**	**29**	**30** **LAST WORKING DAY HIGHER SEM** WORKING FRIDAY TT

October 2019

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27	28	29	30	31		

December 2019

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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

ATME College of Engineering

DECEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 LAB EXAM COMMENCEMENT HIGHER SEM	4	5	6	7 NON WORKING
8	9	10	11	12	13 THIRD IA FOR FIRST SEMESTER LAB EXAMS END HIGHER SEM	14 WORKING THIRD IA FOR FIRST SEMESTER
15	16 THIRD IA FOR FIRST SEMESTER THEORY EXAMS COMMENCEMENT FOR HIGHER SEM	17	18	19	20	21 NON WORKING LAST WORKING DAY FOR FIRST YEAR
22	23 LAB EXAMS COMMENCEMENT FIRST YEAR	24	25 HOLIDAY CHRISTMAS DAY	26	27	28 WORKING
29	30	31				

November 2019

S	M	T	W	Th	F	Sa
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17	18	19	20	21	22	23
24	25	26	27	28	29	30

January 2020

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26	27	28	29	30	31	

A T M E College of Engineering

Dr. L Basavaraj

ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
1	JANUARY				1	2	3	4		
2		5	6	7	8	9	10	11		
3		12	13	14	15	16	17	18	MAKARA SANKRANTHI	
4		19	20	21	22	23	24	25		
5		26	27	28	29	30	31		REPUBLIC DAY	Training the Trainer Program
5	FEBRUARY							1		
6		2	3	4	5	6	7	8		
7		9	10	11	12	13	14	15		COMMENCEMENT OF EVEN SEMESTER
8		16	17	18	19	20	21	22	MAHA SHIVARATHRI	Alumni Day
9		23	24	25	26	27	28	29		ATMEYA-2020
10	MARCH	1	2	3	4	5	6	7		
11		8	9	10	11	12	13	14		International Wonmen's Day Personality Enhancement Training for 4th Sem Students
12		15	16	17	18	19	20	21		IA-1
13		22	23	24	25	26	27	28	UGADI	First PTM
14		29	30	31						

Dr. L Basavaraj

ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
14	APRIL				1	2	3	4		
15		5	6	7	8	9	10	11	MAHAVEERJAYANTHI GOOD FRIDAY	ICRTST-2020
16		12	13	14	15	16	17	18	DR. AMBEDKAR JAYANTHI	IA Test II
17		19	20	21	22	23	24	25		ATMEYA
18		26	27	28	29	30			BASAVA JAYANTHI	Second PTM
18	MAY						1	2	MAY DAY	
19		3	4	5	6	7	8	9		
20		10	11	12	13	14	15	16		
21		17	18	19	20	21	22	23		IA Test III
22		24	25	26	27	28	29	30	IDUL FITR	Lab Test Week
23		31								
23	JUNE		1	2	3	4	5	6		Last Working Day
24		7	8	9	10	11	12	13		Practical Examination Schedule
25		14	15	16	17	18	19	20		Commencement of Theory Examination, II Sem till 4th July 2020, Higher Semesters till 20th July 2020 Graduation Day
26		21	22	23	24	25	26	27		
27		28	29	30					Non Working Saturdays	The commencement of Odd Semester is from 27th July 2020

Sd-
Dr. L Basavaraj
Principal

* Weekly Mentoring as per time table.
* Attendance will be regulary sent to parents through SMS
PTM dates for higher sem left to the descreption of HoDs.

ATME College of Engineering

Department of Computer Science & Engineering

CSE

JULY 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 WORKSHOP ART OF COUNSELING START DAY	3	4	5	6
7 START OF INTERNSHIP FOR 7TH SEM STUDENTS	8	9 WORKSHOP ART OF COUNSELING END DAY	10	11	12	13
14	15	16 FACULTY TRAINING MS OFFICE	17	18	19	20
21	22	23	24	25	26	27 NBA CRITERIA 2 & 3 WORKSHOP
28	29 COMMENCEMENT OF ODD SEM 2019-20 III, VI , VII	30	31			

June 2019

S	M	T	W	Th	F	Sa
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August 2019

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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

ATME College of Engineering

AUGUST 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 Induction Program For III,VSem Students	2	3 NON-WORKING
4	5	6	7	8 Induction Program For VII Sem Students	9 COMMENCEMENT OF INDUCTION PROGRAM FOR FIRST YEAR	10 WORKING MONDAY TT ORIENTATION PROGRAM FIRST YEAR
11	12 HOLIDAY BAKRID	13	14	15 HOLIDAY INDEPENDENCE DAY	16	17 NON-WORKING
18	19	20	21	22	23	24 WORKING THURSDAY TT END OF 11 DAYS INDUCTION PRG FOR FIRST YEAR
25	26 COMMENCEMENT OF THEORY CLASSES FOR FIRST YEAR	27	28	29	30	31 NON-WORKING

July 2019

S	M	T	W	Th	F	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September 2019

S	M	T	W	Th	F	Sa
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15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

ATME
College of Engineering

SEPTEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 HOLIDAY SWARNA GOWRI VRATAM GANESHA CHATHURTHI	3	4	5	6 Workshop on Amazon web services and Cloud Computing for 7th sem Start Day	7 WORKING MONDAY TT Workshop on Amazon web services and Cloud Computing for 7th sem End Day
8	9	10 10TH DAY OF MUHARRAM	11	12 FIRST IA SEMESTERS 3,5 & 7	13 FIRST IA SEMESTERS 3,5 & 7	14 WORKING TUESDAY TT FIRST IA SEMESTERS 3,5 & 7
15	16	17	18	19	20	21 NON-WORKING
22	23	24	25	26	27	28 HOLIDAY MAHALAYA AMAVASYA
29	30					

August 2019

S	M	T	W	Th	F	Sa
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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

October 2019

S	M	T	W	Th	F	Sa
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6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

ATME College of Engineering

OCTOBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2 HOLIDAY 150TH GANDHI JAYANTHI	3 FIRST IA FOR FIRST SEMESTER	4 FIRST IA FOR FIRST SEMESTER Workshop on Product Development starts for 5th & 7th Sem Start Day	5 WORKING WEDNESDAY TT FIRST IA FOR FIRST SEMESTER Workshop on Product Development starts for 5th & 7th Sem
6	7 HOLIDAY AYUDHA POOJA	8 HOLIDAY VIJAYA DASHAMI	9	10	11	12 NON- WORKING
13	14	15	16 Technical Talk organized by CS	17	18 SECOND IA SEMESTERS 3,5 & 7	19 NON-WORKING
20	21 SECOND IA SEMESTERS 3,5 & 7	22 SECOND IA SEMESTERS 3,5 & 7	23	24	25	26 WORKING TUESDAY TT First Phase Project Review for 7th Sem
27	28	29 HOLIDAY BALIPADYAMI	30	31		

September 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

November 2019

S	M	T	W	Th	F	Sa
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3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

A T M E
College of Engineering

NOVEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 HOLIDAY KANNADA RAJYOTSAVA	2 NON-WORKING
3	4	5	6	7	8 Technical Talk on Block Chain	9 WORKING FRIDAY TT
10	11 WORLD SCIENCE DAY	12 SECOND IA FOR FIRST SEMESTER	13 SECOND IA FOR FIRST SEMESTER	14 FIRST IA FOR FIRST SEMESTER	15 HOLIDAY KANAKADASA JAYANTHI	16 NON-WORKING
17	18	19	20	21	22 THIRD IA SEMESTERS 3,5 & 7	23 WORKING MONDA TT PTM FIRST YEAR THIRD IA SEMESTERS 3,5 & 7
24	25 THIRD IA SEMESTERS 3,5 & 7	26	27 Lab Test for 3,5,7th Sem	28 Lab Test for 3,5,7th Sem	29	30 LAST WORKING DAY HIGHER SEM WORKING FRIDAY TT

October 2019

S	M	T	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

December 2019

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

ATME
College of Engineering

DECEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 LAB EXAM COMMENCEMENT HIGHER SEM	4	5	6	7 NON WORKING
8	9	10	11	12	13 THIRD IA FOR FIRST SEMESTER LAB EXAMS END HIGHER SEM	14 WORKING THIRD IA FOR FIRST SEMESTER
15	16 THIRD IA FOR FIRST SEMESTER THEORY EXAMS COMMENCEMENT FOR HIGHER SEM	17	18	19	20	21 WORKING LAST WORKING DAY FOR FIRST YEAR
22	23 LAB EXAMS COMMENCEMENT FIRST YEAR	24	25 HOLIDAY CHRISTMAS DAY	26	27	28 NON WORKING
29	30	31				

November 2019

S	M	T	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

January 2020

S	M	T	W	Th	F	Sa
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12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

A T M E College of Engineering

Professor & Head
Dept. of Computer Science & Engg

A T M E
College of Engineering

ATME COLLEGE OF ENGINEERING, MYSURU
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Calendar of Events - EVEN SEMESTER- 2019-20
2^{nd}, 3^{rd} & 4^{th} Year of BE

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
1	JANUARY				1	2	3	4		
2		5	6	7	8	9	10	11		
3		12	13	14	15	16	17	18	MAKARA SANKRANTHI	
4		19	20	21	22	23	24	25		
5		26	27	28	29	30	31		REPUBLIC DAY	
5	FEBRUARY							1		
6		2	3	4	5	6	7	8		
7		9	10	11	12	13	14	15		COMMENCEMENT OF EVEN SEMESTER
8		16	17	18	19	20	21	22	MAHA SHIVARATHRI	
9		23	24	25	26	27	28	29		Project Phase -II , Review 1
10	MARCH	1	2	3	4	5	[illegible]	[illegible]		ATMEYA STAGE EVENT
11		8	9	10	11	12	13	[illegible]		FIRST IA, Women's Day 2020
12		15	[illegible]	[illegible]	18	19	20	21		FIRST IA , SEMINAR Presentation
13		22	23	24	25	26	27	28	CHANDRAMANA UGADI	National Level event - CSI
14		29	30	31						

A T M E
College of Engineering

ATME COLLEGE OF ENGINEERING, MYSURU
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
Calendar of Events - EVEN SEMESTER- 2019-20
2nd , 3rd & 4th Year of BE

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
14	APRIL				1	2	3	4		
15		5	6	7	8	9	10	11	MAHAVEERJAYANTHI GOOD FRIDAY	International Conference
16		12	13	14	15	16	17	18	DR. AMBEDKAR JAYANTHI	Internship Presentation
17		19	20	21	22	23	24	25		SECOND IA, [illegible] Alumni Meet
18		26	27	28	29	30			BASAVA JAYANTHI	Workshop for 6th SEMESTER Students and Project Phase -II , Review 2
18	MAY						1	2	MAY DAY	
19		3	4	5	6	7	8	9		CSI Anniversary
20		10	11	12	13	14	15	16		
21		17	18	19	20	21	22	23		THIRD IA
22		24	25	26	27	28	29	30	IDUL FITR	LAB IA
23		31								
23	JUNE		1	2	3	4	5	6		[illegible]
24		7	8	9	10	11	12	13		Practical Examination Schedule
25		14	15	16	17	18	19	20		Commencement of Theory Examination, II Sem till 4th July 2020, Higher Semesters till 20th July 2020
26		21	22	23	24	25	26	27		Graduation Day
27		28	29	30					Non Working Saturdays	Commencement of Odd Semester is from 27th July 2020

HOD

Professor & Head
Dept. of Computer Science & Engg
ATME COLLEGE OF ENGINEERING
MYSURU-570 028

ATME College of Engineering

Department of Computer Science & Engineering

Lesson Plan & Work-done Diary for AY: 2019-20, ODD Semester

Course with Code: Computer Networks-17CS52				Faculty: Nasreen Fathima			Semester & Section: 5 A	
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
				MODULE-1				
1	29-07-2019	Application Layer: Principles of Network Applications:	Chalk & Board	1	30-7-19	Application Layer-principles, Architectures, process services	chalk & board	
2	30-07-2019	Network Application Architectures, Processes Communicating, Transport Services Available to Applications	Chalk & Board	2	01-8-19	The services provided by Internet, AL protocols	chalk & board	
3	01-08-2019	Transport Services Provided by the Internet, Application-Layer Protocols	Chalk & Board	3	2-8-19	overview of HTTP, Types of connec'n's, Msg	chalk & board	
4	02-08-2019	The Web and HTTP: Overview of HTTP, Non-persistent and Persistent Connections, HTTP Message Format	Chalk & Board	4	5-8-19	user service interaction cookies	chalk & board	
5	05-08-2019	User-Server Interaction: Cookies, Web Caching, The Conditional GET	Chalk & Board	5	6-8-19	web caching, conditional GET	chalk & board	
6	06-08-2019	File Transfer: FTP Commands & Replies	Chalk & Board	6	8-8-19	FTP commands and Replies	chalk & board	
7	08-08-2019	Electronic Mail in the Internet: SMTP, Comparison with HTTP, MailMessage Format, Mail Access Protocols	Chalk & Board	7	13-8-19	Email Applic'n overview, comparison with HTTP, Msg format	chalk & board	
8	09-08-2019	DNS; The Internet's Directory Service:Services Provided by DNS	Chalk & Board	8	16-8-19	Services provided by DNS	chalk & board.	Mass bunk on 9/8/19

9	13-08-2019	Overview of How DNS Works, DNS Records and Messages	Chalk & Board	9.	19-8-19.	services provided by DNS continued	chalk & board	
10	16-08-2019	Peer-to-Peer Applications: P2P File Distribution, Distributed Hash Tables	Chalk & Board	10	20-8-19.	How DNS works	chalk & board	Extra class taken for DNS
				11	22-8-19	DNS working contd..	chalk & board	Extra class taken for DNS
				12	23-8-19.	DNS Records and msg peer to peer Applicatn	chalk & board	
				13	24-8-19.	P2P File distribution, Hash tables	chalk & board	

Course with Code: Computer Networks-17CS52				Faculty: Nasreen Fathima			Semester & Section: 5 A	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
				MODULE-2				
11	19-08-2019	**Transport Layer :** Introduction and Transport-Layer Services: Relationship Between Transport and Network Layers	Chalk & Board	14	26-8-19	Transport Layer services: Relationship b/n TL and NL, overview	chalk & board	Extra classes taken for Module - 1
12	20-08-2019	Overview of the Transport Layer in the Internet, Multiplexing and Demultiplexing: Connectionless Transport: UDP,UDP Segment Structure	Chalk & Board	15	27-8-19	Multiplexing and demultiplexing: connection less transport UDP.	chalk & board	
13	22-08-2019	UDP Checksum,	Chalk & Board	16	29-8-19	Building a Reliable data transfer protocol	chalk & board.	

14	23-08-2019	Principles of Reliable Data Transfer: Building a Reliable Data Transfer Protocol	PPT	17	30-8-19	Reliable data transfer protocol contd..	PPT	
15	24-08-2019	Pipelined Reliable Data Transfer Protocols, Go-Back-N, Selective repeat,	PPT	18	31-8-19	Reliable data transfer protocol contd..	PPT	since topic is complex extra class taken
16	26-08-2019	Connection-Oriented Transport TCP: The TCP Connection, TCP Segment Structure	Chalk & Board	19	31-8-19	Error Recovery using Go Back N	PPT	Taken extra class.
17	27-08-2019	Round-Trip Time Estimation and Timeout, Reliable Data Transfer, Flow Control	Chalk & Board	20	3-9-19	selective Repeat protocol	PPT	
18	29-08-2019	TCP Connection Management, Principles of Congestion Control	Chalk & Board	21	9-9-19	connecn oriented transport segment structure	chalk & board	
19	30-08-2019	The Causes and the Costs of Congestion,	Chalk & Board	22	16-9-19	seq no. and ACK nos	chalk & board	
20	03-09-2019	Approaches to Congestion Control	Chalk & Board	23	17-9-19	Reliable data transfer, Telnet, RTT estimation	chalk & board	
				24	17-9-19	student Response system	PPT	SRS used
				25	19-9-19	Flow control and TCP connection management	chalk & board	
				26	20-9-19	principles of congestion control	chalk & board	
				27	23-9-19	causes and cost of congestion, Approaches to congestn control	chalk & board	

Course with Code: Computer Networks-17CS52				Faculty: Nasreen Fathima			Semester & Section: 5 A	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-3								

21	05-09-2019	The Network layer: What's Inside a Router?: Input Processing	Chalk & Board	28	24-9-19	whats inside a Router, Input processing, switching, output	PPT	
22	06-09-2019	Switching, Output Processing, Where Does Queuing Occur? Routing control plane,	Chalk & Board	29	26-9-19	Queueing, IPV6	PPT	
23	07-09-2019	IPv6,A Brief foray into IP Security	Chalk & Board	30	27-9-19	IPv6, IP security, Routing algorithm.	PPT	
24	09-09-2019	Routing Algorithms: The Link-State (LS) Routing Algorithm, The Distance-Vector (DV) Routing Algorithm	PPT	31	30-9-19	Link state algorithm, the distance vector algorithm	PPT	
25	16-09-2019	Hierarchical Routing, Routing in the Internet	PPT	32	3-10-19	Distance vector algorithm continued	PPT	
26	17-09-2019	Intra-AS Routing in the Internet	PPT	33	10-10-19	Hierarchical Routing, Routing in Internet	PPT	
27	19-09-2019	RIP, Intra-AS Routing in the Internet	PPT	34	11-10-19	Intra AS Routing, RIP	PPT	
28	20-09-2019	OSPF, Inter/AS Routing	PPT	35	14-10-19	OSPF inter AS routing, Border Gateway protocol	PPT	
29	23-09-2019	BGP	PPT	36	15-10-19	Broadcast & Multicast Routing algorithm	PPT	
30	24-09-2019	Broadcast Routing Algorithms and Multicast	PPT	37	17-10-19	Question paper discussion	PPT	

Course with Code: Computer Networks-17CS52				Faculty: Nasreen Fathima			Semester & Section: 5 A	
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
				MODULE-4				
31	26-09-2019	**Wireless and Mobile Networks**: Cellular Internet Access	PPT	38	4-11-19	cellular n/w: 2G voice network 3G voice + data, 4G	PPT	content is less.
32	27-09-2019	An Overview of Cellular Network Architecture, 3G Cellular Data Networks	PPT	39	8-11-19	Mobility management principles, Addressing routing	PPT	simple content
33	30-09-2019	Extending the Internet to Cellular subscribers	PPT	40	11-11-19	Mobile IP	PPT	
34	01-10-2019	On to 4G: LTE, Mobility management	PPT	41	12-11-19	Mobility in cellular n/w, Hands off in GSM, Impact	PPT	
35	03-10-2019	Principles, Addressing, Routing to a mobile node	PPT					
36	10-10-2019	Mobile IP,	PPT					
37	11-10-2019	Managing mobility in cellular Networks	PPT					
38	14-10-2019	Routing calls to a Mobile user	PPT					
39	15-10-2019	Handoffs in GSM	PPT					
40	17-10-2019	Wireless and Mobility: Impact on Higher-layer protocols.	PPT					

Course with Code: Computer Networks-17CS52				Faculty: Nasreen Fathima			Semester & Section: 5 A	
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
MODULE-5								
41	24-10-2019	Multimedia Networking: Properties of video	PPT	42	14-11-19	properties of video, Audio, Types of multimedia n/w appl	PPT	
42	25-10-2019	properties of Audio, Types of multimedia Network Applications	PPT	43	16-11-19	streaming stored video, UDP, HTTP, Dash, CDN, Youtube	PPT	
43	26-10-2019	Streaming stored video: UDP Streaming,HTTP Streaming	PPT	44	18-11-19	N/w support for multimedia	PPT	Simple content so covered in less classes
44	28-10-2019	Adaptive streaming and DASH	PPT	45	19-11-19	Resource Reservation and call admission	PPT	
45	31-10-2019	content distribution Networks, case studies: You Tube	PPT					
46	04-11-2019	Network Support for Multimedia:	PPT					
47	05-11-2019	Dimensioning Best-Effort Networks	PPT					
48	07-11-2019	Providing Multiple Classes of Service	PPT					
49	08-11-2019	Diffserv, Per-Connection Quality-of-Service (QoS) Guarantees	PPT					
50	09-11-2019	Resource Reservation and Call Admission	PPT					

	Activity	Planned	Actual	Remarks
1	Theory Classes	50	45	could get only these many classes
2	Assignments/ Quizzes/ Self-study	3	3	
3	Tutorials/ Extra classes		–	
4	Internal Assessments	3	3	
5	ICT based Teaching (% of usage in Curriculum)	50%	50%	

Planning	Execution
Faculty Signature: Nayfath	**Faculty Signature:** Nayfath
HoD Signature: Gowda	**HoD Signature:** Gowda

Ref no: ATME/CSE/2018-19/MOM-18

DATE:
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11/6/19

Agenda:

1) Subject Allotment
2) Roles & responsibilities
3) Vacation slots
4) Academic & personal file updation.

Proceedings:

1) Subjects for the academic year 2019-20 (odd sem) was alloted

MSS — CO
PGD — CO, CO.
ACJ — ATC, ADE, ADElab.
NF — CN, INS, CN LAB
AMR — ADE, ACA, ADE LAB.
MSSP — .NET, ML, MLLAB
SS — ACA, DS, DSLAB
ABH — DBMS, SE, DBMS LAB
MBM — ME, ML LAB, ML, ME
JA — SE, DS, DSLAB
SNP — DBMS, DBMS LAB, INS
KB — JAVA
SCR — WEB, WEB LAB, .NET
KMM — ADE, ADE LAB, ATC
SG — SAN, SAN, JAVA
RAS — DS, DMS, DS LAB
KED — DMS, DMS, WEB, WEB LAB
PS — CN, SE, CN LAB
SV — CPS, CPS LAB
AD — CPS, CPS LAB.

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a) roles and responsibilities has been finalized as follows.

PGD — NBA Dept co-ordinator, Staff welfare association, college Alumni Association secretory, STOCK incharge, department budget incharge, Aptitude training chief co-ordinator, project co-ordinator.

ACJ — NBA dept cordinator, language lab chief co-ordinator, smart India Hackthon co-ordinator, Aptitude training, lab exam time table co-ordinator, ISO management representative, IQAC co-ordinator.

NF — NBA dept coordinator, workshop and seminar co-ordinator, research funding co-ordinator, Aptitude training, publication co-ordinator.

AMR — NBA dept co-ordinator, calendar of events, internal assessment co-ordinator, aptitude training

MSCP — Aptitude testing, project & Internship coordinator.

ABH — CISCO training co-ordinator, placement co-ordinator.

SS — Dept of CS Mail, Dept activity report, aptitude training, VTU circular co-ordinator.

MBM — Industrial visit coordinator, FDP co-ordinator,

IA — Time table coordinator, Dept ISO coordinator, Aptitude training.

SNP — AICTE co-ordinator, CST-co-ordinator, Meeting proceeding, Aptitude training.

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KB — College ERP Admin, Aptitude training, Club Activities co-ordinator.
SCR — NIRF, Result Analysis co-ordinator.
SG — Workshop & FDP co-ordinator, Industry institute interaction (MOU co-ordinator)
KMM — Cultural committee and stage co-ordinator, website co-ordinator, Internal assessment assistant co-ordinator.
RAS — Dept ERP co-ordinator
PS — Dept Association (COSMICS), technical training co-ordinator, LIC committee co-ordinator,
AD — Dept Library incharge, EMS co-ordinator.
KED — Placement assistant co-ordinator.
SV — Language lab in charge, NEN cell coordinator, NSS/Red cross co-ordinator, Intership co-ordinator.

3) faculties was informed not to club vacation leave with other leaves.

4) Faculties was informed to update their academic and personal file for the academic year 2018-19.

Copy to principal.

SNP -
SS -
NF - Naufath
KNH -
ABH - Bh
SV - Sushma. V
IA -
KB -
MSSP -

SCR -
ACJ -
PS -
MBH -
SG -
AD -
AMR -
RAS -

Ref No: ATME/CSE/2019-20/MOM-13.

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16/12/19 Agenda:

1. CO-PO Mapping
2. VTU Marks uploading
3. FDP program
4. Lab setup proposal
5. Conference
6. Training program in department
7. Subject Allotment.
8. Other issues.

Proceedings:

1. Following faculties was informed to complete CO-PO mapping using CI/PI method.

3rd sem:

DS - RAS
SE - IA
DMS - KED
CO - PS
ADE - AMR
ADElab - KMM
DSlab - SS
PCD - SV } 1st sem.
PCDlab - AD. }

5th sem:

ME - MBM
CN - NF
DBMS - ABH
ATC - ACJ
.Net - SCR
Java - KB
Nluelab - PS
DBMSlab - SNP

7th sem:

WED - SCR
ACA - PGD
ML - MSSP
SAN - SG

7th sem:

INS - SNP
MLlab - MBM
weblab - KED
Project - MSSP, Seminar - AMR

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* All faculties was informed to verify the subject CO's, check whether its matching with BLT, if not matching CO has to be reframed.
* CO-PO mapping process to be completed by 23/12/19.
* CO-PO mapping Review committee members are PGD, NF, MSSP, ACJ.

2. Internal marks entry of odd sem 2019-20 of all subjects to should be uploaded by 18/12/19. to VTU portal.

3. FDP program on "Microcontrollers and Embedded systems laboratory" to be conducted in the month of Jan 2020, proposal on the same should be submitted by MBM.

4. Mr. Mohanesh was instructed to submit the proposal of "Microcontrollers and Embedded systems laboratory" setup by 19/12/19.

5. * All faculties was informed to check the ATMTE conference website and report any changes or discrepancy if found to the co-ordinator.
   * Faculties belonging to research category was informed to submit individual papers. for the upcoming conference.
   * Faculties belonging to teaching learning process was informed to submit paper forming groups.

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6 Following teams was formed to improve Technical skills in students

① CISCO — ABH + KB + PS
② Technical training — ACJ + KB + ABH + RAS.
③ Oracle — NF
④ EMC^2 — MBM + SG
⑤ Android club — IA + SS
⑥ Teaching Learning Process — PGD + NF + ABH + MSSP + AMR + ACJ.

7. Subject for the academic year 2019-20 Even semester was alloted.

1) PGD — NUC
2) ACJ — SS & CD, Lab.
3) NF — CNC, IOT, CG MiniProject coordinator
4) MSSP — DM, python + CGlab (main 2 batches)
5) AMR — MC, MClab (4 batches)
6) SS — DAA, Lab.
7) ABH — Python + NUC, NUC lab (main 2 batches)
8) IA — DAA, DAAlab
9) SNP — OOC, OOC, IOT
10) KB — SS&CD, SS&CD lab
11) SCR — OOC, OS, OS (6th sem)
12) KMM — CG, NMS, CG lab
13) MBM — CG, NMS, CGlab (1 batch)
14) SY — DAA, DAA Lab, OS (4th sem)
15) SG — CPS (2 section) + CPS lab
16) PS — CNC, DC
17) RAS — OS (4th sem), OS (6th sem), Big data
18) AD — DC, DC, DM
19) KED — CPS, Big data, CPS lab.

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copy to Principal.

PWD -
NF - Nayath
SNP -
ACJ -
KED -
HBM -
ABH - Bhanil
MSSP -
KB -
KMM -
IA -
RAS -

COURSE MODULES FOR THE SESSION 2019-2020 (ODD SEM)

Course Syllabi with CO's

Academic Year: 2019 – 2020

Department: Computer Science and Engineering

Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
17CS52	COMPUTER NETWORKS	Core	Basics of Physical and Data link Layer	4	0	0	50

Topics Covered as per Syllabus

Module -1: Application Layer: Principles of Network Applications: Network Application Architectures, Processes Communicating, Transport Services Available to Applications, Transport Services Provided by the Internet, Application-Layer Protocols. The Web and HTTP: Overview of HTTP, Non-persistent and Persistent Connections, HTTP Message Format, User-Server Interaction: Cookies, Web Caching, The Conditional GET, File Transfer: FTP Commands & Replies, Electronic Mail in the Internet: SMTP, Comparison with HTTP, Mail Message Format, Mail Access Protocols, DNS; The Internet's Directory Service: Services Provided by DNS, Overview of How DNS Works, DNS Records and Messages, Peer-to-Peer Applications: P2P File Distribution, Distributed Hash Tables.

Module -2: Transport Layer :Introduction and Transport-Layer Services: Relationship Between Transport and Network Layers, Overview of the Transport Layer in the Internet, Multiplexing and Demultiplexing: Connectionless Transport: UDP,UDP Segment Structure, UDP Checksum, Principles of Reliable Data Transfer: Building a Reliable Data Transfer Protocol, Pipelined Reliable Data Transfer Protocols, Go-Back-N, Selective repeat, Connection-Oriented Transport TCP: The TCP Connection, TCP Segment Structure, Round-Trip Time Estimation and Timeout, Reliable Data Transfer, Flow Control, TCP Connection Management, Principles of Congestion Control: The Causes and the Costs of Congestion, Approaches to Congestion Control..

Module – 3: The Network layer: What's Inside a Router?: Input Processing, Switching, Output Processing, Where Does Queuing Occur? Routing control plane, IPv6,A Brief foray into IP Security, Routing Algorithms: The Link-State (LS) Routing Algorithm, The Distance-Vector (DV) Routing Algorithm, Hierarchical Routing, Routing in the Internet, Intra-AS Routing in the Internet: RIP, Intra-AS Routing in the Internet: OSPF, Inter/AS Routing: BGP, Broadcast Routing Algorithms and Multicast.

Module-4: Wireless and Mobile Networks: Cellular Internet Access: An Overview of Cellular Network Architecture, 3G Cellular Data Networks: Extending the Internet to Cellular subscribers, On to 4G:LTE,Mobility management: Principles, Addressing, Routing to a mobile node, Mobile IP, Managing mobility in cellular Networks, Routing calls to a Mobile user, Handoffs in GSM, Wireless and Mobility: Impact on Higher-layer protocols.

Module-5: Multimedia Networking: Properties of video, properties of Audio, Types of multimedia Network Applications, Streaming stored video: UDP Streaming, HTTP Streaming, Adaptive streaming and DASH, content distribution Networks, case studies: You Tube.

ATME College of Engineering

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

TIME TABLE FOR ODD SEMESTER - 2019-20

STAFF NAME:Nasreen Fathima

DAY	9.00 - 10.00	10.00 - 11.00	11:00-11:15	11.15-12.15	12:15-1:15	1:15 -2:00	2:00-2:55	2:55-3:50	3:50-4:45
MON	9.00-12.00 CN LAB-A1					LUNCH BREAK	CN (5A)		
TUE		CN (5A)						INS (7A)	
WED	INS (7A)	10.00-1.00 CN LAB-A2							
THU	9.00-12.00 CN LAB-A3				INS (7A)		CN (5A)		
FRI	CN (5A)			INS (7A)					
SAT									

Curricular		Units	Co-curricular	Units
Lecture	8h*2units	16	NBA Dept Coordinator(2)	2
Lab	9h*1unit	9	Workshop and Seminar Coordinator(1), Research Funding Co-ordinator, Publication coordinator(1)	2
Project	2G*2 units	4	Aptitude Training(1)	1
Total		29		5

COORDINATOR

HOD

Professor & Head
Dept. of Computer Science & Engg.
ATME COLLEGE OF ENGINEERING
MYSURU-570 0[illegible]

Network Support for Multimedia: Quality-of- Service (QoS) Guarantees: Resource Reservation and Call Admission.	
List of Text Books	
1. James F Kurose and Keith W Ross, Computer Networking, A Top-Down Approach, Sixth edition, Pearson,2017.	
List of Reference Books	
1. Behrouz A Forouzan, Data and Communications and Networking, Fifth Edition, McGraw Hill, Indian Edition 2. Larry L Peterson and Brusce S Davie, Computer Networks, fifth edition, ELSEVIER 3. Andrew S Tanenbaum, Computer Networks, fifth edition, Pearson 4. Mayank Dave, Computer Networks, Second edition, Cengage Learning	
List of URLs, Text Books, Notes, Multimedia Content, etc	
1. https://www.tutorialspoint.com/computer_networks/index.asp 2. https://www.geeksforgeeks.org/computer-network-tutorials/	
Course Outcomes	1. Explain principles of application layer protocols 2. Outline transport layer services and infer UDP and TCP protocols 3. Classify routers, IP and Routing Algorithms in network layer 4. Explain the Wireless and Mobile Networks covering IEEE 802.11 Standard 5. Define Multimedia Networking and Network Management
Internal Assessment Marks: 40 Marks (3 Session Tests are conducted during the semester and 30 marks will be allotted based on average of 2 best performances) and a additional 10 marks will be allotted from assignment.	

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	17CS52	Computer Networks									
List of Course Outcomes	Program Outcomes										
	PO -1	PO -2	PO -3	PO -4	PO -5	PO -6	PO -7	PO -8	PO -9	PO -10	PO -11	PO -12
CO-1	3	-	1	-	-	-	-	-	-	-	-	-
CO-2	3	1	1	-	-	-	-	-	-	-	-	-
CO-3	3	3	1	2	-	-	-	-	-	-	-	1
CO-4	2	1	-	-	-	-	-	-	-	-	-	-
CO-5	2	1	-	-	-	-	-	-	-	-	-	-

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution

The Correlation of Program Specific Outcome's (PSO's) and Program Outcomes (PO's)

Subject Code:	17CS52	Computer Networks
List of Course Outcomes	Program Specific Outcomes	
	PSO-1	PSO-2
CO-1	-	1
CO-2	-	1
CO-3	2	1
CO-4	-	1
CO-5	-	1

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution

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ATME COLLEGE OF ENGINEERING

ATME COLLEGE OF ENGINEERING

13th KM Stone, Bannur Road, Mysore - 560 028

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

(ACADEMIC YEAR 2019-20)

LESSON NOTES

SUBJECT: COMPUTER NETWORKS

SUB CODE: 17CS52

SEMESTER: V

INSTITUTIONAL MISSION AND VISION

Objectives

- To provide quality education and groom top-notch professionals, entrepreneurs and leaders for different fields of engineering, technology and management.
- To open a Training-R & D-Design-Consultancy cell in each department, gradually introduce doctoral and postdoctoral programs, encourage basic & applied research in areas of social relevance, and develop the institute as a center of excellence.
- To develop academic, professional and financial alliances with the industry as well as the academia at national and transnational levels.
- To develop academic, professional and financial alliances with the industry as well as the academia at national and transnational levels.
- To cultivate strong community relationships and involve the students and the staff in local community service.
- To constantly enhance the value of the educational inputs with the participation of students, faculty, parents and industry.

Vision

- Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

Mission

- To keep pace with advancements in knowledge and make the students competitive and capable at the global level.
- To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as torch bearers of tomorrow's society.
- To strive to attain ever-higher benchmarks of educational excellence.

Department of Computer Science & Engineering

Vision of the Department

- To develop highly talented individuals in Computer Science and Engineering to deal with real world challenges in industry, education, research and society.

Mission of the Department

- To inculcate professional behavior, strong ethical values, innovative research capabilities and leadership abilities in the young minds & to provide a teaching environment that emphasizes depth, originality and critical thinking.
- Motivate students to put their thoughts and ideas adoptable by industry or to pursue higher studies leading to research.

Program Educational Objectives (PEO'S):

1. Empower students with a strong basis in the mathematical, scientific and engineering fundamentals to solve computational problems and to prepare them for employment, higher learning and R&D.
2. Gain technical knowledge, skills and awareness of current technologies of computer science engineering and to develop an ability to design and provide novel engineering solutions for software/hardware problems through entrepreneurial skills.
3. Exposure to emerging technologies and work in teams on interdisciplinary projects with effective communication skills and leadership qualities.
4. Ability to function ethically and responsibly in a rapidly changing environment by applying innovative ideas in the latest technology, to become effective professionals in Computer Science to bear a life-long career in related areas.

Program Specific Outcomes (PSOs)

1. Demonstrate understanding of the principles and working of the hardware and software aspects of Embedded Systems.
2. Use professional Engineering practices, strategies and tactics for the development, implementation and maintenance of software.
3. Provide effective and efficient real time solutions using acquired knowledge in various domains.

Module – 1

APPLICATION LAYER

Principles of NetworkApplications

Network application development is writing programs that run on different end systems and communicate with each other over the network.

For example, in the Web application there are two distinct programs that communicate with each other: the browser program running in the user's host and the Web server program running in the Web server host.

Network ApplicationArchitectures.

There are two different network application architecture, they are

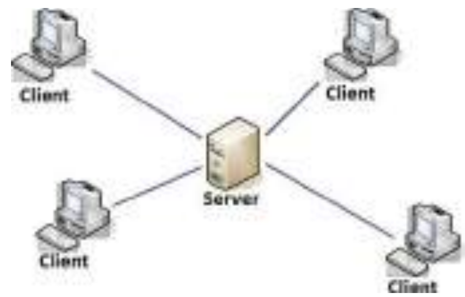
1) Client ServerArchitecture

2) P2PArchitecture

Client Server Architecture:

- In client-server architecture, there is an always-on host, called the server, which provides services when it receives requests from many other hosts, calledclients.

  Example: In Web application Web server services requests from browsers running on client hosts. When a Web server receives a request for an object from a client host, it responds by sending the requested object to the client host.
- In client-server architecture, clients do not directly communicate with eachother.
- The server has a fixed, well-known address, called an IP address. Because the server has a fixed, well-known address, and because the server is always on, a client can always contact the server by sending a packet to the server's IPaddress.
- Some of the better-known applications with a client-server architecture include the Web, FTP, Telnet, ande-mail.



Client Server Architecture

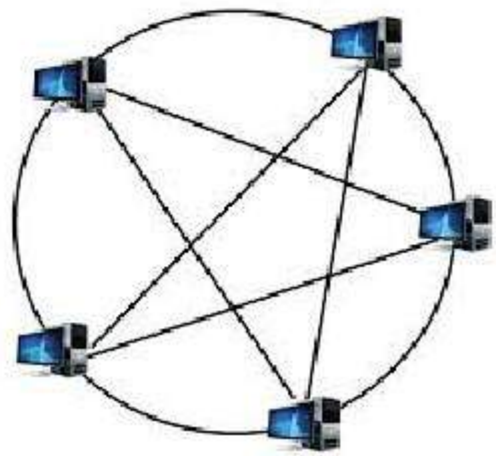
- In a client-server application, a single-server host is incapable of keeping up with all the requests from clients. For this reason, a data center, housing a large number of hosts, is often used to create a powerful virtualserver.
- The most popular Internet services—such as search engines (e.g., Google and Bing), Internet commerce (e.g., Amazon and e-Bay), Web-based email (e.g., Gmail and Yahoo Mail), social networking (e.g., Facebook and Twitter)— employ one or more datacenters.

Peer-to-peer (P2P) Architecture:

- In a P2P architecture, there is minimal dependence on dedicated servers in datacenters.
- The application employs direct communication between pairs of intermittently connected hosts, calledpeers.
- The peers are not owned by the service provider, but are instead desktops and laptops controlled by users, with most of the peers residing in homes, universities, andoffices.
- Many of today's most popular and traffic-intensive applications are based on P2P architectures. These applications include file sharing (e.g., BitTorrent), Internet Telephony (e.g., Skype), and IPTV (e.g., Kankan andPPstream).
- **Features:**
  - **Self-scalability:**

    For example, in a P2P file-sharing application, although each peer generates workload by requesting files, each peer also adds service capacity to the system by distributing files to other peers.
  - **Costeffective:**

    P2P architectures are also cost effective, since they normally don't require significant server infrastructure and server bandwidth



P2P Architecture

Future P2P applications face three major challenges:

1. **ISP Friendly.** Most residential ISPs have been dimensioned for "asymmetrical" bandwidth usage, that is, for much more downstream than upstream traffic. But P2P video streaming and file distribution applications shift upstream traffic from servers to residential ISPs, thereby putting significant stress on the ISPs. Future P2P applications need to be designed so that they are friendly toISPs
2. **Security.** Because of their highly distributed and open nature, P2P applications can be a challenge tosecure
3. **Incentives.** The success of future P2P applications also depends on convincing users to volunteer bandwidth, storage, and computation resources to the applications, which is the challenge of incentivedesign.

ProcessesCommunicating

- A Process is a program or application underexecution.
- When processes are running on the same or different end system, they can communicate with each other with inter process communication, using rules that are governed by the end system's operating system.
- Processes on two different end systems communicate with each other by exchanging messages across the computer network. A sending process creates and sends messages into the network; a receiving process receives these messages and possibly responds by sending messagesback.

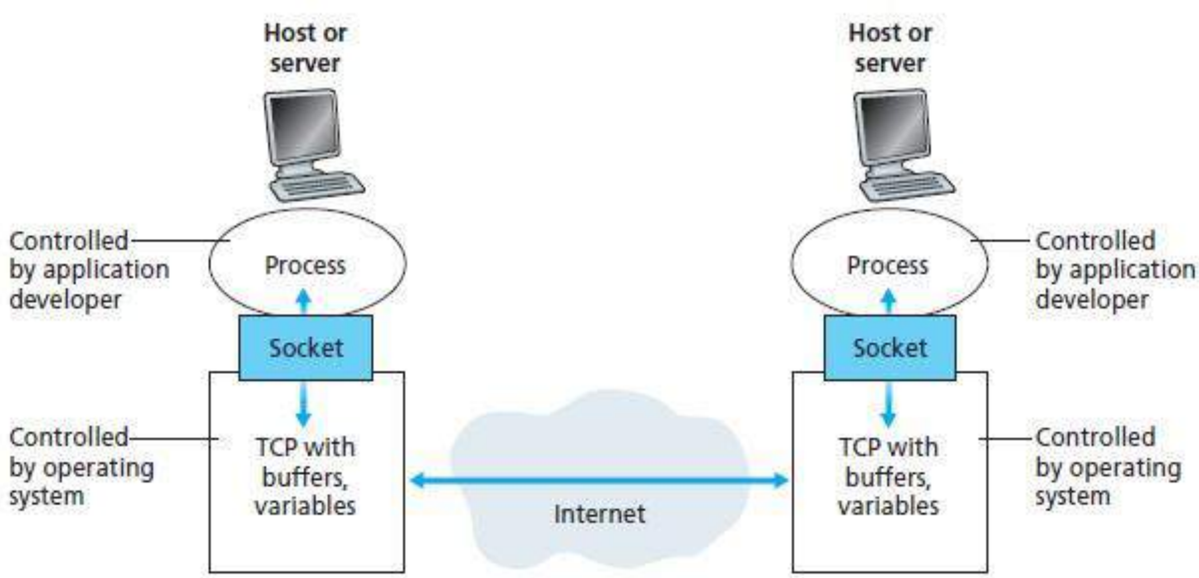
Client and Server Processes

- A network application consists of pairs of processes that send messages to each other over a network.

  For example, in the Web application a client browser process exchanges messages with a Web server process.
- In the context of a communication session between a pair of processes, the process that initiates the communication is labeled as the client. The process that waits to be contacted to begin the session is theserver.

The Interface between the Process and the Computer Network

- A process sends messages into, and receives messages from, the network through a software interface called asocket.
- It is also referred to as the Application Programming Interface (API) between the application and the network, since the socket is the programming interface with which network applications are built.
- The application at the sending side pushes messages through the socket. At the other side of the socket, the transport-layer protocol has the responsibility of getting the messages to the socket of the receivingprocess.



Application processes, sockets, and underlying transport protocol

Addressing Processes

- For a process running on one host to send packets to a process running on another host, the receiving process needs to have anaddress.
- To identify the receiving process, two pieces of information need to bespecified:
  (1) The address of thehost
  (2) An identifier that specifies the receiving process in the destinationhost.
- In the Internet, the host is identified by its IPaddress.
- In addition to knowing the address of the host to which a message is destined, the sending process must also identify the receiving process running in the host. A destination port number serves this purpose. Popular applications have been assigned specific port numbers. For example, a Web server is identified by port number 80. A mail server process (using the SMTP protocol) is identified by port number25.

Transport Services Available toApplications

1) Reliable DataTransfer

- Packets can get lost within a computer network. For example, a packet can overflow a buffer in a router, or can be discarded by a host or router after having some of its bitscorrupted.
- For many applications—such as electronic mail, file transfer, remote host access, Web document transfers, and financial applications—data loss can have devastatingconsequences.
- Thus, to support these applications, something has to be done to guarantee that the data sent by one end of the application is delivered correctly and completely to the other end of the application.
- If a protocol provides such a guaranteed data delivery service, it is said to provide reliable data transfer. One important service that a transport-layer protocol can potentially provide to an application is process-to-process reliable data transfer.
- When a transport protocol provides this service, the sending process can just pass its data into the socket and know with complete confidence that the data will arrive without errors at the receivingprocess.
- When a transport-layer protocol doesn't provide reliable data transfer, some of the data sent by the sending process may never arrive at the receiving process. Thismay be acceptable for

loss-tolerant applications, most notably multimedia applications such as conversational audio/video that can tolerate some amount of data loss.

2) Throughput

- Transport-layer protocol could provide guaranteed available throughput at some specified rate.
- With such a service, the application could request a guaranteed throughput of r bits/sec, and the transport protocol would then ensure that the available throughput is always at least r bits/sec. Such a guaranteed throughput service would appeal to manyapplications.

  For example, if an Internet telephony application encodes voice at 32 kbps, it needs to send data into the network and have data delivered to the receiving application at this rate.
- If the transport protocol cannot provide this throughput, the application would need to encode at a lower rate or may have to giveup.
- Applications that have throughput requirements are said to be bandwidth-sensitive applications. Many current multimedia applications are bandwidthsensitive
- Elastic applications can make use of as much, or as little, throughput as happens to beavailable. Electronic mail, file transfer, and Web transfers are all elasticapplications.

3) Timing

- A transport-layer protocol can also provide timingguarantees.
- Interactive real-time applications, such as Internet telephony, virtual environments, teleconferencing, and multiplayer games require tight timing constraints on data delivery in order to beeffective.

4) Security

- Transport protocol can provide an application with one or more securityservices.

  For example, in the sending host, a transport protocol can encrypt all data transmitted by the sending process, and in the receiving host, the transport-layer protocol can decrypt the data before delivering the data to the receiving process.
- A transport protocol can provide security services like confidentiality, data integrity and end-pointauthentication.

Transport Services Provided by theInternet

The Internet makes two transport protocols available to applications, UDP and TCP.

Application	Data Loss	Throughput	Time-Sensitive
File transfer/download	No loss	Elastic	No
E-mail	No loss	Elastic	No
Web documents	No loss	Elastic (few kbps)	No
Internet telephony/ Video conferencing	Loss-tolerant	Audio: few kbps–1 Mbps Video: 10 kbps–5 Mbps	Yes: 100s of msec
Streaming stored audio/video	Loss-tolerant	Same as above	Yes: few seconds
Interactive games	Loss-tolerant	Few kbps–10 kbps	Yes: 100s of msec
Instant messaging	No loss	Elastic	Yes and no

Requirements of selected network applications

TCP Services

The TCP service model includes a connection-oriented service and a reliable data transfer service.

1) Connection-orientedservice:

- In TCP the client and server exchange transport layer control information with each other before the application-level messages begin toflow.
- This handshaking procedure alerts the client and server, allowing them to prepare for an onslaught ofpackets.
- After the handshaking phase, a TCP connection is said to exist between the sockets of the twoprocesses.
- The connection is a full-duplex connection in that the two processes can send messages to each other over the connection at the same time.
- When the application finishes sending messages, it must tear down theconnection.

2) Reliable data transferservice:

- The communicating processes can rely on TCP to deliver all data sent without error and in the properorder.

- When one side of the application passes a stream of bytes into a socket, it can count on TCP to deliver the same stream of bytes to the receiving socket, with no missing or duplicate bytes.

TCP also includes a congestion-control mechanism.

UDP Services

- UDP is connectionless, so there is no handshaking before the two processes start to communicate.
- UDP provides an unreliable data transfer service—that is, when a process sends a message into a UDP socket, UDP provides no guarantee that the message will ever reach the receiving process.
- UDP does not include a congestion-control mechanism, so the sending side of UDP can pump data into the layer below (the network layer) at any rate itpleases.

Application	Application-Layer Protocol	Underlying Transport Protocol
Electronic mail	SMTP [RFC 5321]	TCP
Remote terminal access	Telnet [RFC 854]	TCP
Web	HTTP [RFC 2616]	TCP
File transfer	FTP [RFC 959]	TCP
Streaming multimedia	HTTP (e.g., YouTube)	TCP
Internet telephony	SIP [RFC 3261], RTP [RFC 3550], or proprietary (e.g., Skype)	UDP or TCP

Popular Internet applications, their application-layer protocols, and their underlying transport protocol

Application-LayerProtocols

An application-layer protocol defines:

- The types of messages exchanged, for example, request messages and responsemessages
- The syntax of the various message types, such as the fields in the message and how the fields are delineated

- The semantics of the fields, that is, the meaning of the information in thefields
- Rules for determining when and how a process sends messages and responds tomessages.

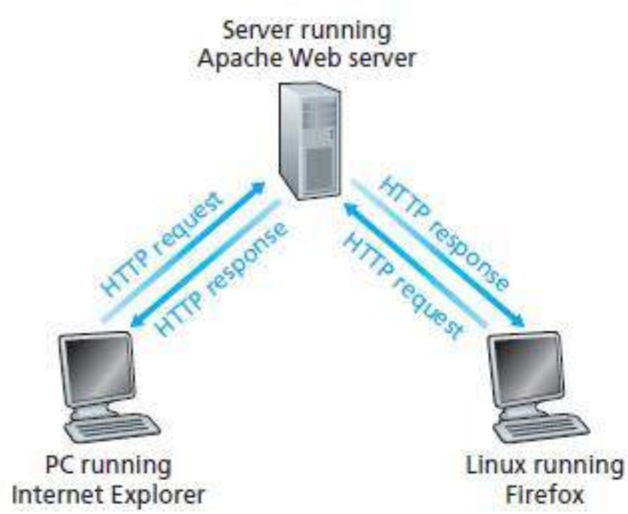
The Web and HTTP

Overview ofHTTP

- The Hyper Text Transfer Protocol (HTTP), the Web's application-layer protocol, is at the heart of theWeb.
- HTTP is implemented in two programs: a client program and a server program. The client program and server program, executing on different end systems, talk to each other by exchanging HTTP messages. HTTP defines the structure of these messages and how the client and server exchange themessages.
- A Web page consists of objects. An object is simply a file like HTML file, a JPEG image, a Java applet, or a video clip—that is addressable by a singleURL.
- Most Web pages consist of a base HTML file and several referenced objects. For example, if a Web page contains HTML text and five JPEG images, then the Web page has six objects: the base HTML file plus the fiveimages.
- The base HTML file references the other objects in the page with the objects' URLs. Each URL has two components: the hostname of the server that houses the object and the object's pathname.

  For example, the URL **http://www.saividya.ac.in/home/picture.gif**has **www.saividya.ac.in** for a hostname and **/home/picture.gif** for a path name.
- HTTP defines how Web clients request Web pages from Web servers and how servers transfer Web pages toclients.
- When a user requests a Web page (for example, clicks on a hyperlink), the browser sends HTTP request messages for the objects in the page to the server. The server receives the requests and responds with HTTP response messages that contain theobjects.
- HTTP uses TCP as its underlying transport protocol. The HTTP client first initiates a TCP connection with the server. Once the connection is established, the browser and the server processes access TCP through their socketinterfaces.

- It is important to note that the server sends requested files to clients without storing any state information about the client. If a particular client asks for the same object twice in a period of a few seconds, the server does not respond by saying that it just served the object to the client; instead, the server resends the object, as it has completely forgotten what it did earlier. Because an HTTP server maintains no information about the clients, HTTP is said to be a stateless protocol.



Non-Persistent and PersistentConnections

If Separate TCP connection is used for each request and response, then the connection is said to be non persistent. If same TCP connection is used for series of related request and response, then the connection is said to be persistent.

HTTP with Non-Persistent Connections

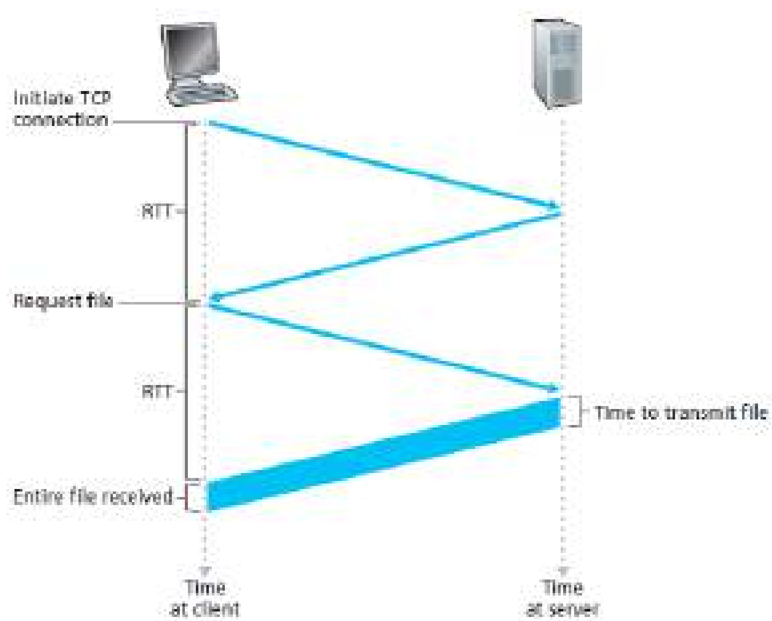
Let's suppose the page consists of a base HTML file and 10 JPEG images, and that all 11 of these objects reside on the sameserver.

Further suppose the URL for the base HTML file is http://www.someSchool.edu/someDepartment/home.index

Here is what happens:

1. The HTTP client process initiates a TCP connection to the server www.someSchool.edu on port number 80, which is the default port number for HTTP. Associated with the TCP connection, there will be a socket at the client and a socket at theserver.

2. The HTTP client sends an HTTP request message to the server via its socket. The request message includes the path name /someDepartment/home.index.
3. The HTTP server process receives the request message via its socket, retrieves theobject /someDepartment/home.index from its storage (RAM or disk), encapsulates the object in an HTTP response message, and sends the response message to the client via its socket.
4. The HTTP server process tells TCP to close the TCPconnection.
5. The HTTP client receives the response message. The TCP connection terminates. The message indicates that the encapsulated object is an HTML file. The client extracts the file from the response message, examines the HTML file, and finds references to the 10 JPEG objects.
6. The first four steps are then repeated for each of the referenced JPEGobjects.



- Round-trip time (RTT) is the time it takes for a small packet to travel from client to server and then back to theclient.
- The RTT includes packet-propagation delays, packet queuing delays in intermediate routers and switches, and packet-processingdelays.
- When a user clicks on a hyperlink, the browser initiate a TCP connection between the browser and the Web server; this involves a “three-way handshake”—the client sends a small TCP segment to the server, the server acknowledges and responds with a small TCP segment, and, finally, the client acknowledges back to theserver.

- The first two parts of the three way handshake take one RTT.
- After completing the first two parts of the handshake, the client sends the HTTP request message combined with the third part of the three-way handshake (the acknowledgment) into the TCPconnection.
- Once the request message arrives at the server, the server sends the HTML file into the TCP connection. This HTTP request/response eats up another RTT. Thus, roughly, the total response time is two RTTs plus the transmission time at the server of the HTMLfile.

HTTP with Persistent Connections

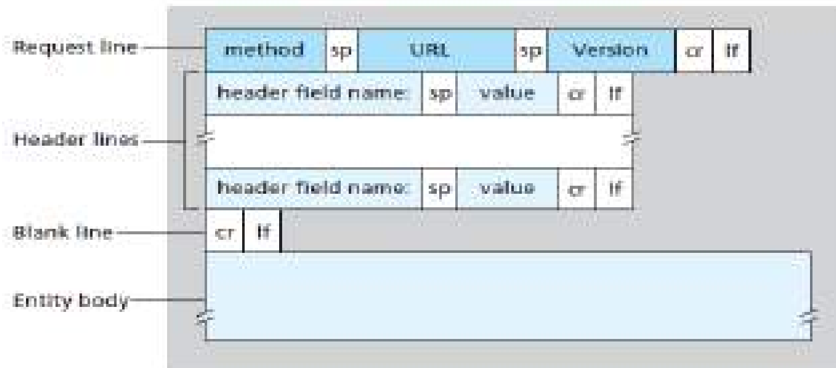
Non-persistent connections have some shortcomings.

1. A brand-new connection must be established and maintained for each requested object. For each of these connections, TCP buffers must be allocated and TCP variables must be kept in both the client and server. This can place a significant burden on the Web server, which may be serving requests from hundreds of different clientssimultaneously.
2. Each object suffers a delivery delay of two RTTs— one RTT to establish the TCPconnection and one RTT to request and receive anobject.

With persistent connections, the server leaves the TCP connection open after sending a response. Subsequent requests and responses between the same client and server can be sent over the same connection. In particular, an entire Web page can be sent over a single persistent TCP connection. Moreover, multiple Web pages residing on the same server can be sent from the server to the same client over a single persistent TCPconnection.

HTTP MessageFormat

HTTP RequestMessage:



Where sp – space, cr – carriage return and lf – line feed.

Method:

There are five HTTP methods:

- **GET:** The GET method is used when the browser requests an object, with the requested object identified in the URLfield.
- **POST:** With a POST message, the user is still requesting a Web page from the server, but the specific contents of the Web page depend on what the user entered into the form fields. If the value of the method field is POST, then the entity body contains what the user entered into the formfields.
- **PUT:** The PUT method is also used by applications that need to upload objects to Web servers.
- **HEAD:** Used to retrieve header information. It is used for debuggingpurpose.
- **DELETE:** The DELETE method allows a user, or an application, to delete an object on a Webserver.

URL: Specifies URL of the requested object

Version: This field represents HTTP version, usually HTTP/1.1

Header line:

Ex:

Host: www.someschool.edu

Connection: close

User-agent: Mozilla/5.0

Accept-language: fr

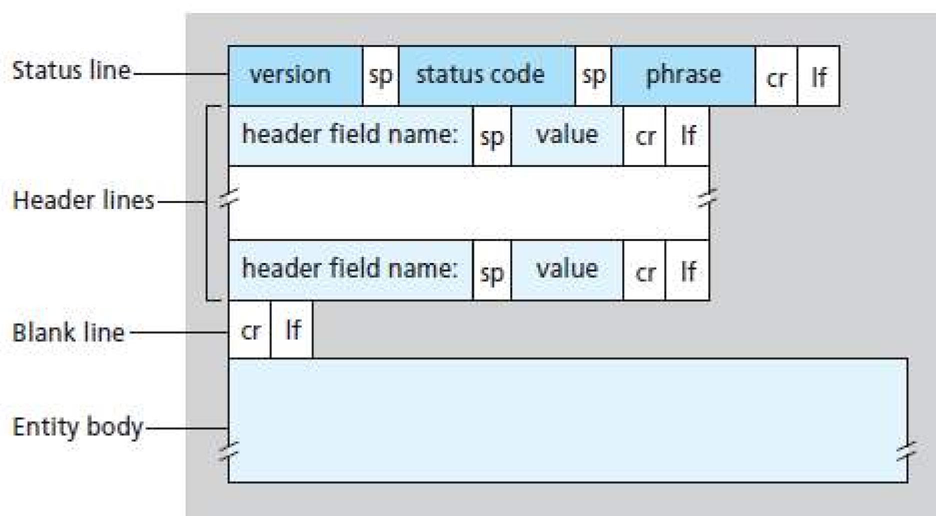
The header line **Host:www.someschool.edu** specifies the host on which the object resides.

By including the **Connection:close**header line, the browser is telling the server that it doesn't want to bother with persistent connections; it wants the server to close the connection after sending the requested object.

The **User-agent:** header line specifies the user agent, that is, the browser type that is making the request to the server. Here the user agent is Mozilla/5.0, a Firefox browser.

The **Accept-language:** header indicates that the user prefers to receive a French version of the object, if such an object exists on the server; otherwise, the server should send its default version.

HTTP Response Message



Ex:

```
HTTP/1.1 200 OK
Connection: close
Date: Tue, 09 Aug 2011 15:44:04 GMT
Server: Apache/2.2.3 (CentOS)
Last-Modified: Tue, 09 Aug 2011 15:11:03 GMT
Content-Length: 6821
Content-Type: text/html

(data datadatadatadata ...)
```

The **status line** has three fields: the protocol version field, a status code, and a corresponding status message.

Version is HTTP/1.1

The status code and associated phrase indicate the result of the request. Some common status codes and associated phrases include:

• 200 OK: Request succeeded and the information is returned in theresponse.

• 301 Moved Permanently: Requested object has been permanently moved; the new URL is specified in Location: header of the response message. The client software will automatically retrieve the newURL.

• 400 Bad Request: This is a generic error code indicating that the request could not be understood by theserver.

• 404 Not Found: The requested document does not exist on thisserver.

• 505 HTTP Version Not Supported: The requested HTTP protocol version is not supported by the server.

Header fields:

- The server uses the **Connection: close** header line to tell the client that it is going to close the TCP connection after sending themessage.
- The **Date:** header line indicates the time and date when the HTTP response was created and sent by theserver.
- The **Server:** header line indicates that the message was generated by an Apache Web

server; it is analogous to the User-agent: header line in the HTTP requestmessage.

- The **Last-Modified:** header line indicates the time and date when the object was created or lastmodified.
- The **Content-Length:** header line indicates the number of bytes in the object beingsent.
- The **Content-Type:** header line indicates that the object in the entity body is HTMLtext.

User-Server Interaction:Cookies

It is often desirable for a Web site to identify users, either because the server wishes to restrict user access or because it wants to serve content as a function of the user identity. For these purposes, HTTP uses cookies.

Cookie technology has four components:

(1) A cookie header line in the HTTP responsemessage;

(2) A cookie header line in the HTTP requestmessage;

(3) A cookie file kept on the user's end system and managed by the user'sbrowser;

(4) A back-end database at the Website.

Ex:

Suppose a user, who always accesses the Web using Internet Explorer from her home PC, contacts Amazon.com for the first time. Let us suppose that in the past he has already visited the eBay site. When the request comes into the Amazon Web server, the server creates a unique identification number and creates an entry in its back-end database that is indexed by the identification number. The Amazon Web server then responds to Susan's browser, including in the HTTP response a Set-cookie: header, which contains the identification number.

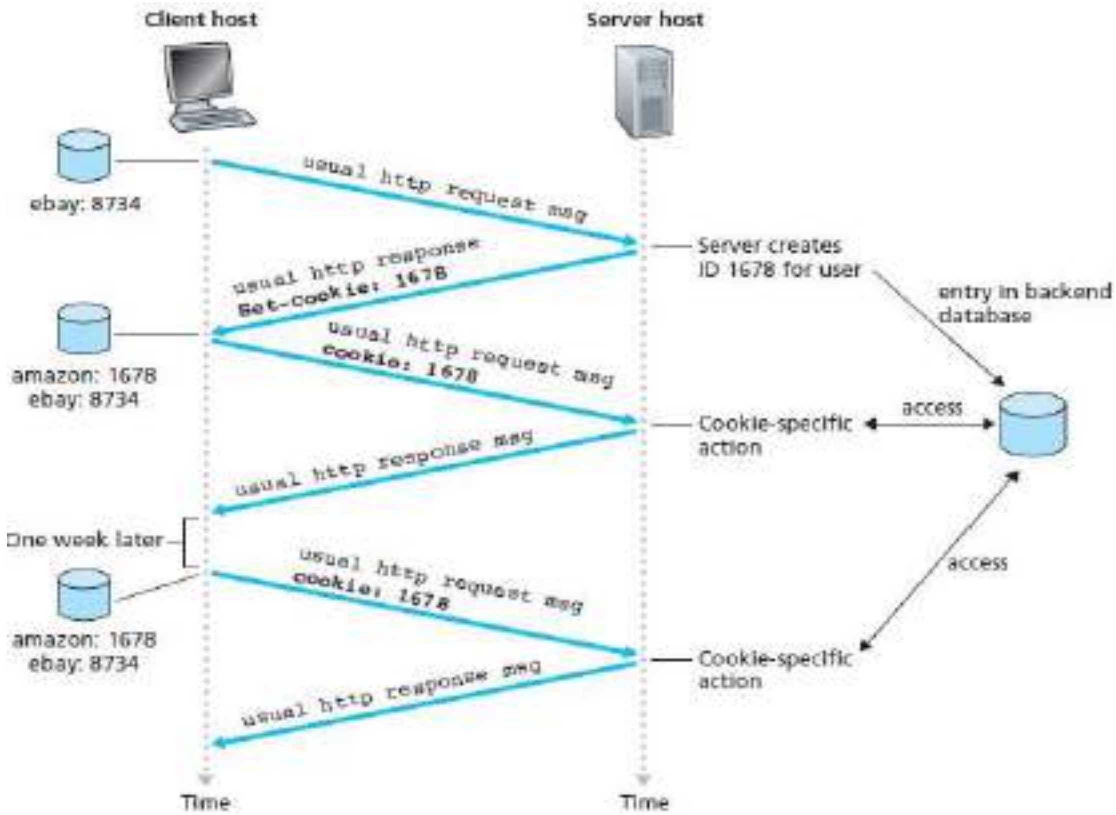
For example, the header line might be:

Set-cookie: 1678

When users browser receives the HTTP response message, it sees the Set-cookie: header. The browser then appends a line to the special cookie file that it manages. This line includes the hostname of the server and the identification number in the Set-cookie: header.

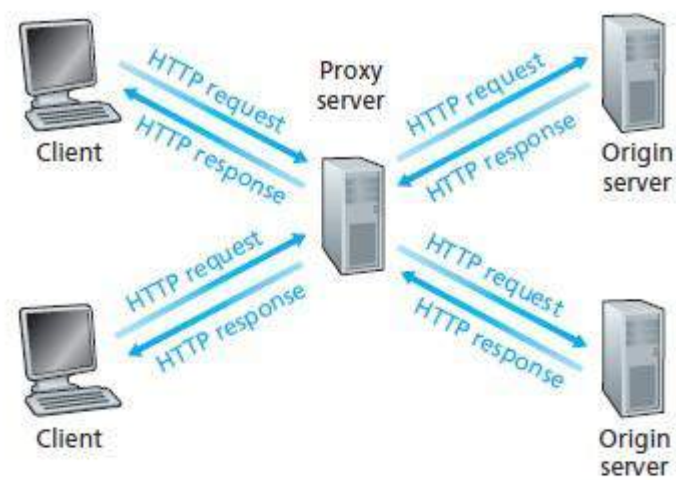
As user continues to browse the Amazon site, each time he requests a Web page, his browser consults his cookie file, extracts his identification number for this site, and puts a cookie header line that includes the identification number in the HTTP request. Specifically, each of his HTTP requests to the Amazon server includes the header line:

Cookie: 1678


Client host
Server host
ebay: 8734
usual http request msg
Server creates
ID 1678 for user
usual http response
Set-cookie: 1678
entry in backend
database
amazon: 1678
ebay: 8734
usual http request msg
cookie: 1678
Cookie-specific
action
access
usual http response msg
One week later
access
usual http request msg
cookie: 1678
amazon: 1678
ebay: 8734
Cookie-specific
action
usual http response msg
Time
Time

WebCaching

- A Web cache—also called a proxy server—is a network entity that satisfies HTTP requests on the behalf of an origin Webserver.
- The Web cache has its own disk storage and keeps copies of recently requested objects in this storage.
- A user's browser can be configured so that all of the user's HTTP requests are first directed to the Webcache.



Ex: Suppose a browser is requesting the object http://www.someschool.edu/campus.gif. Here is what happens:

1. The browser establishes a TCP connection to the Web cache and sends an HTTP request for the object to the Webcache.
2. The Web cache checks to see if it has a copy of the object stored locally. If it does, the Web cache returns the object within an HTTP response message to the clientbrowser.
3. If the Web cache does not have the object, the Web cache opens a TCP connection to the origin server, that is, to www.someschool.edu. The Web cache then sends an HTTP request for the object into the cache-to-server TCPconnection.
4. After receiving this request, the origin server sends the object within an HTTP response to the Webcache.
5. When the Web cache receives the object, it stores a copy in its local storage and sends a copy, within an HTTP response message, to the client browser (over the existing TCP connection between the client browser and the Webcache).

- When web cache receives requests from and sends responses to a browser, it is a server. When it sends requests to and receives responses from an origin server, it is aclient.
- Typically a Web cache is purchased and installed by an ISP. For example, a university might install a cache on its campus network and configure all of the campus browsers to point to the cache. Or a major residential ISP (such as AOL) might install one or more caches in its network and pre configure its shipped browsers to point to the installedcaches.
- Web caching has seen deployment in the Internet for two reasons. First, a Web cache can substantially reduce the response time for a client request. Second, Web caches can substantially reduce traffic on an institution's access link to theInternet.

The ConditionalGET

- Although caching can reduce user-perceived response times, it introduces a new problem—the copy of an object residing in the cache may be stale. In other words, the object housed in the Web server may have been modified since the copy was cached at the client.
- HTTP has a mechanism that allows a cache to verify that its objects are up to date. This mechanism is called the conditionalGET.
- An HTTP request message is a so-called conditional GET message if (1) the request message uses the GET method and (2) the request message includes an If-Modified- Since: header line.

Ex:

First, on the behalf of a requesting browser, a proxy cache sends a request message to a Web server:

```
GET /fruit/kiwi.gif HTTP/1.1
Host: www.exotiquecuisine.com
```

Second, the Web server sends a response message with the requested object to the cache:

```
HTTP/1.1 200 OK
Date: Sat, 8 Oct 2011 15:39:29
Server: Apache/1.3.0 (Unix)
Last-Modified: Wed, 7 Sep 2011 09:23:24
Content-Type: image/gif
(data datadatadatadata ...)
```

The cache forwards the object to the requesting browser but also caches the object locally. Importantly, the cache also stores the last-modified date along with the object.

Third, one week later, another browser requests the same object via the cache, and the object is still in the cache. Since this object may have been modified at the Web server in the past week, the cache performs an up-to-date check by issuing a conditional GET. Specifically, the cache sends:

```
GET /fruit/kiwi.gif HTTP/1.1
Host: www.exotiquecuisine.com
If-modified-since: Wed, 7 Sep 2011 09:23:24
```

This conditional GET is telling the server to send the object only if the object has been modified since the specified date.

Suppose the object has not been modified since 7 Sep 2011 09:23:24. Then, fourth, the Web server sends a response message to the cache:

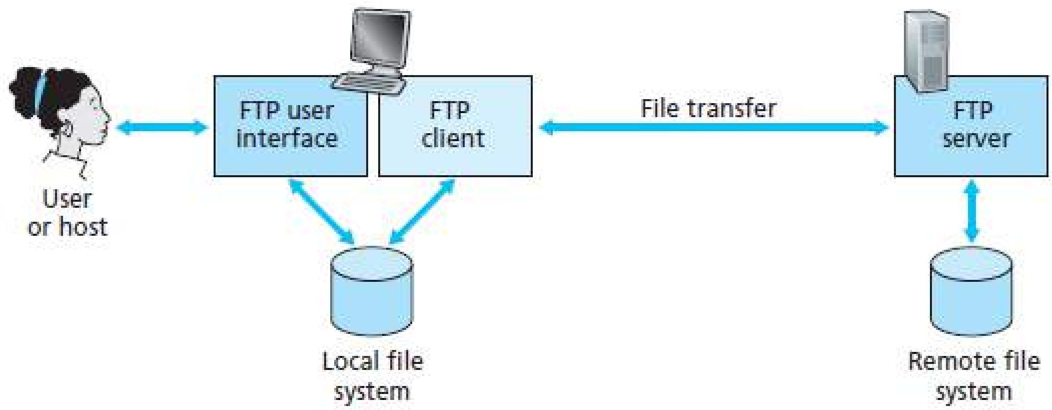
```
HTTP/1.1 304 Not Modified
Date: Sat, 15 Oct 2011 15:39:29
Server: Apache/1.3.0 (Unix)
(empty entity body)
```

We see that in response to the conditional GET, the Web server still sends a response message but does not include the requested object in the response message.

File Transfer:FTP

- FTP is used for transferring file from one host to anotherhost.
- In order for the user to access the remote account, the user must provide user identification and a password. After providing this authorization information, the user can transfer files from the local file system to the remote file system and viceversa.
- The user first provides the hostname of the remote host, causing the FTP client process in the local host to establish a TCP connection with the FTP server process in the remotehost.
- The user then provides the user identification and password, which are sent over the TCP connection as part of FTPcommands.

- Once the server has authorized the user, the user copies one or more files stored in the local file system into the remote file system (or viceversa).



- FTP uses two parallel TCP connections to transfer a file, a control connection and a data connection.
- The control connection is used for sending control information between the two hosts—information such as user identification, password, commands to change remote directory, and commands to "put" and "get"files.
- The data connection is used to actually send afile.

- When a user starts an FTP session with a remote host, the client side of FTP (user) first initiates a control TCP connection with the server side (remote host) on server port number 21.
- The client side of FTP sends the user identification and password over this control connection. The client side of FTP also sends, over the control connection, commands to change the remotedirectory.
- When the server side receives a command for a file transfer over the control connection (either to, or from, the remote host), the server side initiates a TCP data connection to the clientside.

- FTP sends exactly one file over the data connection and then closes the data connection. If, during the same session, the user wants to transfer another file, FTP opens another data connection.
- Thus, with FTP, the control connection remains open throughout the duration of the user session, but a new data connection is created for each file transferred within a session (that is, the data connections arenon-persistent).
- Throughout a session, the FTP server must maintain state about the user. In particular, the server must associate the control connection with a specific user account, and the server must keep track of the user's current directory as the user wanders about the remote directorytree.

FTP Commands andReplies

Some of the more common commands are given below:

• USER username: Used to send the user identification to theserver.

• PASS password: Used to send the user password to theserver.

• LIST: Used to ask the server to send back a list of all the files in the current remote directory. The list of files is sent over a (new and non-persistent) data connection rather than the control TCPconnection.

• RETR filename: Used to retrieve (that is, get) a file from the current directory of the remote host. This command causes the remote host to initiate a data connection and to send the requested file over the dataconnection.

• STOR filename: Used to store (that is, put) a file into the current directory of the remote host. Each command is followed by a reply, sent from server to client. The replies are three-digit numbers, with an optional message following thenumber.

• 331 Username OK, passwordrequired

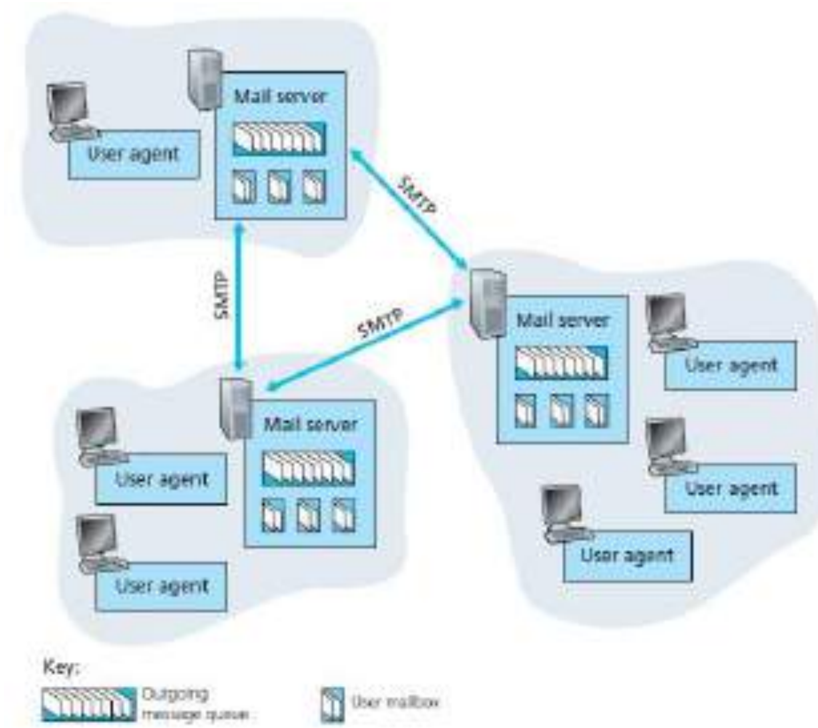
• 125 Data connection already open; transferstarting

• 425 Can't open dataconnection

• 452 Error writingfile

Electronic Mail in theInternet

E-mail has three major components: user agents, mail servers, and the Simple Mail Transfer Protocol (SMTP).



- **User agents** allow users to read, reply to, forward, save, and composemessages.
- **Mail servers** form the core of the e-mail infrastructure. Each recipient has a mailbox located in one of the mail servers. A typical message starts its journey in the sender's user agent, travels to the sender's mail server, and travels to the recipient's mail server, where it is deposited in the recipient'smailbox.
- **SMTP** is the principal application-layer protocol for Internet electronic mail. It uses the reliable data transfer service of TCP to transfer mail from the sender's mail server to the recipient's mail server. As with most application-layer protocols, SMTP has two sides: a client side, which executes on the sender's mail server, and a server side, which executes on the recipient's mailserver.

SMTP

SMTP transfers messages from senders' mail servers to the recipients' mail servers. It restricts the body (not just the headers) of all mail messages to simple 7-bit ASCII.

Suppose Alice wants to send Bob a simple ASCII message.

1. Alice invokes her user agent for e-mail, provides Bob's e-mail address (for example, bob@someschool.edu), composes a message, and instructs the user agent to send the message.

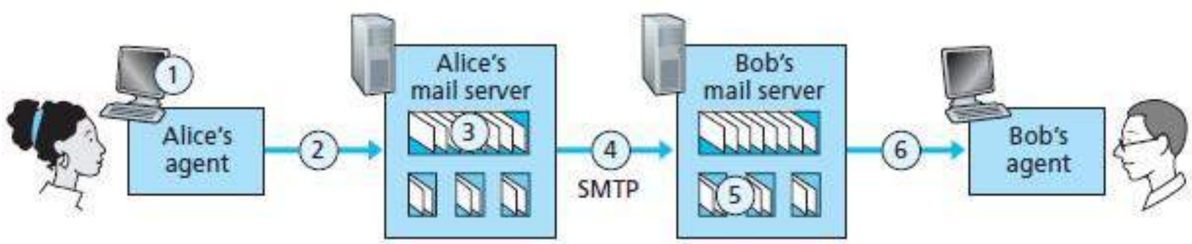
Alice's user agent sends the message to her mail server, where it is placed in a messagequeue.

2. The client side of SMTP, running on Alice's mail server, sees the message in the message queue. It opens a TCP connection to an SMTP server, running on Bob's mail server.

3. After some initial SMTP handshaking, the SMTP client sends Alice's message into the TCP connection.

4. At Bob's mail server, the server side of SMTP receives the message. Bob's mail server then places the message in Bob'smailbox.

5. Bob invokes his user agent to read the message at hisconvenience.



An example transcript of messages exchanged between an SMTP client (C) and an SMTP server (S).

S: 220 hamburger.edu

C: HELO crepes.fr

S: 250 Hello crepes.fr, pleased to meet you

C: MAIL FROM: <alice@crepes.fr>

S: 250 alice@crepes.fr ... Sender ok

C: RCPT TO:<bob@hamburger.edu>

S: 250 bob@hamburger.edu ... Recipient ok

C: DATA

S: 354 Enter mail, end with “.” on a line by itself

C: Do you like ketchup?

C: How about pickles?

C: .

S: 250 Message accepted for delivery

C: QUIT

S: 221 hamburger.edu closing connection

Comparison withHTTP

HTTP	SMTP
Pull Protocol- someone loads information on a Web server and users use HTTP to pull the information from the server at their convenience.	Push Protocol- the sending mail server pushes the file to the receiving mail server.
HTTP does not mandates data to be in 7-bit ASCII format.	SMTP requires each message, including the body of each message, to be in 7-bit ASCII format.
HTTP encapsulates each object in its own HTTP response message.	Internet mail places all of the message's objects into onemessage.

Mail MessageFormats

When an e-mail message is sent from one person to another, a header containing peripheral information precedes the body of the message.

The header lines and the body of the message are separated by a blank line.

Every header must have a From: header line and a To: header line; a header may include a Subject: header line as well as other optional header lines.

A typical message header looks like this:

From: alice@crepes.fr To: bob@hamburger.edu Subject: Searching for the meaning of life.

Mail AccessProtocols

SMTP protocol delivers the mail to the mail server. To fetch the mail from mail server receiver used mail access protocols.

There are currently a number of popular mail access protocols, including Post Office Protocol—Version 3 (POP3), Internet Mail Access Protocol (IMAP), and HTTP.

POP3

- POP3 is an extremely simple mail accessprotocol.
- POP3 begins when the user agent (the client) opens a TCP connection to the mail server (the server) on port110.
- With the TCP connection established, POP3 progresses through three phases: authorization, transaction, andupdate.
- During the **authorization phase**, the user agent sends a username and a password to authenticate theuser.
- During the **transaction phase**, the user agent retrieves messages; also during this phase, the user agent can mark messages for deletion, remove deletion marks, and obtain mailstatistics.
- The update phase occurs after the client has issued the quit command, ending the POP3 session; at this time, the mail server deletes the messages that were marked fordeletion.
- In a POP3 transaction, the user agent issues commands, and the server responds to each command with a reply. There are two possible responses: +OK used by the server to indicate that the previous command was fine; and -ERR, used by the server to indicate that something was wrong with the previouscommand.
- The authorization phase has two principal commands: user <username> andpass <password>.

```
user bob
+OK
pass hungry
+OK user successfully logged on
```

- A user agent using POP3 can often be configured (by the user) to "**download and delete**" or to "**download andkeep**."
- In the download-and-delete mode, the user agent will issue the list, retr, and delecommands.

Ex:

```
C: list
S: 1498
S: 2 912
S: .
```

```
C: retr 1
S: (blah blah ...
S: .................
S ...........blah)
S: .
C: dele 1
C: retr 2
S: (blah blah ...
S: .................
S ...........blah)
S: .
C: dele 2
C: quit
S: +OK POP3 server signing off
```

- A problem with this download-and-delete mode is that the recipient cannot access mail messages from multiplemachines.
- In the download-and keep mode, the user agent leaves the messages on the mail server after downloading them. In this case, user can reread messages from differentmachines.

IMAP

- With POP3 access, once user has downloaded his messages to the local machine, he can create mail folders and move the downloaded messages into the folders. User can then delete messages, move messages across folders, and search for messages (by sender name or subject).
- But this paradigm—namely, folders and messages in the local machine—poses a problem for the nomadic user, who would prefer to maintain a folder hierarchy on a remote server that canbe accessed from any computer. This is not possible with POP3—the POP3 protocol does not provide any means for a user to create remote folders and assign messages to folders.
- To solve this and other problems, the IMAP protocol was invented. Like POP3, IMAP is a mail access protocol. It has many more features than POP3, but it is also significantly more complex.

- An IMAP server will associate each message with a folder; when a message first arrives at the server, it is associated with the recipient's INBOXfolder.
- The recipient can then move the message into a new, user-created folder, read the message, delete the message, and soon.
- The IMAP protocol provides commands to allow users to create folders and move messages from one folder toanother.
- IMAP also provides commands that allow users to search remote folders for messages matching specificcriteria.
- Another important feature of IMAP is that it has commands that permit a user agent to obtain components of messages. For example, a user agent can obtain just the message header of a message or just one part of a multipart MIME message. This feature is useful when there is a low-bandwidth connection (for example, a slow-speed modem link) between the user agent and its mail server. With a low bandwidth connection, the user may not want to download all of the messages in its mailbox, particularly avoiding long messages that might contain, for example, an audio or videoclip.

Web-Based E-Mail

More and more users today are sending and accessing their e-mail through their Web browsers. In this case user communicates with its remote mailbox viaHTTP.

DNS—The Internet's DirectoryService

- All the hosts connected to network is identified by IP address. But it is difficult for human beings to remember these IP address to access a particular host. Hence hosts are identified by hostnames. Ex:google.com
- But the routers require IP address to forward thepacket.
- In order to map hostname with the IP address DNS isused.

Services Provided byDNS

- The DNS is (1) a distributed database implemented in a hierarchy of DNS servers, and (2) an application-layer protocol that allows hosts to query the distributeddatabase.

- DNS is commonly employed by other application-layer protocols—including HTTP, SMTP, and FTP—to translate user-supplied hostnames to IPaddresses.

Example:

Consider what happens when a browser running on some user's host, requests the URL www.someschool.edu/index.html.

In order for the user's host to be able to send an HTTP request message to the Web server www.someschool.edu, the user's host must first obtain the IP address of www.someschool.edu. This is done as follows.

1. The same user machine runs the client side of the DNSapplication.
2. The browser extracts the hostname, www.someschool.edu, from the URL and passes the hostname to the client side of the DNSapplication.
3. The DNS client sends a query containing the hostname to a DNSserver.
4. The DNS client eventually receives a reply, which includes the IP address for thehostname.
5. Once the browser receives the IP address from DNS, it can initiate a TCP connection to the HTTP server process located at port 80 at that IPaddress.

DNS provides a few other important services in addition to translating hostnames to IP addresses:

- **Host aliasing:** A host with a complicated hostname can have one or more alias names. For example, a hostname such as relay1.west-coast.enterprise.com could have, say, two aliases such as enterprise.com and www.enterprise.com. In this case, the hostname relay1.westcoast. enterprise.com is said to be a **canonical hostname.** Alias hostnames, when present, are typically more mnemonic than canonical hostnames. DNS can be invoked by an application to obtain the canonical hostname for a supplied alias hostname as well as the IP address of the host.
- **Mail server aliasing:** For obvious reasons, it is highly desirable that e-mail addresses be mnemonic. For example, if Bob has an account with Hotmail, Bob's e-mail address might be as simple as bob@hotmail.com. However, the hostname of the Hotmail mail server is more complicatedandmuchlessmnemonicthansimplyhotmail.com(forexample,thecanonical

hostname might be something like relay1.west-coast.hotmail.com). DNS can be invoked by a mail application to obtain the canonical hostname for a supplied alias hostname as well as the IP address of the host.

- **Load distribution:** DNS is also used to perform load distribution among replicated servers, such as replicated Web servers. Busy sites, such as cnn.com, are replicated over multiple servers, with each server running on a different end system and each having a different IP address. For replicated Web servers, a set of IP addresses is thus associated with one canonical hostname. The DNS database contains this set of IP addresses. When clients make a DNS query for a name mapped to a set of addresses, the server responds with the entire set of IP addresses, but rotates the ordering of the addresses within each reply. Because a client typically sends its HTTP request message to the IP address that is listed first in the set, DNS rotation distributes the traffic among the replicatedservers.

Overview of How DNSWorks

- Suppose that some application running in a user's host needs to translate a hostname to an IP address. The application will invoke the client side of DNS, specifying the hostname that needs to betranslated.
- DNS in the user's host then takes over, sending a query message into thenetwork.
- All DNS query and reply messages are sent within UDP datagrams to port 53. After a delay, ranging from milliseconds to seconds, DNS in the user's host receives a DNS reply message that provides the desired mapping. This mapping is then passed to the invokingapplication.

In this centralized design, clients simply direct all queries to the single DNS server, and the DNS server responds directly to the querying clients. Although the simplicity of this design is attractive, it is inappropriate for today's Internet, with its vast (and growing) number of hosts. The problems with a centralized designinclude:

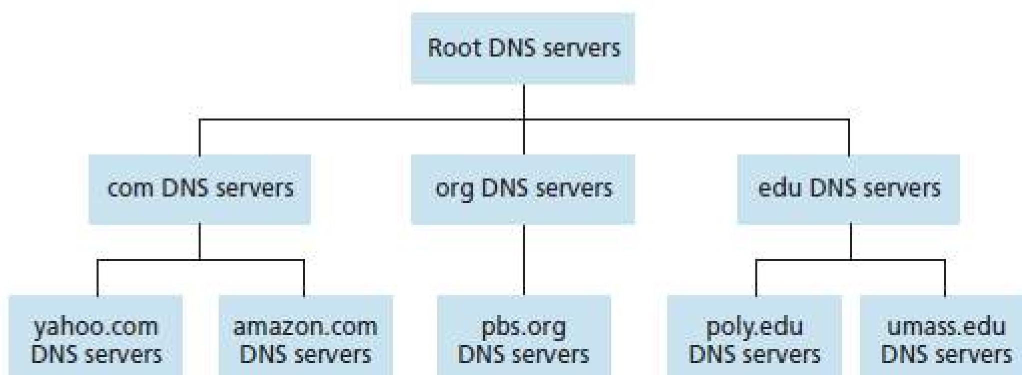
- A single point of failure. If the DNS server crashes, so does the entireInternet!
- Traffic volume. A single DNS server would have to handle all DNSqueries.
- Distant centralized database. A single DNS server cannot be "close to" all the querying clients. If we put the single DNS server in New York City, then all queriesfrom Australia

must travel to the other side of the globe, perhaps over slow and congested links. This can lead to significant delays.

- Maintenance. The single DNS server would have to keep records for all Internet hosts. Not only would this centralized database be huge, but it would have to be updated frequently to account for every newhost.

A Distributed, Hierarchical Database

- In order to deal with the issue of scale, the DNS uses a large number of servers, organized in a hierarchical fashion and distributed around theworld.
- There are three classes of DNS servers—root DNS servers, top-level domain (TLD) DNS servers, and authoritative DNS servers—organized in ahierarchy.

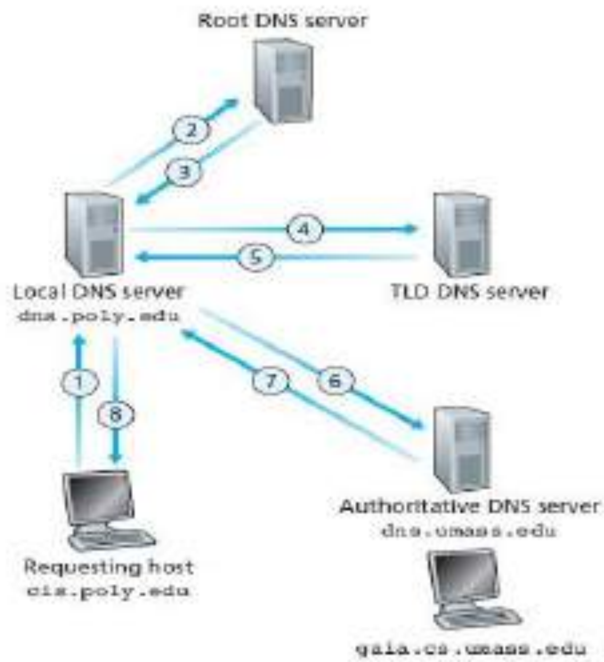


- **Root DNS servers.** In the Internet there are 13 root DNS servers (labeled A through M), most of which are located in NorthAmerica.
  Although we have referred to each of the 13 root DNS servers as if it were a single server, each "server" is actually a network of replicated servers, for both security and reliability purposes. All together, there are 247 root servers.
- **Top-level domain (TLD) servers:** These servers are responsible for top-level domains such as com, org, net, edu, and gov, and all of the country top-level domains such as in,uk, fr,ca.
- **Authoritative DNS servers:** Every organization with publicly accessible hosts on the Internet must provide publicly accessible DNS records that map the names of those hosts to IP addresses. An organization's authoritative DNS server houses these DNSrecords.
- There is another important type of DNS server called the **local DNS server**. A local DNS server does not strictly belong to the hierarchy of servers but is nevertheless central tothe

DNS architecture. Each ISP—such as a university, an academic department, an employee's company, or a residential ISP—has a local DNS server.

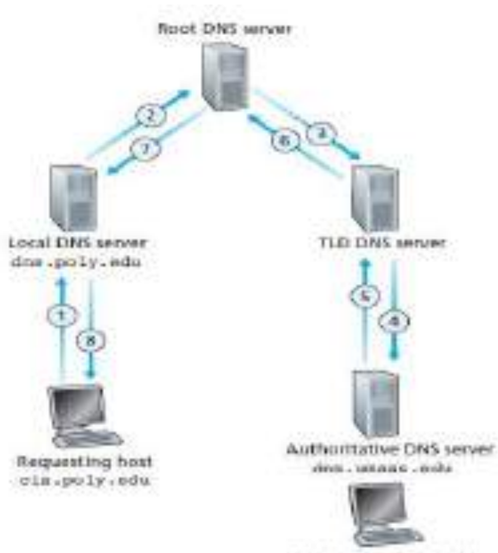
Two type of Interaction:

1) Recursive Queries:



Here DNS query is sent to local DNS server then to root server, then to TLD server and finally to authoritative DNS server. DNS response arrives in the reverseorder.

2) Iterative Queries:



Here DNS query will be sent to Local DNS server, then to root server. Root server sends the IP address of TLD server. Now local DNS server sends query to TLD DNS server. TLD DNS server sends the IP address of authoritative DNS server to local DNS server. Now Local DNS server sends query to authoritative DNS server. Authoritative DNS server sends the IP address of host to local DNS server. Local DNS server sends it to thehost.

DNS Caching

In a query chain, when a DNS server receives a DNS reply it can cache the mapping in its local memory.

If a hostname/IP address pair is cached in a DNS server and another query arrives to the DNS server for the same hostname, the DNS server can provide the desired IP address, even if it is not authoritative for the hostname. Because hosts and mappings between hostnames and IP addresses are by no means permanent, DNS servers discard cached information after a period of time (often set to two days).

DNS Records andMessages

The DNS servers that together implement the DNS distributed database store **resource records** (RRs).

A resource record is a four-tuple that contains the following fields:

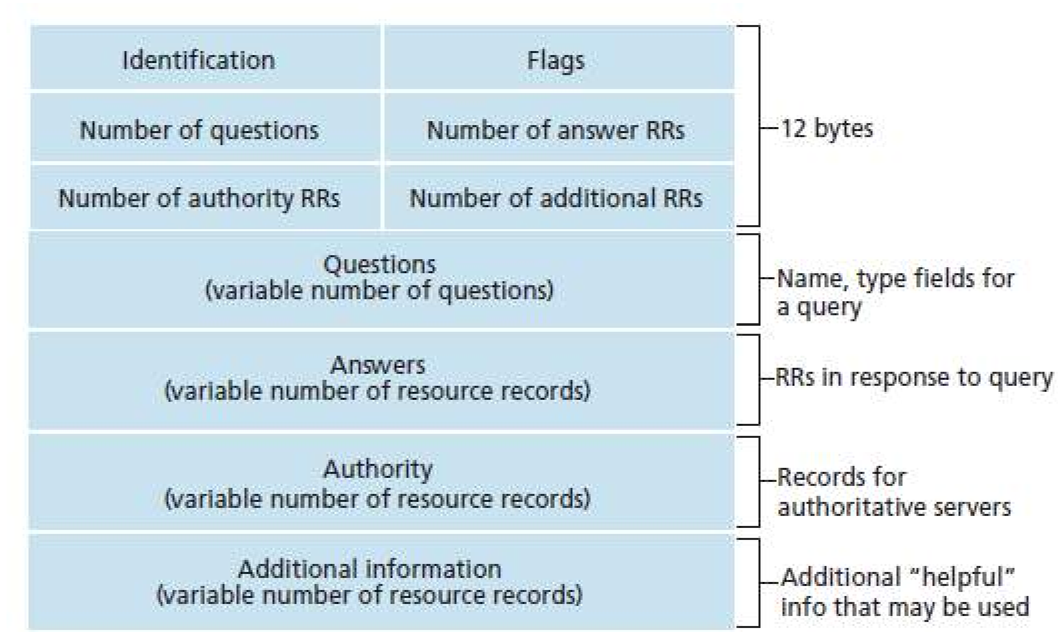
(Name, Value, Type, TTL)

TTL is the time to live of the resource record; it determines when a resource should be removed from a cache.

The meaning of Name and Value depend on Type:

- If Type=A, then Name is a hostname and Value is the IP address for thehostname.
- If Type=NS, then Name is a domain (such as foo.com) and Value is the hostname of an authoritative DNS server that knows how to obtain the IP addresses for hosts in thedomain.
- If Type=CNAME, then Value is a canonical hostname for the alias hostname Name. This record can provide querying hosts the canonical name for ahostname.
- If Type=MX, then Value is the canonical name of a mail server that has an alias hostname Name.

DNS Messages



- The first 12 bytes is the header section, which has a number offields.
- The first field is a 16-bit number that identifies the query. This identifier is copied into the reply message to a query, allowing the client to match received replies with sentqueries.
- There are a number of flags in the flagfield.

  A 1-bit query/reply flag indicates whether the message is a query (0) or a reply (1). A1-bit authoritative flag is set in a reply message when a DNS server is an authoritative server for a queried name.

  A 1-bit recursion-desired flag is set when a client (host or DNS server) desires that the DNS server perform recursion when it doesn't have the record.

  A 1-bit recursion available field is set in a reply if the DNS server supports recursion.
- In the header, there are also four number-of fields. These fields indicate the number of occurrences of the four types of data sections that follow theheader.
- The **question** section contains information about the query that is being made. This section includes (1) a name field that contains the name that is being queried, and (2) a type field that indicates the type of question being asked about thename
- In a reply from a DNS server, the **answer** section contains the resource records for the name that was originallyqueried.

- The **authority** section contains records of other authoritativeservers.
- The **additional** section contains other helpfulrecords.

Inserting Records into the DNS Database

Suppose you have just created an exciting new startup company called Network Utopia. The first thing you'll surely want to do is register the domain name networkutopia.com at a registrar. A registrar is a commercial entity that verifies the uniqueness of the domain name, enters the domain name into the DNS database (as discussed below), and collects a small fee from you for its services.

For the primary authoritative server for networkutopia.com, the registrar would insert the following two resource records into the DNS system:

(networkutopia.com, dns1.networkutopia.com,NS)

(dns1.networkutopia.com, 212.212.212.1,A)

Peer-to-PeerApplications

In P2P architecture, there is minimal (or no) reliance on always-on infrastructure servers. Instead, pairs of intermittently connected hosts, called peers, communicate directly with each other.

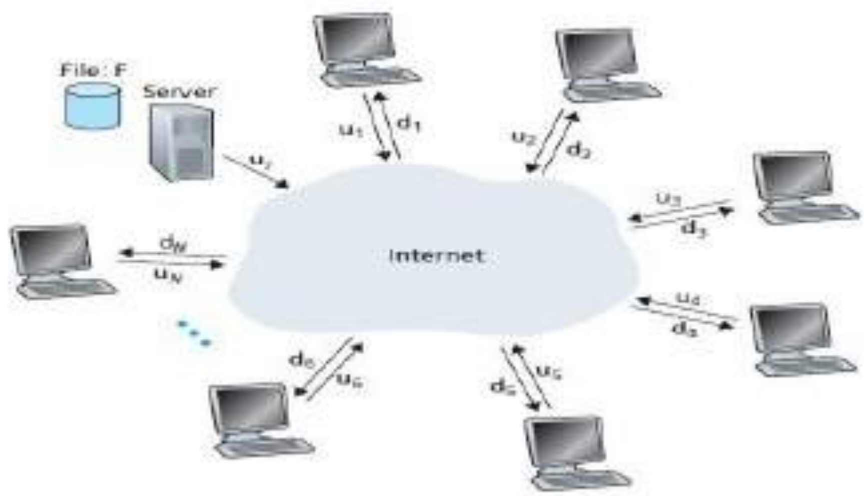
P2P File Distribution

- In P2P file distribution, each peer can redistribute any portion of the file it has received to any other peers, thereby assisting the server in the distributionprocess.
- The most popular P2P file distribution protocol isBitTorrent.

Scalability of P2P Architectures

As shown in below Figure the server and the peers are connected to the Internet with access links. Denote the upload rate of the server's access link by u_s, the upload rate of the ith peer's access link by u_i, and the download rate of the ith peer's access link by d_i. Also denote the size of the file to be distributed (in bits) by F and the number of peers that want to obtain a copy of the file byN.

The **distribution time** is the time it takes to get a copy of the file to all N peers.



In the client-server architecture, none of the peers aids in distributing the file. We make the following observations:

- The server must transmit one copy of the file to each of the N peers. Thus the server must transmit NF bits. Since the server's upload rate is us, the time to distribute the file must be at leastNF/us.
- Let dmindenote the download rate of the peer with the lowest download rate, that is, dmin = min{d1,dp,...,dN}. The peer with the lowest download rate cannot obtain all F bits of the file in less than F/dmin seconds. Thus the minimum distribution time is at leastF/dmin.

  Putting these two observations together, we obtain

$$D_{cs} \geq \max\left\{\frac{NF}{u_s}, \frac{F}{d_{min}}\right\}.$$

In the P2P architecture we make the following observations:

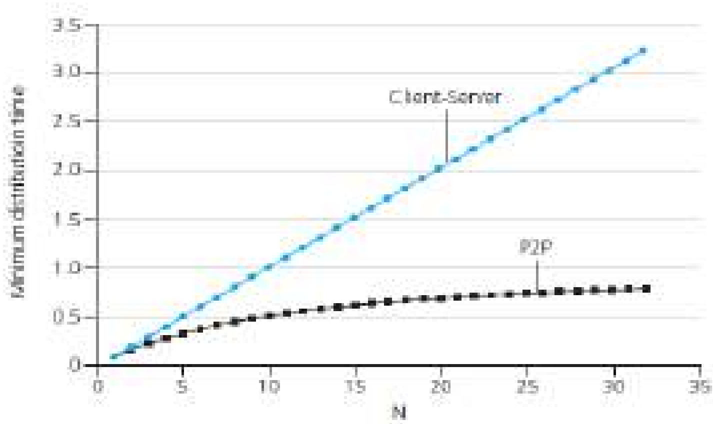
- At the beginning of the distribution, only the server has the file. To get this file into the community of peers, the server must send each bit of the file at least once into its access link. Thus, the minimum distribution time is at leastF/us.
- As with the client-server architecture, the peer with the lowest download rate cannot obtain all F bits of the file in less than F/dmin seconds. Thus the minimum distribution time is at leastF/dmin.

- Finally, observe that the total upload capacity of the system as a whole is equal to the upload rate of the server plus the upload rates of each of the individual peers, that is, utotal = us +u1 + … + uN. The system must deliver (upload) F bits to each of the N peers, thus delivering a total of NF bits. This cannot be done at a rate faster than utotal. Thus, the minimum distribution time is also at least NF/(us + u1 + … + uN).

Putting these three observations together, we obtain the minimum distribution time for P2P, denoted by D_{P2P}.

$$D_{\mathrm{P2P}} \geq \max\left\{\frac{F}{u_s}, \frac{F}{d_{min}}, \frac{NF}{u_s + \sum_{i=1}^{N} u_i}\right\}$$

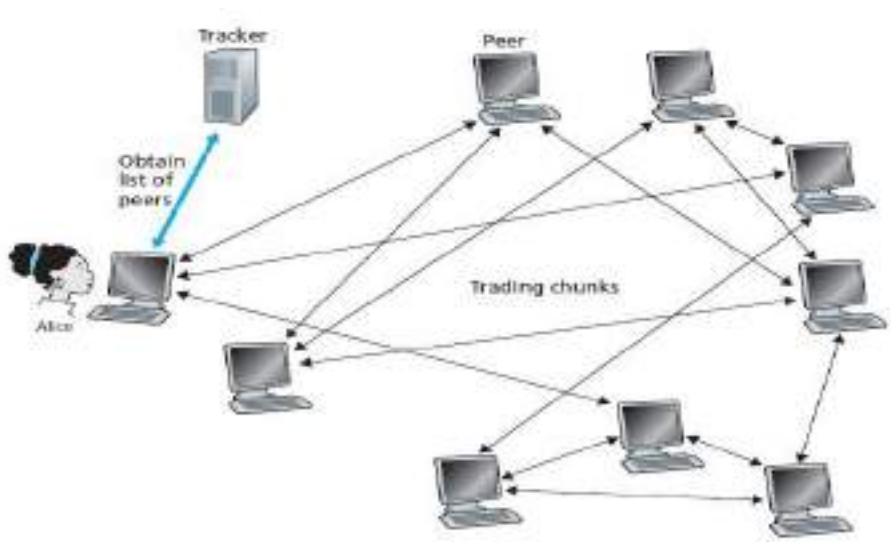
Below Figure compares the minimum distribution time for the client-server and P2P architectures assuming that all peers have the same upload rate u.



BitTorrent

- In BitTorrent, the collection of all peers participating in the distribution of a particular file is called atorrent.
- Peers in a torrent download equal-size chunks of the file from one another, with a typical chunk size of 256KBytes.
- When a peer first joins a torrent, it has no chunks. Over time it accumulates more and more chunks. While it downloads chunks it also uploads chunks to otherpeers.
- Once a peer has acquired the entire file, it may leave the torrent, or remain in the torrent and continue to upload chunks to otherpeers.
- Also, any peer may leave the torrent at any time with only a subset of chunks, and later rejoin thetorrent.

- Each torrent has an infrastructure node called atracker.
- When a peer joins a torrent, it registers itself with the tracker and periodically informs the tracker that it is still in the torrent. In this manner, the tracker keeps track of the peers that are participating in thetorrent.
- When a new peer joins the torrent, the tracker randomly selects a subset of peers (for concreteness, say 50) from the set of participating peers, and sends the IP addresses of these 50 peers to newpeer.
- Possessing this list of peers, new peer attempts to establish concurrent TCP connections with all the peers on this list. All the peers with which new peer succeeds in establishing a TCP connection will be called as “neighboringpeers.”
- As time evolves, some of these peers may leave and other peers (outside the initial 50) may attempt to establish TCPconnections.
- Periodically, peer will ask each of its neighboring peers (over the TCP connections) for the list of the chunks they have. If peer has L different neighbors, it will obtain L lists of chunks. With this knowledge, peer will issue requests (again over the TCP connections) for chunks currently it does nothave.
- In deciding which chunks to request, peer uses a technique called **rarest first**. The idea is to determine, from among the chunks peer does not have, the chunks that are the rarest among its neighbors and then request those rarest chunks first. In this manner, the rarest chunks get more quickly redistributed, aiming to equalize the numbers of copies of each chunk in the torrent.



- To determine which requests peer responds to, BitTorrent uses a clever trading algorithm. The basic idea is that peer gives priority to the neighbors that are currently supplying data to it at the highest rate. Specifically, for each of its neighbors, peer continually measures the rate at which it receives bits and determines the four peers that are feeding bits at the highest rate. Peer then reciprocates by sending chunks to these same fourpeers.
- Every 10 seconds, peer recalculates the rates and possibly modifies the set of fourpeers.
- In BitTorrent lingo, these four peers are said to be**unchoked**.
- Importantly, every 30 seconds, peer also picks one additional neighbor at random and sends itchunks. In BitTorrent lingo, this randomly selected peer is said to be **optimistically unchoked.**
- The random neighbor selection also allows new peers to get chunks, so that they can have something totrade.
- The incentive mechanism for trading just described is often referred to astit-for-tat.

Distributed Hash Tables(DHTs)

- Centralized version of this simple database will simply contain (key, value) pairs. We query the database with a key. If there are one or more key-value pairs in the database that match the query key, the database returns the correspondingvalues.
- Building such a database is straightforward with client-server architecture that stores all the (key, value) pairs in one centralserver.
- P2P version of this database will store the (key, value) pairs over millions ofpeers.
- In the P2P system, each peer will only hold a small subset of the totality of the (key, value) pairs. We'll allow any peer to query the distributed database with a particular key. The distributed database will then locate the peers that have the corresponding (key, value) pairs and return the key-value pairs to the querying peer.
- Any peer will also be allowed to insert new key-value pairs into the database. Such a distributed database is referred to as a distributed hash table(DHT).
- One naïve approach to building a DHT is to randomly scatter the (key, value) pairs across all the peers and have each peer maintain a list of the IP addresses of all participating peers.In

this design, the querying peer sends its query to all other peers, and the peers containing the (key, value) pairs that match the key can respond with their matching pairs.

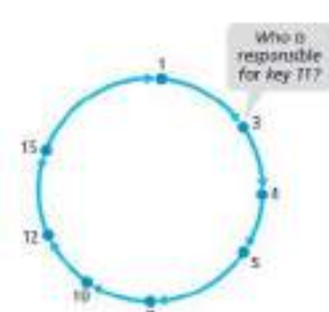
- Such an approach is completely unscalable as it would require each peer to know about all other peers and have each query sent to all peers.
- An elegant approach to designing a DHT is to first assign an identifier to each peer, where each identifier is an integer in the range $[0, 2^n-1]$ for some fixedn.
- This also require each key to be an integer in the samerange.
- To create integers out of such keys, we will use a hash function that maps each key (e.g., social security number) to an integer in the range $[0,2^n-1]$.

Problem of storing the (key, value) pairs in the DHT:

- The central issue here is defining a rule for assigning keys to peers. Given that each peer has an integer identifier and that each key is also an integer in the same range, a natural approach is to assign each (key, value) pair to the peer whose identifier is the closest to thekey.
- Toimplementsuchascheme,let'sdefinetheclosestpeerastheclosestsuccessorofthekey.
- Now suppose a peer, Alice, wants to insert a (key, value) pair into the DHT. Conceptually, this is straightforward: She first determines the peer whose identifier is closest to the key; she then sends a message to that peer, instructing it to store the (key, value)pair.
- If Alice were to keep track of all the peers in the system (peer IDs and corresponding IP addresses), she could locally determine the closest peer. But such an approach requires each peer to keep track of all other peers in the DHT—which is completely impractical for a large-scale system with millions ofpeers.

Circular DHT

To address this problem of scale, let's now consider organizing the peers into a circle. In this circular arrangement, each peer only keeps track of its immediate successor and immediate predecessor (modulo 2^n).



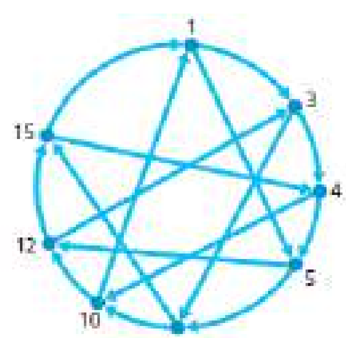
Each peer is only aware of its immediate successor and predecessor; for example, peer 5 knows the IP address and identifier for peers 8 and 4 but does not necessarily know anything about any other peers that may be in the DHT.

Now suppose that peer 3 wants to determine which peer in the DHT is responsible for key 11. Using the circular overlay, the origin peer (peer 3) creates a message saying “Who is responsible for key 11?” and sends this message clockwise around the circle. Whenever a peer receives such a message, because it knows the identifier of its successor and predecessor, it can determine whether it is responsible for (that is, closest to) the key in question. If a peer is not responsible for the key, it simply sends the message to its successor. So, for example, when peer 4 receives the message asking about key 11, it determines that it is not responsible for the key (because its successor is closer to the key), so it just passes the message along to peer 5. This process continues until the message arrives at peer 12, who determines that it is the closest peer tokey

11. At this point, peer 12 can send a message back to the querying peer, peer 3, indicating that it is responsible for key 11.

Although each peer is only aware of two neighboring peers, to find the node responsible for a key (in the worst case), all N nodes in the DHT will have to forward a message around the circle; N/2 messages are sent onaverage.

Shortcuts are used to expedite the routing of query messages. Specifically, when a peer receives a message that is querying for a key, it forwards the message to the neighbor (successor neighbor or one of the shortcut neighbors) which is the closet to thekey.



When peer 4 receives the message asking about key 11, it determines that the closet peer to the key (among its neighbors) is its shortcut neighbor 10 and then forwards the message directly to peer 10. Clearly, shortcuts can significantly reduce the number of messages used to process a query.

Peer Churn

In P2P systems, a peer can come or go without warning. Thus, when designing a DHT, we also must be concerned about maintaining the DHT overlay in the presence of such peer churn.

To handle peer churn, we will now require each peer to track its first and second successors; for example, peer 4 now tracks both peer 5 and peer 8. We also require each peer to periodically verify that its two successors are alive

Let's now consider how the DHT is maintained when a peer abruptly leaves. For example, suppose peer 5 in above figure abruptly leaves. In this case, the two peers preceding the departed peer (4 and 3) learn that 5 has departed, since it no longer responds to ping messages. Peers 4 and 3 thus need to update their successor state information. Let's consider how peer 4 updates its state:

1. Peer 4 replaces its first successor (peer 5) with its second successor (peer8).
2. Peer 4 then asks its new first successor (peer 8) for the identifier and IP address of its immediate successor (peer 10). Peer 4 then makes peer 10 its second successor.

Let's say a peer with identifier 13 wants to join the DHT, and at the time of joining, it only knows about peer 1's existence in the DHT. Peer 13 would first send peer 1 a message, saying "what will be 13's predecessor and successor?" This message gets forwarded through the DHT until it reaches peer 12, who realizes that it will be 13's predecessor and that its current successor, peer 15, will become 13's successor. Next, peer 12 sends this predecessor and successor information to peer 13. Peer 13 can now join the DHT by making peer 15 its successor and by notifying peer 12 that it should change its immediate successor to13.

Socket Programming: Creating NetworkApplications

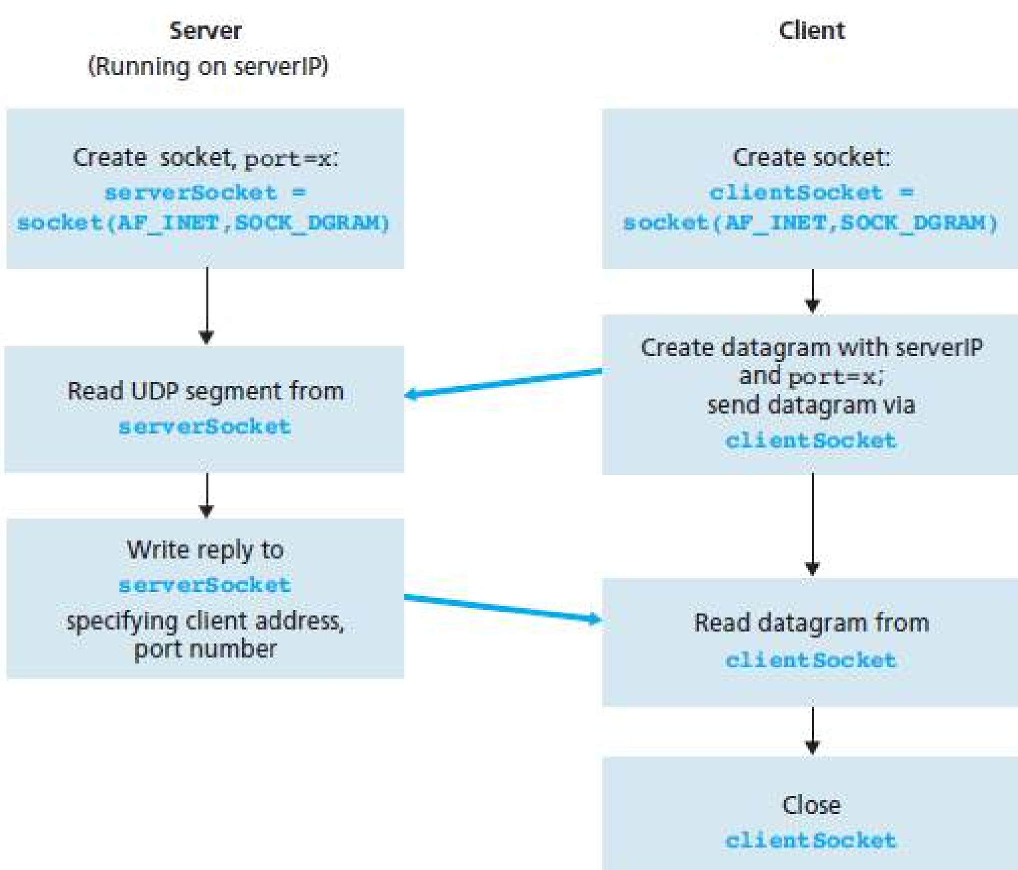
- A typical network application consists of a pair of programs—a client program and a server program—residing in two different endsystems.
- When these two programs are executed, a client process and a server process are created, and these processes communicate with each other by reading from, and writing to,sockets.
- When creating a network application, the developer's main task is therefore to write the code for both the client and serverprograms.

Socket Programming withUDP

Before the sending process can push a packet of data out the socket door, when using UDP, it must first attach a destination address to the packet. After the packet passes through the sender's socket, the Internet will use this destination address to route the packet through the Internet to the socket in the receiving process. When the packet arrives at the receiving socket, the receiving process will retrieve the packet through the socket, and then inspect the packet's contents and take appropriate action.

Example application:

1. The client reads a line of characters (data) from its keyboard and sends the data to the server.
2. The server receives the data and converts the characters touppercase.
3. The server sends the modified data to theclient.
4. The client receives the modified data and displays the line on itsscreen.



UDPClient.py

Here is the code for the client side of the application:

```
from socket import *
serverName = ‘hostname’
serverPort = 12000
clientSocket = socket(socket.AF_INET, socket.SOCK_DGRAM)
message = raw_input(’Input lowercase sentence:’)
clientSocket.sendto(message,(serverName, serverPort))
modifiedMessage, serverAddress = clientSocket.recvfrom(2048)
print modifiedMessage
clientSocket.close()
```

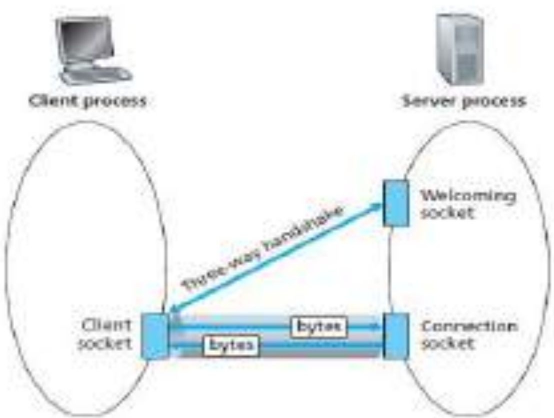
UDPServer.py

```
from socket import *
serverPort = 12000
serverSocket = socket(AF_INET, SOCK_DGRAM)
serverSocket.bind((’’, serverPort))
print ”The server is ready to receive”
while 1:
        message, clientAddress = serverSocket.recvfrom(2048)
        modifiedMessage = message.upper()
        serverSocket.sendto(modifiedMessage, clientAddress)
```

Socket Programming withTCP

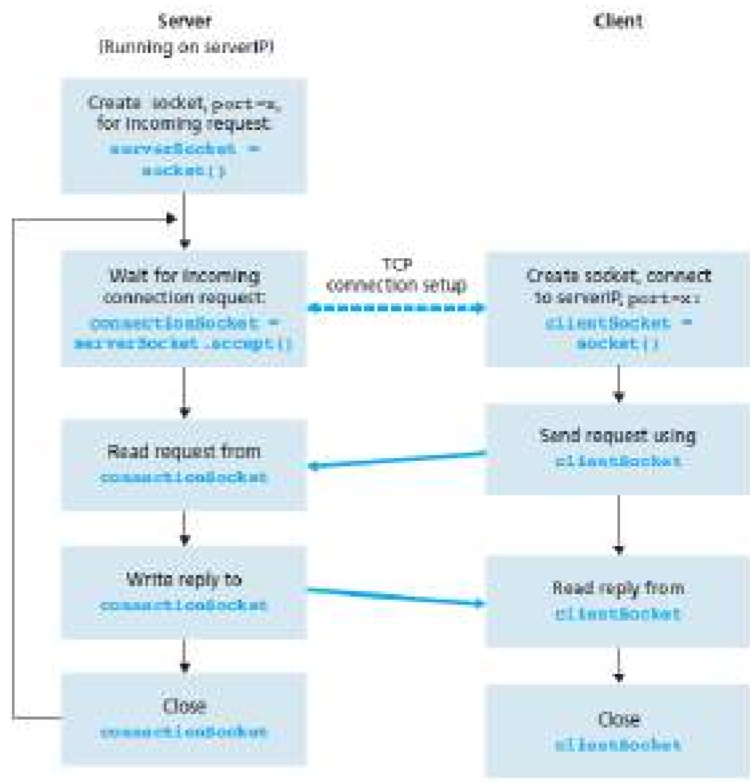
- Unlike UDP, TCP is a connection-oriented protocol. This means that before the client and server can start to send data to each other, they first need to handshake and establish a TCP connection.

- One end of the TCP connection is attached to the client socket and the other end is attached to a serversocket.
- When creating the TCP connection, we associate with it the client socket address (IP address and port number) and the server socket address (IP address and port number). With the TCP connection established, when one side wants to send data to the other side, it just drops the data into the TCP connection via its socket. This is different from UDP, for which the server must attach a destination address to the packet before dropping it into thesocket.
- During the three-way handshake, the client process knocks on the welcoming door of the server process. When the server "hears" the knocking, it creates a new door— more precisely, a new socket that is dedicated to that particularclient.



TCPClient.py

```
from socket import *
serverName = 'servername'
serverPort = 12000
clientSocket = socket(AF_INET, SOCK_STREAM)
clientSocket.connect((serverName,serverPort))
sentence = raw_input('Input lowercase sentence:')
clientSocket.send(sentence)
modifiedSentence = clientSocket.recv(1024)
print 'From Server:',
modifiedSentenceclientSocket.close()
```



TCPServer.py

```
from socket import *
serverPort = 12000
serverSocket = socket(AF_INET,SOCK_STREAM)
serverSocket.bind((‘’,serverPort)) serverSocket.listen(1)
print ‘The server is ready to receive’
while 1:
connectionSocket, addr = serverSocket.accept()
sentence = connectionSocket.recv(1024)
capitalizedSentence = sentence.upper()
connectionSocket.send(capitalizedSentence)
```

ATME College of Engineering

ATTENDANCE

Semester & Section : 7 A

Course Title with Code : Information and Network Security 15CS743

Sl. No.	USN	Student Name	8/8	9/8	13/8	14/8	16/8	20/8	29/8	04/9	11/9	17/9
			1	2	3	4	5	6	7	8	9	10
1	4AD15CS001	Abhishek V	A	A	A	1	A	2	3	4	5	6
2	15CS028	Harshitha S	A	A	A	A	A	1	2	3	4	5
3	055	Pooja C	A	A	A	1	2	A	3	4	5	6
4	060	Rachana S D	A	A	1	2	3	4	5	6	7	8
5	086	Theja K	A	A	1	2	3	A	4	5	6	A
6	094	Zuhad M	A	A	A	A	A	A	1	2	3	4
7	16CS402	BinduRakshitha K	A	A	1	2	3	4	5	6	7	8
8	4AD16CS002	Adithya V	A	A	A	1	A	2	3	4	5	A
9	004	Akkamahadevi C J	A	A	A	A	A	1	2	3	4	5
10	005	Akshata Dundesh Rudragoudar	A	A	1	2	3	4	5	6	7	8
11	006	Ameena Kousar	A	A	A	1	A	2	3	4	A	5
12	007	Arvind S	A	A	1	2	3	4	5	6	7	8
13	008	Ashish Prabhu M	A	A	A	A	A	A	1	2	3	A
14	009	Bhavana M R	A	A	1	2	A	3	4	5	A	6
15	010	Brundha S S	A	A	1	2	3	4	A	5	6	7
16	011	Chaithra V	A	A	1	A	A	2	3	4	5	6
17	012	Chandana A 79	A	A	A	1	A	2	A	A	3	4
18	013	Chandana M	A	A	1	2	A	3	4	5	6	7
19	015	Chandrakanth J- detained	A	A	1	2	A	3	A	4	5	6
20	016	Chandrashekhar M N	A	A	1	2	A	3	4	5	6	7
21	017	Chinthana M N	A	A	A	1	A	2	A	3	4	5
22	020	Geetha	A	A	1	2	3	4	5	A	A	6
23	021	Harshitha K	A	A	1	2	A	3	4	5	6	7
24	023	Hemashree M S	A	A	1	2	A	3	4	A	5	6
25	024	Hemavathi M	A	A	A	A	A	1	2	3	4	5
	No. of Abs.		25	25	14	6	17	4	4	3	3	2
	Initials		my	my	my	my	my	my	my	my	my	my

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7	8	9	A	A	10	A	11	12	13	14
6	7	8	A	9	10	11	12	A	13	14
5	23	22	17	4						
My	My	My	My	My	My	My	My	My	My	

ATME College of Engineering

ATTENDANCE

Course Title with Code : Inf

Semester & Section : 7 A

Sl. No.	USN	Student Name											
		Date	12	16	17	30	5	6	7	8	12	13	14
		Month	10	10	10	10	11	11	11	11	11	11	11
			22	23	24	25	26	27	28	29	30	31	32
1	4AD15CS001	Abhishek V	14	15	16	17	18	19	20	21	22	23	24
2	15CS028	Harshitha S	14	A	A	15	16	17	18	19	20	21	22
3	055	Pooja C	15	16	17	18	19	20	21	22	23	24	25
4	060	Rachana S D	13	14	15	A	16	17	18	19	20	21	22
5	086	Theja K	13	14	15	A	16	17	18	19	20	21	22
6	094	Zuhad M	13	A	A	14	15	16	17	18	19	20	21
7	16CS402	BinduRakshitha K	18	19	20	A	21	22	23	24	25	26	27
8	4AD16CS002	Adithya V	14	A	15	16	17	18	19	20	21	22	23
9	004	Akkamahadevi C J	17	18	19	A	20	21	22	23	24	25	26
10	005	Akshata Dundesh Rudragoudar	17	18	19	20	21	A	22	23	24	25	26
11	006	Ameena Kousar	13	14	15	16	A	17	18	19	20	21	22
12	007	Arvind S	19	A	20	21	22	23	24	25	26	27	28
13	008	Ashish Prabhu M	13	A	A	14	A	15	16	17	18	19	20
14	ITR ✓ 009	Bhavana M R	18	19	20	21	22	23	A	24	25	26	27
15	010	Brundha S S	19	20	21	22	23	24	25	26	27	28	29
16	011	Chaithra V	15	16	17	18	19	20	21	22	23	24	25
17	012	Chandana A 79	16	17	18	A	19	20	A	21	22	23	24
18	013	Chandana M	19	20	21	22	23	24	25	26	27	28	29
19	015	~~Chandrakanth J~~ detained											
20	016	Chandrashekhar M N	17	18	19	20	21	22	23	24	25	26	27
21	017	Chinthana M N	15	16	17	18	19	A	20	21	22	23	24
22	020	Geetha	18	19	20	A	21	22	23	24	25	26	27
23	021	Harshitha Urs K	17	18	19	20	21	22	23	24	25	26	27
24	023	Hemashree M S	15	16	17	A	18	19	20	21	22	23	24
25	024	Hemavathi M	15	16	17	18	19	20	21	22	23	24	25
	No. of Abs.												
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23	24	25	+4							
26	27	28								
23	24	25	+7M							
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24	25	26	+3							
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28	29	30								
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26	27	28								
My	My	My								

31-1-11

AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
			Assignments / Internal Test Marks							
	05	04	5	09	5	09		14	35	49
	05	A	5	06	5	14		15	46	61
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	05	A	5	08	5	12		15	44	59
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	05	07	5	08	5	08		13	40	53
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	05	A	5	15	5	14		20	53	73
	05	14	05	09	05	15		20	43	63
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	05	02	5	A	5	11		12	34	46
	05	06	5	A	5	12		14	38	52
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	05	A	5	14	5	09		17	49	66
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	My	My	My	My	My	My		My	My	My

31/01-11

ATTENDANCE

ATME College of Engineering

Course Title with Code : Information and Network Security 15CS743

Semester & Section : 7A

Sl. No.	USN	Student Name										
		Date	8	9	13	14	16	20	29	04	11	17
		Month	8	8	8	8	8	8	8	9	9	9
			1	2	3	4	5	6	7	8	9	10
26	4AD16CS025	Jeevan Kumar M M	A	A	A	A	A	1	2	3	A	4
27	26	Kanchanashree S	A	A	1	2	3	4	5	6	7	A
28	27	Karana S Shetty 81	A	A	A	A	A	1	2	3	4	5
29	28	Karya K M	A	A	1	2	3	4	5	6	7	8
30	29	L R Aradhana	A	A	1	2	3	4	5	6	7	A
31	30	M Surya 76	A	A	A	A	A	A	A	A	1	2
32	32	Mamatha R K,	A	A	1	2	3	4	5	6	7	8
33	33	Manasa D M	A	A	1	2	A	3	4	5	6	7
34	34	Manasa M N	A	A	1	2	A	3	4	5	6	7
35	35	Manasa M R 76	A	A	1	2	A	3	4	A	A	5
36	36	Manoj M	A	A	1	2	A	3	4	5	6	7
37	37	Manu G	A	A	1	2	A	3	4	5	6	7
38	38	Meghana K M	A	A	1	A	A	2	3	4	5	6
39	39	Mohammed Naumaan	A	A	A	1	A	2	A	A	3	4
40	40	Mohammed Numaan	A	A	A	1	2	A	A	A	A	A
41	41	Monica M V	A	A	1	2	3	4	5	6	7	8
42	42	Monika A	A	A	1	2	3	4	5	A	6	7
43	43	Monika C S,	A	A	1	2	3	4	5	6	7	8
44	44	Monika K M	A	A	1	2	A	3	4	5	6	A
45	45	Monisha J	A	A	A	A	1	2	3	4	5	6
46	46	Munaza Shafeeq 76	A	A	A	1	A	2	3	4	5	A
47	47	Naveen Kumar N	A	A	A	1	A	2	3	4	5	A
48	48	Niranjan Gowda M S	A	A	1	2	A	3	A	4	A	5
49	4AD17CS400	Abhishek Gowda T B	A	A	A	1	A	2	3	4	5	6
50	402	Akhilesh P	A	A	A	A	A	1	2	3	4	5
	No. of Abs.		25	25	10	6	16	2	4	5	4	6
	Initials		My	My	My	My	My	My	My	My	My	My

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6	A	7	8	9	10	·	11	12	13	14
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A	6	7	A	8	9	A	10	11	12	13
4	2	2	14	04						
my	my	my	my	my	my	my	my	my	my	my

ATME College of Engineering

ATTENDANCE

Semester & Section : 7A

Course Title with Code : Inf

Sl. No.	USN	Student Name	Date / Month	22	23	24	25	26	27	28	29	30	31	32
			Date	12	16	17	30	5	6	7	8	12	13	14
			Month	10	10	10	10	11	11	11	11	11	11	11
26	4AD16CS025	Jeevan Kumar M M		14	15	16	17	18	19	20	21	22	23	24
27	26	Kanchanashree S		18	19	20	21	22	23	24	25	26	27	28
28	27	Karana S Shetty	81	16	17	18	A	19	20	21	22	23	24	25
29	28	Karya K M		19	20	21	22	23	24	25	26	27	28	29
30	29	L R Aradhana		19	20	21	22	23	24	25	26	27	28	29
31	30	M Surya	76	12	13	14	15	16	17	18	19	20	21	22
32	32	Mamatha R K		18	19	20	21	22	23	24	25	26	27	28
33	33	Manasa D M		19	20	21	22	23	24	25	26	27	28	29
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37	37	Manu G		16	17	18	19	20	A	21	22	23	24	25
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39	39	Mohammed Naumaan		16	A	A	17	18	19	20	21	22	23	24
40	40	Mohammed Numaan												
41	41	Monica M V		20	21	22	23	24	25	26	27	28	29	30
42	42	Monika A		19	20	21	22	23	24	25	26	27	28	29
43	43	Monika C S		20	21	22	23	24	25	26	27	28	29	30
44	44	Monika K M		17	18	19	20	21	22	23	24	25	26	27
45	45	Monisha J		17	18	19	A	20	21	22	23	24	25	26
46	46	Munaza Shafeeq	76	A	14	15	16	17	18	19	20	21	22	23
47	47	Naveen Kumar N		A	A	14	A	15	16	17	18	19	20	21
48	48	Niranjan Gowda M S		15	16	17	18	19	20	A	21	22	23	24
49	4AD17CS400	Abhishek Gowda T B		17	18	19	20	21	22	23	24	25	26	27
50	402	Akhilesh P		14	15	16	17	18	19	20	21	22	23	24
	No. of Abs.													
	Initials			My	My	My	My	My	My	My	My	My	My	My

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16	19	20								
11	11	11								
25	26	27								
29	30	31								
26	27	A								
30	31	32								
30	31	32								
23	24	25		76%						
29	30	31								
30	31	32								
28	29	30								
23	24	25		76%						
28	29	30								
26	27	28	+1							
28	29	30								
25	26	27	+2							
31	32	33								
30	31	32								
31	32	33								
28	29	30								
27	28	29								
24	A	25								
22	23	24	+5							
25	26	27	+2							
28	29	30								
25	26	27	+2							
My	My	My								

8/9-11

AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
		Assignments / Internal Test Marks								
	05	06	4	11	5	A		14	44	58
	05	A	5	13	5	15		19	53	72
0'	05	13	5	A	5	15		19	56	75
	05	11	5	10	5	14		18	47	65
	05	11	5	14	5	15		20	51	71
	05	06	5	11	5	10		16	28	44
	05	05	5	10	5	A		13	46	59
	05	10	5	A	5	15		18	48	66
	05	10	5	A	5	15		18	45	63
	05	13	5	13	5	A		18	50	68
	05	07	5	09	5	13		16	58	74
	05	A	5	13	5	11		17	38	55
	05	08	5	A	5	11		15	41	56
	05	14	5	15	5	A		20	45	65
	04	07	5	04	5	07		12	A	
	05	04	5	10	5	13		17	31	48
	05	05	5	15	5	15		20	45	65
	05	08	5	13	5	A		16	43	59
	05	15	5	14	5	A		20	58	78
	05	07	5	A	5	15		16	49	65
	04	14	5	A	5	15		20	57	77
	05	05	5	A	5	13		14	39	53
	05	05	5	07	5	15		16	34	50
	05	08	5	01	5	12		15	51	66
	05	07	5	09	5	12		16	34	50
	My	My	My	My	My	My		My	My	My

8/9-11

ATTENDANCE

ATME College of Engineering

Course Title with Code : Information and Network Security 15CS743

Semester & Section : 7A

Sl. No.	USN	Student Name	8/8 (1)	9/8 (2)	13/8 (3)	14/8 (4)	16/8 (5)	20/8 (6)	29/8 (7)	04/9 (8)	11/9 (9)	17/9 (10)
51	4AD17CS403	Akshay Kumar K	A	A	A	1	A	2	3	4	5	6
52	407	Maaz Ahmed Shariff	A	A	A	1	A	2	A	3	4	5
53	409	Mohammed Anas	A	A	A	1	A	2	3	4	5	6
54	412	Paul Crispin	A	A	A	1	A	2	A	3	4	5
		No. of Abs.	4	4	4	-	4	-	2	-	-	-
		Initials	my	my	my	my	my	my	my	my	my	my

www.atme.in

18	19	20	24	25	26	27	3	9	10	11
9	9	9	9	9	9	9	10	10	10	10
11	12	13	14	15	16	17	18	19	20	21
A	7	8	9	10	11	12	13	14	15	16
A	6	7	8	9	10	11	12	13	14	A
7	8	9	10	11	12	13	14	A	15	16
6	7	8	9	10	11	12	13	14	15	16
2	-	-	-	-	-	-	-	01		
My	My	My	My	My	My	My	My	My	My	My

atme College of Engineering

A T M E

ATTENDANCE

Semester & Section : 7A

Course Title with Code : In

Sl. No.	USN	Student Name	22	23	24	25	26	27	28	29	30	31	32
		Date	12	16	17	30	5	6	7	8	12	13	14
		Month	10	10	10	10	11	11	11	11	11	11	11
51	4AD17CS403	Akshay Kumar K	17	18	19	20	21	22	23	24	25	26	27
52	407	Maaz Ahmed Shariff	A	15	16	17	18	19	20	21	22	23	24
53	409	Mohammed Anas	17	18	19	20	21	22	23	24	25	26	27
54	412	Paul Crispin	A	17	18	19	20	21	22	23	24	25	26
	No. of Abs.												
	Initials		my	my	my	my	my	my	my	my	my	my	my

16	19	20								
11	11	11								
33	34	35	36	37	38	39	40	41	42	43
28	29	30								
25	26	27+2								
28	29	30								
27	28	29								

3/01-1L

AT	Assignments / Internal Test Marks							CIE Marks	SEE Marks	Total Marks
	A1	T1	A2	T2	A3	T3	T4			
	05	07	5	13	5	11		17	39	56
	05	10	5	14	5	A		17	47	64
	05	11	5	11	5	13		17	57	74
	05	08	5	09	5	15		17	41	58

ATME College of Engineering

ATTENDANCE

Course Title with Code : Computer Networks 17CS52

Semester & Section : 5 A

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10
		Date	29	30	01	02	5	6	8	9	13	16
		Month	7	7	8	8	8	8	8	8	8	8
1	4AD16CS001	Abhay N Change of college	A	A	A	1	2	A	A	A	3	A
2	014	Chandana NG Detained	A	1	2	3	4	5	A	A	6	7
3	031	Madeeha S Rahman Change	A	A	1	2	A	3	A	A	A	A
4	24 102	Rachan MA	A	A	1	2	3	A	4	A	5	A
5	17CS002	Abhishek R	A	1	2	3	4	A	5	A	6	7
6	26 003	~~Adithya H S~~	A	1	2	A	3	A	4	A	5	6
7	004	Ahalya P	A	A	1	A	2	3	4	A	5	6
8	005	Akhilesh J A	A	1	2	3	4	A	5	A	6	7
9	006	Amulya P	A	A	1	A	2	3	4	A	5	6
10	007	Anees Fathima	A	A	1	2	3	4	5	A	6	7
11	008	Anil Kumar Gadeda Goudar G	A	1	2	3	A	A	4	A	5	6
12	35 010	~~Anusha S~~	A	1	2	3	A	A	A	A	4	A
13	011	Apoorva R	A	A	1	2	3	4	5	A	6	7
14	012	Arjun V	A	1	2	3	4	A	5	A	6	7
15	014	Bharath J	A	1	2	3	4	A	5	A	6	7
16	015	Bhavana M	A	1	2	3	4	5	6	A	7	8
17	016	Bhavana R	A	1	2	A	3	4	5	A	6	7
18	017	Bhoomika P	A	1	2	3	A	A	A	A	4	5
19	018	Canny Cushalappa N J	A	1	2	3	4	A	5	A	6	7
	019	Chandana A S										
20	020	Chandana M	A	A	1	2	3	4	5	A	6	7
21	021	Darshini R	A	1	2	3	4	5	6	A	7	8
22	022	Divya H	A	1	2	3	A	4	5	A	6	A
23	023	~~Druva S~~ Detained	A	1	2	3	A	4	5	A	6	7
24	024	Faiza Firdaus	A	A	1	2	3	4	5	A	A	6
25	025	Farhaz Khan	A	A	1	2	3	4	5	A	A	6
	No. of Abs.											
	Initials		my	my	my	my	my	my	my	my	my	my

19	20	22	23	24	26	27	29	30	31	31
8	8	8	8	8	8	8	8	8	8	8
11	12	13	14	15	16	17	18	19	20	21
A	4	5	6	A	A	A	A	A	A	A
8	9	10	11	A	A	A	A	A	A	A
A	A	A	A	A	A	A	A	A	A	A
6	7	8	9	A	10	11	12	13	14	15
8	9	10	11	A	12	13	14	15	16	17
7	8	9	10	A	A	A	A	A	A	A
7	8	9	10	A	11	12	13	14	15	16
8	9	10	11	A	12	13	14	15	16	17
7	8	9	10	A	11	12	13	14	15	16
8	9	10	11	12	13	14	15	16	17	18
7	8	9	10	A	17	12	13	14	15	16
5	6	7	8	A	9	10	11	12	13	14
8	9	10	11	A	12	13	14	15	16	17
8	9	10	11	A	12	13	A	14	A	A
8	9	10	11	A	12	13	14	15	16	17
9	10	11	12	13	14	15	16	17	18	19
8	9	10	11	A	12	13	14	15	16	17
6	7	8	9	A	10	11	12	13	14	13
8	9	10	11	A	12	13	14	15	A	A
8	9	10	11	A	12	13	14	A	15	16
9	10	11	12	A	13	14	15	16	A	A
7	8	9	10	A	11	12	13	14	15	16
8	9	10	11	A	A	12	13	14	A	A
7	8	9	10	11	12	13	14	15	16	17
7	8	9	10	A	11	12	13	14	15	16
my	my	my	mf	my	mf	mf	my	my	mg	my

ATME College of Engineering

ATTENDANCE

Course Title with Code : ...

Semester & Section : 5A

Sl. No.	USN	Student Name											
		Date	3	9	16	17	17	19	20	23	24	26	27
		Month	9	9	9	9	9	9	9	9	9	9	9
			22	23	24	25	26	27	28	29	30	31	32
1	4AD16CS001	Abhay N Change of college	A	A	.	.	.						
2	014	Chandana NG Detained	A	12	13	14	A	A	15	16	17	18	19
3	031	Madeeha S Rahman Change	A	A	.	.	.						
4	102	Rachan MA	A	16	17	18	19	20	21	22	23	24	25
5	17CS002	Abhishek R	A	18	19	20	21	22	23	24	25	26	27
6	26 003	~~Adithya H S~~	A	11	A	12	13	14	A	A	15	A	A
7	004	Ahalya P	17	18	19	20	21	22	23	24	25	26	27
8	005	Akhilesh J A	A	18	19	20	21	22	23	24	25	A	26
9	006	Amulya P	17	18	19	20	21	22	23	24	25	26	27
10	007	Anees Fathima	19	20	21	22	23	24	25	26	27	28	29
11	008	Anil Kumar Gadeda Goudar	A	17	18	19	20	21	22	23	24	25	26
12	35 010	Anusha S	A	15	16	17	18	19	A	20	21	22	23
13	011	Apoorva R	18	19	20	21	22	23	24	25	26	27	28
14	012	Arjun V	15	16	17	A	A	18	19	20	21	A	22
15	014	Bharath J	A	18	19	20	21	22	23	24	25	26	27
16	015	Bhavana M	20	21	22	23	24	25	26	27	28	29	30
17	016	Bhavana R	A	18	19	20	21	22	23	24	25	26	A
18	017	Bhoomika P	A	14	15	16	17	A	18	19	20	21	22
19	018	Canny Cushalappa N J	A	16	17	18	19	20	21	22	23	24	25
20	019 020	Chandana A S Chandana M	A	17	18	19	20	21	22	23	24	25	26
21	021	Darshini R	A	17	18	19	20	21	22	23	24	25	26
22	022	Divya H	A	17	18	19	20	21	22	23	24	25	26
23	023	Dhruva S Detained	A	15	.	.	.	.	.	A	.	.	.
24	024	Faiza Firdaus	18	19	20	21	22	23	24	25	26	27	28
25	025	Farhaz Khan	17	A	18	19	20	21	A	22	23	A	24
	No. of Abs.												
	Initials		My	My	My	My	My	My	My	My	My	My	My

30	3	10	11	14	15	17	4	8	11	12
9	10	10	10	10	10	10	11	11	11	11
33	34	35	36	37	38	39	40	41	42	43
A	20			A	A	·				
A	26	27	28	29	30	A	31	32	33	34
A	28	29	30	31	32	A	33	34	35	36
A	A	16	17	18	19	A	20	21	22	23
28	29	30	31	32	33	34	35	36	37	38
27	28	·	29	30	31	32	33	34	35	36
28	29	30	31	32	33	34	35	36	37	38
30	31	32	33	34	35	A	36	37	38	39
27	28	A	29	30	31	32	33	34	35	36
A	24	25	26	27	28	A	29	30	31	32
29	30	31	32	33	34	35	36	37	38	39
A	23	·	24	25	26	27	28	29	30	31
A	28	29	30	31	32	A	33	34	35	36
31	32	33	34	35	36	37	38	39	40	41
27	28	29	30	31	32	33	34	35	36	37
23	24	25	26	27	28	29	30	31	32	33
26	27	28	29	30	31	32	33	34	35	36
27	A	28	29	30	31	32	33	34	35	36
27	28	29	30	31	32	33	34	35	36	37
27	28	29	30	31	32	33	34	35	36	37
29	30	31	32	33	34	35	36	37	38	39
25	26	A	A	27	28	29	30	31	32	33
My	My	My	My	My	My	My	My	My	My	My

Std. IL

ATME College of Engineering

ATTENDANCE

Course Title with Code : ...

Semester & Section : ....5 A......

Sl. No.	USN	Student Name	44	45	46	47	48	49	50	51	52	53	54
Date			14	16	18	19	20			+8			
Month			11	11	11	11	11						
1	4AD16CS001	Abhay N change of college				~~42~~				50			
2	014	~~Chandana N G~~ Detained											
3	031	~~Madeeha S Rahman~~ change											
4	102	Rachan M A	35	36	37	38				15			
5	17CS002	Abhishek R	37	38	39	40							
6	26 003	~~Adithya H S~~	A	24	25	26							
7	004	Ahalya P	39	40	41	42							
8	005	Akhilesh J A	37	38	39	40							
9	006	Amulya P	39	40	41	42							
10	007	Anees Fathima	40	41	42	43							
11	008	Anil Kumar Gadeda Goudar	37	38	39	40							
12	35 010	~~Anusha S~~	33	A	34	35							
13	011	Apoorva R	40	41	A	42							
14	012	Arjun V	32	33	34	35	+4						
15	014	Bharath J	37	A	38	39							
16	015	Bhavana M	42	43	44	45							
17	016	Bhavana R	A	38	39	40							
18	017	Bhoomika P	34	35	36	37							
19	018	Canny Cushalappa N J	37	A	38	39							
20	019 / 020	Chandana A S / Chandana M	A	37	38	39							
21	021	Darshini R	A	A	38	39							
22	022	Divya H	38	39	A	40							
23	023	~~Dhruva S.~~ Detained											
24	024	Faiza Firdaus	40	41	42	43							
25	025	Farhaz Khan	34	35	36	37							
No. of Abs.													
Initials			My	My	My	My							

ASSESSMENT

ATME College of Engineering

						Attendance				Assignments / Internal Test Marks								SEE Marks	Total Marks
55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
					–				–	–	–	–	–	–	–	–	–		
					–				–	08	09	–	A	–	–	–	–		
					–				–	–	–	–	–	–	–	–	–		
					8					07	07	8	05	10	15	20	22		
					9					08	09	09	27	10	25	26	35		
					9					09	A	10	15	10	07	–	–		
					10					10	17	09	30	10	30	28	39		
					9					08	13	09	24	10	28	28	36		
					10					10	15	10	28	10	30	29	39		
					10					10	28	09	30	10	27	A	38		
					10					10	13	09	14	10	30	27	34		
					10					10	13	10	15	10	12	–	–		
					10					10	18	09	24	10	26	28	36		
					9					08	20	09	18	10	27	26	33		
					9					08	09	09	14	10	12	24	26		
					10					10	27	09	26	10	30	A	38		
					10					10	14	10	27	10	26	25	36		
					10					10	12	10	27	10	20	28	35		
					9					08	16	10	17	10	29	A	30		
					10					10	22	09	27	10	29	28	38		
					9					08	12	10	28	10	22	28	35		
					9					10	19	09	26	10	30	A	34		
					–				–	–	A	–	–	–	–	–	–		
					10					10	25	09	30	10	30	A	28		
					10					10	10	09	17	10	21	24	31		
					My					My	My	My	My	My	My	My	My		

31-7-16

ATME College of Engineering

ATTENDANCE

Course Title with Code : Computer Networks 17CS52

Semester & Section : 5A

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10
		Date	29	30	01	02	5	6	8	9	13	16
		Month	7	7	8	8	8	8	8	8	8	8
26	4AD17CS019	~~Chandana A S~~	A	A	1	2	3	A	4	A	5	6
27	026	Geetha S	A	1	2	3	4	5	6	A	7	8
28	028	Harish L K	A	A	1	2	A	3	4	A	5	A
29	029	Harshitha M	A	A	A	1	2	3	4	A	5	6
30	030	Harshitha M P	A	1	2	3	4	5	A	A	6	7
31	031	Hemanth B	A	A	1	A	2	A	3	A	4	A
32	032	Janavi K V	A	A	1	2	3	4	5	A	6	7
33	034	Jesmitha M P	A	A	A	A	1	2	3	A	4	5
34	035	~~Karunesh K S~~	A	A	A	A	1	A	2	A	3	A
35	036	Krithika G	A	1	2	3	A	A	4	A	5	6
36	37	Kulsum Khanum K	A	A	1	2	3	4	5	A	A	6
37	038	Kusum I K	A	1	2	3	4	5	6	A	7	8
38	039	Lavanya S	A	A	1	2	3	A	4	A	5	6
39	040	Likith V	A	A	1	2	3	A	4	A	5	A
40	041	M S Chinnidhi Aradhya	A	A	1	2	3	4	5	A	6	7
41	042	M S Hruthvic	A	A	1	2	3	A	4	A	A	A
42	043	Machaiah M E	A	A	1	2	3	4	5	A	6	7
43	044	Madhushree S	A	A	1	2	3	4	5	A	6	7
44	046	Malavika T M	A	A	1	2	3	4	5	A	6	7
45	047	Manish Kumar S	A	A	1	2	3	A	4	A	5	A
46	048	Meghana R	A	A	A	2	3	4	A	A	5	6
47	049	~~Meghana Reddy M~~ change	A	A	1	2	3	A	4	A	5	A
48	050	Mohammed Shoaib	A	A	1	2	3	4	5	A	6	7
49	4AD18CS400	Amrutha A S	A	1	2	3	4	5	6	A	7	8
50	401	Deepika K	A	1	2	3	4	5	6	A	7	8
	No. of Abs.											
	Initials		My	My	My	My	My	My	My	My	My	My

19	20	22	23	24	26	27	29	30	31	31
8	8	8	8	8	8	8	8	8	8	8
11	12	13	14	15	16	17	18	19	20	21
7	8	9	10	A	11	12	13	14	15	16
9	10	11	12	13	14	15	16	17	18	19
6	7	8	A	A	9	A	10	11	12	13
7	8	9	10	A	A	A	A	A	11	12
8	9	10	11	A	12	13	14	15	16	17
5	6	7	A	A	8	9	10	11	12	13
8	9	10	11	A	12	13	14	15	A	A
6	7	8	9	A	10	11	12	13	A	A
A	A	4	A	A	5	6	7	8	A	A
7	8	9	10	A	11	12	13	14	15	16
7	8	9	10	A	11	12	13	14	15	16
9	A	A	10	A	11	12	A	13	14	15
7	8	9	10	11	12	13	14	15	A	A
6	7	8	9	A	10	11	12	13	A	A
A	A	8	9	A	10	11	12	13	14	15
A	5	6	A	A	7	8	9	10	11	12
8	9	A	10	A	A	11	12	13	A	A
8	9	10	11	A	12	13	14	15	16	17
8	9	10	11	A	12	13	14	15	16	17
6	7	8	9	A	10	11	A	12	A	A
7	8	9	10	A	11	12	A	A	13	14
6	A	7	A	A	A	A	8	9	A	A
8	9	10	11	A	12	13	14	15	16	17
A	9	10	11	A	12	13	14	A	15	16
9	10	11	12	A	13	14	15	A	16	17
my	my	my	my	my	my	my	my	my	my	my

A T M E
College of Engineering

ATTENDANCE

Course Title with Code :

Semester & Section : 5A

Sl. No.	USN	Student Name											
		Date	3	9	16	17	17	19	20	23	24	26	27
		Mon	9	9	9	9	9	9	9	9	9	9	A
			22	23	24	25	26	27	28	29	30	31	32
26	4AD17CS019	~~Chandana A S~~	17	18	19	20	21	22	23	24	A	25	26
27	026	Geetha S	20	21	22	23	24	25	26	27	28	29	30
28	028	Harish L K	A	14	A	15	16	17	18	A	19	20	21
29	029	Harshitha M	A	13	14	15	16	17	18	19	20	21	22
30	030	Harshitha M P	A	18	19	20	21	22	23	24	25	A	A
31	031	Hemanth B	A	14	15	16	17	18	19	20	21	22	23
32	032	Janavi K V	A	16	A	17	18	19	20	21	22	23	24
33	034	Jesmitha M P	A	14	15	16	17	18	19	20	21	22	23
34	035	~~Karunesh K S~~	A	9	A	10	11	12	13	A	14	A	15
35	036	Krithika G	17	18	19	20	21	22	A	23	24	25	26
36	37	Kulsum Khanum K	17	A	18	19	20	21	22	23	24	25	26
37	038	Kusum I K	16	17	18	19	20	21	22	23	A	24	25
38	039	Lavanya S	16	A	17	18	19	20	21	22	23	24	25
39	040	Likith V	A	14	15	16	17	18	19	20	21	A	22
40	041	M S Chinnidhi Aradhya	A	16	17	18	19	20	21	22	23	24	25
41	042	M S Hruthvic	A	13	A	14	15	16	17	18	19	A	A
42	043	Machaiah M E	A	14	15	16	17	A	18	19	20	21	22
43	044	Madhushree S	18	19	20	21	22	23	24	25	26	27	28
44	046	Malavika T M	18	19	20	21	22	23	24	25	A	26	27
45	047	Manish Kumar S	A	13	14	15	16	17	18	19	20	A	21
46	048	Meghana R	15	16	17	18	19	20	21	22	23	24	25
47	049	~~Meghana Reddy M~~ change	A	A									
48	050	Mohammed Shoaib	18	19	20	21	22	23	24	25	26	A	27
49	4AD18CS400	Amrutha A S	A	17	18	19	20	21	22	23	24	25	26
50	401	Deepika K	18	19	20	21	22	23	24	25	26	27	28
	No. of Abs.												
	Initials		my	my	my	my	my	my	my	my	my	my	my

30	8	10	11	14	15	17	4	8	11	12
9	10	10	10	10	10	10	11	11	11	11
33	34	35	36	37	38	39	40	41	42	43
27	28	29	30	A	31	32	33	34	35	A
31	32	33	34	35	36	A	37	38	39	40
22	A	23	24	25	26	27	28	29	30	31
23	A	24	25	26	27	28	29	30	31	32
A	26	27	28	29	30	31	32	33	34	35
24	A	25	A	26	27	28	29	30	31	32
25	A	26	27	28	29	30	31	32	33	34
24	25	26	27	28	29	30	31	32	33	34
A	16	A	A	17	18	A	19	A	20	21
27	28	29	30	31	32	33	34	35	36	37
27	28	29	30	A	31	32	33	34	A	35
26	27	28	29	30	31	32	33	34	35	36
26	27	28	29	30	31	32	33	34	35	36
23	24	25	26	27	28	A	29	30	31	32
26	27	28	29	30	31	A	32	33	34	35
20	21	22	A	23	24	25	26	27	28	29
23	24	25	A	26	27	28	29	30	31	32
29	30	31	32	33	34	35	36	37	38	39
28	29	30	31	32	33	34	35	36	37	38
22	23	24	25	26	27	28	29	30	31	32
26	27	28	29	30	31	32	33	34	35	36
28	29	30	A	31	32	33	34	35	36	37
27	A	28	29	30	31	A	32	33	34	35
29	30	A	31	32	33	34	35	35	36	37
my	my	my	my	my	my	my	my			

A T M E College of Engineering

ATTENDANCE

Course Title with Code :

Semester & Section : 5A

Sl. No.	USN	Student Name	44	45	46	47	48	49	50	51	52	53	54
		Dat	14	16	18	19							
		Mo	11	11	11	11							
26	4AD17CS019	~~Chandana A S~~	36	37	38	39							
27	026	Geetha S	41	42	43	44							
28	028	Harish L K	32	33	34	35							
29	029	Harshitha M	33	34	35	36							
30	030	Harshitha M P	36	37	38	39							
31	031	Hemanth B	33	34	35	36	+3						
32	032	Janavi K V	35	36	37	38	+1						
33	034	Jesmitha M P	35	36	37	38	+1						
34	23 035	~~Karunesh K S~~	A	22	A	23							
35	036	Krithika G	38	39	A	40							
36	37	Kulsum Khanum K	36	37	38	39							
37	038	Kusum I K	A	37	38	39							
38	039	Lavanya S	37	38	39	A							
39	040	Likith V	33	34	35	36							
40	041	M S Chinnidhi Aradhya	36	37	38	39							
41	042	M S Hruthvic	30	31	32	33	+1						
42	043	Machaiah M E	33	34	35	36	+3						
43	044	Madhushree S	40	41	42	43							
44	046	Malavika T M	39	40	41	42							
45	047	Manish Kumar S	33	34	35	36							
46	048	Meghana R	37	38	39	A							
47	049	~~Meghana Reddy M~~ change											
48	050	Mohammed Shoaib	38	39	40	41							
49	4AD18CS400	Amrutha A S	36	37	38	39							
50	401	Deepika K	38	39	40	A							
	No. of Abs.												
	Initials		MY	MY	MY	MY							

ASSESSMENT

ATME College of Engineering

						Attendance				Assignments / Internal Test Marks								SEE Marks	Total Marks
55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
					9					08	11	10	16	10	21	23	29		
					10					10	24	09	25	10	30	A	36		
					9					08	15	09	14	10	24	24	30		
					10					10	13	10	23	10	26	24	34		
					10					10	17	09	22	10	26	20	33		
					10					10	16	09	26	10	25	26	36		
					10					10	10	10	21	10	30	28	36		
					10					10	18	09	30	10	30	27	39		
					—					08	08	—	A	—	22	—	—		
					9					08	13	10	30	10	28	26	37		
					9					10	18	08	A	10	27	30	34		
					10					10	24	10	24	10	25	00	34		
					9					09	19	08	18	10	20	23	30		
					9					08	12	09	18	10	28	26	33		
					09					08	09	08	21	10	30	26	35		
					09					08	12	09	26	10	16	17	29		
					09					08	10	09	22	10	24	22	32		
					10					10	27	09	28	10	26	A	37		
					10					10	24	09	30	10	30	30	40		
					09					09	11	08	13	10	12	13	22		
					10					10	22	09	26	10	30	26	37		
					—					—	—	—	—	—	—	—	—		
					10					10	25	10	24	10	30	A	36		
					10					10	09	10	26	10	24	28	36		
					9					08	14	10	19	10	27	28	34		
					my					my	my	my	my	my	my	my	my		

S104-1L

A T M E College of Engineering

ATTENDANCE

A1 Batch

Course Title with Code : Computer Network Lab-17CSL57

Semester & Section : 5A

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		Date	29	5	19	26	31	9	16	23	30	14	29	26	11	19							
		Month	7	8	8	8	8	9	9	9	9	10	10	11	11	11							
1	4AD16CS001	Abhay N	A	1	A	A	A	A	A	—	—	—	—	—	—	—							
2	014	Chandana N G	A	1	2	3	A	4	5	6	~~A~~	~~A~~	A	A									
3	021	Madeeha S Rahman	A	A	A	A	A	A	A	—	—	—	—	—	—	—							
4	16CS102	Rochan M A	A	1	2	3	4	5	6	7	8	9	A	10	11	12							
5	17CS402	Abhishek R	A	1	2	3	4	5	6	7	A	9	9	10	11	12							
6	003	Bathya H S	A	1	2	A	A	3	4	5	A	6	7	8	9	10							
7	004	Ahalya P	A	1	2	3	4	5	6	7	8	9	10	11	12	13							
8	005	Akhilesh I A	A	1	2	3	4	5	6	7	8	9	10	11	12	13							
9	006	Amulya P	A	1	2	3	4	5	6	7	8	9	10	11	12	13							
10	007	Anees Fathima	A	1	2	3	4	5	6	7	8	9	10	11	12	13							
11	008	Anil Kumar Gadeda G G	A	A	1	2	3	4	5	6	7	8	9	10	11	12							
12	010	Anusha S	A	A	1	2	3	4	5	6	A	7	A	8	9	10							
13	011	Apoorva R	A	1	2	3	4	5	6	7	8	9	10	11	12	13							
14	012	Arjun V	A	1	2	3	4	5	6	7	A	8	9	10	11	12							
15	18CS400	Amrutha A S	A	1	2	3	4	5	6	7	8	9	10	A	11	12							
16	401	Deepika K	A	1	2	3	4	5	6	7	8	9	10	11	12	13							
17	402	Meghana H S	A	1	2	3	4	5	6	7	8	9	10	11	12	13							
18	403	Pallavi K M	A	A	1	2	3	4	5	9	6	A	7	A	·	8							
		No. of Abs.																					
		Initials	M	M	M	M	M	M	M	M	M		M	M	M	M							

ASSESSMENT

A T M E College of Engineering

Sl. No.	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
	Assignments / Internal Test Marks										
1									—		
2									—		
3									—		
4									22		
5									37		
6									—		
7									36		
8									36		
9									38		
10									33		
11									29		
12									—		
13									34		
14									34		
15									32		
16									31		
17									31		
18									30		
									M		

A T M E College of Engineering

ATTENDANCE

Ar Batch

Semester & Section : 5A

Course Title with Code : Computer Network Lab 17CSL57

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		Date	21	7	14	21	28	4	11	18	25	9	16	14	23	30	13	20					
		Month	7	8	8	8	8	9	9	9	9	10	10	10	10	10	11	11					
1	4AD17CS014	Bharath J	A	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14					
2	015	Bhavana M	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15					
3	016	Bhavana R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16					
4	017	Bhoomika P	1	A	2	3	4	5	6	7	8	9	10	11	12	13	14	15					
5	018	Canny Cuthalappa N J	A	1	2	3	4	5	6	7	8	A	9	10	11	12	13	14					
6	019	Chandana A S	A	1	2	3	4	5	6	7	8	9	A	10	11	12	13	14					
7	020	Chandana M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	A	15					
8	021	Darshini R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	A	15					
9	022	Divya H	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15					
10	023	Druva S detained	A	1	2	3	4	5	6	A	A	A											
11	024	Faiza Firdaus	A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15					
12	025	Farhaz Khan	A	1	2	3	4	5	6	7	A	8	9	10	11	12	13	14					
13	026	Geetha S	A	1	2	3	4	A	5	6	7	8	9	10	11	12	13	14					
14	028	Harish L K	A	1	2	3	4	5	6	7	A	8	9	10	11	12	.	.					
15	029	Harshitha M	1	2	3	4	A	5	6	7	8	9	10	11	12	13	.						
16	030	Harshitha M P	1	2	3	4	5	A	6	7	8	9	10	11	12	13	.						
17	031	Hemanth B	A	1	2	3	4	5	6	7	A	8	9	10	11	12	.						
		No. of Abs.																					
		Initials	M	M	M	M	M	M	M	M	M		M	M	M	M	M	M					

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ASSESSMENT

A T M E College of Engineering

Sl. No.	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
1									34		
2									40		
3									29		
4									34		
5									37		
6									31		
7									38		
8									31		
9									36		
10									—		
11									40		
12									33		
13									35		
14									34		
15									31		
16									34		
17									34		
Initials									M		

Assignments / Internal Test Marks

ATME College of Engineering

ATTENDANCE

A3 Batch

Semester & Section : 5A

Course Title with Code : Computer Network Lab 17CSL57

Sl. No	USN	Student Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Date			01	08	22	24	29	5	19	26	3	10	17	4	31	14	21						
Month			8	8	8	8	9	9	9	9	10	10	10	10	10	11	11						
1	4AD17CS032	Janavi K V	A	1	2	A	3	4	5	6	A	7	8	9	10	11							
2	34	Jesmitha M P	A	1	2	3	4	5	6	7	8	9	A	10	11	12							
3	35	Karunesh K S	A	1	2	A	3	A	4	A	5	6	A	7	A	8							
4	36	Krithika G	1	2	3	4	5	6	7	8	9	10	11	12	13	14							
5	37	Kulsum Khanum K	1	2	3	4	5	6	7	8	9	10	11	12	13	14							
6	38	Kusum I K	1	2	A	3	A	4	5	6	7	8	9	10	11	12							
7	39	Lavanya S	1	2	3	4	5	6	7	8	9	10	11	12	13	14							
8	40	Likith V	1	2	3	A	4	5	6	A	7	8	9	10	11	12							
9	41	M S Chinnidhi Aradhya	1	2	3	A	4	5	6	7	8	9	10	11	12	13							
10	42	M S Haathvic	1	2	3	A	4	5	6	A	7	8	9	10	11	12							
11	43	Machaiah M E	1	2	3	A	4	5	A	A	6	7	8	9	10	11							
12	44	Madhushree S	1	2	3	4	5	6	7	8	9	10	11	12	13	14							
13	46	Malavika T M	A	1	2	3	4	5	6	7	8	9	10	11	12	13							
14	47	Manish Kumar S	1	2	3	A	A	4	5	A	6	7	8	9	A	10							
15	48	Meghana R	1	A	2	3	4	5	6	7	8	9	10	11	12	13							
16	49	Meghana Reddy M	1	2	3	A	4																
17	50	Mohamed Shoaib	1	2	3	A	4	5	6	A	7	8	9	10	11	12							
No. of Abs.																							
Initials			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]							

ASSESSMENT

ATME College of Engineering

Sl. No	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks	SEE Marks	Total Marks
1									29		
2									37		
3									—		
4									34		
5									33		
6									29		
7									35		
8									28		
9									33		
10									33		
11									33		
12									29		
13									39		
14									28		
15									38		
16									—		
17									37		

USN | | | | | | | | | | 10CS55

Fifth Semester B.E. Degree Examination, June/July 2016
Computer Networks – I

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

PART – A

1 a. What is data communication? Explain with neat sketch three types of communications between the devices considering data flow. **(06 Marks)**

b. With sketch, explain two types of wide area network in use. **(04 Marks)**

c. List out the functionalities of physical layer, data link layer and network layer. Explain in brief. **(06 Marks)**

d. Give four levels of addresses used in TCP/IP protocol and give its significances. **(04 Marks)**

2 a. Define the following :
   i) Frequency shift keying
   ii) Band width of composite signal
   iii) Base band transmission
   iv) Broad band transmission
   v) SNR
   vi) Nyquist bit rate. **(06 Marks)**

b. What is latency? List out its components. Find the total delay in a line of length 2000 km. to transfer 5 M bytes of data if band width is 1 Gbps. **(04 Marks)**

c. What is line coding? Draw line code of the sequence 01001110 in NRZ_L, Manchester, differential Manchester, RZ and AMI coding scheme. **(06 Marks)**

d. Give the block diagram of PCM encoder and state the role of each processes. **(04 Marks)**

3 a. What is multiplexing? Differentiate synchronous TDM with statistical TDM giving the working of both procedures in brief. **(06 Marks)**

b. State and explain the data rate management to handle disparity in input data rates in TDM. **(04 Marks)**

c. Explain in brief FHSS technique. **(06 Marks)**

d. List out the differences between datagram switching and virtual circuit switching. **(04 Marks)**

4 a. What is hamming code? With the structure of the encoder and decoder for hamming code C(7, 4), explain how it can find the error and corrects the same. **(06 Marks)**

b. Find codeword, using cyclic redundancy code given generator 1011, data word 1001 and show how it is used to check for error detection in the receiver side. **(08 Marks)**

c. Write note on error detection method using 16 bit check sum used in internet. Calculate check sum for a text 'Food' given ASCII values of F is 46, o is 6F and d is 64. **(06 Marks)**

PART – B

5 a. With neat sketch, explain two approaches used in variable size framing. **(06 Marks)**

b. What should be send window size in Go–Back–N ARQ? Justify your answer. **(06 Marks)**

c. What are the 3 types of HDLC frames used in HDLC bit oriented protocol? Explain its significance with its structure. Show how that frames can be used for exchange of data using piggy backing. **(08 Marks)**

6 a. With flow diagram, explain the working of CSMA/CD. **(08 Marks)**
b. Explain working of CDMA with suitable example. **(06 Marks)**
c. Give the details of minimum and maximum length of Ethernet frame. With an example, explain the format of Ethernet address. **(06 Marks)**

7 a. With neat sketch, explain BSS and ESS. **(06 Marks)**
b. Explain with necessary sketch IEEE 802.11 addressing mechanism. **(08 Marks)**
c. Show two types of networks used in Bluetooth. Explain in brief the same. **(06 Marks)**

8 a. Write note on five classes of address used in IPV4 addressing. Give the details of address space. **(10 Marks)**
b. Give the IPV4 datagram format and brief description of each field. **(10 Marks)**

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USN | | | | | | | | | |

10CS55

Fifth Semester B.E. Degree Examination, Dec.2015/Jan.2016

Computer Networks – I

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Define network. With a neat diagram, explain the four basic topologies. **(05 Marks)**

b. With the help of a diagram, explain the functionalities of each layer of OSI reference model. **(10 Marks)**

c. List and explain the four levels of addresses used in an internet employing the TCP/IP protocols. **(05 Marks)**

2 a. Define latency. Briefly explain the components of latency. What are the propagation time and transmission time for a 5 Mbyte message (image), if the bandwidth of the network is 1 Mbps? Assume that the distance between the sender and receiver is 12000 km and that light travels at 2.4×10^8 m/s. **(08 Marks)**

b. Explain the PCM technique used for analog to digital conversion. (Taking suitable example). **(08 Marks)**

c. What is line coding? Represent the sequence "01001110" using NRZ-L, NRZ-I and Manchester schemes. **(04 Marks)**

3 a. What is TDM? Explain in detail. **(07 Marks)**

b. Explain virtual circuit network with an example, and also briefly discuss the phases. **(10 Marks)**

c. Five channels, each with a 100 kHz bandwidth are to be multiplexed together. What is the minimum bandwidth of the link is there is a need for a guard band of 10 kHz between the channels to prevent interference? **(03 Marks)**

4 a. How does datawords and codewords is represented in block coding and also explain how can errors be detected and corrected by using block coding. **(10 Marks)**

b. Find the code word using CRC given data "1101" and generator "1100". **(10 Marks)**

PART – B

5 a. With a neat diagram, explain any two protocols of noisy channel. **(12 Marks)**

b. Explain the frame format of HDLC protocol. **(08 Marks)**

6 a. Describe pure ALOHA and slotted ALOHA. **(10 Marks)**

b. What is channelization? List and explain the channelization protocols. **(10 Marks)**

7 a. Explain the different types of addressing mechanism in IEEE 802.11. **(05 Marks)**

b. Define Bluetooth and explain the architecture of Bluetooth. **(05 Marks)**

c. With a neat diagram, explain the categories of connecting devices. **(10 Marks)**

8 a. Explain classful addressing and classless addressing with respect to IPV4. **(08 Marks)**

b. Explain in detail IPV6 packet format. **(08 Marks)**

c. Give a comparison between IPV4 and IPV6. **(04 Marks)**

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

USN

10CS55

Fifth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Computer Networks – I

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. Explain the fundamental characteristics and components of a data communication system. **(08 Marks)**

b. With a neat diagram explain the TCP/IP protocol suite mentioning the different layers and their functions in TCP/IP. Why is TCP/IP called a defacto standard? **(08 Marks)**

c. Explain the different addresses used in TCP/IP and diagrammatically indicate how they are related to different layers in TCP/IP. **(04 Marks)**

2 a. Mention and explain with reasons the causes of impairment of transmission of signals through transmission media. **(08 Marks)**

b. What is pulse code modulation (PCM)? Draw the block schematic of a PCM encoder indicating different components and relevant waveforms for the input voltage
$v(t) = 2t$ for $t = 0$ to $t = T/2$ and $v(t) = 0$ for $t = T/2$ to T. **(08 Marks)**

c. The human voice normally contains frequencies from 0 to 4000 Hz. What is the minimum sampling rate as per Nyquist theorem? Assuming 8-bits/sample, what is the bit rate? **(04 Marks)**

3 a. When is the use of multiplexing justified? Mention and explain different types of multiplexing. **(08 Marks)**

b. Describe the different switched networks used in computer networks, mentioning specifically which of these need setup, transfer and teardown phase. **(08 Marks)**

c. A path in a digital circuit switched network has a data rate of 1 Mbps. Exchange of 1000 bits is required for setup and 1000 bits for teardown. The distance between two parties is 8000 km. calculate the total time required to transfer 2000 bits of data if acknowledgement requires exchange of 500 bits and tearing down of connection is initiated from source assuming no error in data transmission, no processing delay and propagation speed in connecting medium 2×10^8 m/s (Protocol ends with sending of tearing down message from source side). **(04 Marks)**

4 a. For the following code find the minimum Hamming distance.

Data word	Code word
0 0	0 0 0 0 0
0 1	0 1 0 1 1
1 0	1 0 1 0 1
1 1	1 1 1 1 0

Based on the minimum Hamming distance found, discuss the capabilities of this code. Represent the code in symbolic form. **(08 Marks)**

b. Draw the block schematic diagram for encoder and decoder which uses a standard polynomial CRC-8 = $x^8 + x^2 + x + 1$ for coding and decoding. Explain how code words are generated and errors in received code words are detected, if the message length is 8-bits, say 10101010. **(08 Marks)**

c. In a system using CRC (Cyclic Redency Check) for error detection the generation used is 1011 and codeword received is 1011110. Explain with reason what is the action taken at receiver. **(04 Marks)**

PART – B

5 a. In stop-and-wait automatic repeat request (Stop-and-wait ARQ), explain how is error control mechanism added to stop-and-wait protocol of noise free channel for a noisy channel. With frame flow diagram, explain how a frame is delivered when (i) it is delivered first time and acknowledged (ii) When it is lost (iii) when it is delivered but it's acknowledgement is lost. **(08 Marks)**

b. What is a High-Level Data Link Control (HDLC) protocol? Indicate in diagrammatic form, the frame format of different HDLC frames. Which field in these frames indicates the type of frame? **(08 Marks)**

c. Assume that in a stop-and-wait ARQ system the bandwidth of the line is 1 Mbps and 1 bit takes 10 ms for one way trip. What is the bandwidth-delay product? If the system data frames are 1000 bits in length, what is the utilization percentage of the link? **(04 Marks)**

6 a. Describe CSMA/CD access method with space/time model and indicate the requirements needed for this type of access. **(08 Marks)**

b. With a neat diagram describe the different fields and their lengths in bytes of standard Ethernet (802.3 MAC) frame. **(08 Marks)**

c. A network using CSMA/CD has a bandwidth of 10 Mbps. What should be the minimum size of frame if the maximum propagation time including delays in devices is 25.6×10^{-6} s. **(04 Marks)**

7 a. Describe how the communication takes place in wireless LANs with the help of CSMA/CA flowchart. Also explain how is collision avoided. **(08 Marks)**

b. Draw the schematic diagram of a cellular system in cellular telephony and describe how a call is made and a call is received by the mobile station. **(08 Marks)**

c. Advanced Mobile Phone System (AMPS) uses 824 MHz to 849 MHz (25 MHz) band for reverse communication and 869 MHz to 894 MHz (25 MHz) band for forward communication. Calculate the number of analog channels if the bandwidth of analog channel is 30.04 kHz. If AMPS has frequency reuse factor of 7, how many channels are available in a cell? **(04 Marks)**

8 a. Why is Network Address Translation (NAT) used in IPv4 protocol? Explain with example how the address of datagram gets changed? (Use private source address 198.168.0.1, NAT router address 200.24.5.8 and Destination address 25.8.2.10). **(08 Marks)**

b. Draw the diagram showing the IPv4 datagram format showing different fields with their length in bits. Explain the function of each field. **(08 Marks)**

c. In IPv4 datagram has arrived with the following information in the header (in hexadecimal)
OX 4500 0054 0003 5850 2006 0000 7C4E 0302 B40E 0F20
Answer the following questions:
(i) Is the packet fragmented? (Give reason to your answer)
(ii) What is the size of data?
(iii) How many routers the packet can travel to?
(iv) What is the identification of the packet in decimal? **(04 Marks)**

* * * * *

USN | | | | | | | | | | |

10CS55

Fifth Semester B.E. Degree Examination, Dec.2014/Jan.2015
Computer Networks – I

Time: 3 hrs. Max. Marks:100

Note: ***Answer any FIVE full questions, selecting atleast TWO questions from each part.***

PART – A

1 a. What are the components of data communication system? Explain in brief. **(05 Marks)**
b. With a neat diagram, explain the interaction between layers in the OSI model. **(10 Marks)**
c. What is the difference between a physical and logical address? Explain with example. **(05 Marks)**

2 a. Distinguish between low pass channel and a band pass channel. **(06 Marks)**
b. A network with bandwidth of 10Mbps can pass only an average of 18,000 frames per minute with each frame carrying an average of 10,000 bits. What is the throughput of this network? **(04 Marks)**
c. Compare and contrast between PCM and DM. **(06 Marks)**
d. Explain polar biphase Manchester and differential Manchester encoding schemes with example. **(04 Marks)**

3 a. Explain following modulation techniques:
i) Amplitude modulation
ii) Frequency modulation. **(06 Marks)**
b. A multiplexer combines four 100kbps channels using a time slot of 2 bits. Show the output with four arbitrary inputs. What is the frame rate? What is the frame duration? What is the bit rate? What is the bit duration? **(04 Marks)**
c. With relevant diagrams, explain the data transfer phase in a virtual circuit network. **(10 Marks)**

4 a. Explain CRC error detection method with an example. **(06 Marks)**
b. Explain the structure of encoder and decoder for a Hamming code. **(04 Marks)**
c. What is internet checksum? If a sender needs to send four data items 0 × 3456, 0 × ABCC, 0 × 02BC and 0 × EEEE, answer the following:
i) Find the checksum at sender site.
ii) Find the checksum at receiver's site if there is no error. **(10 Marks)**

PART – B

5 a. Explain GO-BACK-N ARQ and selective-repeat-ARQ. List the differences between them. **(10 Marks)**
b. Explain the different frame types in HDLC. **(06 Marks)**
c. Write a short note on piggybacking. **(04 Marks)**

6 a. With a flow diagram, explain the working of CSMA/CD. **(10 Marks)**
b. Explain the following channelization techniques: i) TDMA ii) CDMA. **(10 Marks)**

7 a. What do you mean by hidden and exposed station problems in IEEE 802.11 protocol. Explain in detail. **(06 Marks)**

b. With neat diagram, explain the architecture of Piconet and Scatternet Bluetooth networks. **(06 Marks)**

c. Explain the working of global system for mobile (GSM) in detail. **(08 Marks)**

8 a. Explain IPV_6 header format with its extension headers. **(10 Marks)**

b. Write short note for following:

i) Token passing
ii) Gigabit Ethernet
iii) Polling
iv) FHSS. **(10 Marks)**

* * * * *

20-09-2019

Department Advisory Board (DAB)

MINUTES OF MEETING

The meeting of Department Advisory Board committee of Computer Science and Engineering Department was held at 20th September 2019 in the department meeting room.

The following members attended the meeting:

Sl. No.	Name	Designation	Signature
1	Dr. Manjunath S S	Chairman and Program Coordinator	SSoj-12
2	Dr. Puttegowda D	Member	Gowda
3	Mrs. NasreenFathima, Asst. Prof.	Member	Nasfath
4	Mrs. Sunitha Patel M S, Asst. Prof.	Member	[illegible]
5	Mr. Anil Kumar B H	Member	[illegible]
6	Mr. Karthik G, Managing Director, VSG Software Solutions	Industry Expert	Karthik
7	Ms. Lavanya N	Alumni	Lavanya.N
8	Mr. Anil Kumar C J, Assoc. Prof.	Member Coordinator	[illegible]

Agenda

1. Review the Minutes of Meeting of Program Assessment Committee (PAC) dated on 09/09/2019.
2. Review of course attainment for even semester of the academic year 2018-19 and to give necessary suggestions.
3. To verify the curriculum gap identified for the AY 2019-20 and to suggest necessary actions.
4. Discussion on any other matter with the permission of chair.

The following points were discussed during the meeting and the minutes were recorded as below,

1. Dr. Manjunath S S, welcomed the committee members who have gathered in the meeting room.

2. Mr. Anil Kumar C J, Member Coordinator provided the minutes of meeting of PAC and read out the agenda of the meeting.

3. As stated in PAC MOM, 6th semester one of the courses have not attained the target level of COs. Hence, for the same the committee members called the course coordinator and discussed regarding the same and suggested to take tutorial classes.

4. As per the MOM of PAC, Program outcomes - PO6, PO7, PO8 and PO11 are identified as curriculum Gap. To fulfil the curriculum gap, the following suggestions were made by the DAB committee.

   1. Mr. Karthik G, suggested to conduct workshops on recent technologies like, Block chain, Amazon web services and Cloud computing.
   2. Ms. Lavanya N, suggested to organize industrial visits to students to promote carrying out projects in the industries.
   3. Mr. Anil Kumar B H, suggested that students to be encourage to carryout internship in industries which helps in knowledge gain and improves communication skills.
   4. Mr. Anil Kumar C J, suggested to organize technical events under professional body - CSI.

5. DAB committee revised the target level for the attainment of POs and PSOsfor the AY 2019-20 as 2.1. And also it is decided to change the weightage for direct and indirect attainment surveys to 70% and 30% from 80% and 20% respectively.

6. DAB members recommended that indirect CO assessment process need to be incorporated from 2019-20 batch onwards.

7. HoD, presented the new tool for classifying the advanced and slow learners. Committee members approved the same and suggested to use the tool henceforth.
8. Mr. Anil Kumar C J, Member coordinator stated that all the above points are noted.
9. Dr. Manjunath S S, thanked all the committee members for attending the meeting and meeting was adjourned.

HOD

HOD
Dept. of Computer Science & Engg
ATME College of Engineering
Mysuru-5700..

Copy to:

The Principal
Circulate among DAB Members
Internal Quality Assurance Cell (IQAC)

List of activities conducted during the year 2019-20

Sl. No.	Activity	No. of participants	Date
1	Three days webinar on “Latest Technologies”	390	9 to11 July 2020
2	Interview Skills Training- Technical Talk	72	18-02-2020
3	Two day workshop on “Android App Development”-Workshop	68	6-7 Nov 2019

ATME College of Engineering

ISO 9001:2015

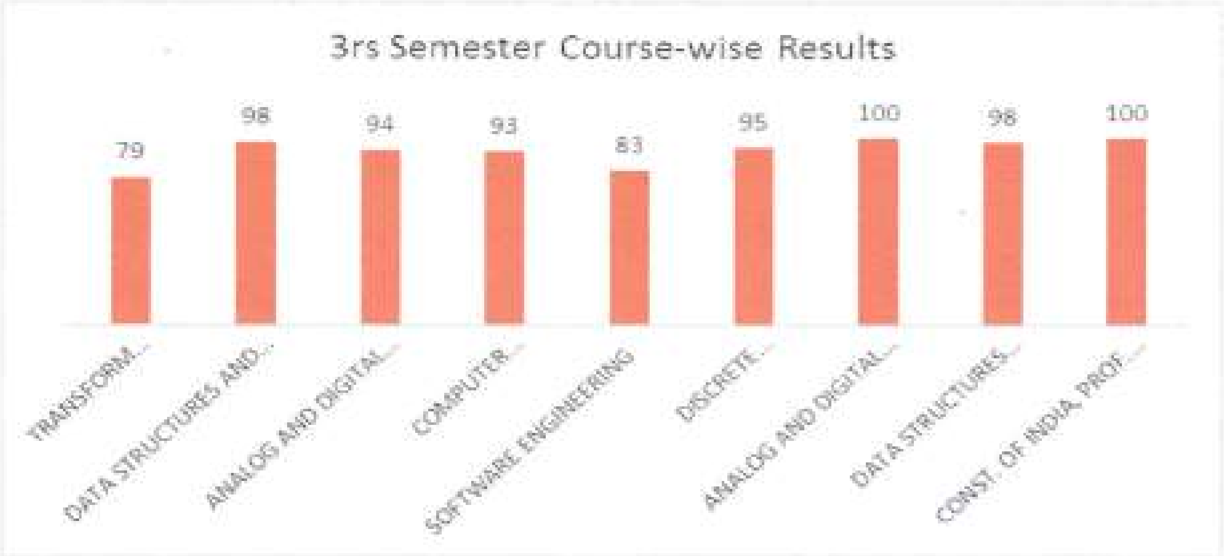
CSE

Department of Computer Science and Engineering

Result analysis of Odd Semester- Academic Year- 2019-20

Class	No. of Students	No. of Pass	FCD	FC	SC	Pass %
3rd semester						
Regular	84	67	22	28	17	79.76
Lateral	29	9	0	2	7	32.14
Overall	113	76	22	30	24	67.86
5th semester	91	75	40	35	0	83.3
7th semester	111	96	31	54	11	87.27

3rd Semester Course wise result



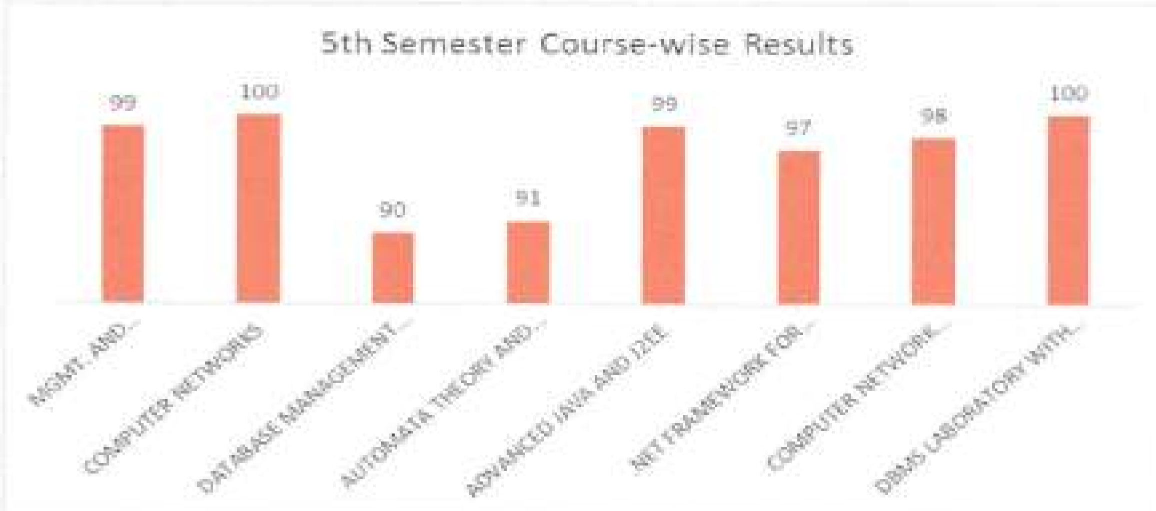
Result Analysis Coordinator

HoD

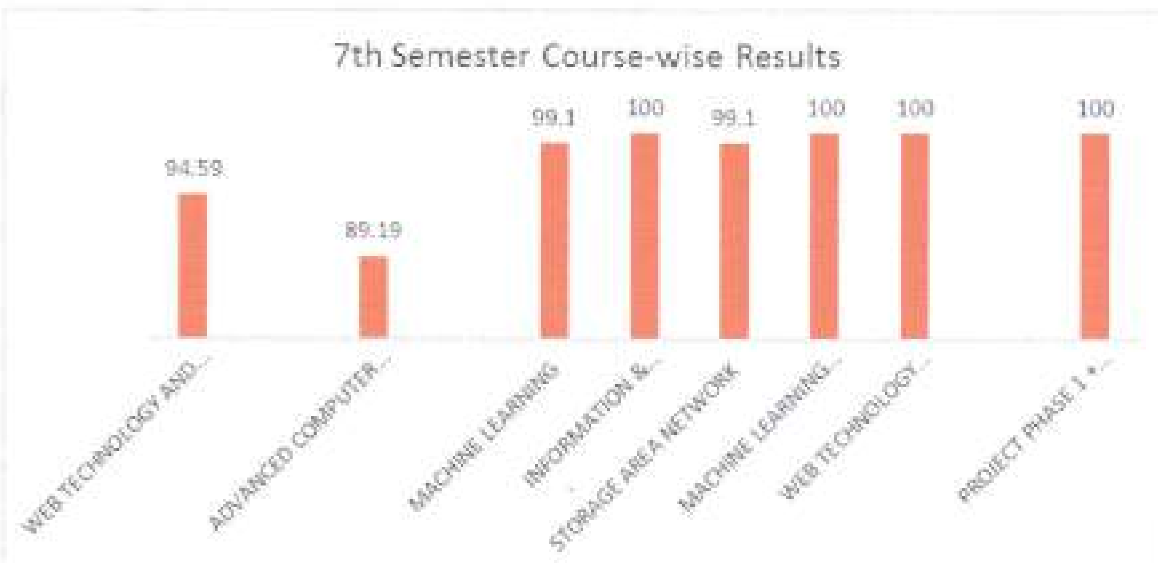
Professor & Head
Dept. of Computer Science & Engg.
ATME COLLEGE OF ENGINEERING
MYSURU-570 028

Department of Computer Science and Engineering

5th Semester Course-wise Result



7th Semester Course-wise Result



Result Analysis Coordinator

HoD
Professor & Head
Dept. of Computer Science & Engg.
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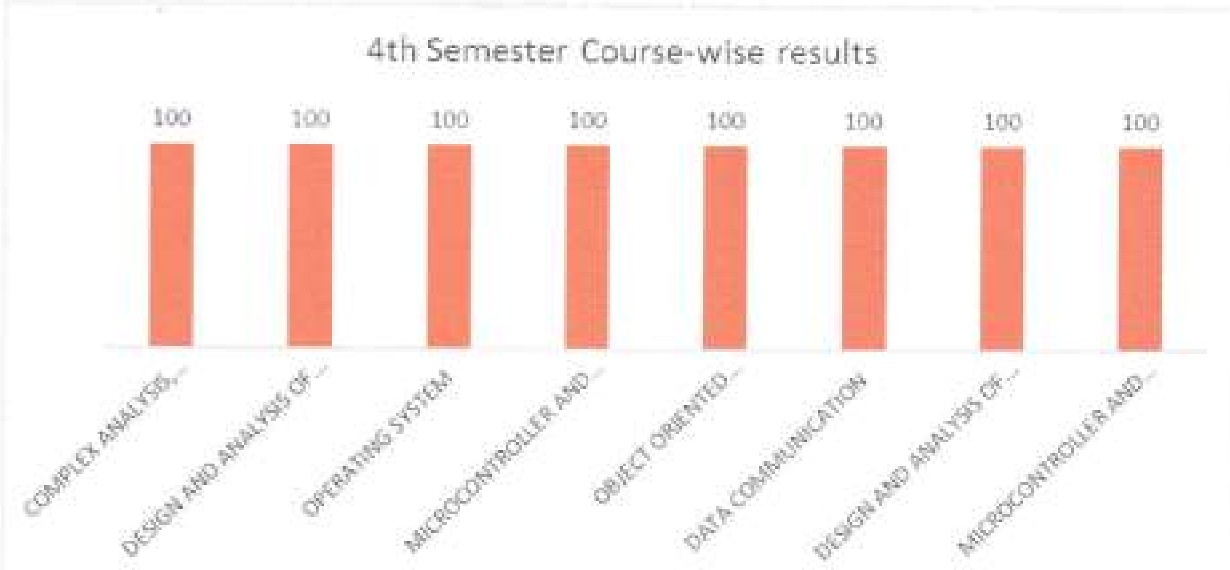
Department of Computer Science and Engineering

Result analysis of Even Semester- Academic Year- 2019-20

Class	No. of Students	No. of Pass	FCD	FC	SC	Pass %
4th semester						
Regular	84	84	75	9	0	100
Lateral	29	29	20	9	0	100
Overall	113	113	95	18	0	100
6th semester	91	91	89	2	0	100%
8th semester	111	110	104	6	0	99.1%

4th Semester Course wise result



Result Analysis Coordinator

HoD

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Dept. of Computer Science & Engg.
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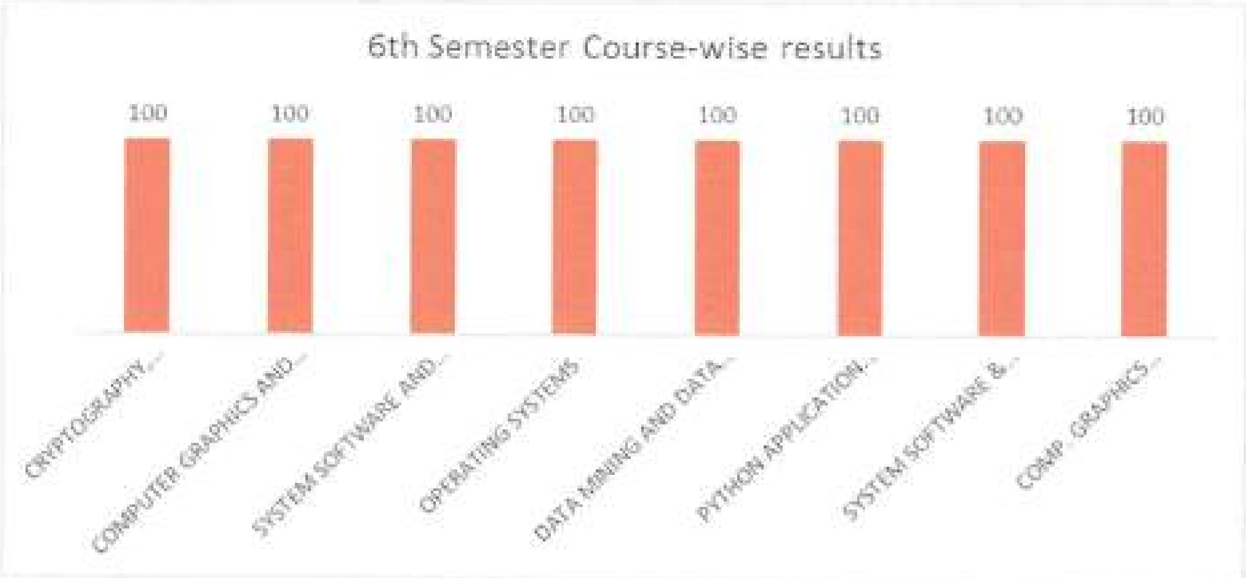
6th Semester Course-wise Result



8th Semester Course-wise Result

Result Analysis Coordinator

HoD

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ATME
College of Engineering

VISION OF THE INSTITUTE

Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

MISSION OF THE INSTITUTE

- To keep pace with advancements in knowledge and make the students competitive and capable at the global level.
- To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as torch bearers of tomorrow's society.
- To strive to attain ever-higher benchmarks of educational excellence.

VISION OF THE DEPARTMENT

To develop highly talented individuals in computer science and Engineering to deal with real world challenges in industry, education research and society.

MISSION OF THE DEPARTMENT

* To inculcate professional behavior, strong ethical values, innovative research capabilities and leadership abilities in the young minds and to provide a teaching environment that emphasizes depth, originality and critical thinking.
* Motivate students to put their thoughts and ideas adoptable by industry or to pursue higher studies leading to research.

ATME College of Engineering

Period From July 2019 To Nov 2019 Semester : Odd / Even

Faculty Member : NASREEN FATHIMA

Designation : ASSISTANT PROFESSOR

Department : COMPUTER SCIENCE ENGINEERING

Faculty Member ID : CS01019

Sl. No.	Sem. / Sec. / Branch	Course Title	Course Code
1	7/A/CSE	Information Network Security	15CS743
2	5/A/CSE	Computer Networks	17CS52
3	5/A/CSE	Computer Network Lab	17CSL57
4			

	Review at the end of the				End of Semester
	1st Month	2nd Month	3rd Month	4th Month	
Staff	INS - 1 Module CN - 1.5 Modules CN lab - 4 programs	INS - 2.3 Modules CN - 2.5 Modules CN lab - 6 programs	INS - 3 M CN - 3M CN lab - 9 program	INS - 5 M CN - 5 M CN lab - 12 programs	INS - 5M CN - 5M CN lab - 12 programs.
HOD / Reviewer	Sd/- 11/9/19	Sd/-	Sd/-	Sd/-	Sd/- 4/12/19

Personal Timetable

DAY ↓ / TIME →	09:00 AM 10:00 AM	10:00 AM 11:00 AM	11:15 AM 12:15 PM	12:15 PM 01:15 PM		02:00 PM 02:55 PM	02:55 PM 03:50 PM	03:50 PM 04:45 PM
Monday	CN LAB 5A A1 Batch				Lunch Break	CN 5A	DBMS LAB 5B B2 Batch	
Tuesday		CN 5A					INS 7A	
Wednesday	INS 7A	CN LAB 5A A2 Batch						
Thursday	CN LAB 5A A3 Batch			INS 7A		CN 5A	DS LAB 3C C1 Batch	
Friday	CN 5A		INS 7A					
Saturday								

ATME College of Engineering

Lesson Plan

15CS743

Course with code: Information Network Security **Semester & Section :** 7A

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1		Module - 1		
2	08-08-19	Introduction. How to speak crypto, classic crypto	13-8-19	
3	09-08-19	simple substitution cipher. cryptanalysis of a simple substitution.	13-8-19	
4	13-8-19	cryptanalysis of a simple substitution. Definition of secure.	14-8-19	
5	14-8-19	Double transposition cipher. One time pad.	16-8-19	
6	16-8-19	Project VENONA. codebook cipher.	16-8-19	
7	20-8-19	Ciphers of the Election of 1876.	20-8-19.	Sd/-
8	21-8-19	Modern crypto History. Taxonomy of cryptography	20-8-19	
9	22-8-19	Taxonomy of cryptanalysis.	29-8-19.	
10		Module - 2		
11	23-8-19	What is a Hash Function? The Birthday problem.	4-9-19 11-9-19	
12	24-8-19	Non cryptographic Hashes.	11-9-19.	Sd/-
13	27-8-19	Tiger Hash. HMAC.	17-9-19.	
14	28-8-19	Uses of Hash Functions. Online Bids.	18-9-19	
15	29-8-19	Spam Reduction. Other crypto Related topics.	19-9-19	
16	30-8-19	secret sharing, Key Escrow.	19-9-19	
17	03-9-19	Random Numbers. Texas Hold'em Poker.	20-9-19	
18	04-9-19	Generating random Bits. Information Hiding.	20-9-19	
19		Module - 3		
20	05-9-19	Random number generation providing freshness.	25-9-19 26-9-19	
21	11-9-19	Fundamentals of entity authentication passwords.	27/9/19.	
22	17-9-19	Dynamic password schemes	5/10/19 9/10/19	
23	18-9-19	zero Knowledge mechanisms	10/10/19	
24	19-9-19	Further reading cryptographic protocols	11/10/19.	
25	20-9-19	protocol basics from objective to a protocol. Analyzing a simple protocol.	12/10/19.	

26	24-9-19	Authentication and key establishment protocols.	16/10/19	
27	25-9-19	Key establishment protocols.	17/10/19	
28		Module-4		
29	26-9-19	Key management fundamentals Key lengths and lifetimes	30/10/19.	
30	27-9-19	Key generation key establishment	5/11/19	
31	01-10-19	Key storage key usage	5/11/19	
32	03-10-19	Governing key management	6/11/19	
33	04-10-19	public key Management	6/11/19	
34	05-10-19	Certification of public keys	7/11/19	
35	09-10-19	The certificate lifecycle	8-11-19	
36	10-10-19	public key management models Alternative approaches.	8-11-19.	
37		Module-5		
38	11-10-19	cryptographic Applications	12-11-19	
39	15-10-19	cryptography on the Internet cryptography for wireless LAN.	12-11-19	
40	16-10-19	cryptography for mobile telecommunications.	13-11-19	
41	17-10-19	cryptography for secure payment card transaction	14-11-19	
42	23-10-19	cryptography for video broadcasting.	16-11-19.	
43	24-10-19	Cryptography for identity cards	19-11-19.	
44	25-10-19.	Cryptography for home users.	19-11-19.	27-7-11
45	26-10-19.			
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Nasfath
Faculty Member Signature

27-7-11
HOD Signature

ATME College of Engineering

Lesson Plan

17CS52

Course with Code: Computer Networks   **Semester & Section:** 5A

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	29-7-19	Module-1 Application Layer: principles of Nlw Applications	30/7/19	
2	30-7-19	Nlw Applicn Architectures, processes communicating Transport services available to applicn's	30/7/19	
3	01-8-19	Transport services provided by the Internet. AL protocols.	01/8/19	
4	02-8-19	The web and HTTP: overview of HTTP, Non persistent & persistent connecn, Msg format.	02/8/19	
5	05-8-19	User server interaction: cookies, web caching conditional GET.	5/8/19 6/8/19	
6	06-8-19	File transfer: FTP commands & Replies	8/8/19	
7	08-8-19	E Mail in the Internet: SMTP comparison with HTTP, Mail msg format, Mail Access protocols.	13/8/19	
8	09-8-19	DNS, services provided by DNS.	16/8/19 19/8/19	
9	13-8-19	How DNS works, DNS Records and Messages	20/8/19 22/8/19	
10	16-8-19	Peer-to-peer Applications: P2P File distribution Distributed Hash tables	24/8/19 23/8/19	
11	19-8-19	Module-2 Transport Layer services: Relationship b/n Transport and Network layers	26-8-19	
12	20-8-19	Multiplexing & Demultiplexing connectionless Transport: UDP, UDP segment structure.	27-8-19	
13	22-8-19	UDP checksum.	27-8-19	
14	23-8-19	Principles of Reliable Data transfer: Building a Reliable data transfer protocol.	29-8-19 30-8-19	
15	24-8-19	Go-Back-N, selective repeat	31-8-19 → 2 hrs 03-9-19	
16	26-8-19	Connection oriented transport TCP: The TCP connecn, segment structure.	9-9-19 16-9-19	
17	27-8-19	RTT estimation and Timeouts, Reliable Data Transfer, Flow control.	17-9-19.	Extra class(2) class... student Respons...
18	29-8-19	TCP connection Management, principles of congestion control.	19-9-19	
19	30-8-19	The causes and costs of congestion	20-9-19	
20	03-9-19	Approaches to congestion control.	23-9-19	
21	05-9-19	Module-3 Network Layer: What's inside a Router? Input processing.	24-9-19	
22	06-9-19	Switching, output processing, where does queuing occur? Routing control plane.	26-9-19	
23	07-9-19	IPv6, A Brief foray into IP security.	27/9/19. 30/9/19	
24	09-9-19	Routing Algorithms: The Link-state RA, The Distance vector RA	3/10/19	
25	16-9-19	Hierarchial Routing, Routing in The Internet	10/10/19.	

26	17-9-19	Intra AS Routing in the Internet	11/10/19.	
27	19-9-19	RIP, Intra AS Routing in the Internet	11/10/19.	
28	20-9-19	OSPF, Inter AS Routing	14/10/19	
29	23-9-19	BGP	14/10/19	
30	24-9-19	Broadcast Routing Algorithms and Multicast.	15/10/19.	17/10/19 revision class.
31	26-9-19	Module-4 Wireless and Mobile Networks: Cellular Internet Access	4/11/19	
32	27-9-19	An overview of cellular n/w Architecture, 3G cellular Data n/w's	4/11/19	
33	30-9-19	Extending the Internet to cellular subscribers	4/11/19	
34	01-10-19	On to 4G: LTE, Mobility Management	8/11/19	
35	03-10-19	Principles, Addressing, Routing to a mobile node.	8/11/19.	
36	10-10-19	Mobile IP	11/11/19	
37	11-10-19	Managing mobility in cellular Networks.	11/11/19.	
38	14-10-19	Routing calls to a Mobile user	11/11/19	
39	15-10-19	Handoffs in GSM	12/11/19	
40	17-10-19	Wireless & Mobility: Impact on Higher layer protocols.	12/11/19.	
41	24-10-19	Module-5 Multimedia Networking: properties of video	14/11/19.	
42	25-10-19	properties of Audio, types of multimedia n/w applicn's.	14/11/19	
43	26-10-19	streaming stored video: UDP streaming HTTP streaming.	16/11/19.	
44	28-10-19	Adaptive streaming and DASH.	16/11/19	
45	31-10-19	content distribution Networks, case studies: Youtube	16/11/19.	
46	04-11-19	Network support for Multimedia	18/11/19	
47	05-11-19	Dimensioning Best Effort Networks	18/11/19.	
48	07-11-19	Providing multiple classes of service	19/11/19	
49	8-11-19	Diffserv, Per connection Quality of service Guarantee	19/11/19	
50	9-11-19	Resource Reservation and call Admission	19/11/19.	Sd/-

Faculty Member Signature

HOD Signature

ATME College of Engineering

Lesson Plan

Course with Code : Computer Network Lab **Semester & Section :** 5A

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1		Batch A1		
2	05-8-19	PART B Program 7: Error detecting code using CRC	05/8/19.	29/8/19 Mass Bunk
3	19-8-19	program 8: Bellman Ford Algorithm	19/8/19	
4	26-8-19	program 9: client server using TCP/IP sockets	26/8/19	
5	07-9-19	program 10: client server using datagram socket	31/8/19	
6	09-09-19	program 11: Encryption using RSA	9/9/19.	
7	14-09-19	program 12: Leaky Bucket.	16/9/19.	Theory internals
8	16-09-19	Revision lab	23/9/19.	
9	23-09-19	PART A program 1; 3 Node point-point network	30/9/19	
10	30-09-19	program 2: Routing Ping messages.	14/10/19	
11	14-10-19	program 3: Implement Ethernet LAN	28/10/19.	
12	28-10-19	program 4: Implement ESS	4/11/19	
13	04-11-19	program 5: Implement GSM	11/11/19	
14	11-11-19	program 6: Implement CDMA.	11/11/19.	18/11/19 Repetition lab
15		INTERNALS		
16		Batch A2		
17	07-8-19	PART B program 7: Error detection using CRC	7/8/19	31/8/19 Introduction lab
18	14-8-19	program 8: Bellman Ford Algorithm	14/8/19	
19	21-8-19	program 9: client server using TCP/IP sockets	21/8/19	
20	28/8/19	program 10: client server using datagram socket	28/8/19	
21	04-9-19	program 11: Encryption using RSA	4/9/19.	
22	11-9-19	program 12: Leaky Bucket.	11/9/19.	
23	18-9-19	Revision lab	18/9/19	25/9/19
24	25-9-19	PART A program 1: 3 Node point to point Network	9/10/19	
25	05-10-19	program 2: Routing Ping messages.	12/10/19.	

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26	09-10-19	program 3 : Implement Ethernet LAN	16/10/19.	23/10/19 Revision
27	16-10-19	program 4 : Implement ESS	30/10/19.	
28	23-10-19	program 5 : Implement GSM	13/11/19	
29	30-10-19	program 6 : Implement CDMA	13/11/19	20/11/19 Repetition lab.
30		INTERNALS		
31		Batch A3		
32	01-8-19	PART B program 7 : Error detection using CRC	01/8/19	
33	08-8-19	program 8 : Bellman Ford Algorithm	08/8/19	
34	22-8-19	program 9 : client Server using TCP/IP sockets	22/8/19.	24/8/19 → Revision
35	24-8-19	program 10 : client server using datagram socket	29/8/19.	
36	29-8-19	program 11 : Encryption using RSA	5/9/19.	
37	05-09-19	program 12 : Leaky Bucket	19/9/19.	
38	19-9-19	REVISION LAB	26/9/19.	
39	26-9-19	PART A program 1 : 3 Node point to point n/w	03/10/19	
40	03-10-19	program 2 : Routing PING Message.	10/10/19	
41	10-10-19	program 3 : Implement Ethernet LAN	17/10/19.	24/10/19 Repetition lab
42	17-10-19	program 4 : Implement ESS	31/10/19	
43	24-10-19	program 5 : Implement GSM	14/11/19	
44	31-10-19	program 6 : Implement CDMA.	14/11/19.	21/11/19 Repetition lab.
45	07-11-19	INTERNALS.		
46				
47				
48				
49				
50				

Faculty Member Signature

HOD Signature

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WORK DONE DIARY

WEEK 1		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	5A CN 29/7/19 CN Lab Mass Bunk. 5B DBMS lab (B1 Batch)	5A CN 30/7/19 Module - 1 Introduction Applicn Layer - principles, Architectures, processes services.	CN Lab (B2 batch) 31/7/19 Introduction to lab.
	Others		preparing Lesson plan preparing lab video's	Aptitude class for 3A - Basic Mathematics

WEEK 2		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	5A CN 5/8/19 User server interaction cookies. CN Lab A1 Batch prog 7. CRC DBMS lab introduction to lab, simple	5A CN 6/8/19 web caching, conditional GET.	CN lab (B2 batch) 7/8/19 prog 7: CRC
	Others	queries.	Research work.	Aptitude class for 3A - HCF & LCM.

WEEK 3		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	12/8/19 Holiday on account of Bakrid	5A CN 13/8/19 Email Application overview, comparison with HTTP, Msg format. 7A INS Module 4 Introducn, How to speak crypto, classic crypto,	CN lab (B2 batch) 14/8/19 prog 8: Bellman Ford. 7A INS Cryptanalysis, Definition of secure.
	Others		simple substitution cipher cryptanalysis.	Aptitude class for 3B - Time & distance.

WORK DONE DIARY

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WEEK 1		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	CN lab B3 Batch 01/8/19 Introduction to lab progm 7. CRC 5A CN Th services provided by Internet, Applicn layer protocols	5A CN 02/8/19 The web and HTTP, overview, types of connecn's, Msg format. Half day CL	03/8/19 Non Working
	Others	Executing programs. Research Work.		

WEEK 2		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	CN lab: B3 batch 8/8/19 program 8: Bellman ford. 5A CN: FTP commands and Replies. 7A INS: Mass Bunk.	5A CN 9/8/19 Mass Bunk 7A INS Mass Bunk	10/8/19 First Year Induction Program
	Others		preparing LCR.	

WEEK 3		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	15/8/19 Holiday on account of Independence day	5A CN 16/8/19 DNS, services provided by DNS 7A INS Double transposition cipher, one time pad VENONA, codebook cipher	17/8/19 Non Working
	Others		updating documents	

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WORK DONE DIARY

WEEK 4		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	19/8/19 5A CN Services provided by DNS. CN lab: A1 Batch: program 8: Bellman Ford 5B DBMS lab: DB 2: Order db creation & insertion.	20/8/19 5A CN How DNS works. 7A INS ciphers of Election of 1876.	21/8/19 5A CN Lab (A2 Batch program 9: TCP/IP Sockets. 7A INS: placement training
	Others		Executing programs	3B Aptitude class contd. Time & distance Average.

WEEK 5		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	26/8/19 CN Lab A1 prog 9. TCP/IP socket programming. 5A CN Module-2 Transport Layer Relationship b/n T and NL, overview. 5B DBMS lab	27/8/19 5A CN multiplexing & demultiplexing, connectionless transport: UDP 7A INS placement training	28/8/19 CN lab program 10: Datagram socket. 7A INS placement training.
	Others	Executing queries for order DB.	Document updation.	Result Analysis Meeting

WEEK 6		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	02/9/19 Holiday on account of Ganesha Chathurthi.	03/9/19. 5A CN Selective Repeat protocol 7A INS	4/9/19 7A INS Module-2 Introduction, cryptographic hash functions. CN lab A2 batch RSA Algorithm
	Others		NPTEL Assignment.	QP preparation, commitment report, syllabus coverage preparation.

WEEK 4		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	22/8/19 5A CN overview of how DNS works. CN Lab A3 Prog 9. TCP/IP socket programming. 7A INS: placement training	23/8/19 5A CN- DNS Records and messages, Peer to peer Applications 7A INS Placement training	24/8/19 (Thursday Time table) CN lab - A3 batch Repetition lab 5A CN - P2P File distribution, Distributed Hash tables
	Others	→ IIT Bombay workshop preperation. → updating documents	Attended workshop on Linux from IIT Bombay at ATMECE Remote Centre	→ Worked on NPTEL assignment. → Attended 7 sem Aptitude class.
WEEK 5		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	CN lab A3 batch 29/8/19. Prog 10: Datagram sockets 7A INS: Taxonomy of cryptanalysis. Discussion on expected Questions	30/8/19 5A CN contd.. Reliable data transfer protocol 7A INS Pool campus drive	(Monday) 31/8/19 DBMS lab (A1 batch) program 10: Datagram socket. 5A CN: contd.. Reliable data transfer.
	Others	5A CN Building a Reliable data transfer protocol.	Half day leave in AN	5A CN: (Extra class SG) Error Recovery using GBN.
WEEK 6		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	5/9/19 Attended 2 Day	6/9/19 workshop on Research proposal preperation	7/9/19 Non working
	Others			

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WORK DONE DIARY

WEEK 7		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	5A CN 9/9/19 connection oriented Transport connection, segment structure 5A CN lab A1 batch RSA Algo. 5B DBMS lab	10/9/19 Holiday on account of Muharram	7A INS 11/9/19 Birthday problem Attack Non cryptographic hashes. CN lab A2 batch Leaky Bucket Algorithm
	Others	company db. QP scrutiny		QP scrutiny QP print/prepare

WEEK 8		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	CN Lab A1 Batch 16/9/19. program 12: Leaky Bucket Algorithm CN: QP/ ~~...~~ scheme discussion, sequence no. and ACK nos.	CN class 1 17/9/19. Reliable data transfer, Telnet, RTT estimation CN class 2 (KMM extra class) student Response system INS Tiger hash	18/9/19 CN LAB Repetition lab. INS 7A Application of hash, online biding
	Others	5B DBMS lab company db queries.	Documentation.	correcting Blue books.

WEEK 9		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	CN lab 23/9/19 Repetition lab. 5A CN causes and cost of congestion. Approaches to congestion control.	5A CN Module 3 24/9/19 What's inside a Router, Input processing, switching, output processing.	7A INS Module 3 25/9/19 Random Number Generation, Freshness. CN lab Repetition lab.
	Others	5B DBMS lab Book DB creation	preparing PPT for paper presentation	Teacher's day & Engineers day celebration

WORK DONE DIARY

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WEEK 7		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	12/9/19 ← I	13/9/19 Internals	14/9/19. →
	Others	QP scrutiny Invigilation duty QP preperation	QP scrutiny preparing Article on publications.	NPTEL Assignment Blue book correction
WEEK 8		**THURSDAY DATE**	**FRIDAY DATE**	**SATURDAY DATE**
ACTIVITY	Class Hours	19/9/19 CN lab Leaky bucket algorithm 5A CN: Flow control TCP connection management.	20/9/19 CN 5A principles of congestion control 7A INS other applicn, continued	21/9/19. Non Working
	Others	7A INS Spam Reduction, other applications DSlab 'C' Array Operations	NPTEL Assignment	
WEEK 9		**THURSDAY DATE**	**FRIDAY DATE**	**SATURDAY DATE**
ACTIVITY	Class Hours	26/9/19 CN lab Repetition lab 7A INS Freshness, Fundamentals of entity Authentication 5A CN Queueings	27/9/19 5A CN IPv6, IP security Routing Algorithms INS: Placement	28/9/19. Holiday on account of Mahalaya Amavasya.
	Others	IPv6. 3C DS lab String operations	Preparing for NPTEL Exam.	

WORK DONE DIARY

WEEK 10		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	30-9-19 CN lab. PARTA program 1: 3 node point to point network. 5A CN Link state algorithm, The DV algorithm.	01-10-19 Applied CL	02-10-19 Holiday on account of Gandhi Jayanthi
	Others	5B DBMS lab ~~Library~~ Booklab insertion and Queries.		

WEEK 11		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	07/10/19 Holiday on account of Ayudha Pujer	8/10/19 Holiday on account of Vijayadashami	9/10/19 7A INS contd.. Dynamic password schemes. A2 batch CN lab PART A Program 1.
	Others			Tracing program 2, Documentation work.

WEEK 12		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	14/10/19 5A CN OSPF inter AS Routing, BGP CNlab A1 batch 2: Routing PING msg 5B DBMS lab	15/10/19 5A CN Broadcast & multicast Routing algorithms 7A-INS Talk.	16/10/19 7A INS Authentication and key establishment protocol CN lab A2 batch program 3
	Others	Movie DB Creation & insertion.	Preparing lab videos, Documentation.	QP scrutiny

WORK DONE DIARY

ATME College of Engineering

WEEK 10		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	CN lab A2 batch 03-10-19 PART A program 1 7A INS entity authentication Dynamic password schemes 5A CN Distance	04-10-19 Applied CL	5-10-19 Ayudh puja celebration.
	Others	Vector RA Ds lab 3C stack operations	.	.

WEEK 11		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	CN lab A2 batch 10/10/19. program 2 7A INS zero knowledge mechanism 5A CN Hierarchical	11/10/19 5A CN ~~copy~~ Intra AS Routing in the Internet, RIP 7A INS cryptographic protocols: Basics	7A INS 12/10/19. From objective (wednesday) to a protocol (Analyzing a simple protocol (CN lab (A2 batch) program 2.
	Others	Routing Routing in the Internet. Dslab 3C Traversal inorder to postorder, Evaluat^n of expr.	preparing attainment details	Peer review Mentoring

WEEK 12		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	17/10/19 7A INS contd. Key establishment protocols 5A CN Discussing question on module 3 revision.	18/10/19 II Internals	19/10/19 Non working
	Others	CNlab program 3. Ds lab 3C	writing schemes CN	

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WORK DONE DIARY

WEEK 13		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	21/10/19 ← II Internals	22/10/19 Internals →	23/10/19 7A INS 2nd IA CN lab A2 batch Repetition lab.
	Others	writing INS scheme	Blue book correction	Half day CL

WEEK 14		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	28-10-19 5A CN lab A1 batch program 3	29-10-19 Holiday on account of Diwali	30-10-19 7A INS Module 4 Key management - Fundamentals, Key length & lifetime CN lab A2 program 4.
	Others	preparing documents related to CV.		Half day CL

WEEK 15		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	4-11-19. 5A CN lab A1 batch Program 4 CN Module 4 2G voice n/w 3G voice + data N/w 4G LTE DBMS lab 5B	5/11/19. 7A INS. Key generation and establishment, Key storage, usage.	6/11/19 7A INS Governing key management, public key management
	Others	Movie DB. Queries	preparing Assignment questions.	Attended meeting & Tracing of programs.

WORK DONE DIARY

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WEEK 13		THURSDAY DATE 24/10/19	FRIDAY DATE 25/10/19	SATURDAY DATE 26/10/19
ACTIVITY	Class Hours	← CL →	Infosys done	Infosys done, workshop on virtual labs.
	Others			

WEEK 14		THURSDAY DATE 31-10-19.	FRIDAY DATE 1-11-19	SATURDAY DATE 2-11-19.
ACTIVITY	Class Hours	5A CN lab A3 batch program 4. 7A INS Talk on AWS 5ACN	Holiday on account of Karnataka Rajyotsava	Non working
	Others	DS lab C sec		

WEEK 15		THURSDAY DATE 7/11/19	FRIDAY DATE 8/11/19	SATURDAY DATE 9/11/19.
ACTIVITY	Class Hours	7A INS Certification of public keys. DS lab 3C section Single Linked list Doubly Linked list	7A INS The certificate lifecycle, public key management models. CN Mobility management principles, Addressing, Routing	~~Dab~~ Declared Holiday
	Others	Working on CO-PO mapping	Working on CO-PO mapping	

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WORK DONE DIARY

WEEK 16		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	CN lab A1 11/11/19 program 5 & 6 5A CN Mobile IP SRS	5A CN 12/11/19 Mobility in cellular n/w's. Handoff in GSM 7A INS M6 cryptographic applications, cryptographic on Internt	CN lab 13/11/19 A2 batch programs 5 & 6. 7A INS cryptography for mobile telecommunicati
	Others	DBMS lab class DB.	Mapping CO-PO	

WEEK 17		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	5A CN lab 18/11/19 A1 batch repetition lab. CN N/w support for multimedia DBMS lab	5A CN 19/11/19 Resource reservation and call admission 7A INS cryptography for ID cards, home users.	7A INS 20/11/19 Question discussion CN lab (A2 batch) repetition lab
	Others	repetition lab.	Main project review	Internal invigilation preparing QP

WEEK 18		MONDAY DATE	TUESDAY DATE	WEDNESDAY DATE
ACTIVITY	Class Hours	25/11/19 III Internals	26/11/19	27/11/19 lab Internals
	Others			

WORK DONE DIARY

WEEK 16		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	5A CN 14/11/19 Module 5 properties of video, Audio, Types of N/w multimedia n/w applicn 7A INS cryptography for secure card payment,	15/11/19 Holiday on account of Kanakadasa Jyanthi	5A CN 16/11/19 (Friday) streaming stored video, UDP, HTTP, DASH, CDN, YouTube. 7A INS cryptography for video broadcasting
	Others			

WEEK 17		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	CN lab. 21/11/19. A2 batch Repetition lab.	22/11/19. ← III Internals	23/11/19 →
	Others			

WEEK 18		THURSDAY DATE	FRIDAY DATE	SATURDAY DATE
ACTIVITY	Class Hours	28/11/19	29/11/19 →	30/11/19. Improvement test Last working day
	Others			

LEAVE DETAILS

Sl. No.	Date	Type	Reason	Actual Class Allotted (Course Code/Time)	Substitute Faculty Member	Signature of Substitute Faculty Member
1.	02-8-19	½CL AN	To meet Guide	—	—	—
2.	30-8-19	½CL AN	To meet Guide	—	—	—
3.	5-9-19	2 days	To attend 2 days	17CSL57 - 9:00-12:00 15CS743 - 12:15-1:15	SNP, SG SCR.	
4.	6-9-19.	SCL	workshop on research Proposal preparation	17CS52 - 2:00-2:55 17CS52 - 9:00-10:00 15CS743 - 11:15-12:15	SG KNM. MSSP	
5.	01-10-19	1CL	Mother Hospitalised	17CS52 - 10:00-11:00 - ABH 15CS743 - 2:55-3:50 - SG		
6	04-10-19	1CL	—— " ——	17CS52 - 9:00-10:00 - KNM 15CS743 - 11:15-12:15 - MSSP		
7.	23-10-19	½CL	To meet guide	—	—	—
8	24-10-19	1CL	Doctoral committee meet	17CSL57 - 9:00-12:00 17CS52 - 3:00-4:00	SNP KB	
9.	30-10-19	½CL	To meet guide	—	—	—

PROGRAM OUTCOMES (PO'S)

PO:1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems
PO:2	**Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
PO:3	**Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
PO:4	**Conduct investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions
PO:5	**Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations
PO:6	**The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO:7	**Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO:8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO:9	**Individual and Teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
PO:10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO:11	**Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PO:12	**Life-Long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

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ISO 9001:2015

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C1.1.1 - The Institution ensures effective curriculum delivery through a well planned and documented process

Supporting Documents

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Sl. No.	Academic Year	Particulars
1	2019-20	Academic Calendar- College & Department
2		Teaching Plan
3		Department Meeting – Sample MoM
4		Learning Outcome- Course Module
5		Time Table
6		Teaching – Learning resources
7		Attendance Record
8		Bridge & Remedial Classes
9		Question Bank-VTU Previous Year QP
10		Academic Activity and its Planning
11		Result Analysis
12		Teachers Diary

Department of Mechanical Engineering

JULY 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 WORKSHOP ART OF COUNSELING START DAY	3	4	5	6
7 START OF INTERNSHIP FOR 7TH SEM STUDENTS	8	9 WORKSHOP ART OF COUNSELING END DAY	10	11	12	13
14	15 FACULTY TRAINING MS OFFICE	16 FACULTY TRAINING MS OFFICE	17	18	19	20
21	22	23	24	25	26	27 NBA CRITERIA 2 & 3 WORKSHOP
28	29 COMMENCEMENT OF ODD SEM 2019-20 III, VI , VII	30	31			

June 2019

S	M	T	W	Th	F	Sa
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30						

August 2019

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4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

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AUGUST 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3 NON-WORKING
4	5	6	7	8	9 **COMMENCEMENT OF INDUCTION PROGRAM FOR FIRST YEAR**	10 WORKING MONDAY TT **ORIENTATION PROGRAM FIRST YEAR**
11	12 **HOLIDAY BAKRID**	13	14	15 **HOLIDAY INDEPENDENCE DAY**	16	17 NON-WORKING
18	19	20	21	22	23	24 WORKING THURSDAY TT **END OF 11 DAYS INDUCTION PRG FOR FIRST YEAR**
25	26 **COMMENCEMENT OF THEORY CLASSES FOR FIRST YEAR**	27	28	29	30	31 WORKING MONDAY TT

July 2019

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28	29	30	31			

September 2019

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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

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SEPTEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 HOLIDAY SWARNA GOWRI VRATAM GANESHA CHATHURTHI	3	4	5	6	7 NON-WORKING
8	9	10 10TH DAY OF MUHARRAM	11	12 FIRST IA SEMESTERS 3,5 & 7	13 FIRST IA SEMESTERS 3,5 & 7	14 WORKING MONDAY TT FIRST IA SEMESTERS 3,5 & 7
15	16	17	18	19	20	21 NON-WORKING
22	23	24	25	26	27	28 HOLIDAY MAHALAYA AMAVASYA
29	30					

August 2019

S	M	T	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

October 2019

S	M	T	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

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OCTOBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 FIRST IA FOR FIRST SEMESTER	2 HOLIDAY 150TH GANDHI JAYANTHI	3 FIRST IA FOR FIRST SEMESTER	4 FIRST IA FOR FIRST SEMESTER	5 NON- WORKING
6	7 HOLIDAY AYUDHA POOJA	8 HOLIDAY VIJAYA DASHAMI	9	10	11	12 WORKING WEDNESDAY TT
13	14	15	16	17	18 SECOND IA SEMESTERS 3,5 & 7	19 NON- WORKING
20	21 SECOND IA SEMESTERS 3,5 & 7	22 SECOND IA SEMESTERS 3,5 & 7	23	24	25	26 WORKING TUESDAY TT
27	28	29 HOLIDAY BALIPADYAMI	30	31		

September 2019

S	M	T	W	Th	F	Sa
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8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

November 2019

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3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

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NOVEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 HOLIDAY KANNADA RAJYOTSAVA	**2** NON-WORKING
3	**4**	**5**	**6**	**7**	**8**	**9** WORKING FRIDAY TT
10	**11** WORLD SCIENCE DAY	**12** SECOND IA FOR FIRST SEMESTER	**13** SECOND IA FOR FIRST SEMESTER	**14** FIRST IA FOR FIRST SEMESTER	**15** HOLIDAY KANAKADASA JAYANTHI	**16** NON-WORKING
17	**18**	**19**	**20**	**21**	**22** THIRD IA SEMESTERS 3,5 & 7	**23** WORKING TUESDAY TT PTM FIRST YEAR THIRD IA SEMESTERS 3,5 & 7
24	**25** THIRD IA SEMESTERS 3,5 & 7	**26**	**27**	**28**	**29**	**30** LAST WORKING DAY HIGHER SEM WORKING FRIDAY TT

October 2019

S	M	T	W	Th	F	Sa
		1	2	3	4	5
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13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

December 2019

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1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

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DECEMBER 2019

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 LAB EXAM COMMENCEMENT HIGHER SEM	4	5	6	7 NON WORKING
8	9	10	11	12	13 THIRD IA FOR FIRST SEMESTER LAB EXAMS END HIGHER SEM	14 WORKING THIRD IA FOR FIRST SEMESTER
15	16 THIRD IA FOR FIRST SEMESTER THEORY EXAMS COMMENCEMENT FOR HIGHER SEM	17	18	19	20	21 NON WORKING LAST WORKING DAY FOR FIRST YEAR
22	23 LAB EXAMS COMMENCEMENT FIRST YEAR	24	25 HOLIDAY CHRISTMAS DAY	26	27	28 WORKING
29	30	31				

November 2019

S	M	T	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

January 2020

S	M	T	W	Th	F	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

A T M E College of Engineering

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ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
1	JANUARY				1	2	3	4		
2		5	6	7	8	9	10	11		
3		12	13	14	15	16	17	18	MAKARA SANKRANTHI	
4		19	20	21	22	23	24	25		
5		26	27	28	29	30	31		REPUBLIC DAY	Training the Trainer Program
5	FEBRUARY							1		
6		2	3	4	5	6	7	8		
7		9	10	11	12	13	14	15		COMMENCEMENT OF EVEN SEMESTER
8		16	17	18	19	20	21	22	MAHA SHIVARATHRI	Alumni Day
9		23	24	25	26	27	28	29		ATMEYA-2020
10	MARCH	1	2	3	4	5	6	7		
11		8	9	10	11	12	13	14		International Wonmen's Day Personality Enhancement Training for 4th Sem Students
12		15	16	17	18	19	20	21		IA-1
13		22	23	24	25	26	27	28	UGADI	First PTM
14		29	30	31						

Dr. L Basavaraj

ATME COLLEGE OF ENGINEERING, MYSURU

Academic Calendar (EVEN SEMESTER, 2019-20)

WEEK	MONTH	SUN	MON	TUE	WED	THU	FRI	SAT	HOLIDAY (H)	COLLEGE EVENTS
14	APRIL				1	2	3	4		
15		5	6	7	8	9	10	11	MAHAVEERJAYANTHI GOOD FRIDAY	ICRTST-2020
16		12	13	14	15	16	17	18	DR. AMBEDKAR JAYANTHI	IA Test II
17		19	20	21	22	23	24	25		ATMEYA
18		26	27	28	29	30			BASAVA JAYANTHI	Second PTM
18	MAY						1	2	MAY DAY	
19		3	4	5	6	7	8	9		
20		10	11	12	13	14	15	16		
21		17	18	19	20	21	22	23		IA Test III
22		24	25	26	27	28	29	30	IDUL FITR	Lab Test Week
23		31								
23	JUNE		1	2	3	4	5	6		Last Working Day
24		7	8	9	10	11	12	13		Practical Examination Schedule
25		14	15	16	17	18	19	20		Commencement of Theory Examination, II Sem till 4th July 2020, Higher Semesters till 20th July 2020 Graduation Day
26		21	22	23	24	25	26	27		
27		28	29	30					Non Working Saturdays	The commencement of Odd Semester is from 27th July 2020

Sd-
Dr. L Basavaraj
Principal

* Weekly Mentoring as per time table.
* Attendance will be regulary sent to parents through SMS
PTM dates for higher sem left to the descreption of HoDs.

Academic calendar for the year 2019-20 (ODD Semester)

MONTH	WEEK	MON	TUE	WED	THU	FRI	SAT	SUN	EVENTS	Holidays
July		1	2	3	4	5	6	7	2 – 9 : Six day FDP on Art Of Counseling 7: Start of internship for seventh Semester 27: NBA Criteria 2 & 3 Workshop 29: Commencement of Classes of ODD sem 2019-20 for higher semester	
		8	9	10	11	12	13	14		
		15	16	17	18	19	20	21		
		22	23	24	25	26	27	28		
	W1	29	30	31						
AUGUST	W1				1	2	3	4	9: Commencement of Induction Programme for 1st year students. 24: End of Induction Programme for 1st year students. 26: Commencement of theory Classes for 1st Sem.	12: Bakrid 15: Independence Day
	W2	5	6	7	8	9	10	11		
	W3	12	13	14	15	16	17	18		
	W4	19	20	21	22	23	24	25		
	W5	26	27	28	29	30	31			
SEPTEMBER	W5							1	3 : Attendance Status 12,13,14: First IA Test for higher Semester (III,V,VII sem) 20: First IA marks Finalization 25: Parents teachers meeting	02: Ganesha Chaturthi 10: Moharam last day 28: MahalayaAmavasya
	W6	2	3	4	5	6	7	8		
	W7	9	10	11	12	13	14	15		
	W8	16	17	18	19	20	21	22		
	W9	23	24	25	26	27	28	29		
	W10	30								
OCTOBER	W10		1	2	3	4	5	6	1: Attendance Status 3,4,5: First IA Test for first Semester 18,21,22: Second IA Test for higher Semester (III,V,VII sem) 25: Second IA marks Finalization 26: Parents teachers meeting	02:Gandhi jayanthi 07: Ayudhapooja 08: VijayaDashami 13: ValmikiJayanthi 27:Nraka Chathurdhashi 29: Balipadyami
	W11	7	8	9	10	11	12	13		
	W12	14	15	16	17	18	19	20		
	W13	21	22	23	24	25	26	27		
	W14	28	29	30	31					
NOVEMBER	W14					1	2	3	4: Attendance Status 11: World Science day 12,13,14: Second IA Test for first Semester 22,23,25: Third IA Test for higher Semester (III,V,VII sem) 27,28,29: Lab IA for higher Semester (III,V,VII sem) 30:Last Working Day for higher semester	01: Kannada Rajyothsava 10:ID-Milad 15: Kanakadasa Jayanthi
	W15	4	5	6	7	8	9	10		
	W16	11	12	13	14	15	16	17		
	W17	18	19	20	21	22	23	24		
	W18	25	26	27	28	29	30			

DECEMBER	W18							1	3: Commencement of Practical Exam for Higher semester (III,V,VII sem). 7: IA Marks Finalization (Theory & Lab). 13: End of Practical Examination for Higher semester (III,V,VII sem). 13,14,16 : Third IA Test for first Semester 16: Commencement of Theory Exam for Higher semester (III,V,VII sem). 21: Last Working Day for First year. 23: Commencement of Practical Exam for First semester.	25: Christmas Day
	W19	2	3	4	5	6	7	8		
	W20	9	10	11	12	13	14	15		
	W21	16	17	18	19	20	21	22		
	W22	23	24	25	26	27	28	29		
	W23	30	31							
JANUARY	W23			1	2	3	4	5		
	W24	6	7	8	9	10	11	12		
	W25	13	14	15	16	17	18	19		
	W26	20	21	22	23	24	25	26		
	W27	27	28	29	30					

NOTE:

List of Working Saturdays	
Date	Date
10-08-2019	10-08-2019
24-08-2019	24-08-2019
7-09-2019	7-09-2019
14-09-2019	14-09-2019
5-10-2019	5-10-2019
26-10-2019	26-10-2019
9-11-2019	9-11-2019
23-11-2019	23-11-2019
30-11-2019	30-11-2019
14-12-2019	14-12-2019
21-12-2019	21-12-2019

List of Non working Saturdays
Date
3-08-2019
17-08-2019
31-08-2019
21-09-2019
12-10-2019
19-10-2019
2-11-2019
16-11-2019
7-12-2019
28-12-2019

H.O.D.
Department of Mechanical Engineering
ATME College of Engineering, Mysuru

ATME College of Engineering

Department of Mechanical Engineering

Academic calendar for the year 2019-20 (EVEN Semester)

MONTH	WEEK	MON	TUE	WED	THU	FRI	SAT	SUN	EVENTS	Holidays
JANUARY				1	2	3	4	5		15: Makara Sankranthi 16: Republic day
		6	7	8	9	10	11	12		
		13	14	15	16	17	18	19		
		20	21	22	23	24	25	26		
	W1	27	28	29	30	31				
FEBRUARY	W1						1	2	10 : Commencement of Classes of Even sem 2019-20 for higher semester W3: Technical talk on Career Guidance. 29: Visit to Open day @ IISc, Bengaluru	21: Maha Shivaratri
	W2	3	4	5	6	7	8	9		
	W3	10	11	12	13	14	15	16		
	W4	17	18	19	20	21	22	23		
	W5	24	25	26	27	28	29			
MARCH	W5							1	1: ATMEYA Marathon Event 2-7: ATMEYA 2K20 Cultural Fest week 6 & 7: ATMEYA stage Events 14, 16 &17: First IA Test for higher Semester (III, V, VII sem) W8: Industrial visit for 4th semester. W9: Technical talk on Need for Entrepreneurship.	25: Chandramana Ugadi
	W6	2	3	4	5	6	7	8		
	W7	9	10	11	12	13	14	15		
	W8	16	17	18	19	20	21	22		
	W9	23	24	25	26	27	28	29		
	W10	30	31							
APRIL	W10			1	2	3	4	5	23,24,25: Second IA Test for higher Semester (III,V,VII sem) W12 : Technical talk	6: Mahaveera Jayanthi 10: Good Friday 14: Dr. B R Ambedkar Jayanthi 26: Basava Jayanthi
	W11	6	7	8	9	10	11	12		
	W12	13	14	15	16	17	18	19		
	W13	20	21	22	23	24	25	26		
	W14	27	28	29	30					
MAY	W14					1	2	3	18,19,20: Third IA Test for higher Semester (III,V,VII sem) 26-30: Lab IA W15: Technical talk	1: May day 25: Ramzan Eid
	W15	4	5	6	7	8	9	10		
	W16	11	12	13	14	15	16	17		
	W17	18	19	20	21	22	23	24		
	W18	25	26	27	28	29	30	31		

JUNE	W19	1	2	3	4	5	6	7	1: Last working day of Even Semester 3-13: Practical Examination Schedule 15: Commencement of Theory Examination 22: Graduation day	
	W20	8	9	10	11	12	13	14		
	W21	15	16	17	18	19	20	21		
	W22	22	23	24	25	26	27	28		
	W23	29	30							
JULY	W23			1	2	3	4	5	20: End of Theory Examination for Higher Semesters 4: End of Theory Examination for II semesters	31: Bakrid
	W24	6	7	8	9	10	11	12		
	W25	13	14	15	16	17	18	19		
	W26	20	21	22	23	24	25	26		
	W27	27	28	29	30	31				

NOTE:

* Club Activities will be during all Wednesdays as per Schedule.
* Aptitude trainings will be run as per schedule.
* Technical trainings will be run as per schedule.
* Mentoring as per scheduled timetable.

List of Non working Saturdays
Date
04-01-2020
18-01-2020
01-02-2020
15-02-2020
07-03-2020
21-03-2020
04-04-2020
18-04-2020
2-05-2020
16-05-2020
06-06-2020
20-06-2020
04-07-2020
18-07-2020

H.o.D

Lesson Plan & Work-done Diary for AY:2019-20, ODD Semester

Course with Code: Elements of Mechanical Engg. 18ME15				Faculty: Thejkumar J			Semester & Section: I - C	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-1								
1	27.8.19	Introduction to Syllabus, Discussion of CLO's, CO's	Chalk & Talk	1	27/8	Introduction to course	Chalk & Talk	–
2	28.8.19	Sources of Energy: Introduction and application of energy sources like fossil fuels	Chalk & Talk	2	28/8	Introduction to Energy Classification	Chalk & Talk	–
3	29.8.19	Conversion of Fossil fuels, hydel, wind and Nuclear	Chalk & Talk	3	29/8	fossil fuels, Thermal & Nuclear Power Plant	Chalk & Talk	–
4	30.8.19	Bio-fuels. Environmental issues like Global Warming and Ozone Depletion	Chalk & Talk	4	30/8	Energy harvesting through Hydel & Helio chemical	Chalk & Talk.	Sketching & expn took more time.
5	3.9.19	Basic Concepts of Thermodynamics: Introduction, States, Concepts of work, Heat, Temperature	Chalk & Talk	5	03/09	Helio chemical, electrical wind & tidal Energy	Chalk & Talk	Elaborated explanation
6	4.9.19	Zeroth law, 1st Law, 2nd Law and 3rd Laws of thermodynamics. Concept of Internal energy, Enthalpy and entropy	Chalk & Talk	6	04/09	Tidal, Geothermal Energy Discussion on Global warming	Chalk & Talk.	Additional topics discussed Topic beyond Syllabus
7	5.9.19	Formation of Steam and Thermodynamic properties of steam	Chalk & Talk	7	05/09	Global warming & Ozone layer Depletion	Chalk & Talk.	–
8	6.9.19	Simple Numericals	Chalk & Talk	8	06/09	Introduction to Thermodynamics.	Chalk & Talk	Intro & terminology took more time.
				9	11/09	Concepts of work & Heat, Temperature.	Chalk & Talk	–
				10	12/09	Zeroth Law, I-law & II-law	Chalk & Talk	–

				11	13/09	I-law, Int Energy & Enthalpy	Chalk & Talk	–
				12	17/09	Formation of steam & properties of steam.	Chalk & Talk	–
				13 & 14	18/9, 19/9	Numerical problems	Chalk / Talk	more problems are solved.

Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-2								
9	11.9.19	Boilers: Introduction to Boilers, Classification, Lancashire boiler	Chalk & Talk	15	20/9	Introduction to Boilers Classification, mountings	Chalk & Talk.	–
10	12.9.19	Babcock and Wilcox Boiler, Introduction to Boiler mounting and accessories	Chalk & Talk	16	24/9	Lancashire Boiler. & Babcock wilcox boiler	Chalk & Talk.	–
11	13.9.19	Turbines: Hydraulic Turbines-Classification and specification, Principles and operation of Pelton Wheel Turbine	Chalk & Talk	17	25/9	Introduction, classification Pelton wheel.	Chalk & Talk	–
12	17.9.19	Francis Turbine	Chalk & Talk	18	26/9	Francis turbine	Chalk & Talk	–
13	18.9.19	Kaplan Turbine	Chalk & Talk	19	27/9	Kaplan turbine	Chalk & Talk.	–
14	19.9.19	Hydraulic Pumps: Pumps, Introduction, Classification and specification of Pumps	Chalk & Talk	20	09/10	Hydraulic pumps Classification & specification	Chalk & Talk.	–
15	20.9.19	Reciprocating pump and Centrifugal Pump	Chalk & Talk	21	10/10	Reciprocating pump & Centrifugal pump.	Chalk & Talk.	–
16	24.9.19	Concept of Cavitation and Priming	Chalk & Talk	22	11/10	Cavitation & priming in centrifugal pumps.	Chalk & Talk	–

Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-3								
17	25.9.19	Internal Combustion Engines Classification, IC engines parts	Chalk & Talk	23	15/10	Intr I.C. Engines, Classification, Parts	Chalk & Talk	
18	26.19.19	2 and 4 stroke petrol Engine	Chalk & Talk	24	16/10	2-Stroke petrol Engine	Chalk & Talk.	Took more time for sketching & Expl
19	27.9.19	4 stroke diesel engines	Chalk & Talk	25	17/10	4-Stroke Petrol Engine	Chalk & Talk.	
20	9.9.19	Simple problems on indicated power, brake power, indicated thermal efficiency, brake thermal efficiency, mechanical efficiency and specific fuel consumption	Chalk & Talk	26	18/10	4-Stroke Diesel Engine Performance parameters	Chalk & Talk.	Performance parameters need to be Explained hence add Class
21	10.10.19	Refrigeration – Definitions – Refrigerating effect, Ton of Refrigeration, Ice making capacity, COP, relative COP	Chalk & Talk	27	22/10	Performance parameters & Problems	Chalk & Talk	
22	11.10.19	Unit of refrigeration, Refrigerants, Properties of refrigerants, List of commonly used refrigerants	Chalk & Talk	28	23/10	Problems.	Chalk & Talk.	More no.of Problems are solved.
23	15.10.19	Principle and working of vapor compression refrigeration	Chalk & Talk	29	24/10	Introduction, Defn related to Refrigeration	Chalk & Talk.	-
24	16.10.19	vapor absorption refrigeration	Chalk & Talk	30	25/10	Working of Vapour Comp. Refrigerator	Chalk & Talk	-
25	17.10.19	Principles and applications of air conditioners, window and split air conditioners	PPT	31	30/10	Working of Vapour Absorption Refrigeration	Chalk & Talk	-
				32	31/10	Principle of Room air conditioner	Chalk & Talk	-
				33	05/11	Humidity & Revision.	Chalk & Talk.	-

Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-4								
26	18.10.19	**Metals- Ferrous:** Cast Iron, Tool steels and stainless steels.	PPT	50	6/12	Materials, Classification, Ferrous materials.	PPT	
27	22.10.19	Non-Ferrous: Aluminium, brass, bronze	PPT	51	10/11	Al, brass & bronze metals	PPT	
28	23.10.19	**Polymers:** Thermoplastics and thermo setting polymers. **Ceramics:** Glass, optical fiber glass, cements	PPT	52	11/11	Introduction, Classification & Ceramics.	PPT	
29	24.10.19	**Composites-** Fiber reinforced composites, Metal Matrix composites.	PPT	53	11/11	Composites Introduction Classification, MMC, Adv & Disadvantages	PPT	Additional Class.
30	25.10.19	**Smart Materials:** Piezoelectric materials, Shape memory alloys, Semiconductors and insulators.	PPT	54	12/12	Smart materials & Semiconductors.	PPT	
31	30.10.19	Definitions, Classification and Methods of soldering, Brazing and welding	Chalk & Talk	43	27/11	Soldering & Brazing Comparison of joining Pro	Chalk & Talk	2-part of mod-4
32	31.10.19	Brief description of arc welding	Chalk & Talk	40	21/11	Int. joining process. Arc welding process	Chalk & Talk.	
33	05.11.19	Oxy-acetylene welding	Chalk & Talk	41	22/11	Oxy-acetylene welding	Chalk & Talk.	
34	6.11.19	TIG welding and MIG welding	Chalk & Talk	42	23/11	TIG & MIG welding.	Chalk & Talk.	
35	7.11.19	Open & crossed belt drives, Definitions- slip, creep, velocity ratio	Chalk & Talk	34	06/11	Introduction to Belt Drives, open belt drive derivation	Chalk & Talk.	started discussion of i-part of mod-4
36	8.11.19	derivations for length of belt in open and crossed belt drive	Chalk & Talk	35	07/11	C/S Belt drive derivation Defn of slip, creep, V.R.	Chalk & Talk.	
37	19.11.19	ratio of tension in flat belt drives	Chalk & Talk	36	08/11	Expression for tension in belt drives	Chalk & Talk.	
38	20.11.19	simple numerical problems.	Chalk & Talk	37	16/11	Numerical problems	Chalk & Talk.	
39	21.11.19	Types- Spur, helical, bevel, worm and rack and pinion.	Chalk & Talk	38	19/11	Int. Gears & Classification	Chalk & Talk.	

40	22.11.19	Velocity ratio, simple numerical problems on velocity ratio	Chalk & Talk	39	20/11	Problems on Gear drives	Chalk & Talk.	

Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
				MODULE-5				
41	26.11.19	Lathe: Principle of Working of a Center Lathe, Parts of a Lathe. Operations on Lathe- Turning, Facing, Knurling, Thread Cutting, Drilling	Chalk & Talk	44	27/11.	Int to manufacturing Process. Lathe & its operations.	Chalk & Talk	
42	27.11.19	Taper Turning by Tailstock Offset Method and Compound Slide Swiveling Method	Chalk & Talk	45	28/11	Taper turning operation	Chalk & Talk	
43	28.11.19	Milling Machine: Principle of Milling, Types of Milling Machines, Working Of Horizontal and Vertical Milling Machines.	Chalk & Talk	46	29/11	Int. milling machine & Classification, milling operations.	Chalk & Talk.	
44	29.11.19	Milling Processes - Plane Milling, End Milling, Slot Milling, Angular Milling, Form Milling, Straddle Milling, and Gang Milling	Chalk & Talk	47	30/11	milling operations continued.	Chalk & Talk.	
45	3.12.19	Computer Numerical Control (CNC): Introduction, Components of CNC	PPT	48	03/12	Introduction to NC machining, components	PPT	Topics well covered with
46	4.12.19	Open Loop and Closed Loop Systems	PPT	-	03/12	of N.C. open & Closed loop System	PPT	this through PPT
47	5.12.19	CNC Machining centers and Turning Centers	PPT	49	04/12	CNC machine, Architecture	PPT	—"—
48	6.12.19	Robots: Robot Anatomy, Joints and Links	PPT	-	04/12	Advantages, Int. Industrial Robotics.	PPT	
49	10.12.19	Common Robot Configurations	PPT	50	05/12	Robot configuration.	PPT	—"—
50	11.12.19	Applications of Robots in material handling, Processing and assembly and inspection.	PPT	-	05/12	Industrial application of Robots.	PPT	

	Activity	Planned	Actual	Remarks
1	Theory Classes	50	54	Add classes taken for module-I
2	Assignments/ Quizzes/ Self-study	02	02	–
3	Tutorials/ Extra classes	–	02	Used for SRS quizz
4	Internal Assessments	03	03	–
5	ICT based Teaching (% of usage in Curriculum)	12	11	2+11/50 = 26% ICT Based (PPT)

Planning		Execution	
Faculty Signature:		Faculty Signature:	
HoD Signature:		HoD Signature:	

ATME College of Engineering

Department of Mechanical Engineering

Ref No- ATMECE/ME/2018-19/MOM/10

MINUTES OF MEETING

25/3/2019

3.30pm

AGENDA:

1. Change in work timings
2. Coverage of syllabus
3. Result analysis discussion

The following discussions and announcements were made,

- The college hours are revised. The college will function from 9.00am to 4.45pm from 1/4/2019.
- Faculties should be covering their syllabus as planned. (As per lesson plan)
- Faculties are requested to publish their research paper in reputed journals.
- Faculties will have to undergo orientation program regarding innovating teaching.
- Faculties are requested in getting trained with new technologies and software's which are useful for academics.
- Chairman suggested that assignments given to students should be of research standards.
- Faculties to plan programs relevant to academic improvement.
- Chairman Sir suggested for an administration calendar.
- Action plan on Result analysis
    - To identify slow learners and give special attention for them.
    - To solve more number of numerical in problem oriented subjects like BTD,DME-1,and MOM.
    - To use innovative teaching Methods to reach to the students.
    - Using SRS system to understand the learning ability of students.
    - Using animated videos of models and ppt for better understanding of subjects
    - Giving assignments, unit tests and other methods to enhance learning.
    - Tutorials for identified weak students
    - To work towards improvement of department subject results.

G. Rathna 25/3/19

H.O.D.

Department of Mechanical Engineering

ATME College of Engineering, Mysuru

SL. NO	NAME OF THE FACULTY	Signature
1	Dr. Rathnakar G	
2	Dr. Srinivasa K	
3	Mr. Devaraj MR	
4	Mr. Ravi Kumar S	
5	Mr. Suresh Kumar S	
6	Mr. Harsha DN	
7	Mr. Deepak MVS	
8	Mr. Manjunath HS	
9	Mr. Chethan S	
10	Mr. Niranjan Kumar VS	
11	Mr. Arjun MS	
12	Mr. Raghu	
13	Mr. Thejkumar J	
14	Mr. Mohanakumara K C	
15	Mr. MD Nadeem M	
16	Mr. Yathisha N	
17	Mr. Ramanuja C M	
18	Mr. Rakshith N	
19	Mr. Swarnakiran S	
20	Mr. Rohith S	
21	Mr. Yashwanth N	
22	Mr. Karthik Kumar M	
23	Mr. Pavan Kumar KP	
24	Mr. Girish Kumar G S	

COURSE MODULE

Faculty Name/s: **Mr. Thejkumar J**			Academic Year: **2019-20**				
Department: **Mechanical Engineering**							
Course Code	Course Title	Core/Elective	Prerequisite	Contact Hours			Total Hrs/ Sessions
				L	T	P	
18ME15/25	**Elements of Mechanical Engineering**	**Core**	**BASIC SCIENCE**	**4**	**-**	**-**	**50**

Course objectives: This course (18ME15/25) will enable students to:

CLO1: Learn the fundamental concepts of energy, its sources and conversion.

CLO2: Comprehend the basic concepts of thermodynamics.

CLO3: Understand the concepts of boilers, turbines, pumps, internal combustion engines and refrigeration.

CLO4: To understand the properties of various engineering material and their applications.

CLO5: Distinguish different metal joining techniques and understand the concepts of power transmission elements.

CLO6: Enumerate the knowledge of working with conventional machine tools, their specifications

Topics Covered as per Syllabus

MODULE-1

Sources of Energy: Introduction and application of energy sources like fossil fuels, Hydel, Solar, Wind, Nuclear fuels and Bio-fuels. Environmental issues like Global Warming and Ozone Depletion

Basic Concepts of Thermodynamics: Introduction, States, Concepts of work, Heat, Temperature, Zeroth law, 1st Law, 2nd Law and 3rd Laws of thermodynamics. Concept of Internal energy, Enthalpy and entropy (Simple Numericals)

Steam: Formation of Steam and Thermodynamic properties of steam (Simple Numericals)

(RBT: L1, L2 and L3)

MODULE-2

Boilers: Introduction to Boilers, Classification, Lancashire boiler, Babcock and Wilcox Boiler, Introduction to Boiler mounting and accessories (No sketches).

Turbines: Hydraulic Turbines- Classification and specification, Principles and operation of Pelton Wheel Turbine, Francis Turbine and Kaplan Turbine (Elementary Treatment only)

Hydraulic Pumps: Pumps, Introduction, Classification and specification of Pumps, Reciprocating pump and Centrifugal Pump, Concept of Cavitation and Priming.

(RBT: L1, L2 and L3)

MODULE - 3

Internal Combustion Engines

Classification, IC engines parts, 2 and 4 stroke petrol and 4 stroke diesel engines. P-V diagrams of Otto and Diesel cycles. Simple problems on indicated power, brake power, indicated thermal efficiency, brake thermal efficiency, mechanical efficiency and specific fuel consumption.

Refrigeration and Air conditioning

Refrigeration – Definitions – Refrigerating effect, Ton of Refrigeration, Ice making capacity, COP, relative COP and Unit of refrigeration. Refrigerants, Properties of refrigerants, List of commonly used refrigerants, Principle and working of vapor compression refrigeration and vapor absorption refrigeration. Domestic refrigerator, Principles and applications of air conditioners, window and split air conditioners.

(RBT: L1, L2 and L3)

MODULE-4

PROPERTIES, COMPOSITION AND INDUSTRAIL APPLICATIONS OF ENGINEERING MATERIALS:
Metals- Ferrous: Cast Iron, Tool steels and stainless steels. **Non-Ferrous**: Aluminum, brass, bronze, **Polymers**: Thermoplastics and thermo setting polymers. **Ceramics**: Glass, optical fiber glass, cements, **Composites**- Fiber reinforced composites, Metal Matrix composites. **Smart Materials**: Piezoelectric materials, Shape memory alloys,

Semiconductors and insulators.

JOINING PROCESSES: SOLDERING, BRAZING AND WELDING

Definitions, Classification and Methods of soldering, Brazing and welding, Brief description of arc welding, Oxy-acetylene welding, TIG welding and MIG welding

BELT DRIVES

Open & crossed belt drives, Definitions- slip, creep, velocity ratio, derivations for length of belt in open and crossed belt drive, ratio of tension in flat belt drives, advantages and disadvantages of V belts and timing belts, simple numerical problems.

GEAR DRIVES:

Types- Spur, helical, bevel, worm and rack and pinion, Velocity ratio, advantages and disadvantages over belt drives, simple numerical problems on velocity ratio

(RBT: L1, L2 and L3)

MODULE-5

Lathe: Principle Of Working of a Center Lathe, Parts of a Lathe. Operations on Lathe- Turning, Facing, Knurling, Thread Cutting, Drilling, Taper Turning by Tailstock Offset Method and Compound Slide Swiveling Method. Specification of Lathe

Milling Machine: Principle of Milling, Types of Milling Machines, Working Of Horizontal and Vertical Milling Machines. Milling Processes -P lane Milling, End Milling, Slot Milling, Angular Milling, Form Milling, Straddle Milling, and Gang Milling

(Layout of sketches of the above machines needs to be dealt. Sketches need to be used only for explaining the operations performed on the machines)

Introduction to Advanced Manufacturing Systems

Computer Numerical Control (CNC): Introduction, Components of CNC, Open Loop and Closed Loop Systems, advantages of CNC, CNC Machining centers and Turning Centers.

Robots: Robot Anatomy, Joints and Links, Common Robot Configurations, Applications of Robots in material handling, Processing and assembly and inspection.

(RBT: L1, L2 and L3)

List of Text Books

1. **Elements of Mechanical Engineering**, K R Gopal Krishna, Subhash Publication, Bangalore 2008
2. **Work Shop Technology, Vol1 & 2**, Hajara Chowdary, Media Promoters, New Delhi 2001
3. **A Text Book of Elements of Mechanical Engineering**, S.TrymbakaMurthy, 3rd revised edition 2006, I. K International Publishing House Pvt Ltd , New Delhi

List of Reference Books

1. **Elements of Mechanical Engineering**, R K Rajput, Firewall media, 2005
2. **Elements of Mechanical Engineering**, A S Ravindra, Best Publications, 7th edition 2009
3. **CAD/CAM/CIM**, Dr. P Radhakrishnan, 3rd edition, New age International Publisher, New Delhi
4. **Introduction to Robotics: Mechanics & Control**, Craig J J, 2nd edition, Addison-Wesley publishing company, 1989
5. **Introduction to engineering Materials**, B K Agarwal, Tata McGraw Hill Publication, New Delhi.
6. **Thermal Science and Engineering**, Dr. D S kumar, S K Kataria & Sons Publications, New Delhi

List of URLs, Text Books, Notes, Multimedia Content, etc

Video Demonstration of Different types of automation and Mechanisms

auto.howstuffworks.com/engine1.htm http://nptel.ac.in/courses/112101098/
http://nptel.ac.in/courses/112102103/Module%20G/Module%20G(5)/p3.htm

Printed Copy (Soft Copy): Available

Course Outcomes: Students will be able to

CO1: **Identify** different sources of energy, their conversion process and also **describe** the basic concepts thermodynamics and **solving** simple numerical problems on steam.	L1, L2, L3
CO2: **Explain** the working principle of steam boilers, hydraulic Turbines & pumps.	L1, L2
CO3: **Demonstrate** the working principles of an I.C Engine, Refrigeration, air conditioning and also **calculate** the performance parameters of an I. C engine.	L1, L2, L3
CO4: **Recognize & Classify** the various engineering materials, metal joining processes and power transmission elements. Also **solve** simple numerical on power transmission elements.	L1, L2, L3
CO5: **Describe** the working of conventional machine Tools, Machining processes and the	L1, L2

advanced manufacturing system.	

Internal Assessment Marks: 40 (30 Marks three Session tests are conducted during the semester and marks allotted based on the average of three performances and additional 10 Marks for Assignments /Unit tests/ written quizzes).

The Correlation of Course Outcomes (CO's) and Program Outcomes (PO's)

Subject Code:	**18ME15/25**	**TITLE: Elements of Mechanical Engineering**						**Faculty Name:**		**Mr. Thejkumar J**			
List of Course Outcomes	**Program Outcomes**												**Total**
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	
CO-1	3	-	-	-	-	-	2	-	-	-	-	2	7
CO-2	2	-	-	-	-	-	-	-	-	-	-	-	2
CO-3	3	2	-	-	-	-	-	-	-	-	-	-	5
CO-4	2	2	-	-	-	-	-	-	-	-	-	-	4
CO-5	2	-	-	-	3	-	-	-	-	-	-	2	7
Total	12	4	-	-	3	-	2	-	-	-	-	4	25

Note: 3 = Strong Contribution 2 = Average Contribution 1 = Weak Contribution - = No Contribution

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DEPARTMENT OFMECHANICAL ENGINEERING

TIME TABLE FOR III SEMESTER - 2019-20

SECTION : A **ROOM NO. M110**

DAY \ TIME	09.00 - 10.00	10.00 - 11.00	11.00 - 11.15	11.15 - 12.15	12.15 - 01.15	01.15 - 2.00	02.00 - 02.55	02.55 - 03.50	03.50 - 04.45
Mon	18ME35A	18ME33	TEA BREAK	18CPC39	18ME32	LUNCH BREAK	18MAT31	18ME36A	
Tue	18ME36A				18ME33		18ME32	18MAT31	Aptitude Training
Wed	18ME33	18ME35A	TEA BREAK	18ME34	18MAT31		18ME32	CLUB ACTIVITIES	
Thu	18ME35A	18ME33		18ME34	18ME32		18MEL37A (A1)/18MEL38A(A2)		
Fri	18ME34	18ME32		18MAT31	18ME35A		18MEL37A(A2)/18MEL38A(A1)		
Sat									

Subject Code	Subject Title	Contact hours alloted per week	Faculty In – Charge		Initials
18MAT31	TCFS	4	Mrs Divya K		DK
18ME32	Mechanics of Materials	5	Mr. Yashwanth N		NY
18ME33	Basic Thermodynamics	4	Mr. Pavan Kumar K P		KP
18ME34	Material Science	3	Mr. Deepak MVS		DMVS
18ME35A	Metal cutting and forming	4	Mr. Niranjan Kumar V S		NVS
18ME36A	Computer Aided Machine Drawing	5	Mr. Rohith S, Mr. Yathisha N		RS,YN
18CPC39	Constitution of India,Professional Ethics andCyber Law	1	Mr. Chandrashekar C		CSC
18MEL37A	Materials Testing Lab	3	Mr Suresh Kumar S (A1)	Mr Swaranakiran S(A1)	SKS,SSK
			Mr. Devraj M R(A2)	Mr. Yathisha N(A2)	MRD, YN
18MEL38A	Workshop and Machine Shop Practice	3	Mr. Chethan s(A1)	Mr Suresh Kumar S (A1)	CS, SKS
			Mr Arjun MS (A2)	Dr. Manjunath H S(A2)	AMS,Dr.HSM

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DEPARTMENT OFMECHANICAL ENGINEERING

TIME TABLE FOR III SEMESTER - 2019-20

SECTION : B **ROOM NO. M112**

DAY/TIME	09.00 - 10.00	10.00 -11.00	11.00 -11.15	11.15 - 12.15	12.15 - 01.15	01.15 - 2.00	02.00 - 02.55	02.55 - 03.50	03.50 - 04.45
Mon	18ME33	18MAT31	TEA BREAK	18ME32	18ME34	LUNCH BREAK	18MEL37B (B1)/18MEL38B(B2)		
Tue	18ME32	18MAT31		18ME36B	18MATDIP31		18MEL37B(B2)/18MEL38B(B1)		
Wed	18ME33	18ME32		18ME35B	18MAT31				
Thu	18MATDIP31	18ME35B		18ME32	18ME34		18ME33	18MAT31	18ME36B
Fri	18ME33	18ME34		18ME32	18ME36B		18CPC39	18MATDIP31	18ME35B
Sat									

Subject Code	Subject Title	Contact hours alloted per week	Faculty In – Charge		Initials
18MAT31	TCFS	4	Mrs Sowmya K		SK
18MATDIP31	Additional Mathematics-I	3	Mrs Divya K		DK
18ME32	Mechanics of Materials	5	Mr Suresh Kumar S		SKS
18ME33	Basic Thermodynamics	4	Mr Ravikumar S		SRK
18ME34	Material Science	3	Mr Devaraj M R		MRD
18ME35B	Metal Casting & Welding	3	Dr Rathnakar G		Dr. RG
18ME36B	Mechanical Measurements and Metrology	3	Mr Harsha D N		DNH
18CPC39	Constitution of India,Professional Ethics and Cyber Law	1	Mr. Chandrashekar C		CSC
18MEL37B	Mechanical Measurements and Metrology Lab	3	Mr. Chethan s(B1)	Mr Harsha D N (B1)	CS, DNH
			Mr. Swaramakiran S (B2)	Mr Arjun MS (B2)	SSK, AMS
18MEL38B	Foundry, Forging and Welding Lab	3	Mr Niranjan Kumar V S(B1)		NVS
			Mr Thejkumar J (B2)		TJ

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ATME COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING
TIME TABLE FOR III SEMESTER - 2019-20

SECTION : C **ROOM NO. M106**

DAY \ TIME	09.00 - 10.00	10.00 - 11.00	11.00 - 11.15	11.15 - 12.15	12.15 - 01.15	01.15 - 2.00	02.00 - 02.55	02.55 - 03.50	03.50 - 04.45
Mon	18MAT31	18ME36B	TEA BREAK	18ME32	18ME33	LUNCH BREAK	18ME35B	18MATDIP31	
Tue	18MEL37B (C1)/18MEL38B(C2)				18ME33		18ME32	18ME34	18ME36B
Wed	18ME35B	18MAT31	TEA BREAK	18ME33	18ME32		18MEL37B(C2)/18MEL38B(C1)		
Thu	18ME32	18ME34		18ME32	18ME35B		18MAT31	18CPC39	18MATDIP31
Fri	18MAT31	18ME33		18ME34	18ME36B		18MATDIP31		
Sat									

Subject Code	Subject Title	Contact hours alloted per week	Faculty In – Charge	Initials
18MAT31	TCFS	4	Mrs Divya K	DK
18MATDIP31	Additional Mathematics-I	3	Mrs Sowmya K	SK
18ME32	Mechanics of Materials	5	Mr Yathisha N	YN
18ME33	Basic Thermodynamics	4	Mr Ravikumar S	SRK
18ME34	Material Science	3	Mr Devraj M R	MRD
18ME35B	Metal Casting & Welding	3	Dr Rathnakar G	Dr. RG
18ME36B	Mechanical Measurements and Metrology	3	Dr. Srinivasa K	Dr. SK
18CPC39	Constitution of India, Professional Ethics and Cyber Law	1	Mr. Chandrashekar C	CSC
18MEL37B	Mechanical Measurements and Metrology Lab	3	Mr. Deepak MVS (C1)	MVS
			Mr. Harsha D N (C2)	DNH
18MEL38B	Foundry, Forging and Welding Lab	3	Mr. Devaraj M R (C1)	MRD
			Mr. Devaraj M R (C2)	MRD

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ATME COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL ENGINEERING
TIME TABLE FOR V SEMESTER - 2019-20

SECTION : A **ROOM NO.M103**

DAY \ TIME	09.00 - 10.00	10.00 - 11.00	11.00 - 11.15	11.15 - 12.15	12.15 - 01.15	01.15 - 2.00	02.00 - 02.55	02.55 - 03.50	03.50 - 04.45
Mon	17ME554	17ME52	TEA BREAK	17ME53	17ME562	LUNCH BREAK	17MEL57(A1)/17MEL58(A2)		
Tue	17ME51	17ME53		17ME562	17ME52		17ME54	17ME554	Aptitude Training
Wed	17ME554	17ME54		17ME51	17ME53		17ME562	17ME53	17ME52
Thu	17ME52	17ME53		17ME54	17ME51		17MEL57(A2)/17MEL58(A3)		
Fri	17ME54	17ME52		17ME51	17ME54		17MEL57(A3)/17MEL58(A1)		
Sat									

Subject Code	Subject Title	Contact hours alloted per week	Faculty In – Charge		Initials
17ME51	Management and Engineering Economics	4	Mr. Ramanuja C M		RCM
17ME52	Dynamics of Machinery	5	Mr. Suresh Kumar S		SKS
17ME53	Turbo Machines	5	Mr. Chethan S		CS
17ME54	Design of Machine Elements - I	5	Mr. Rohith S		RS
17ME554	Non Traditional Machining	3	Mr. Chethan S		CS
17ME562	Energy and Environment	3	Mr.Md Nadeem M		MNM
17MEL57	Fluid Mechanics & Machinery Lab	3	Dr. Manjunath H S(A1)	Mr. Niranjan Kumar V S(A1)	Dr.HSM,NVS
			Mr.Yashwanth N(A2)	Mr. Chethan S(A2)	NY,CS
			Mr. Pavan Kumar K P(A3)	Mr. Niranjan Kumar V S(A3)	KP,NVS
17MEL58	Energy Lab	3	Mr.Raghu(A1)	Mr. Yashwanth N(A1)	RAG,NY
			Mr. Ravi Kumar S(A2)	Dr. Srinivasa K(A2)	SRK, Dr.SK
			Mr.Md Nadeem M(A3)	Mr.Raghu(A3)	MNM,RAG

Note: Free LAB Batch students have CLUB ACTIVITIES & TECHNICAL TRAINGING.

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DEPARTMENT OF MECHANICAL ENGINEERING
TIME TABLE FOR V SEMESTER - 2019-20

SECTION : B **ROOM NO. M104**

DAY \ TIME	09.00 - 10.00	10.00 - 11.00	11.00 - 11.15	11.15 - 12.15	12.15 - 01.15	01.15 - 2.00	02.00 - 02.55	02.55 - 03.50	03.50 - 04.45
Mon	17ME52	17ME554	TEA BREAK	17ME54	17ME51	LUNCH BREAK	17ME53	17ME52	17ME562
Tue	17ME562	17ME52		17ME51	17ME53		17MEL57(B1)/17MEL58(B2)		
Wed	17ME53	17ME52		17ME54	17ME51		17MEL57(B2)/17MEL58(B3)		
Thu	17ME52	17ME53		17ME51	17ME554		17ME54	17ME562	Aptitude Training
Fri	17MEL57(B3)/17MEL58(B1)				17ME53		17ME54	17ME54	17ME554
Sat									

Subject Code	Subject Title	Contact hours alloted per week	Faculty In – Charge		Initials
17ME51	Management and Engineering Economics	4	Mr. Niranjan Kumar V S		NVS
17ME52	Dynamics of Machinery	5	Mr. Swaranakiran S		SSK
17ME53	Turbo Machines	5	Mr. Raghu		RAG
17ME54	Design of Machine Elements - I	5	Mr. Karthik Kumar M		KKM
17ME554	Non Traditional Machining	3	Mr. Harsha D N		DNH
17ME562	Energy and Environment	3	Mr. Pavan Kumar K P		KP
17MEL57	Fluid Mechanics & Machinery Lab	3	Dr. Manjunath H S(B1)	Mr.Raghu(B1)	Dr.HSM,RAG
			Mr. Niranjan Kumar V S(B2)	Mr. Karthik Kumar M(B2)	NVS,KKM
			Mr Yathisha N(B3)	Mr. Chethan S(B3)	YN,CS
17MEL58	Energy Lab	3	Mr. Md Nadeem M (B1)	Mr. Pavan Kumar K P(B1)	MNM, KP
			Mr. Ravi Kumar S(B2)	Mr. Pavan Kumar K P(B2)	SRK,KP
			Mr. Pavan Kumar K P(B3)	Mr. Ramanuja C M(B3)	KP,RCM

Note: *Free LAB Batch students have CLUB ACTIVITIES & TECHNICAL TRAINGING.*

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DEPARTMENT OF MECHANICAL ENGINEERING

TIME TABLE FOR VII SEMESTER - 2019-20

SECTION : A **ROOM NO. M101**

DAY / TIME	09.00 - 10.00	10.00 - 11.00	11.00 - 11.15	11.15 - 12.15	12.15 - 01.15	01.15 - 2.00	02.00 - 02.55	02.55 - 03.50	03.50 - 04.45
Mon	15ME742	15ME71	TEA BREAK	15ME73	15ME72	LUNCH BREAK	Project Phase-I		
Tue	15ME72	15ME71		15ME73	15ME753		15MEL76(A1) / 15MEL77(A2)		
Wed	15ME753	15ME742		15ME71	15ME72		15ME73	CLUB ACTIVITIES	
Thu	15MEL76(A2) / 15MEL77(A3)				15ME73		15ME742	Technical Training	Aptitude Training
Fri	15ME71	15ME72	TEA BREAK	15ME73	15ME753		15MEL76(A3) / 15MEL77(A1)		
Sat									

Subject Code	Subject Title	Contact hours alloted per week	Faculty In – Charge		Initials
15ME71	Energy Engineering	4	Mr. Raghu		RAG
15ME72	Fluid Power Systems	4	Dr. Srinivasa K		Dr. SK
15ME73	Control Engineering	5	Mr. Swaranakiran S		SKS
15ME742	Tribology	3	Mr. Yathisha N		YN
15ME753	Mechatronics	3	Dr. Manjunath H S		Dr.HSM
15MEL76	Design Lab	3	Mr. Karthik Kumar M(A1)	Mr.Suresh Kumar S(A1)	KKM, SSK
			Dr. Srinivasa K(A2)	Mr. Karthik Kumar M(A2)	Dr.SK, KKM
			Mr. Rohith S (A3)	Mr. Swaranakiran S(A3)	RS,SSK
15MEL77	CIM Lab	3	Mr. Ramanuja C M(A1)	Mr. Md Nadeem M(A1)	RCM,MNM
			Mr. Md Nadeem M (A2)	Mr. Ramanuja C M(A2)	MNM,RCM
			Mr. Harsha D N(A3)	Mr. Ravi Kumar S(A3)	DNH,SRK

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DEPARTMENT OF MECHANICAL ENGINEERING

TIME TABLE FOR VII SEMESTER - 2019-20

SECTION : B **ROOM NO. M102**

DAY / TIME	09.00 - 10.00	10.00 - 11.00	11.00 - 11.15	11.15 - 12.15	12.15 - 01.15	01.15 - 2.00	02.00 - 02.55	02.55 - 03.50	03.50 - 04.45
Mon	15MEL76(B1) / 15MEL77(B3)				15ME71	LUNCH BREAK	15ME742	15ME753	Technical Training
Tue	15ME72	15ME71	TEA BREAK	15ME753	15ME73		Project Phase-1		
Wed	15ME753	15ME72		15ME742	15ME73		15ME73	CLUB ACTIVITIES	
Thu	15ME73	15ME72		15ME71	15ME742		15MEL76(B2) / 15MEL77(B1)		
Fri	15MEL76(B3) / 15MEL77(B2)				15ME72		15ME73	15ME71	Aptitude Training
Sat									

Subject Code	Subject Title	Contact hours alloted per week	Faculty In – Charge		Initials
15ME71	Energy Engineering	4	Dr. Manjunath H S		Dr.HSM
15ME72	Fluid Power Systems	4	Mr. Yashwanth N		NY
15ME73	Control Engineering	5	Mr. Arjun M S		AMS
15ME742	Tribology	3	Mr. Md Nadeem M		MNM
15ME753	Mechatronics	3	Mr. Karthik Kumar M		KKM
15MEL76	Design Lab	3	Mr. Rohith S(B1)	Dr. Rathnakar G(B1)	RS,Dr.RG
			Dr. Srinivasa K (B2)	Mr.Rohith S(B2)	Dr.SK,RS
			Mr. Karthik Kumar M(B3)	Dr. Manjunath H S(B3)	KKM, Dr.HSM
15MEL77	CIM Lab	3	Mr. Mohanakumara K C(B1)	Mr. Devraj M R(B1)	KCM,MRD
			Mr. Harsha D N(B2)	Mr. Arjun M S(B2)	MNM,AMS
			Mr. Yashwanth N(B3)	Mr. Md Nadeem M(B3)	NY,MNM

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METAL CUTTING AND FORMING

18ME35A

ATME COLLEGE OF ENGINEERING

VISION

Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

MISSION

- To keep pace with advancements in knowledge and make the students competitive and capable at the global level.
- To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as torch bearers of tomorrow's society.
- To strive to attain ever-higher benchmarks of educational excellence.

DEPARTMENT OFMECHANICAL ENGINEERING

VISION

To impart excellent technical education in mechanical engineering to develop technically competent, morally upright and socially responsible mechanical engineering professionals.

MISSION:

- To provide an ambience to impart excellent technical education in mechanical engineering.

- To ensure state of-the- art facility for learning, skill development and research in mechanical engineering.

- To engage students in co-curricular and extra-curricular activities to impart social & ethical values and imbibe leadership quality.

PROGRAM EDUCATIONAL OBJECTIVES (PEO'S)

After successful completion of program, the graduates will be

PEO 1: Graduates will be able to have successful professional career in the allied areas and be proficient to perceive higher education.

PEO2: The Graduates will attain the ability to understand the need, technical ability to analyze, design and manufacture the product.

PEO 3: Work effectively, ethically and socially responsible in allied fields of Mechanical Engineering.

PEO 4: Work in a team to meet personal and organizational objectives and to contribute to the development of the society in large.

PROGRAM OUTCOMES (PO'S)

The Mechanical engineering program students will attain:

PO1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems

PO2. Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences

PO3. Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations

PO4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions

PO5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations

PO6. The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

PO7. Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development

PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings

PO10. Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions

PO11. Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

PROGRAM SPECIFIC OUTCOMES (PSO'S)

After successful completion of program, the graduates will be

PSO 1: Ability to apply and interpret the acquired mechanical engineering knowledge for advancement in Industrial, Societal, and Environmental arenas.

PSO 2: Ability to meet the needs of Industries in the field of design, manufacturing and testing using mechanical engineering software.

MODULE-1

LESSON CONTENTS: Introduction to Metal cutting: Orthogonal and oblique cutting. Classification of cutting tools: single, and multipoint; tool signature for single point cutting tool. Mechanics of orthogonal cutting; chip formation, shear angle and its significance, Merchant circle diagram. Numerical problems. Cutting tool materials and applications. **Introduction to basic metal cutting machine tools**: Lathe- Parts of lathe machine, accessories of lathe machine, and various operations carried out on lathe. Kinematics of lathe. Turret and Capstan lathe.

Objectives

To enrich the knowledge pertaining to relative motion and mechanics required for various machine tools

Introduction

Machining Process: Machining is an essential process of finishing by which work pieces are produced to the desired dimensions and surface finish by gradually removing the excess material from the preformed blank in the form of chips with the help of cutting tool(s) moved past the work surface(s).

Machine Tool: A machine tool is a non-portable power operated and reasonably valued device or system of devices in which energy is expended to produce jobs of desired size, shape and surface finish by removing excess material from the preformed blanks in the form of chips with the help of cutting tools moved past the work surface(s).

Orthogonal and Oblique cutting

Orthogonal Cutting Model:

In orthogonal cutting, the cutting edge inclination is zero and chip is expected to flow along the orthogonal plane. The cutting tool is passes such a way that the cutting edge is normal to the tool feed direction. In orthogonal cutting, the radial force is zero, and it involves only two component of force.

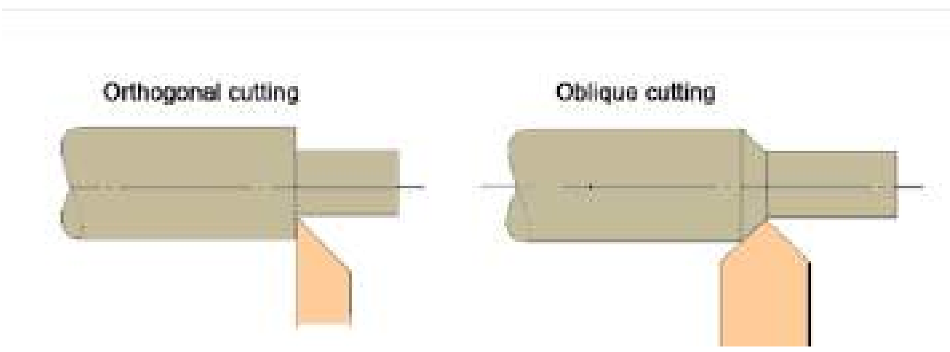


Figure 1.1: Orthogonal and oblique cutting

Oblique Cutting Model:

In oblique cutting, chip flow deviates from the orthogonal plane. Tool passes to workpiece at an acute angel to the tool feed motion. The analysis of cutting includes three mutually perpendicular component of force.

Comparison between Orthogonal and oblique cutting

Sl. No	Orthogonal metal cutting	Oblique metal cutting
1	Cutting edge of the tool is perpendicular to the direction of tool travel.	The cutting edge is inclined at an angle less than 90^{o} to the direction of tool travel.
2	The direction of chip flow is perpendicular to the cutting edge.	The chip flows on the tool face making an angle.
3	The chip coils in a tight flat spiral	The chip flows sideways in a long curl.
4	For same feed and depth of cut the force which shears the metal acts on a smaller area. So the life of the tool is less.	The cutting force acts on larger area and so tool life is more.
5	Produces sharp corners.	Produces a chamfer at the end of the cut
6	Smaller length of cutting edge is in contact with the work.	For the same depth of cut greater length of cutting edge is in contact with the work.
7	Generally parting off in lathe, broaching and slotting operations are done in this method.	This method of cutting is used in almost all machining operations.

Single point Tool Geometry:

The general shape of a single-point cutting tool is illustrated in Figure

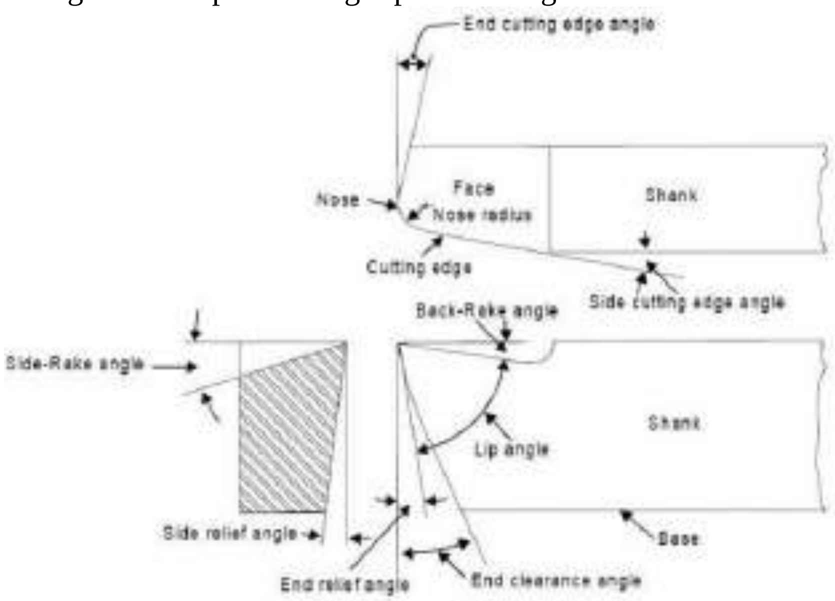


Figure 1.2: Single point Cutting Tool nomenclature

i) **Shank:** It is that portion of the tool which will be hold on the tool post.

ii) **Back Rake angle:** Back rake angle is the angle between the face of the single point cutting tool and a line parallel with base of the tool measured in a perpendicular plane through the side cutting edge. If the slope face is downward toward the nose, it is negative back rake angle and if it is upward toward nose, it is positive back rake angle. Back rake angle helps in removing the chips away from the workpiece.

ii) **Side rake angle:** Side rake angle is the angle by which the face of tool is inclined sideways. Side rake angle is the angle between the surface the flank immediately below the point and the line down from the point perpendicular to the base. Side rake angle of cutting tool determines the thickness of the tool behind the cutting edge. It is provided on tool to provide clearance between workpiece and tool so as to prevent the rubbing of workpiece with end flake of tool.

iv) **End relief angle:** End relief angle is defined as the angle between the portion of the end flank immediately below the cutting edge and a line perpendicular to the base of the tool, measured at right angles to the flank. End relief angle allows the tool to cut without rubbing on the workpiece. **Side relief angle:** Side rake angle is the angle between the portion of the side flank immediately below the side edge and a line perpendicular to the base of the tool measured at right angles to the side. Side relief angle is the angle that prevents the interference as the tool enters the material. It is incorporated on the tool to provide relief between its flank and the workpiece surface.

v) **End cutting edge angle:** End cutting edge angle is the angle between the end cutting edge and a line perpendicular to the shank of the tool. It provides clearance between tool cutting edge and workpiece

vi) **Side cutting edge angle:** Side cutting edge angle is the angle between straight cutting edge on the side of tool and the side of the shank. It is responsible for turning the chip away from the finished surface.

vi) **Nose Radius:** It is the fillet ground on the edge of the cutting point. This is done in order improve the surface finish on the workpiece while machining.

vii) **Shank:** It is that portion of the tool which will be hold on the tool post.

Twist Drill Tool Geometry:

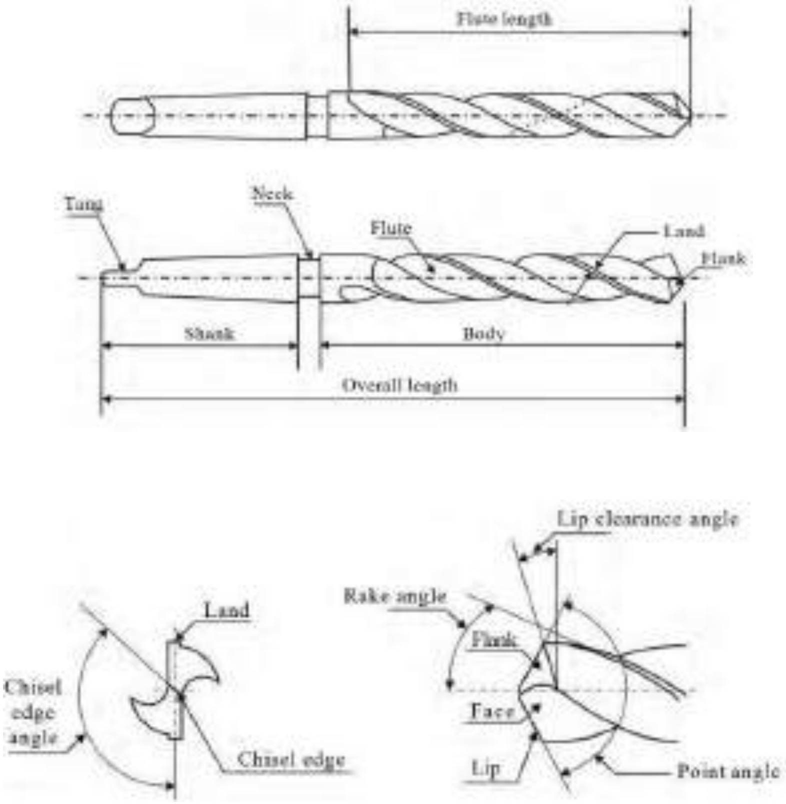


Figure 1.3: Twist Drill Tool nomenclature

Axis: It is the longitudinal center line of the drill running through the centres of the tang and the chisel edge.

Body: It is the part of the drill from its extreme point to the commencement of the neck, if present. Otherwise, it is the part extending up to the commencement of the shank. Helical grooves are cut on the body of the drill.

Shank: It is the part of the drill by which it is held and driven. It is found just above the body of the drill. The shank may be straight or taper. The shank of the drill can be fitted directly into the spindle or by a tool holding device.

Tang: The flattened end of the taper shank is known as tang. It is meant to fit into a slot in the spindle or socket. It ensures a positive drive of the drill.

Neck: It is the part of the drill, which is diametrically undercut between the body and the shank of the drill. The size of the drill is marked on the neck.

Point: It is the sharpened end of the drill. It is shaped to produce lips, faces, flanks and chisel edge.

Lip: It is the edge formed by the intersection of flank and face. There are two lips and both of them should be of equal length. Both lips should be at the same angle of inclination with the axis (59°).

Land: It is the cylindrically ground surface on the leading edges of the drill flutes adjacent to the body clearance surface. The alignment of the drill is maintained by the land. The hole is maintained straight and to the right size.

Flutes: The grooves in the body of the drill are known as flutes. Flutes form the cutting edges on the point. It allows the chips to escape and make them curl. It permits the cutting fluid to reach the cutting edges.

Chisel edge angle: The obtuse angle included between the chisel edge and the lip as viewed from the end of the drill. It usually ranges from 120° to 135°.

Helix angle or rake angle: The helix or rake angle is the angle formed by the leading edge of the land with a plane having the axis of the drill. If the flute is straight, parallel to the drill axis, then there would be no rake. If the flute is right handed, then it is positive rake and the rake is negative if it is left handed. The usual value of rake angle is 30° or 45°.
Metal removal process is a machining process in which excess amount of material is removed in the form of chips in order to shape the material to the required dimension and size.

Mechanics of orthogonal cutting

Machining is not just one process; it is a group of processes. The common feature is the use of a cutting tool to form a chip that is removed from the work-part. To perform the operation, relative motion is required between the tool and work. This relative motion is achieved in most machining operations by means of a primary motion, called the cutting speed, and a secondary motion, called the feed. The shape of the tool and its penetration into the work surface, combined with these motions, produces the desired geometry of the resulting work surface.

Theory of chip formation:

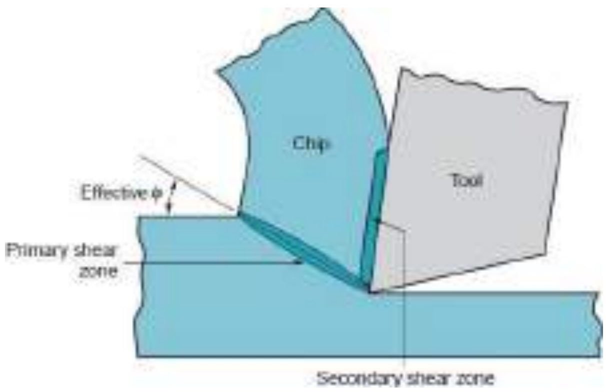


Figure 1.4: Formation of chip in metal cutting

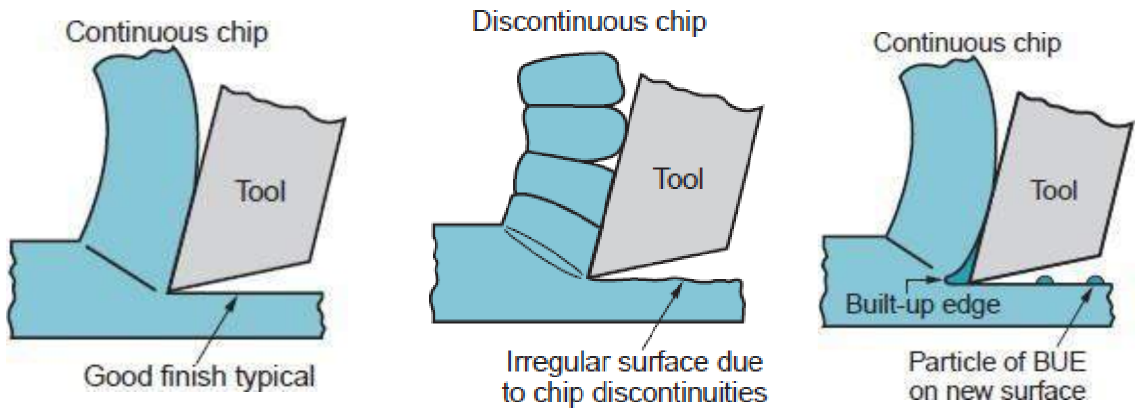
The above figure illustrates the basic geometry of a to dimensional chip formation. When the cutting tool is forced to move against the workpiece, the tool exerts a compressive force on the workpiece. The material of the workpiece is stressed beyond its yield point causing it to deform plastically and shear off. The plastic flow take place in the localised region called Shear plane. The sheared portion of the metal begins to flow along cutting tool face in the form a small piece called chips

Mechanics of chip formation:

As the cutting tool pressed against the workpiece, the tool removes the material in the form a chip at shear zone. Three different types of chips are formed during the process. They are:

1. Continuous chips
2. Discontinues Chips
3. Continuous with built up edges.

Continuous chip: When ductile work materials are cut at high speeds and relatively small feeds and depths, long continuous chips are formed. A good surface finish typically results when this chip type is formed. A sharp cutting edge on the tool and low tool–chip friction encourage the formation of continuous chips. Long, continuous chips (as in turning) can cause problems with regard to chip disposal and/or tangling about the tool. To solve theseproblems, turning tools are often equipped with chip breakers.



(a) *(b)* *(c)*

Figure 1.5: (a) Continuous (b) Discontinuous (c) Continuous with built up edges

Discontinuous chip: When relatively brittle materials (e.g., cast irons) are machined at low cutting speeds, the chips often form into separate segments (sometimes the segments are loosely attached). This tends to impart an irregular texture to the machined surface. High tool–chip friction and large feed and depth of cut promote the formation of this chip type.

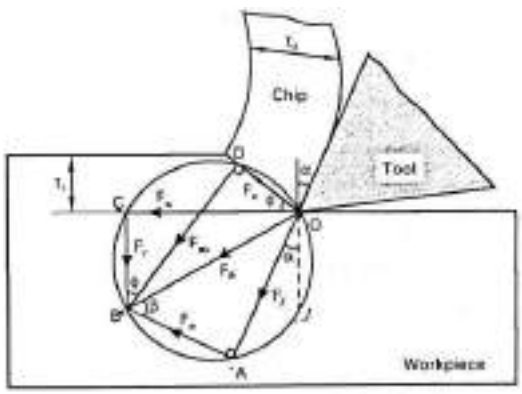
Continuous chip with built-up edge: When machining ductile materials at low-to medium cutting speeds, friction between tool and chip tends to cause portions of the work material to adhere to the rake face of the tool near the cutting edge. This formation is called a built-up edge (BUE). The formation of a BUE is cyclical; it forms and grows, then becomes unstable and breaks off. Much of the detached BUE is carried away with the chip, sometimes taking portions of the tool rake face with it, which reduces the life of the cutting tool. Portions of the detached BUE that are not carried off with the chip become imbedded in the newly created work surface, causing the surface to become rough.

Merchant's Tool equation:

- Merchant circle diagram is used to analyse the forces acting in metal cutting.
- The analysis of three forces system, which balance each other for cutting to occur. Each system is a triangle of forces.

Assumptions made in drawing Merchant's circle:

- Shear surface is a plane extending upwards from the cutting edge.
- The tool is perfectly sharp and there is no contact along the clearance force.
- The cutting edge is a straight line extending perpendicular to the direction of motion and generates a plane surface as the work moves past it
- The chip doesn't flow to either side, that is chip width is constant.
- The depth of cut remains constant.
- Width of the too, is greater than that of the work.
- Work moves with uniform velocity relative tool tip.No built up edge is formed



Shear plane angel = φ Tool rake angel = α Friction angel = β

Fn = normal force Fs= Shear force

Fns= Force normal to shear force Fc= horizontal cutting force

Ft= Thrust force F_R= Resultant Force From the figure,

$$\llcorner BOA = 90 - \beta$$

$$\llcorner COB = \beta - \alpha$$

$$\llcorner DOB = \varphi + \beta - \alpha$$

To find Fc and Ft:

From triangle BOC, cos(β-α) = Fc/Fr

Fc= Fr cos(β-α)

From triangle BOC, sin(β-α) = Ft/Fr

Ft = Fr sin(β-α)

To find Fs and Fns:

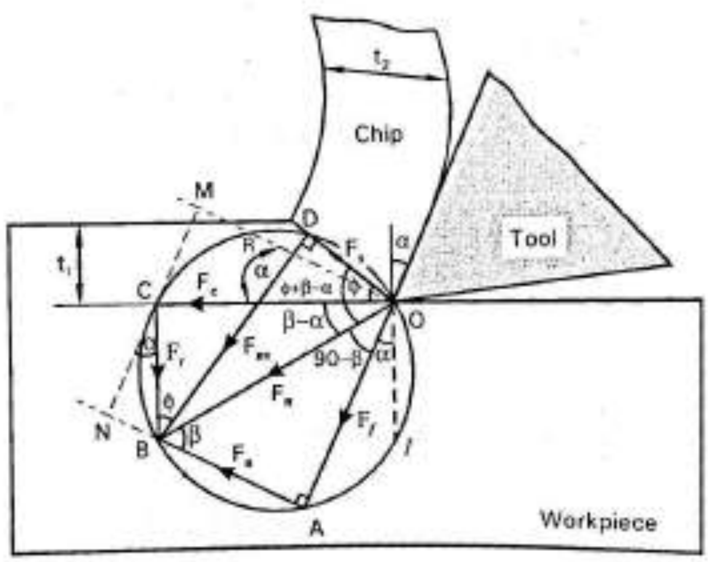
From triangle OBD, cos(φ+$\beta - \alpha$)=Fs/Fr

Fs=Fr cos(ϕ+Q $- \alpha$)

From triangle OBD, Sin(φ+$\beta - \alpha$)= Fns/Fr

Fns= Fr Sin(φ+β−α)

To find Ff and Fn, Ff and Fn are expressed in terms of Fc and Ft



Merchants Tool diagram

From the diagram, $Ff = OA = MN$

$Ff = MN = MC + CN$

But from MC=? And CN=?

From triangle MCO, $Sin\alpha = MC/OC = MC/ Fc$

To find CN=?

From triangle CNB $cos\alpha = CN/CB = CN/Ft$

$CN = Ft\ cos\alpha$

Therefore, $Ff = Fc\ Sin\alpha + Ft\ Cos\alpha$

$Fn = AB = OR$

$Fn = OR = OM – MR$

OM =? And MR =?

From triangle OMC $cos\alpha = OM/ OC = OM/ Fc$

$OM = Fc\ cos\alpha$

$MR = NB$

From triangle CNB, $Sin\alpha = NB/BC = NB/Ft$

$NB = Ft\ Sin\alpha$

Therefore, $Fn = Fc\ Cos\alpha + Ft\ Sin\alpha$

To calculate Co-efficient of friction,

$Ff = \mu Fn$

$\mu = Ff/ Fn$

$$\boldsymbol{\mu} = \frac{\boldsymbol{Fc\ Sin}a + \boldsymbol{Ft\ Cos}a}{\boldsymbol{Fc\ Cos}a - \boldsymbol{Ft\ Sin}a}$$

3.0 Characteristics of Cutting tool materials:

The cutting tool is subjected to (a) high temperatures, (b) high contact stresses, and (c) rubbing along the tool-chip interface and along the machined surface. Consequently, the cutting-tool material must possess the following characteristics:

- **Hot hardness:** Hot hardness is the ability of a material to retain its hardness at high temperatures. This is required because of the high-temperature environment in which the tool operates.

- **Toughness and impact Strength:** To avoid fracture failure, the tool material must possess high toughness. Toughness is the capacity of a material to absorb energy without failing. It is usually characterized by a combination of strength and ductility in the material.

Wear resistance. Hardness is the single most important property needed to resist abrasive wear. All cutting-tool materials must be hard. However, wear resistance in metal cutting depends on more than just tool hardness, because of the other tool-wear mechanisms. Other characteristics affecting wear resistance include surface finish on the tool (a smoother surface means a lower coefficient of friction), chemistry of tool and work materials, and whether a cutting fluid is used.

- **Thermal Shock Resistance:** To withstand the rapid temperature cycling encountered in interrupted cutting.

- **Chemical stability and inertness** with respect to the material being machined, to avoid or minimize any adverse reactions, adhesion, and tool-chip diffusion that would contribute to tool wear.

Cutting Tool Materials:

The various cutting tool materials which are broadly used in machining of materials are: High Speed Steels, Carbon Steels, Carbides, Coated tools, Cubic boran Nitrade, Diamond, Aluminium Oxides etc.

Carbon Steels: Carbon steels are the oldest tool materials and have been used widely for drills, taps, broaches, and reamers since the 1880s. Low-alloy and medium-alloy steels were developed later for similar applications but with longer tool life. Although inexpensive and easily shaped and sharpened, these steels do not have sufficient hot hardness and wear resistance for cutting at high speeds when the temperature rises significantly. Their use is limited to very low speed cutting operations, particularly in woodworking; hence, they are not of any particular significance in modern machining operations.

High Speed Steels: High-speed steel (HSS) tools are so named because they were developed to machine at higher speeds than Carbon Steels. High-speed steel (HSS) is a highly alloyed tool steel capable of maintaining hardness at elevated temperatures better than high carbon and low alloy steels. Its good hot hardness permits tools made of HSS to be used at higher cutting speeds. Compared with the other tool materials at the time of its development, it was truly deserving of its name ‘‘high speed.’’ A wide variety of high-speed steels are available, but they can be divided into two basic types: (1) tungsten-type, designated T-grades by the American Iron and Steel Institute (AISI); and (2) molybdenum-type, designated M-grades by AISI.

Tungsten-type HSS contains tungsten (W) as its principal alloying ingredient. Additional alloying elements are chromium (Cr), and vanadium (V). One of the original and best known HSS grades is T1, or 18-4-1 high-speed steel, containing 18%W,4%Cr, and 1%V. **Molybdenum HSS** grades contain combinations of tungsten and molybdenum(Mo), plus the same additional alloying elements as in the T-grades. Cobalt (Co) is sometimes added to HSS to enhance hot hardness. Of course, high-speed steel contains carbon, the element common to all steels.

Cemented Carbides: Cemented carbides (also called sintered carbides) are a class of hard tool material formulated from tungsten carbide (WC) using powder metallurgy techniques with cobalt (Co) as the binder. There may be other carbide compounds in the mixture, such as titanium carbide (TiC) and/or tantalum carbide (TaC), in addition to WC.
Because of their high hardness over a wide range of temperatures high elastic modulus, high thermal Conductivity, and low thermal expansion, carbides are among the most important, versatile, and cost-effective tool and die materials for a wide range of applications. The two major groups of carbides used for machining are tungsten Carbide and titanium carbide.

Ceramics: ceramic cutting tools are composed primarily of fine-grained aluminium oxide (Al_2O_3), pressed and sintered at high pressures and temperatures with no binder into insert form (Section 17.2). The aluminum oxide is usually very pure (99% is typical), although some manufacturers add other oxides (such as zirconium oxide) in small amounts. In producing ceramic tools, it is important to use a very fine grain size in the alumina powder, and to maximize density of the mix through high-pressure compaction to improve the material’s low toughness.
Aluminum oxide cutting tools are most successful in high-speed turning of cast iron and steel. Applications also include finish turning of hardened steels using high cutting speeds, low feeds and depths, and a rigid work setup. Many premature fracture failures of ceramic tools are because of non-rigid machine tool setups, which subject the tools to mechanical shock. When properly applied, ceramic cutting tools can be used to obtain very good surface finish. Ceramics are not recommended for heavy interrupted cut operations (e.g., rough milling) because of their low toughness. In addition to its use as inserts in conventional machining operations, Al_2O_3 is widely used as an abrasive in grinding and other abrasive processes.

Cubic Boron Nitride: Next to diamond, cubic boron nitride (Section 7.3.3) is the hardest material known, and its fabrication into cutting tool inserts is basically the same as Synthetic polycrystalline Diamonds; that is, coatings on WC–Co inserts. Cubic boron nitride (symbolized CBN) does not react chemically with iron and nickel as SPD does; therefore, the applications of CBN-coated tools are for machining steel and nickel-based alloys. Both SPD and CBN tools are expensive, as one might expect, and the applications must justify the additional tooling cost.

Diamonds: Diamond is the hardest material known. By some measures of hardness, diamond is three to four times as hard as tungsten carbide or aluminum oxide. Since high hardness is one of the desirable properties of a cutting tool, it is natural to think of diamonds for machining and grinding applications. Synthetic diamond cutting tools are made of sintered polycrystalline diamond (SPD), which dates from the early 1970s. Sintered polycrystalline diamond is fabricated by sintering fine-grained diamond crystals under high temperatures and pressures into the desired shape. Little or no binder is used. The crystals have a random orientation and this adds considerable toughness to the SPD tools compared with single crystal diamonds. Tool inserts are typically made by depositing a layer of SPD about 0.5mm (0.020 in) thick on the surface of a cemented carbide base. Very small inserts have also been made of 100% SPD. Applications of diamond cutting tools include high-speed machining of nonferrous metals and abrasive non-metals such as fiberglass, graphite, and wood. Machining of steel, other ferrous metals, and nickel-based alloys with SPD tools is not practical because of the chemical affinity that exists between these metals and carbon (a diamond, after all, is carbon.)

1.0 Classification of Machine Tool:

Based on the principle of operation, the type of relative motion exists between the tool and the work surface etc., the machine tools are classified as,

1. **According to the direction of major axis:**
    a. Horizontal axis machine tools (Lathes, Horizontal milling machine, Boring machines, cylindrical grinding machines etc.,)
    b. Vertical axis machine Tools (Vertical Milling machines, Drilling machines etc.,)
    c. Inclined or multiple axis (CNC machine tools and Special purpose machines)

2. **According to the purpose of Use:**
    a. general purpose (center lathes, milling machines, drilling machines etc.)
    b. single purpose (facing lathe, roll turning lathe etc.)
    c. special purpose (for mass production.)
3. **According to the degree of automation:**
    a. non-automatic (center lathes, drilling machines etc.)
    b. semi-automatic (capstan lathe, turret lathe, hobbing machine etc.)

c. automatic (single spindle automatic lathe, swiss type automatic lathe, CNC milling machine etc.)

4. **According to Size:**
   a. Heavy duty (heavy-duty lathes (e.g. ≥ 55 kW), boring mills, planning machine, horizontal boring machine etc.)
   b. Medium duty (lathes – 3.7 ~ 11 kW, column drilling machines, milling machines etc.)
   c. Small duty (table top lathes, drilling machines, milling machines.)
   d. Micro duty (micro-drilling machine etc)
5. **According to precision:**
   a. Ordinary (Conventional Machine tools)
   b. High Precision (CNC machines, Grinding machines, lapping machines)
6. **According to the type of automation:**
   a. Fixed automation (Single spindle and multi spindle)
   b. Flexible automation (CNC Milling Machines)

1.1 LATHE MACHINE TOOL

The lathe is a machine tool which holds the work piece between two rigid and strong supports called centers or in a chuck or face plate which revolves. The cutting tool is rigidly held and supported in a tool post which is fed against the revolving work. The normal cutting operations are performed with the cutting tool fed either parallel or at right angles to the axis of the work. The cutting tool may also be fed at an angle relative to the axis of work for machining tapers and angles.

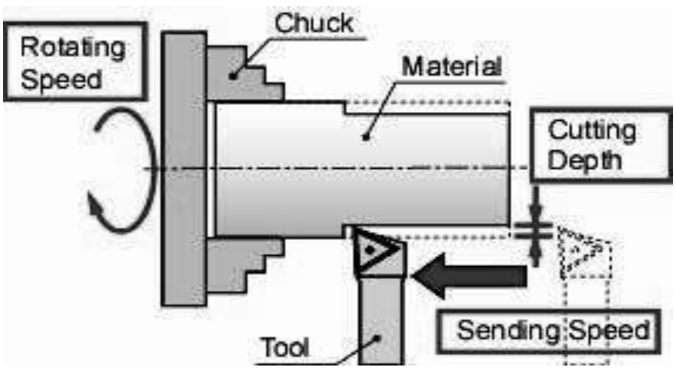


Fig: Principle of working of a lathe

1.2.1 Construction of Centre Lathe: The main parts of the lathe are the bed, headstock, quick changing gear box, carriage and tailstock.

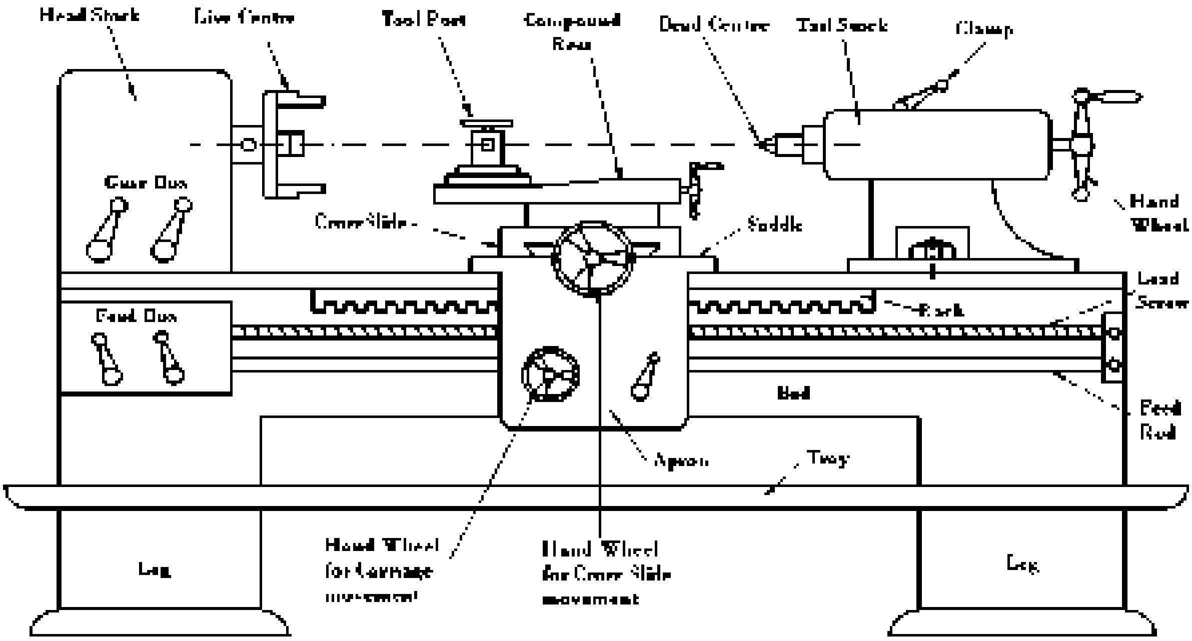


Fig: Parts of Lathe

- **Bed:** Usually made of cast iron. Provides a heavy rigid frame on which all the main components are mounted. It is the foundation part of a lathe and supports the remaining parts. The top of the bed is formed by precision-machined guide ways.
- **Guide Ways**: Inner and outer guide rails that are precision machined parallel toassure accuracy of movement.
- **Headstock:** mounted in a fixed position on the inner ways, usually at the left end. Using a chuck, it rotates the work. The housing comprising of the feed gearbox and the cone pulley called headstock of the lathe. The main spindle projects out from the headstock. The motor drives the cone pulley drives the main spindle through belting. Spindle speeds can be further varied using beck gear mechanism
- **Gearbox:** inside the headstock, providing multiple speeds with a geometric ratio by moving levers.
- **Spindle:** Hole through the headstock to which bar stock can be fed, which allows shafts that are up to 2 times the length between lathe centers to be worked on one end at a time.
- **Chuck:** allows the mounting of difficult work pieces that are not round, square or triangular. 3-jaw (self centering) or 4-jaw (independent) to clamp part being machined.

- **Tailstock:** Fits on the inner ways of the bed and can slide towards any position the headstock to fit the length of the work piece. Tail stock is the movable part of the lathe that carries the dead centre in it. The main function of the tailstock is to support the free end of the long work pieces. It is mounted loosely on the bed ways and can be moved in desired direction an optional taper turning attachment would be mounted to it.
- **Carriage Assembly**: Moves on the outer ways. Used for mounting and moving most the cutting tools. The carriage assembly consists of.

  - **Saddle**: is a H-shaped casting slides over the outer set of guide ways and serves as the base for the cross slide.

  Cross slide: is mounted on the saddle and enables the movement of the cutting tool laterally across the lathe bed by means of cross-feed hand wheel.

  - **Compound Rest**: is mounted on the top of the cross slide and is swiveled to any angle in the horizontal plane to facilitate taper turning and thread cutting operations.
  - **Apron**: is mounted in front of the saddle beneath it and houses the carriage and cross slide mechanisms.
  - **Tool Post**: is mounted in the T-Slot of the compound rest and properly clamps the cutting tool.

- **Feed Rod:** Has a keyway, with two reversing pinion gears, either of which can be meshed with the mating bevel gear to forward or reverse the carriage using a clutch. is a stationary rod mounted in front of lathe bed and facilitates longitudinal movement of the carriage.
- **Lead Screw**: is the screw rod that runs longitudinally in front of the lathe bed. The gyration of the lead screw moves the carriage to and fro longitudinally during thread cuttingoperations.

1.2.2 Specification of Lathe:

The size of the lathe is specified in order to know the work holding capacity of the lathe. The specification of the lathe is shown in fig below.

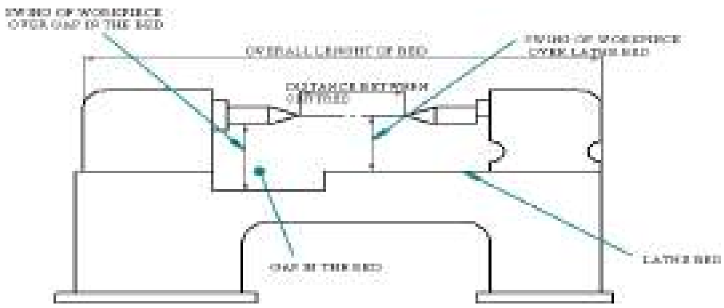


Fig: Specification of Lathe

1. **Distance between Centers:** The maximum length of the work pieces that can be held between the centers.
2. **Overall length of bed:** It is the total length of the lathe.
3. **Swing over lathe bed:** The Maximum diameter of the work piece that can be revolved over the lathe bed.
4. **Swing over the gap in bed:** The maximum diameter and width of the work piece that can be revolved over the lathe when the lathe has gap bed.

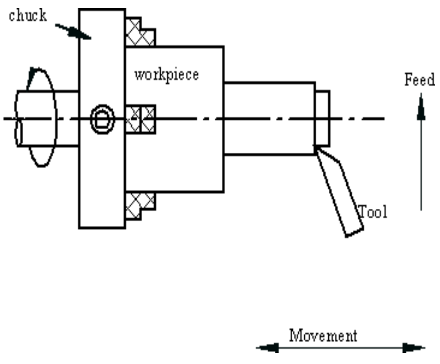
2.0 Lathe operations/ Turning operations:

The operations that can be performed on a lathe are

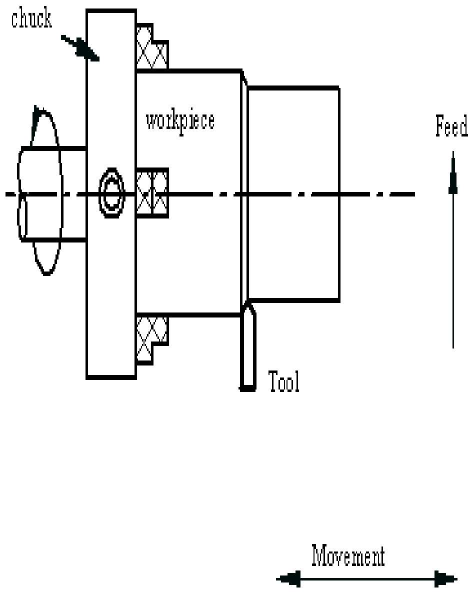
1. **By holding the job between centers or between chuck and dead center**
    a) Turning – plain, step, taper, etc
    b) Facing
    c) Chamfering
    d) Knurling
    e) Thread cutting
    f) Polishing
    g) Spinning
2. **By holding the job by a chuck alone**
    a) Turning and Facing of short length work piece.
    b) Drilling
    c) Reaming
    d) Boring
    e) Thread cutting, internal/external.
3. **By using special attachments.**
    a) Grinding
    b) Milling

Facing

Is the operation of machining the ends of a piece of the work to produce a flat surface square with the axis. This is used to cut the work to the required length. The operation involves feeding the tool perpendicular to the axis of rotation of the work piece. A regular cutting tool may be used for facing a large work piece. The cutting edge should be set at the same height as the centre of the work piece. A properly ground facing tool is mounted in a tool holder in the tool post to accomplish facing operation.



Plain Turning



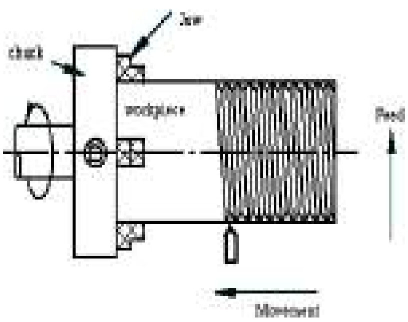
The process of metal removal from the cylindrical jobs is called straight or plain turning. Cross-slide and the carriage are used to perform turning operation and make the operation faster and economical. Plain turning operations are generally performed in two steps-rough and finish turning. Rough turning is usually done for rolled, cast or forged parts to remove the uneven or sandy or rough surface on the jobs. A roughing tool does roughing and used for excess stock removal. For finishing a tool with slightly round cutting edge is used. The depth of cut rate is at the range of 0.2 to 1 mm and the feed rate between 0.1 to 0.3 mm.

2.2.1 Step Turning

A step turning operation is performed using a step cutting tool, after the turning operation. The work is held in between the centers or with the chuck the tool is held at a height equal is the axis of the work. The depth to obtain the step on the cylinder is provided by cross slide movement and the carriage movement. These operations are performed manually/ automatically.

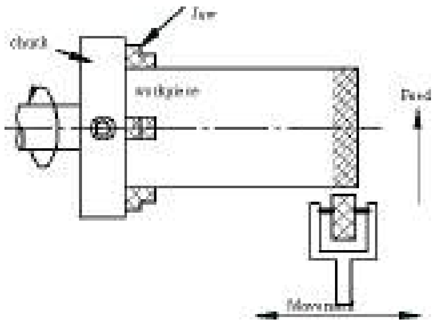
2.2.2 Thread Cutting:

A thread is a helical ridge formed on the cylindrical rod surface. By employing V-Shaped cutting tool it is possible to accomplish threads on the work piece. When the tool is moved longitudinally with linear uniform motion while the work piece is rotating with uniform speed. An appropriate gear ratio is maintained between the spindle on which the work piece is mounted and the lead screw has the ability to enable the tool to move longitudinally at the appropriate linear speed, the screw thread of the required pitch can be cut.

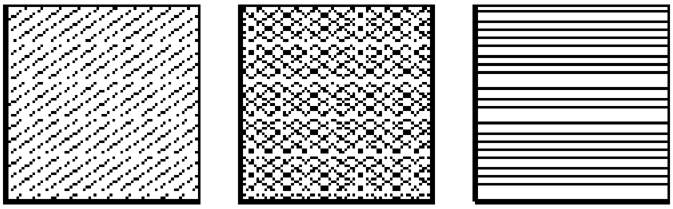


Knurling:

Knurling is an operation performed on the lathe to generate serrated surface on the work piece. This is used to produce a rough surface for griping like the barrel of the micrometer or screw gauge. This is done by a special tool called knurling tool which has a set of hardened roller with the desired serrations.



During knurling operation, the hardened rollers of the tool are pressed against the slowly rotating work pieces such that the impression of tool serrations are formed on the work pieces' surface. Usually, there are three different pattern of knurling produced as per requirements and is as shown.



Angled pattern Diamond pattern Straight pattern

OUTCOMES:

- Student can able understand the various cutting tool materials and the tool signatureof single point cutting tool, milling cutter and twist drill.
- Students can solve the numerical on various aspects of machining of turning operation,
- Students can understand the mechanism of chip formation and differentiate between orthogonal and oblique cutting.
- Students able to derive an expression for various cutting forces using merchants tool diagram.
- Students can solve numerical problems on various cutting forces through merchants diagram

QUESTIONS:

1. List and explain the various cutting tool materials used in machining operations.
2. What is tool Signature? With the help of a neat sketch describe the single point cutting tool nomenclature.
3. Obtain the tool signature of a twist drill with a neat sketch.
4. Derive an expression to obtain cutting forces Fc, Ft, Fs, Fns, Ff, Fn and Coefficient of friction in orthogonal cutting using merchant tool diagram

MODULE-2

LESSON CONTENTS- Milling: Various Milling operations, classification of milling machines, Vertical & Horizontal milling, up milling & down milling. Indexing: need of indexing, simple, compound & differential indexing. **Drilling:** Difference between drilling, boring & reaming, types of drilling machines. **Boring** operations & boring machines. **Shaping, Planing and Slotting machines-** machining operations and operating parameters. **Grinding:** Grinding operation, classification of grinding processes: cylindrical, surface & centerless grinding**.**

Objectives

To introduce students to different machine tools to produce components having different shapes and sizes

Drilling Machine Tool:

A power operated machine tool, which holds the drill in its spindle rotating at high speeds and when manually actuated to move linearly simultaneously against the work piece produces a hole is called drilling machine. In a drilling machine the holes can be produced to the sizes as small as thousandth of a centimetre and up to 7.5 cm diameter.

The different of types of drilling machines are:

- Portable drilling machine
- Bench Drilling Machine
- Pillar drilling Machine
- Radial Drilling Machine
- Gang Drilling Machine
- Multiple Drilling machine

Construction details of Portable/Upright Drilling Machine:

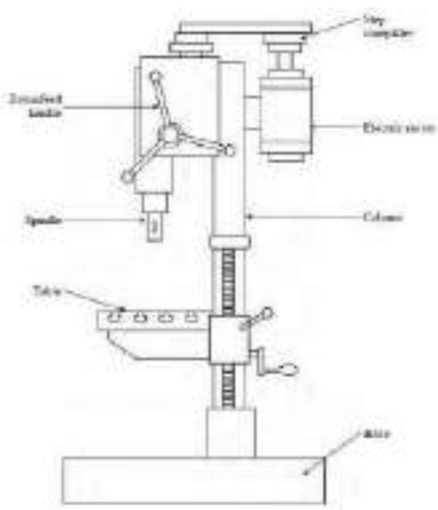


Fig: Upright Drilling Machine

The upright drilling machine is designed for handling medium sized workpieces. Though it looks like a sensitive drilling machine, it is larger and heavier than a sensitive drilling machine. Holes of diameter upto 50mm can be made with this type of machine. Besides, it is supplied with power feed arrangement. For drilling different types of work, the machine is provided with a number of spindle speeds and feed.

Base: The base is made of cast iron and so can withstand vibrations. It may be mounted on a bench or on the floor. It supports all the other parts of the machine on it.

Column: The column stands vertically on the base at one end. It supports the work table and the drill head. The drill head has drill spindle and the driving motor on either side of the column.

Table: The table is mounted on the vertical column and can be adjusted up and down on it. The table has 'T'-slots on it for holding the workpieces or to hold any other work holding device. The table can be adjusted vertically to accommodate workpieces of different heights and can be clamped at the required position.

Drill head: Drill head is mounted on the top side of the column. The drill spindle and the driving motor are connected by means of a V-belt and cone pulleys. The motion is transmitted to the spindle from the motor by the belt. The pinion attached to the handle meshes with the rack on the sleeve of the spindle for providing the drill the required down feed. There is no power feed arrangement in this machine. The spindle rotates at a speed ranging from 50 to 2000 r.p.m.

1.3.1 : Radial Drilling Machine:

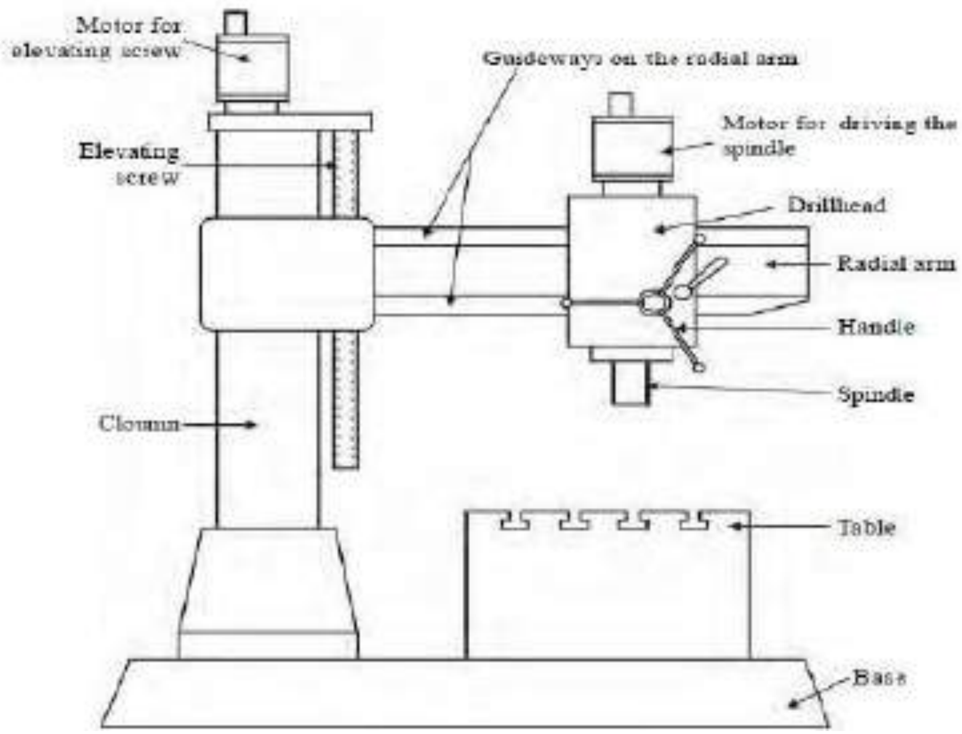


Fig: Radial Drilling Machine

The radial drilling machine is intended for drilling on medium to large and heavy workpieces. It has a heavy round column mounted on a large base. The column supports a radial arm, which can be raised or lowered to enable the table to accommodate workpieces of different heights. The arm, which has the drill head on it, can be swung around to any position. The drill head can be made toslide on the radial arm. The machine is named so because of this reason. It consists of parts like base, column, radial arm, drill head and driving mechanism.

Specification of Drilling Machine:

Drilling machines are specified according to their type.

To specify the machine completely the following factors are considered:

1. the maximum diameter of the drill that it can handle
2. the size of the largest workpiece that can be centred under the spindle
3. distance between the face of the column and the axis of the spindle
4. diameter of the table
5. maximum travel of the spindle
6. numbers and range of spindle speeds and feeds available
7. Morse taper number of the drill spindle
8. floor space required
9. weight of the machine
10. Power input is also needed to specify the machine completely.

Milling Machine Tool:

Milling is a metal cutting operation in which the cutting tool is a slow revolving cutter having cutting teeth formed on its periphery. The milling cutter is a multipoint cutting tool. The work piece is mounted on a movable worktable, which will be fed against the revolving milling cutter to perform the cutting operation.

Working Principle:

Figure shown above is the principle of cutting action of a milling cutter. The milling cutter is mounted on a rotating shaft known as arbor. The work piece which is mounted on the table can be fed either in the direction opposite to that of the rotating cutter as shown in below fig (a) or in the same direction to that of the cutter as shown in below fig (b).

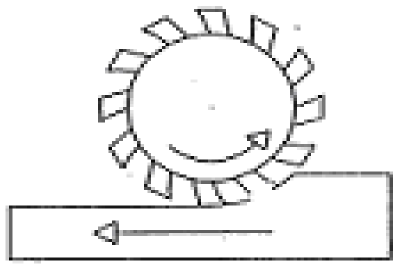
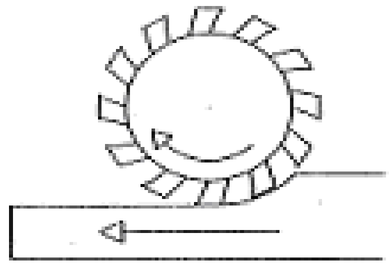


Fig (a): Up Milling



(b): Down Milling

Classification/ Types of Milling Machine:

Various types of milling machines are

1) Plain or horizontal type of milling machine.
2) Vertical Milling Machine
3) Universal Milling machine
4) Planer type milling machine
5) Profile cutting milling machine.

Horizontal/ Column & Knee type milling Machine:

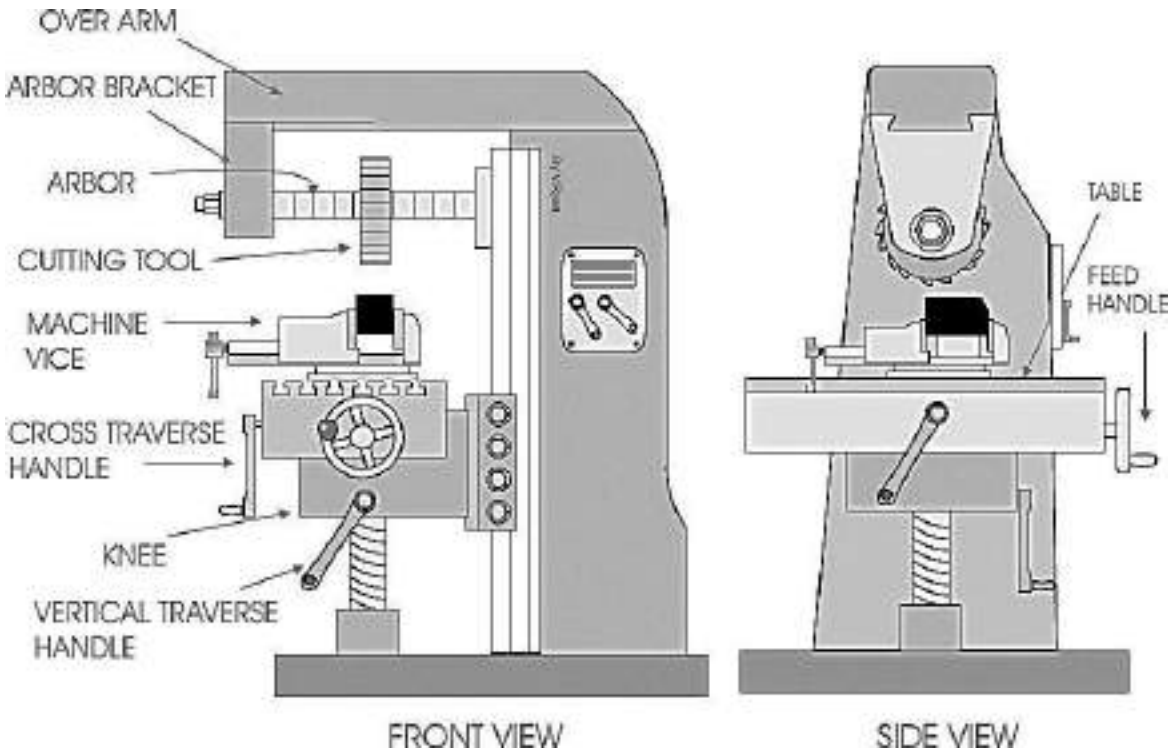


Fig: Horizontal Milling Machine

The main part of machine is base, Column, Knee, Saddle, Table, Overarm, Arbor Supportand Elevating Screw.

1. Base: It gives support and rigidity to the machine and also acts as a reservoir for the cutting fluids.

2. Column: The column is the main supporting frame mounted vertically on the base. The column is box shaped, heavily ribbed inside and houses all the driving mechanisms for the spindle and table feed.

3. Knee: The knee is a rigid casting mounted on the front face of the column. The knee moves vertically along the guide ways and this movement enables to adjust the distance between the cutter and the job mounted on the table. The adjustment is obtained manually or automatically by operating the elevating screw provided below the knee.

4. Saddle: The saddle rests on the knee and constitutes the intermediate part between the knee and the table. The saddle moves transversely, i.e., crosswise (in or out) on guide ways provided on the knee.

5. Table: The table rests on guide ways in the saddle and provides support to the work. The table is made of cast iron, its top surface is accurately machined and carriers T-slots which accommodate the clamping bolt for fixing the work. The worktable and hence the job fitted on it is given motions in three directions:

a). Vertical (up and down) movement provided by raising or lowering the knee.

b). Cross (in or out) or transverse motion provided by moving the saddle in relation to knee.

c). Longitudinal (back and forth) motion provided by hand wheel fitted on the side of feed screw.

In addition to the above motions, the table of a universal milling machine can be swivelled 45° to either side of the centre line and thus fed at an angle to the spindle.

6. Overarm: The Overarm is mounted at the top of the column and is guided in perfect alignment by the machined surfaces. The Overarm is the support for the arbor.

7. Arbor support: The arbor support is fitted to the Overarm and can be clamped at any location on the Overarm. Its function is to align and support various arbors. The arbor is a machined shaft that holds and drives the cutters.

8. Elevating screw: The upward and downward movement to the knee and the table is given by the elevating screw that is operated by hand or an automatic feed.

Milling machine Specification:

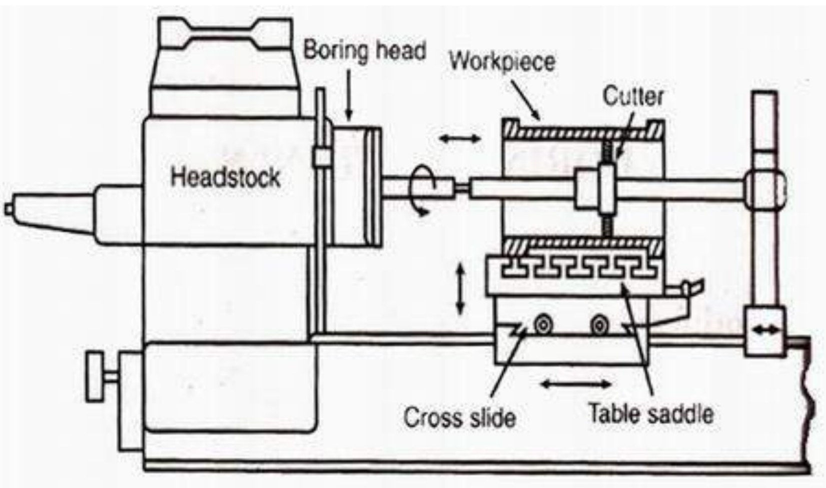
a) Milling machines are usually specified by the size of the table (lxb)
b) Along with the size of the table, milling machine is also specified by
   - Motor power required,
   - Feed
   - Floor space required
   - Spindle speed
   - Drives used

Boring Machine:

Boring is a process of producing circular internal profiles on a hole made by drilling or another process. It uses single point cutting tool called a boring bar. In boring, the boring bar can be rotated, or the work part can be rotated. Machine tools which rotate the boring bar against a stationary workpiece are called boring machines (also boring mills). Boring can be accomplished on a turning machine with a stationary boring bar positioned in the tool post and rotating workpiece held in the lathe chuck as illustrated in the figure. In this section, we will consider only boring on boring machines.

1.5.1 Boring Machine Tool:

Boring machines can be *horizontal* or *vertical* according to the orientation of the axis of rotation of the machine spindle. In *horizontal boring* operation, boring bar is mounted in a tool slide, which position is adjusted relative to the spindle face plate to machine different diameters. The boring bar must be supported on the other end when boring long and small-diameter holes.



A *vertical boring mill* is used for large, heavy workparts with diameters up to 12 m. The typical boring mill can position and feed several cutting tools simultaneously. The workpart is mounted on a rotating worktable.

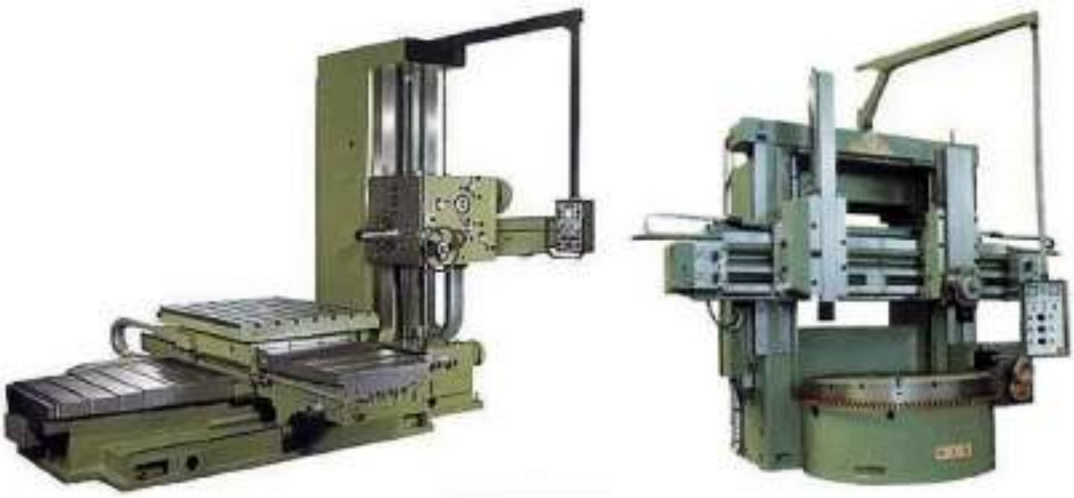


Fig: Horizontal boring machine (Left) and vertical boring mill (Right).

Broaching Machine:

Broaching is a machining process for removal of a layer of material of desired width and depth usually in one stroke by a slender rod or bar type cutter having a series of cutting edges with gradually increased protrusion as indicated in Figure. In shaping, attaining full depth requires a number of strokes to remove the material in thin layers step – by – step by gradually infeeding the single point tool. Whereas, broaching enables remove the whole material in one stroke only by the gradually rising teeth of the cutter called broach. The amount of tooth rise between the successive teeth of the broach is equivalent to the infeed given in shaping.

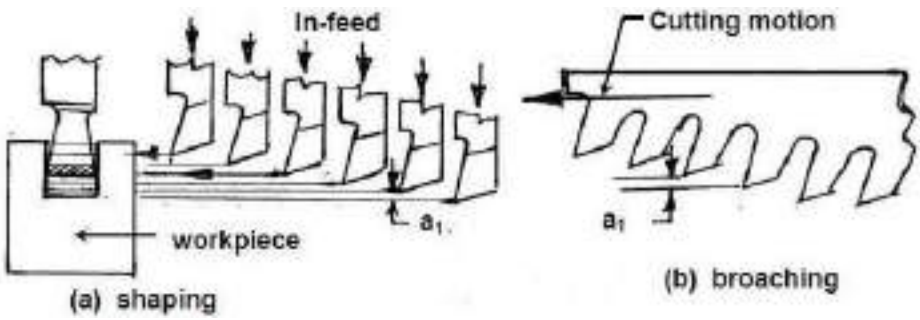


Figure: principle of Broaching

Broaching machine Tool:

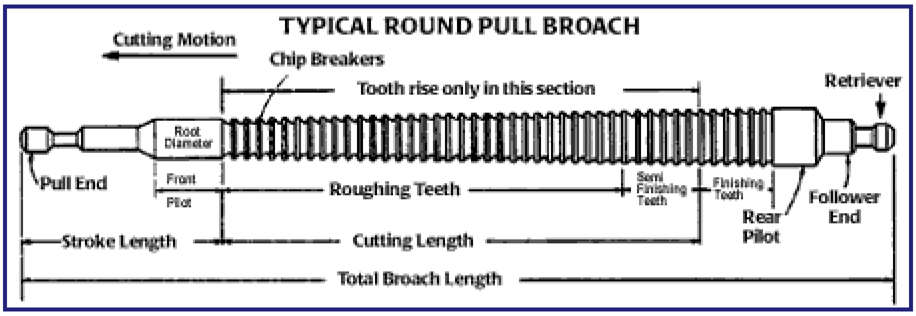


Fig: Horizontal broaching tool

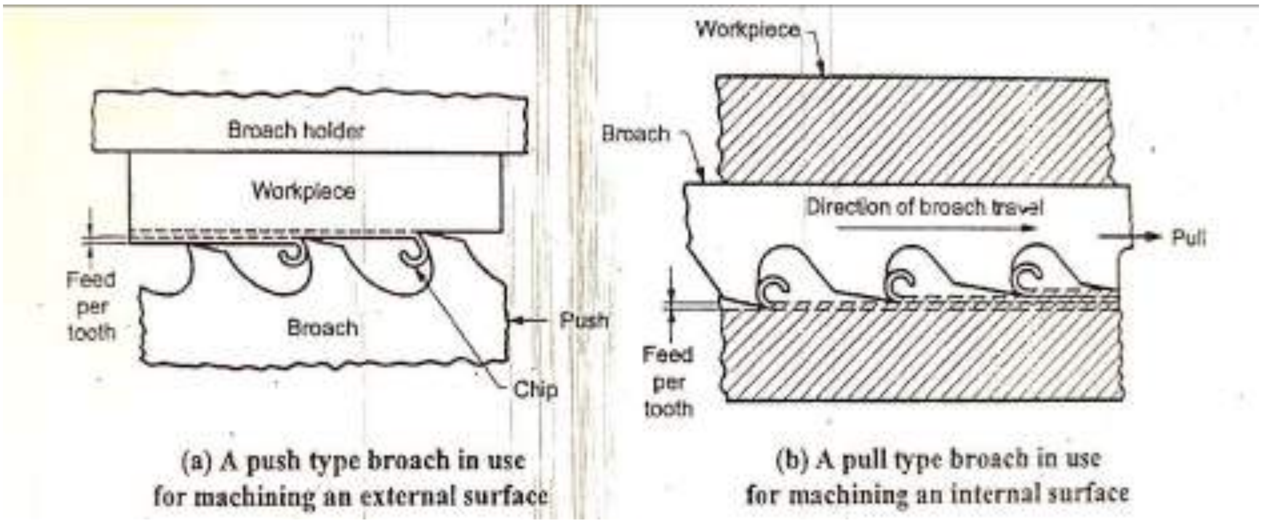


Fig: principle of broaching operation

a) Horizontal broaching machines are applicable for machining of both internal and external surfaces. Figure shows the principle operation of broaching for internal and external machining.

b) In operation either workpiece is kept stationary and broach is fed past on the workpiece or broach is kept stationary and workpiece is fed past on the broach.

c) Horizontal broaching machines have a bed similar to the lathe machine and the broach is moves like a tailstock on the bed ways.

d) Horizontal internal broaching machines range from 2 to 60 tons and stroke upto 3m, whereas horizontal externa broaching machine are available upto 100 tons and stroke upto 9m.

e) Horizontal internal broaching is generally used for producing internal.

Shaper machine Tool:

The shaper is a reciprocating type of machine tool intended primarily to produce flat surfaces. These surfaces may be horizontal, vertical, or inclined. In general, the shaper can produce any surface composed of straight line elements. Modern shapers can generate contoured surface. The shaper is a machine tool used primarily for:

1. Producing a flat or plane surface which may be in a horizontal, a vertical or an angular plane.

2. Making slots, grooves and keyways

3. Producing contour of concave/convex or a combination of these

Working principle of Standard Shaper:

The job is rigidly fixed on the machine table. The single point cutting tool held properly in the tool post is mounted on a reciprocating ram. The reciprocating motion of the ram is obtained by a quick return motion mechanism. As the ram reciprocates, the tool cuts the material during its forward stroke. During return, there is no cutting action and this stroke is called the idle stroke. The forward and return strokes constitute one operating cycle of the shaper.

Construction details of Standard Shaper:

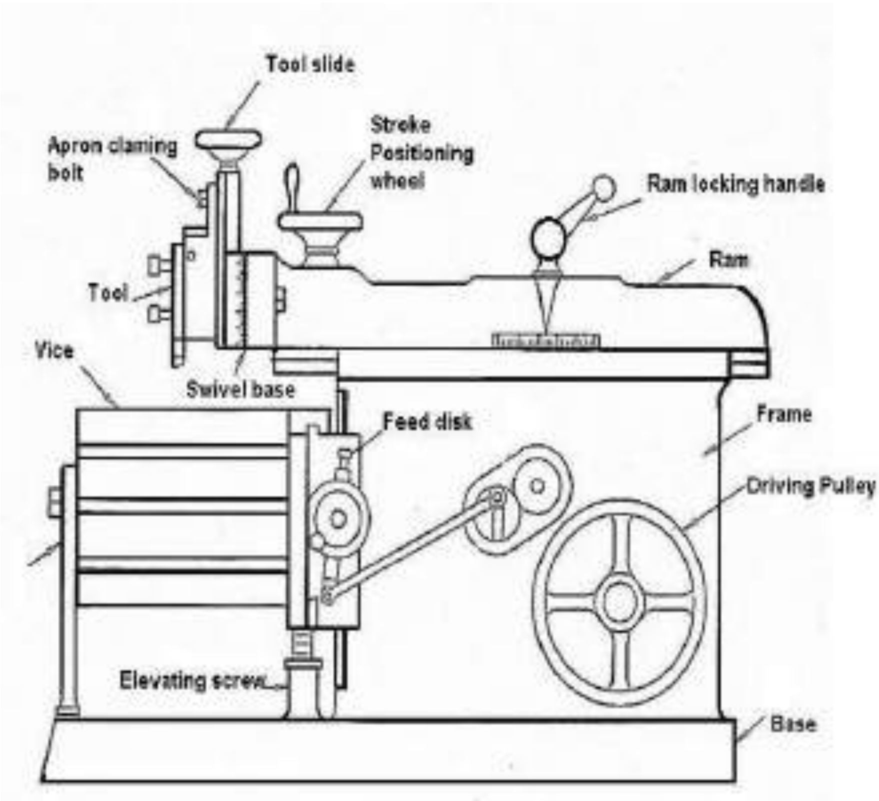


Fig: Standard Horizontal Shaper

Construction: The main parts of the Shaper machine is Base, Body (Pillar, Frame, Column), Cross rail, Ram and tool head (Tool Post, Tool Slide, Clamper Box Block).

Base: The base is a heavy cast iron casting which is fixed to the shop floor. It supports the body frame and the entire load of the machine. The base absorbs and withstands vibrations and other forces which are likely to be induced during the shaping operations.

Body (Pillar, Frame, Column): It is mounted on the base and houses the drive mechanism compressing the main drives, the gear box and the quick return mechanism for the ram movement. The top of the body provides guide ways for the ram and its front provides the guide ways for the cross rail.

Cross rail: The cross rail is mounted on the front of the body frame and can be moved up and down. The vertical movement of the cross rail permits jobs of different heights to be accommodated below the tool. Sliding along the cross rail is a saddle which carries the work table.

Ram and tool head: The ram is driven back and forth in its slides by the slotted link mechanism. The back and forth movement of ram is called stroke and it can be adjusted according to the length of the workpiece to be-machined.

1.7.1 Specification of Standard Shaper:

a) The size of the shaper is specified by the strike length or maximum length of cut
b) Shapers are made with wide variety of sizes depending upon their stroke length. It is uasually from 175mm to 900mm.
c) Along with the length the stroke number other details are required specify shaper
   - Type of drive
   - Type of speed reduction
   - Power in-put
   - Maximum momnet of tool, table
   - Cutting to return stroke ratio
   - Type of feed (manual or Automatic)
   - Total floor space required

Planer machine Tool:

The planer is a machine tool designed to produce plane and flat surface on a workpiece which is too large or too heavy. The workpiece is securely fixed on a table called platen, and it reciprocates horizontally against a single edged cutting tool. The surface machined may be horizontal, vertical or at an angle.

The planer is used for:

1. Planing flat horizontal, vertical and curved surfaces.

2. Planing at an angle and machining dovetails.

3. Planing slots and grooves.

The planer is available in different types for doing different types and sizes of job; the most common being the standard and double housing planer.

Types of Planner machines:

1 Standard or double housing planer.
2 Open side planer.
3 Pit planer.
4 Edge or plate planer.
5 Divided or latching table planer.

Standard Double Housing Planner:

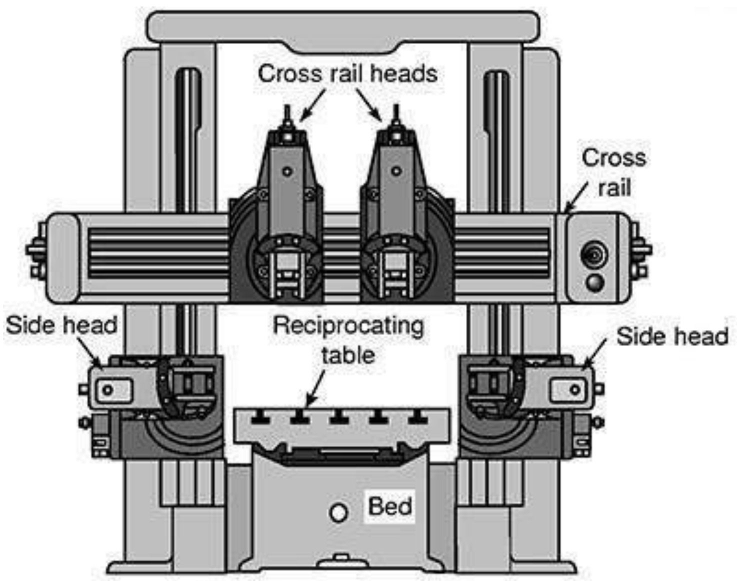


Fig: Double housing Planner

Construction: The main parts of the double Housing Planer machine is Bed and table, Housings, Cross rail, Tool heads, Driving and feed mechanism.

Bed and table: The bed is a long heavy base and table made of cast iron. Its top surface is flat and machined accurately. The flat top surface has slots in which the workpiece can be securely clamped. The workpiece needs rigid fixing so that it does not shift out of its position. The standard clamping devices used on planer machine are: Heavy duty vice, T-holders and clamps, angle plate, planer jack, step blocks and stop. The table movement may be actuated by a variable speed drive through a rack and pinion arrangement, or a hydraulic system.

Housings: The housings are the rigid and upright column like castings. These are located near the centre on each side of the base.

Cross rail: The cross rail is a horizontal member supported on the machined ways of the upright columns. Guide ways are provided on vertical face of each column and that enables up and vertical movement of the cross rail. The vertical movement of the cross rail allows to accommodate workpiece of different heights. Since the cross rail is supported at both the ends, this type of planer machine is rigid in construction.

Tool heads: Generally, two tool heads are mounted in the horizontal cross rail and one on each of the vertical housing. Tool heads may be swivelled so that angular cuts can be made.

Driving and feed mechanism: The tool heads may be fed either by hand or by power in crosswise or vertical direction. The motor drive is usually at one side of the planer near the centre and drive mechanism is located under the table.

The size of the planer is specified by the maximum length of the stroke, and also by the size of the largest rectangular solid that can be machined on it.

Specification of a planner machine:

The planer is specified by the following parameters:

- Radial distance between the top of the table and the bottom most position of thecross rail.
- Maximum length of the table and maximum stroke length of table.
- Power of the motor.
- Range of speeds and feeds available.
- Type of feed and type of drives required.
- Horizontal distance between two vertical housings. Net weight of machine and Floor area require.

Grinding Machine:

Grinding, also called abrasive machining, is a process in which the material is removed in form of fine chips, almost as dust particles by the abrasive action using some kind of abrasive materials. Generally, grinding is employed when a thick layer of material is to be removed in general classes of work, where the surface finish is not that important, and for finishing and polishing works on the parts already machined by some other machining processes.

Grinding Machines:

The different methods of grinding are:

1. Surface Grinding,
2. Cylindrical Grinding and
3. Centre less Grinding.

Surface Grinding Machine:

In the surface grinding process, the grinding wheel revolves on a spindle and the work-piece mounted on a reciprocating table as shown in Figure, is brought into contact with the grinding wheel. Flat, angular and irregular surfaces may be produced by surface grinding.

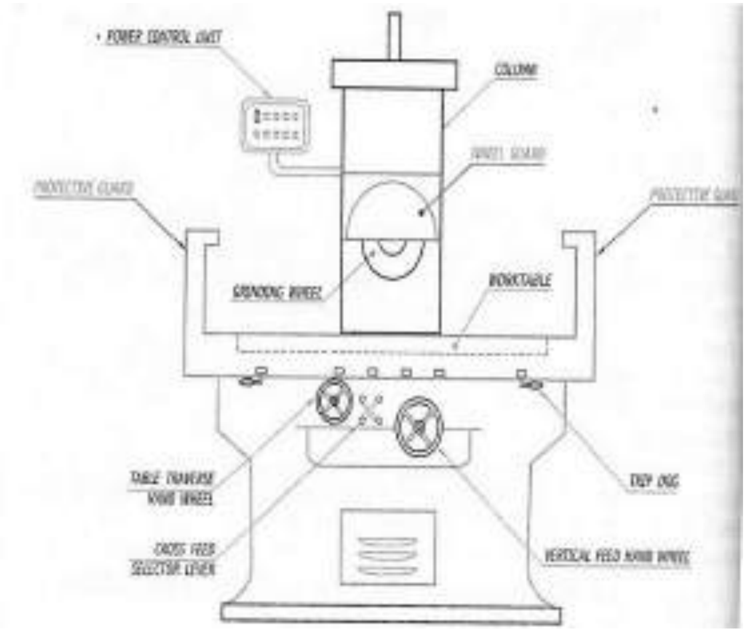


Fig: Horizontal Surface grinding machine

The Surface Grinding Machine is used to grind flat surfaces. Here, the job is mounted on a rectangular table which moves longitudinally as well as in the transverse direction below the rotating grinding wheel. The longitudinal and transverse feed movements can be accomplished either by manual feed or through power feed arrangement. The work-piece can be clamped in two ways; one is by clamping it to the work table by means of clamping elements; the other way is by using a magnetic chuck, which holds the work-piece through its strong magnetic field. There is an internal pump and a piping arrangement to take care of automatic application and recirculation of the coolant. There is a protective safety guard at the end of the table to prevent the wheel from hitting any person or object.

Cylindrical Grinding Machine:

Cylindrical grinding is the process of grinding the curved surfaces of cylindrical pieces. These surfaces may be straight, tapered or contoured. shows the basic principle of the cylindrical grinding. Shows a typical cylindrical grinding machine. The work-piece is mounted on the two centres, one is the tail stock centre and the other is the headstock centre. The tail stock centre is the dead centre and the headstock centre mayor may not revolve during grinding. When high accuracy is required the two supporting canters must remain stationary when the work-piece revolves.

When both canters are dead, precision sizes and good finish can be obtained, because there is no possibility of run out from the headstock spindle. As the work-piece revolves, the grinding wheel rotating much faster in the opposite direction is brought into contact with the work-piece. The work-piece and the table reciprocate while the grinding wheel in contact with the work-piece removes the material.

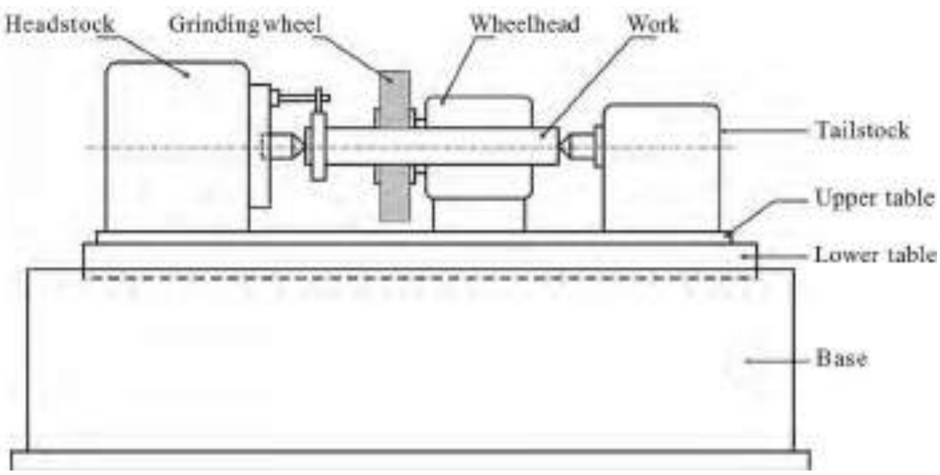


Fig: Cylindrical Grinding Machine

Centreless Grinding Machine:

Centre less grinding method also employed for grinding the curved surfaces of long slender rods which cannot be ground by cylindrical grinding due to the lateral thrust of the wheel on the work-piece. In the centre less grinding, shown in Figure the work-piece rests on a work-rest blade and is backed up by a second wheel, called the regulating wheel. The rotation of the grinding wheel pushes the work-piece down on the work-rest blade and against the regulating wheel. The regulating wheel, usually made up of a rubber bonded abrasive, rotates in the same direction as the grinding wheel and controls the longitudinal feed of the work-piece. A typical centre less grinding machine is shown in Figure.

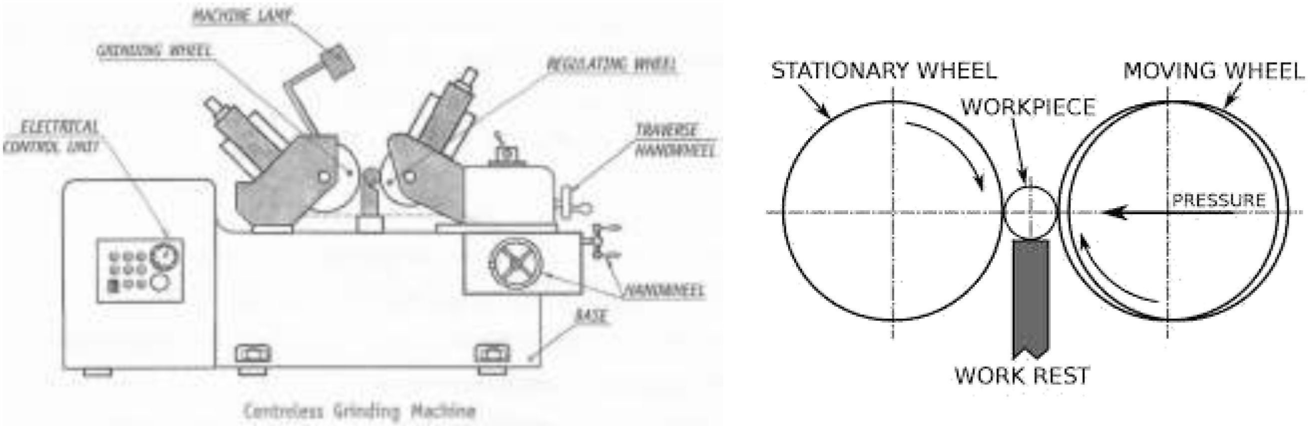


Figure: (a) centreless Grinding machine (b) Principle of centreless grinding operations

OUTCOMES

- Students will bale to explain the construction & specification of variousmachine tools.

QUESTIONS:

1. What are the basic elements of drilling machine? Explain the construction ofupright drilling machine.
2. Explain the principle of broaching.
3. With the help of a neat sketch explain column and knee type milling machine.
4. Give a constructional details of surface grinding machine.
5. Define centre less grinding. Briefly explain the construction of it.

ATME College of Engineering

ATTENDANCE

Semester & Section : 3-A

Course Title with Code : MECHANICS OF MATERIALS - 18ME32

no of backlogs	Sl. No.	USN	Student Name	29/07 (1)	30/07 (2)	31/07 (3)	01/08 (4)	02/08 (5)	05/08 (6)	06/08 (7)	07/08 (8)	08/08 (9)	09/08 (10)
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01	02	4AD17ME010	AMARTYA K GOWDA								1	2	3
02	03	17ME012	ANILKUMAR B M								1	2	3
04	04	17ME020	HARSHAVARDHAN N								1	2	A
04	05	17ME033	MANOJ M								1	2	A
01	06	17ME053	PRAJWAL A S								1	2	A
03	07	17ME070 A	SHAMANTH KUMAR M										
01	08	17ME072	SUHAS CHAKRAVARTHY K J									1	2
02	09	17ME073	SUKRUTH U R								1	2	3
03	10	17ME080	VIVEK B K										
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04	15	18ME008	CHETHAN B R	A	1	2	3	4	5	6	7	8	9
—	16	18ME009	FARDEEN AHMED	A	A	A	A	1	A	A	A	A	A
01	17	18ME010	GOWTHAM G	A	1	2	3	4	5	6	7	8	9
04	18	18ME011	GOWTHAMPRASAD M	A	A	A	1	2	A	A	A	3	A
02	19	18ME013	HRITHIK D	A	A	1	2	3	4	A	5	6	7
—	20	18ME015	JEEVAN M	1	2	3	4	5	6	7	8	9	10
—	21	18ME016	JEEVAN KUMAR M	1	2	3	4	5	6	7	8	9	10
—	22	18ME019	KISHOR Y N	A	A	A	A	A	1	2	A	3	4
—	23	18ME021	LIKHITHA S N	A	1	2	3	4	5	6	7	8	9
—	24	18ME022	MADESH C M	1	2	3	4	5	6	7	8	9	10
—	25	18ME023 A	MANOJ C	A	A	1	2	3	4	5	6	7	8
		No. of Abs.											
		Initials											

ASSESSMENT

ATME College of Engineering

4	5	6	7	8	11	Attendance				Assignments / Internal Test Marks								SEE Marks	Total Marks
11	11	11	11	11	11														
55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
47	48	49	50	51	52					10	13	10	08		13		22	06	28
37	A	A	A	38	A					10	06	10	09		20	16	25	11	36
40	41	42	A	43	A					10	05	10	08		22	15	25	01	26
40	41	42	43	44	45					10	05	10	17		18		24	15	39
32	A	A	A	33	A					10	03	10	00		15	19	23	16	39
40	41	42	43	A	44					10	07	10	AB		27	25	30	15	45
30	A	31	A	32	33					10	03	10	06		20	18	25	06	31
40	41	42	43	44	A					10	07	10	AB		06	18	21	08	29
37	38	39	40	41	42					10	08	10	11		21		24	11	35
41	42	43	A	44	45					10	04	10	AB		23	19	26	08	34
45	46	47	48	49	50					10	17	10	22		25		32	35	67
45	46	47	48	49	A					10	14	10	10		12		22	22	44
45	46	47	48	49	50					10	18	10	AB		20		23	21	44
49	50	51	52	53	A					10	21	10	20		15		29	23	52
48	49	A	A	50	A					10	14	10	11		06		21	13	34
35	36	37	38	39	40					10	15	10	16		19		27	21	48
48	49	50	51	52	A					10	18	10	15		17		27	28	55
41	42	43	44	45	46					10	08	10	16		11		22	11	33
45	46	47	48	49	A					10	12	10	10		20		24	09	33
55	56	57	58	59	60					10	30	10	25		24		37	23	60
55	56	57	58	59	60					10	11	10	18		12		24	25	49
43	44	45	46	47	48					10	15	10	19		19		28	29	55
49	50	51	52	53	54					10	23	10	17		08		26	23	49
55	56	57	58	59	60					10	21	10	26		30	30	39	33	72
44	45	46	47	48	49					10	30	10	16		30		36	41	77 Topper
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]															

ATME College of Engineering

ATTENDANCE

Semester & Section : 3-A

Course Title with Code : MECHANICS OF MATERIALS – 18ME

	Sl. No.	USN	Student Name	29/07	30/07	31/07	01/08	02/08	05/08	06/08	07/08	08/08	09/08
				1	2	3	4	5	6	7	8	9	10
—	26	4AD18ME024	MANOJ KUMAR N	A	A	A	1	2	3	4	5	6	7
01	27	18ME025	MD AFFAN JALEEL	A	A	A	1	2	A	3	A	A	A
02	28	18ME026	MD ALFAZ V I	A	1	2	3	4	5	6	7	8	A
—	29	18ME027	MD JEELANI H	A	1	2	3	4	5	6	7	8	9
—	30	18ME028	MD NAIHAN	A	1	2	3	A	4	5	6	7	8
03	31	18ME029	MD RAYAN KHAN	A	1	2	A	3	4	5	6	A	7
—	32	18ME030	MD SAQLAIN IBRAHIM	1	2	3	4	5	6	7	8	9	10
—	33	18ME031	MD SOUBAN	1	2	3	4	5	6	7	8	9	10
02	34	18ME033	NAGADARSHAN M	A	1	2	3	4	5	6	7	A	8
—	35	18ME035	NIKHIL R	1	2	A	3	A	4	A	5	A	6
02	36	18ME036	NIKHILNAG R	1	2	A	3	4	5	A	6	A	7
—	37	18ME037	PARVEEZ AHMED	1	2	3	4	5	6	7	A	8	9
01	38	18ME038	PETER AX	1	2	3	4	5	6	7	8	9	1
04	39	18ME039	PRAJWALA S M	A	A	A	A	A	1	2	3	4	5
—	40	18ME040	PRASHAL POOVAIAH K B	1	2	3	4	5	6	7	8	9	10
—	41	18ME041	PRIYANKA S V	A	1	2	3	4	A	A	5	6	7
02	42	18ME044	SAIF MADEEN	1	2	3	4	5	6	7	8	9	1
—	43	18ME045	SAQLAINULLA SHARIFF	1	2	3	4	5	6	7	8	9	1
—	44	18ME046	SHASHANK P	A	1	2	A	3	4	5	6	7	A
01	45	18ME048	SREEKANTH GOWDA G P	1	2	3	4	5	6	7	8	9	10
—	46	18ME049	SRINIVAS K N	A	A	A	1	2	A	3	A	4	A
—	47	18ME050	SRUJAN R	A	A	1	2	3	4	5	A	6	7
—	48	18ME052	SUJAY N RAJ	1	2	3	4	5	6	7	8	9	1
—	49	18ME054	SYED IBAD HUSSAIN	A	A	1	A	2	3	4	5	A	6
—	50	18ME055	VAIBHAV G JAGANNATH	1	2	3	4	5	6	7	8	9	10
		No. of Abs.											
		Initials		Gn	Gn	Gn	Gn	Gn	Gn	Gn	Gn	Gn	Gn

ASSESSMENT

ATME College of Engineering

4/11	5/11	6/11	7/11	8/11	11/11	Attendance				Assignments / Internal Test Marks								SEE Marks	Total Marks
55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
47	48	49	50	51	52					10	13	10	18		22		28	17	45
41	42	43	44	45	A					10	02	10	13		21		22	16	38
44	45	46	47	48	49					10	05	10	06		11	17	22	16	38
52	53	54	55	56	57					10	29	10	25		25		37	33	70
42	43	44	45	46	47					10	09	10	14		19	22	29	21	50
36	37	38	39	40	41					10	14	10	17		21		28	15	43
A	45	46	47	48	49					10	20	10	15		25		30	30	60
48	49	50	51	52	A					10	15	10	08		18	20	28	21	49
49	50	51	52	53	A					10	15	10	10		15	13	25	14	49
43	44	A	45	46	47					10	09	10	12		14		22	21	43
48	49	A	50	51	52					10	13	10	23		29		32	25	57
51	52	53	54	55	56					10	23	10	15		21	27	34	22	56
55	56	57	58	59	A					10	24	10	17		16		29	14	43
45	46	47	48	49	50					10	08	10	11		16		22	02	24
A	45	A	46	47	48					10	09	10	12		18		23	21	44
41	42	43	44	45	46					10	09	10	10		10		20	13	33
50	51	52	53	54	55					10	17	10	13		05		22	23	45
55	56	57	58	59	60					10	18	10	16		23		29	21	50
46	47	48	49	50	51					10	19	10	20		26		32	21	53
53	54	55	56	57	58					10	09	10	14		19		24	21	45
40	41	42	43	44	45					10	10	10	09		13	26	27	14	41
46	47	48	49	50	51					10	16	10	17		17		27	21	48
43	44	45	46	47	A					10	15	10	08		15	18	26	11	37
36	37	38	39	40	41					10	05	10	01		20	19	25	25	50
53	54	55	56	57	A					10	24	10	22		25		34	24	58
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]															

ATME College of Engineering

ATTENDANCE

Semester & Section : 3-A

Course Title with Code : MECHANICS OF MATERIALS -18M

Sl. No.	USN	Student Name (Date / Month)	1 (29/07)	2 (30/07)	3 (31/07)	4 (01/08)	5 (02/08)	6 (05/08)	7 (06/08)	8 (07/08)	9 (08/08)
51	4AD18ME056	YASHWANTH KUMAR K	1	A	2	3	4	5	6	7	8
04 52	4AD18ME042	RITHISH B	A	A	1	2	3	4	5	6	7
	No. of Abs.		24	14	10	07	04	05	07	08	07
	Initials		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

ASSESSMENT

ATME College of Engineering

4/11	5/11	6/11	7/11	8/11	11/11	Attendance				Assignments / Internal Test Marks								SEE Marks	Total Marks
55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
53	54	55	56	57	58					10	18	10	21		28		33	23	56
49	50	51	52	53	54					10	12	10	09		15		22	15	37
																		FCD	05
																		FC	10
																		SC	11+2 = 13
																		FAIL	26-2=24
																			52

Pass % → 50% → 53.84 %

B.RV A.RV

02 03 06 06 01

ATME College of Engineering

ATTENDANCE

Course Title with Code : FLUID POWER SYSTEMS - 15ME72

Semester & Section : 7-B

no of batches	Sl. No.	USN	Student Name	Date	13	14	16	20	21	02	04	05	06	11
				Month	08	08	08	08	08	09	09	09	09	09
					1	2	3	4	5	6	7	8	9	10
01	01	4AD15ME010	ANDREW MIKHIL A		1	2	A	3	4	5	6	7	A	8
02	02	4AD15ME012	ASHWIN H N		A	1	A	2	A	3	4	5	A	A
01	03	15ME018	DHANUSH S K		1	2	A	A	3	4	5	6	A	7
01	04	15ME070	ADITHYA BHARADWAJ R		1	2	A	A	3	4	A	5	6	7
01	05	15ME074	RAJENDRA A		A	A	A	A	1	A	A	A	A	A
01	06	15ME083	MANISH S		1	2	A	3	4	5	6	7	A	8
02	07	15ME088	SEFIN SEBASTIAN		1	2	A	3	4	5	6	7	A	8
01	08	15ME094	SUJITH S		1	2	A	A	3	A	4	A	A	5
02	09	15ME101	STANLEY ALMO S		1	2	A	A	3	4	5	6	7	8
01	10	4AD16ME051	NITIN GOWDA C		A	1	A	2	3	4	5	A	A	6
01	11	4AD16ME052	PRABHUVEERAGOWDA K N		1	2	A	3	A	4	5	6	A	7
02	12	16ME053	PRAJWAL KUMAR M		1	2	3	4	5	6	7	8	9	10
–	13	16ME054	PRAJWAL V		A	A	A	1	2	3	4	5	6	7
01	14	16ME055	PRASHANTH B		A	1	2	3	4	A	5	6	7	8
–	15	16ME056	PRAVEEN R		1	2	3	4	5	6	A	7	8	[illegible]
01	16	16ME058	PUNITH R		A	1	2	A	3	A	A	4	5	6
–	17	16ME060	RAGHAVENDRA N		A	A	1	A	2	3	4	5	A	6
02	18	16ME061	RAJASHEKAR M		1	2	3	4	5	6	7	8	A	[illegible]
01	19	16ME063	RAKESH R		A	1	A	2	3	A	4	5	6	7
01	20	16ME064	RAKSHITH B M		A	1	2	3	4	5	6	7	8	[illegible]
01	21	16ME065	RAKSHITH T P		1	2	A	3	4	5	6	7	8	[illegible]
02	22	16ME068	SACHIN P B		1	2	A	3	4	5	6	7	8	[illegible]
–	23	16ME070	SANJAY K		A	1	A	2	3	A	4	5	6	[illegible]
01	24	16ME071	SANTHOSH S		A	A	A	1	2	A	3	4	5	[illegible]
–	25	16ME072	SHAHBAZ PASHA		A	A	A	1	2	3	4	5	6	[illegible]
		No. of Abs.												
		Initials												

ATME College of Engineering

						Attendance				Assignments / Internal Test Marks								SEE Marks	Total Marks
55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
										–	07	04	00		11		13	29	42
										–	05	05	04		08		12	28	40
										–	04	04	05		12		13	32	45
										–	08	05	04		13		16	28	44
										–	09	05	04		11		15	28	43
										–	05	05	05		09		12	22	34
										–	08	05	08		AB		13	45	58
										–	09	05	00		10		15	28	43
										05	08	05	09		14		17	63	80
										–	11	05	05		08		15	40	55
										05	10	05	06		14		17	41	58
										05	12	05	AB		14		18	60	78
										–	06	05	06		11		14	43	57
										05	08	05	AB		09		14	32	46
										–	07	05	05		10		14	28	42
										–	11	05	AB		12		17	43	60
										05	09	05	AB		12		16	36	52
										05	10	05	02		10		15	37	52
										–	10	05	04		14		17	32	49
										05	10	05	AB		13		17	36	53
										05	07	05	08		AB		13	38	51
										–	13	05	AB		13		18	48	66
										–	08	05	AB		10		14	28	42
										–	12	05	AB		14		18	43	61

atme

A T M E
College of Engineering

ATTENDANCE

Course Title with Code : FLUID POWER SYSTEMS – 15ME

Semester & Section : 7-B

	Sl. No.	USN	Student Name	Date	13	14	16	20	21	03	04	05	06	[illegible]
				Month	08	08	08	08	08	09	09	09	09	[illegible]
					1	2	3	4	5	6	7	8	9	[illegible]
01	26	4AD16ME077	SHREYAS J		1	2	3	4	5	A	6	7	8	9
01	27	16ME078	SHREYAS S N		A	A	A	1	2	3	A	4	5	6
–	28	16ME079	SIDDESH S		1	2	3	4	5	6	7	8	9	10
–	29	16ME082	SUHAS BABU C B		1	2	3	4	5	6	7	A	A	8
01	30	16ME083	SURAJ C		A	A	1	2	3	4	5	6	7	5
01	31	16ME084	SURJITH N		A	1	A	2	3	A	4	5	6	7
–	32	16ME085	SUSHANTH A N		A	1	2	3	4	5	6	A	A	7
03	33	16ME088	SYED WASEEM		A	A	A	1	A	A	A	A	A	A
–	34	16ME089	T M ABHISHEK		A	A	1	A	2	3	4	5	6	7
–	35	16ME090	TANUJ M		1	2	3	4	5	6	7	A	A	8
01	36	16ME091	USMAN AHMED		A	1	2	3	4	5	6	7	8	9
–	37	16ME093	VINAY B N		A	A	A	A	1	2	3	4	5	6
–	38	16ME094	VINAY H S		1	2	A	3	4	A	5	A	A	6
01	39	16ME095	VINAY SINGH M		A	A	A	1	2	3	4	A	5	6
01	40	16ME097	VINOD M		1	2	3	4	5	6	7	8	9	1[illegible]
01	41	16ME099	YOGESH M S		A	A	A	1	2	A	3	4	5	6
02+1	42	4AD17ME404	TEJASWINI B N		1	2	3	4	5	A	6	7	8	A
01+1	43	17ME408	G MADHUVARDHAN		A	A	A	A	A	1	2	3	4	A
–+1	44	17ME411	VINOD KUMAR H R		A	1	A	A	2	3	4	A	A	A
01	45	17ME412	HEMANTHI ADARSH		A	A	A	1	2	A	A	3	4	5
–+1	46	17ME418	LAVANYA V		1	2	3	4	5	6	7	8	9	1[illegible]
–	47	17ME425	MD USMAN A		A	1	A	2	3	4	5	6	7	8
–+1	48	17ME427	NAVANEETH INDURKAR A		A	A	A	1	2	3	4	5	A	6
01	49	17ME428	NIKHIL P		A	A	A	1	2	3	A	A	A	4
–	50	17ME429	PAVAN KUMAR S		A	A	A	1	2	A	3	4	5	6
		No. of Abs.												
		Initials												

						Attendance				Assignments / Internal Test Marks								SEE Marks	Total Marks
55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
										05	09	05	AB		14		17	41	58
										05	AB	05	05		11	12	17	34	51
										05	13	05	AB		14		19	52	71
										05	14	05	10		14		19	36	55
										05	12	05	08		15		19	42	61
										05	09	05	AB		13		16	44	60
										05	AB	05	10		14		17	44	61
										—	12	05	AB		14		18	49	67
										05	11	05	AB		15		18	45	63
										—	15	05	05		15		20	66	86
										—	07	05	AB		08		13	57	70
										05	AB	—	13		06		15	35	50
										05	07	—	09		10		15	54	69
										05	13	05	10		12		18	36	54
										05	09	05	07		12		16	44	60
										—	09	05	07		12		16	41	57
										—	AB	05	AB		12	12	17	32	49
										—	10	04	AB		12		15	33	48
										—	07	05	03		09		13	30	43
										—	10	05	06		12		16	54	70
										—	09	05	09		12		16	46	62
										05	08	05	09		12		16	52	68
										05	09	—	08		12		16	28	44
										05	10	05	09		14		17	56	73

A T M E
College of Engineering

ATTENDANCE

Course Title with Code : FLUID POWER SYSTEMS - 15ME72

Semester & Section : 7-B

	Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10
			Date	13	14	16	20	21	03	04	05	06	11
			Month	08	08	08	08	08	09	09	09	09	09
01	51	4AD17ME430	PRAJWAL P R	A	1	A	2	3	4	5	6	A	7
01+1	52	17ME432	PRAMOD D	A	A	A	1	2	3	4	5	6	7
02+1	53	17ME433	PUNITH N	A	A	A	1	2	3	4	5	6	7
-+1	54	17ME434	RAKESH S V	A	A	A	1	2	A	3	4	5	6
-+1	55	17ME435	RAKSHITH	A	A	A	1	2	3	A	4	5	6
-+1	56	17ME436	RAKSHITHA M H	1	2	3	4	5	A	6	7	8	A
-+1	57	17ME437	RAMYA N	1	2	3	4	5	6	7	8	9	10
01+1	58	17ME438	RANEESHA V N	A	A	A	1	A	A	2	3	4	5
-+2	59	17ME439	RAVI S C	A	A	A	A	A	A	1	A	2	3
-	60	17ME440	SHARATHKUMAR	1	2	A	3	4	5	6	7	8	9
01+1	61	17ME442	SUHAS N	1	2	A	A	A	3	4	5	A	6
01+1	62	17ME443	SUNIL KUMAR M P	A	A	A	A	1	2	3	4	5	6
-	63	17ME444	SUNIL R S	1	2	A	A	3	4	5	6	7	8
01+1	64	17ME445	SURANJAN M	A	A	A	1	2	A	A	A	A	3
-	65	17ME447	SWETHA B N	1	2	A	3	4	5	6	7	8	A
-+1	66	17ME448	THRIVENU M S	1	2	A	3	4	A	5	6	7	8
			No. of Abs.	38	25	46	15	07	21	10	13	22	05
			Initials										

ASSESSMENT

ATME College of Engineering

						Attendance				Assignments / Internal Test Marks								SEE Marks	Total Marks
55	56	57	58	59	60	AT1	AT2	AT3	AT	A1	T1	A2	T2	A3	T3	T4	CIE Marks		
										05	10	05	11		12		17	52	69
										—	09	05	11		14		18	57	75
										05	09	05	12		13		18	56	74
										05	12	05	09		10		16	42	58
										—	05	04	09		13		15	47	62
										—	06	05	05		07		12	20	32+13=45 Pass RV
										—	06	05	06		07		12	35	47
										—	11	05	07		13		17	32	49
										—	09	05	12		14		18	42	60
										—	09	05	07		12		16	41	57
										05	07	05	10		13		17	38	55
										—	09	05	06		13		16	45	61
										—	12	05	09		14		18	44	62
										—	10	05	12		14		18	69	87 - Topper
										—	06	05	07		09		13	40	53
										05	12	05	06		15		19	51	70
																		FCD	11
																		FC	17
																		SC	34+1 = 35
																		Fail	02-1 = 01
																			64

Pass % — 96.55% → 98.43%

B.RV A.RV

ATME College of Engineering

ATTENDANCE

Course Title with Code : MECHANICS OF MATERIALS – 18ME32

Semester & Section : 3-A

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10
		Date	12	14	16	18	19	20	21			
		Month	11	11	11	11	11	11	11			
01	4AD17ME003	ADITYA C	A	A	53	A	A	54	55			
02	4AD17ME010	AMARTYA K GOWDA	A	A	39	40	41	42	43			
03	17ME012	ANIL KUMAR B M	A	A	44	45	46	47	48			
04	17ME020	HARSHAVARDHAN N	A	A	46	47	48	49	50			
05	17ME033	MANOJ M	A	A	A	34	35	36	37			
06	17ME053	PRAJWAL A S	45	A	46	47	48	49	50			
07	17ME070	SHAMANTH KUMAR M	34	A	A	35	36	37	38			
08	17ME072	SUHAS CHAKRAVARTHY K J	A	A	45	46	47	45	49			
09	17ME073	SUKRUTH U R	43	A	44	45	46	47	48			
10	17ME080	VIVEK B K	46	A	47	48	49	50	51			
11	4AD18ME003	AZMATHULLA KHAN	51	A	52	53	54	55	56			
12	18ME004	BHARATH KUMAR M	50	A	51	52	A	53	54			
13	18ME005	BHUVANESH M	51	A	A	A	A	52	53			
14	18ME007	CHANNABASAVANNA K V	54	55	56	57	58	59	60			
15	18ME008	CHETHAN B R	51	A	52	53	54	55	56			
16	18ME009	FARDEEN AHMED	41	A	A	42	43	44	45			
17	18ME010	GOWTHAM G	53	54	55	56	57	58	59			
18	18ME011	GOWTHAM PRASAD M	47	48	49	50	51	52	53			
19	18ME013	HRITHIK D	A	50	51	52	53	54	55			
20	18ME015	JEEVAN M	61	62	63	64	65	66	67			
21	18ME016	JEEVAN KUMAR M	61	62	63	64	65	66	67			
22	18ME019	KISHOR Y N	49	A	50	51	A	52	53			
23	18ME021	LIKHITHA S N	A	55	56	57	58	59	60			
24	18ME022	MADESH C M	61	62	63	64	A	65	66			
25	18ME023	MANOJ C	50	51	52	53	54	55	56			
	No. of Abs.											
	Initials		En	En	En	En	En	En	En			

ATME College of Engineering

ATTENDANCE

Course Title with Code : MECHANICS OF MATERIALS - 18ME32

Semester & Section : 3-A

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10
		Date	12	14	16	18	19	20	21			
		Month	11	11	11	11	11	11	11			
26	18ME024	MANOJ KUMAR N	53	54	55	56	57	58	59			
27	18ME025	MD AFFAN JALEEL	46	A	47	48	49	50	51			
28	18ME026	MD ALFAZ V I	A	A	50	A	51	52	53			
29	18ME027	MD JEELANI H.	58	59	60	61	62	63	64			
30	18ME028	MD NATHAN	48	49	50	51	A	52	53			
31	18ME029	MD RAYAN KHAN	42	A	43	A	A	44	45			
32	18ME030	MD SAQLAIN IBRAHIM	50	A	51	52	53	54	55			
33	18ME031	MD SOUBAN	53	A	A	54	A	55	56			
34	18ME033	NAGADARSHAN M	A	A	54	55	56	57	58			
35	18ME035	NIKHIL R	48	49	50	51	A	52	53			
36	18ME036	NIKHILNAG R	53	54	55	56	A	57	58			
37	18ME037	PARVEEZ AHMED	57	58	59	60	61	62	63			
38	18ME038	PETER AX	60	A	61	62	63	64	65			
39	18ME039	PRAJWALA S M	51	A	52	53	A	54	55			
40	18ME040	PRAJWAL POOVAIAH K B	49	A	A	50	51	52	53			
41	18ME041	PRIYANKA S V	47	48	A	49	A	50	51			
42	18ME044	SAIF MADEEN	56	A	57	58	59	60	61			
43	18ME045	SAQLAINULLA SHARIFF	61	62	63	64	65	66	67			
44	18ME046	SHASHANK P	52	53	54	55	56	57	58			
45	18ME048	SREEKANTH GOWDA G P	59	60	61	62	63	64	65			
46	18ME049	SRINIVAS K N	46	47	48	49	50	51	52			
47	18ME050	SRUJAN R	52	A	53	54	55	56	57			
48	18ME052	SUJAY N RAJ	A	A	48	49	50	51	52			
49	18ME054	SYED IBAD HUSSAIN	42	A	43	A	44	45	46			
50	18ME055	VAIBHAV G JAGANNATH	58	A	59	60	61	62	63			
	No. of Abs.											
	Initials											

ATME College of Engineering

ATTENDANCE

Course Title with Code : MECHANICS OF MATERIALS -18ME32

Semester & Section : 3-A

Sl. No.	USN	Student Name	1	2	3	4	5	6	7	8	9	10
		Date	12	14	16	18	19	20	21			
		Month	11	11	11	11	11	11	11			
51	4AD18ME056	YASHWANTH KUMAR K	59	60	61	62	A	63	64			
52	4AD18ME042	RITHISH B	55	56	57	58	59	60	61			
	No. of Abs.		11	30	07	05	13	-	-			
	Initials											

CBCS SCHEME

USN | | | | | | | | | | 18ME15/25

First/Second Semester B.E. Degree Examination, June/July 2019
Elements of Mechanical Engineering

Time: 3 hrs. Max. Marks: 100

Note: *1. Answer FIVE full questions, choosing one full question from each module.*
2. Use of Steam table is permitted.

Module-1

1 a. List and explain any one source of energy. (06 Marks)

b. Explain briefly : (i) Global Warming (ii) Ozone depletion (06 Marks)

c. Find the enthalpy of 1 kg of steam at 12 bar when,
(i) Steam is dry saturated.
(ii) Steam is 22% wet and
(iii) Super heated to 250°C
Assume the specific heat of the super heated steam as 2.25 KJ/kgK. (08 Marks)

OR

2 a. Explain briefly any two of the following:
(i) Zeroth law of thermodynamics.
(ii) First law of thermodynamics.
(iii) Second law of thermodynamics. (06 Marks)

b. Explain formation of steam with the help of Temperature-Enthalpy (T-h) diagram. (08 Marks)

c. Find the specific volume and enthalpy of 1 kg of steam at 0.8 MPa.
(i) When the dryness fraction is 0.9.
(ii) When the steam is super heated to a temperature of 300°C.
The specific heat of the super heated steam is 2.25 KJ/kgK. (06 Marks)

Module-2

3 a. With a neat labeled diagram, explain working of Babcock and Wilcox boiler. (08 Marks)

b. Define prime movers and explain working of Pelton wheel turbine with a neat sketch. (12 Marks)

OR

4 a. Define (i) Boiler Mountings. (ii) Boiler Accessories.
Explain functions of any five mountings or accessories. (12 Marks)

b. What are hydraulic pumps? Explain centrifugal pump with a neat sketch. (08 Marks)

Module-3

5 a. Explain 4-s petrol engines with P-V diagram. (10 Marks)

b. Give comparisons between petrol and diesel engines. (05 Marks)

c. A four stroke IC engine running at 450 rpm has a bore diameter of 100 mm and stroke length 120 mm. The indicated diagram details are,
(i) Area of the diagram 4 cm^2
(ii) Length of the indicated diagram 6.5 cm
(iii) Spring value of the spring used 10 bar/cm.
Calculate the indicated power of the engine. (05 Marks)

OR

6 a. Explain with a neat sketch working of vapour compression Refrigerator.
b. Define : (i) Ton of Refrigerator (ii) COP (iii) Ice making capacity
c. List commonly used refrigerants and mention the applications of air conditioner

Module-4

7 a. Classify ferrous and non ferrous metals.
b. Define composites, explain any two of the following : (i) Piezoelectric material
(ii) Shape memory alloys (iii) Optical fibre glass.
c. Classify metal joining processes, explain TIG (Tungsten Inert Gas) Welding
sketch.

OR

8 a. Derive an expression for length of the belt in open belt drive.
b. Mention advantages and disadvantages of V-Belt drive.
c. List different types of gears and explain any one with its advantages.

Module-5

9 a. Explain briefly the following:
(i) Turning
(ii) Facing
(iii) Thread cutting
b. Explain the working of horizontal milling machine with a simple line diagram.
c. Explain briefly:
(i) Angular milling
(ii) Gang milling
(iii) Plane milling.

OR

10 a. Explain briefly the components of a CNC machine with a neat block diagram.
b. Define Robots and mention its general applications.
c. Write short note on:
CNC Machining Center or Turning Center.

* * * * *

CBCS SCHEME

USN

18ME15

First Semester B.E. Degree Examination, Dec.2018/Jan.2019
Elements of Mechanical Engineering

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Use of Thermodynamic data hand book is permitted.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. Explain briefly the principle of conversion of solar energy directly into electrical energy in a solar cell. (10 Marks)

b. Write a note on wind energy and its conversion. (10 Marks)

OR

2 a. Explain I - law of thermodynamics. List the similarities and dissimilarities between work and heat. (10 Marks)

b. Define the following term in relation to steam.
(i) Dryness fraction
(ii) Latent heat
(iii) Degree of super heat
(iv) Saturation temperature (10 Marks)

Module-2

3 a. Differentiate between water tube boiler and fire tube boiler. (04 Marks)

b. List the boiler mountings and accessories and also mention their uses. (06 Marks)

c. With neat sketch explain the working of Babcock and Wilcox boiler. (10 Marks)

OR

4 a. With a neat sketch explain the working of Pelton Wheel. (10 Marks)

b. With a neat sketch explain the working of a Reciprocating pump, state the advantages and uses. (10 Marks)

Module-3

5 a. Differentiate between Two-stroke and Four stroke engine. (04 Marks)

b. Explain with neat sketch construction and working of 4-stroke diesel engine with the help of theoretical P-V diagram. (10 Marks)

c. A four stroke single cylinder Diesel engine piston diameter 250 mm and stroke 400 mm. The mean effective pressure is 4-bar and speed is 500 rpm. Diameter of the brake drum is 1000mm. The effective brake load is 400 N. Find IP, BP and FP. (06 Marks)

OR

6 a. What are the properties of good refrigerant? (04 Marks)

b. Explain with neat sketch working principle of vapour compression refrigeration. (10 Marks)

c. Explain the following :
(i) Refrigeration effect
(ii) Ton of refrigeration
(iii) COP. (06 Marks)

Module-4

7 a. Write a note on application of ferrous and non-ferrous alloys. (06 Marks)
b. Define composite material. State the advantages and applications of composite material. (05 Marks)
c. Differentiate between Soldering, Brazing and Welding. (09 Marks)

OR

8 a. Differentiate between Open and Crossed belt drive. (06 Marks)
b. Enumerate the advantages and disadvantages of gear drive over belt drive. (06 Marks)
c. Derive an equation for length of belt in open belt drive. (08 Marks)

Module-5

9 a. Explain the following operation on lathe with suitable sketches:
(i) Turning (ii) Knurling (iii) Facing (iv) Thread cutting (10 Marks)
b. Explain the following operation on milling machine with suitable sketches:
(i) Form milling (ii) Angular milling (iii) Gang milling (10 Marks)

OR

10 a. Differentiate between open loop and closed loop systems. (06 Marks)
b. Define robot. Write down industrial applications of robot. (04 Marks)
c. Explain the components of CNC with a block diagram. (10 Marks)

* * * * *

USN | | | | | | | | | | |

18ME15/25

Model Question Paper

First Semester B.E. Degree (CBCS) Examination

Elements of Mechanical Engineering

Time: 3 hrs. Max. Marks: 100

Note: 1.Answer any FIVE full questions, choosing one full question from each module.
2. Use of steam tables is permitted.

Important Note: 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written e.g. 38+2 = 40, will be treated as malpractice.

MODULE – I

1	a	Classifydifferent sources of energy with suitable examples.	(04 Marks)
	b	Find the enthalpy of 1kg of steam at 12 bar when (i) steam is dry saturated (ii) steam is 22% wet (iii) superheated to 250°C. Take the specific heat of superheated steam as 2.25kJ/kgK.	(06 Marks)
	c	With the help of T-h diagram, explain the generation of steam at constant pressure.	(10 Marks)

OR

2	a	Write short note on (i) global warming (ii) Ozone depletion	(10 Marks)
	b	State and Explain Zeroth law, first law and second law of thermodynamics.	(10 Marks)

MODULE – II

3	a	With a neat sketch, explain the working of water tube boiler.	(10 Marks)
	b	Classify Hydraulic pumps and explain the working principle of centrifugalpump with a neat sketch.	(10 Marks)

OR

4	a	Classify hydraulic turbines and with a neat sketch explain the working of Francis turbine.	(10 Marks)
	b	Explain the functions of (i) Water level indicator (ii) Safety valve (iii) Super heater (iv) Pressure gauge (v) Feed check valve	(10 Marks)

MODULE – III

5	a	With the help of P-V diagram, explain the operation of 4-Stroke Petrol engine	(10 Marks)
	b	Following data are collected from a 4-stroke, single cylinder at full load. Bore = 200mm, stroke= 280mm, speed = 300 rpm, Indicated mean effective pressure = 5.6bar, Torque on the brake drum = 250 N-m, fuel consumed = 4.2kg/hour, and calorific value of fuel = 41000 KJ/kg.Determine (i) Brake power (ii) Mechanical Efficiency (iii) Indicated thermal efficiency (iv) Brake thermal efficiency	(10 Marks)

OR

6	a	Define the following refrigeration terms : i) Refrigerant ii) Ton of refrigeration iii) COP iv) Relative COP v) Refrigerating effect	(05 Marks)
	b	Define refrigeration. State the application of refrigeration	(05 Marks)
	c	With the help of a flow diagram, explain the functioning of Vapor Compression refrigeration cycle.	(10 Marks)

MODULE–IV

7 a Classify and explain various types of Steel (10 Marks)

b With a neat sketch explain the Arc welding method. (10 Marks)

OR

8 a Derive an expression for length of belt in open belt drive. (10 Marks)

b A shaft running at 100 rpm, is to drive a parallel shaft at 150 rpm. The pulley on the driving shaft is 350 mm in diameter. Find the diameter of the driven pulley. Calculate the linear velocity of the belt and the velocity ratio. (10Marks)

MODULE – V

9 a Explain the following machining operations on Lathe machine with suitable sketches (i) Turning (ii) Facing (iii) Thread cutting (iv) Knurling (10 Marks)

b With a neat sketch explain the working of vertical milling machine (10 Marks)

OR

10 a Explain the advantages and applications of robots in industries. (10Marks)

b Discuss the elements of a CNC system with a neat block diagram. (10 Marks)

USN

18ME15/25

Model Question Paper

First Semester B.E. Degree (CBCS) Examination

Elements of Mechanical Engineering

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing one full question from each module.
2. Use of Thermodynamic data hand book permitted.

Important Note: 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written e.g, 38+2 = 40, will be treated as malpractice.

MODULE – I

1	a	Enumerate the method of extracting energy from wind with a neat sketch	(08Marks)
	b	Illustrate the formation of steam with relevant sketches.	(08Marks)
	c	What are the different states of steam? Explain them in brief.	(04 Marks)

OR

2	a	Explain Zeroth law of thermodynamics. List the similarities and dissimilarities between work and heat.	(10 Marks)
	b	A stationary mass of gas is compressed without friction from an initial stage of 0.3 m^3 and 0.105 MPa to a final state of 0.15 m^3, the pressure remaining constant. There is a transfer of 37.6 kJ of heat from the gas during the process. How much does the internal energy of the gas change?	(10Marks)

MODULE – II

3	a	With a neat sketch, explain the working of Lancashire boiler.	(10 Marks)
	b	Explain the different boiler mountings and accessories.	(10 Marks)

OR

4	a	Classify Hydraulic turbines and with a neat sketch explain the working of a typical impulse turbine.	(10 Marks)
	b	Describe the working of a reciprocating pump.	(10 Marks)

MODULE – III

5	a	With the help of P-V diagram, explain the operation of 4-Stroke Diesel engine	(10 Marks)
	b	The following observations were recorded during a test on single cylinder diesel engine: Brake Power= 75 kW, Brake thermal efficiency= 35%, Mechanical efficiency= 90%, calorific value –40000 kJ/kg. Determine i) IP ii) FP iii) fuel consumed per hour.	(10 Marks)

OR

6	a	Explain the ideal properties of refrigerant.	(06 Marks)
	b	With the help of a sketch, explain the functioning of Vapor Absorption System.	(10 Marks)
	c	List the most commonly used refrigerants.	(04 Marks)

MODULE – IV

7	a	Classify and explain various types of smart materials	(10 Marks)
	b	With a neat sketch explain TIG welding.	(10 Marks)

OR

8	a	Derive an expression for length of belt in cross belt drive.	(10 Marks)
	b	What are the advantages and disadvantages of gear drives over belt drives?	(10Marks)

MODULE – V

9 a What are the various methods of producing taper turning method? Explain taper turning by swiveling the compound method. (10Marks)

b Explain the following machining operations on milling machine with suitable sketches (10 Marks)

(i) Plane milling (ii) End milling (iii) Slot milling (iv) Form milling

OR

10 a Explain the components of a CNC with a block diagram (10Marks)

b Elaborate the various robot configurations with simple sketches (10 Marks)

ATME College of Engineering

ISO 9001:2015

Department of Mechanical Engineering

Date: 14-09-2019

Action Plan Academic year 2019-20

Sl. No.	Name of the Activity	Date/Week Planned	POs/PSOs Addressed
01	Industrial Visit	3rd week of Sept.	PO8
02	Industrial Visit	4th week of Sept.	PO8
03	Motivational Talk by Guest Lecturer	3rd week of Oct.	PO8, PO10
04	Workshop on Modern tool usage	4th week of Oct.	PO5, PO12
05	Technical Talk on Career Guidance	3rd week of Feb. 2020	PO11
06	Visit to IISc., B'lore on Open day	2nd or third week of Feb. 2020	PO10, PO11
07	Industrial Visit	4th week of March.	PO8
08	Technical talk on need for Entrepreneurship	1st week of April	PO11
09.	Technical Talk on Communications in Industry both Written and Oral	4th week of April	PO10
10	Technical talk on Project Management and Various financial matters associated with it.	3rd week of May	PO11

Copy to:
1) Principal for kind information.
2) Chairman, IQAC for information and needful.
3) For circulation among Staff members

HOD
H.O.D.
Department of Mechanical Engineering
ATME College of Engineering, Mysuru

Date: 14-09-2019

2018-19 Batch

Department Advisory Board (DAB)

Minutes of the Department Advisory Board meeting held on 14-09-2019 at 11:00 am in the Department

The meeting of the Department Advisory board to discuss the matters related to Department activities and the report of the Program Assessment Committee. The following members attended the meeting;

Sl. No.	Name and Designation	Role	Signature
01	Dr. Rathnakar G, Prof & Head of the Department	Chairperson	G Rathnakar
02	Dr. Srinivasa K, Professor	Member	[illegible]
03	Mr. Devaraj M R, Associate professor	Member	[illegible]
04	Dr. N Ramesh, Unit Head, GTTC Mysuru	Industry Representative	N Ramesh
05	Mr. Sagar M S R, Design Engineer, Siderforgerossi India Pvt. Ltd, Mysore	Alumni	[illegible] KM
06	Mr. Mohanakumara KC, Assistant Professor	Member Secretary	Mohan KC

Agenda.

1. Review the Minutes of Meeting of Program Assessment Committee (PAC) dated 07/9/2019
2. Identification of the curriculum gap for the academic year 2019-20 and to give necessary suggestions.
3. To analyse the surveys carried in the Department for the indirect Assessment calculation.
4. Any other discussion with the permission of the Chair.

Proceedings of the meeting:

1) HoD welcomed the committee members who are presented in the meeting. And also, HoD welcomed the new members Dr. N Ramesh, Unit Head, GTTC Mysuru and Alumni member Mr. Sagar M S R for the meeting.
2) HoD asked Mr. Mohanakumara K C Member secretary to provide the Minutes of the previous PAC meetings and also necessary documents for the discussion.
3) As per the PAC report, All POs and PSOs for the batch 2018-19 is attained. But some of the Course Outcomes (COs) of courses for the academic year 2018-19 have not attained the target level and hence Chairman DAB advised the course coordinators to take necessary steps to implement the suggested action plan reported in the course attainment sheet.
4) As per the MoM of PAC, to fulfill the curriculum gaps some of the suggestions were made by the DAB members.
   a. Dr. N Ramesh Suggested to bring in Industry Institute Interaction through organizing Industrial Visits, promoting students to carryout projects and Internships in Industries.
   b. Mr. Sagar M S R Alumni, advised to organize workshop on advances in manufacturing Technology through Industrial Interaction for students to get knowledge about modern tools and advances in manufacturing process.
   c. Mr. Mohan Kumar. K.C member suggested that, students can be encouraged by taking project work on investigation on complex problems and also suggested that to organize guest lecture on project management.
   d. Mr. Devaraj M R, Member advised that to organize workshop under professional body Student Chapter.
5) The committee also decided that, to set the target level for POs and PSOs attainment to Level-2 for the batch 2019-20 along with the revised target for COs as 1.95 (5% increment of 3 w.r.t last year target 1.8) and also it is decided to change the weightage for direct attainment and indirect attainment (Surveys) to 70% and 30% respectively from existing 80% & 20%.

6) Also, it is recommended that indirect CO attainment process need to be incorporated for 2019-20 entry batch onwards by the DAB members. HoD ensures that a suitable tool for the assessment of COs through indirect method will formulated soon.
7) The committee also suggests eliminating few of the surveys which are in practice, namely, Learning behavior Survey, Course PO Survey. As these surveys are not contributing much in the process of evaluating the POs-PSOs and PEOs.
8) Also, the Chairman DAB presented the new tool for classifying the Advanced and Slow Learners before the members and the committee members acknowledge the tool and approved to follow the same henceforth.
9) At the end, HOD thanked all the committee members for attending the meeting and the meeting was adjourned until further notice.

HoD

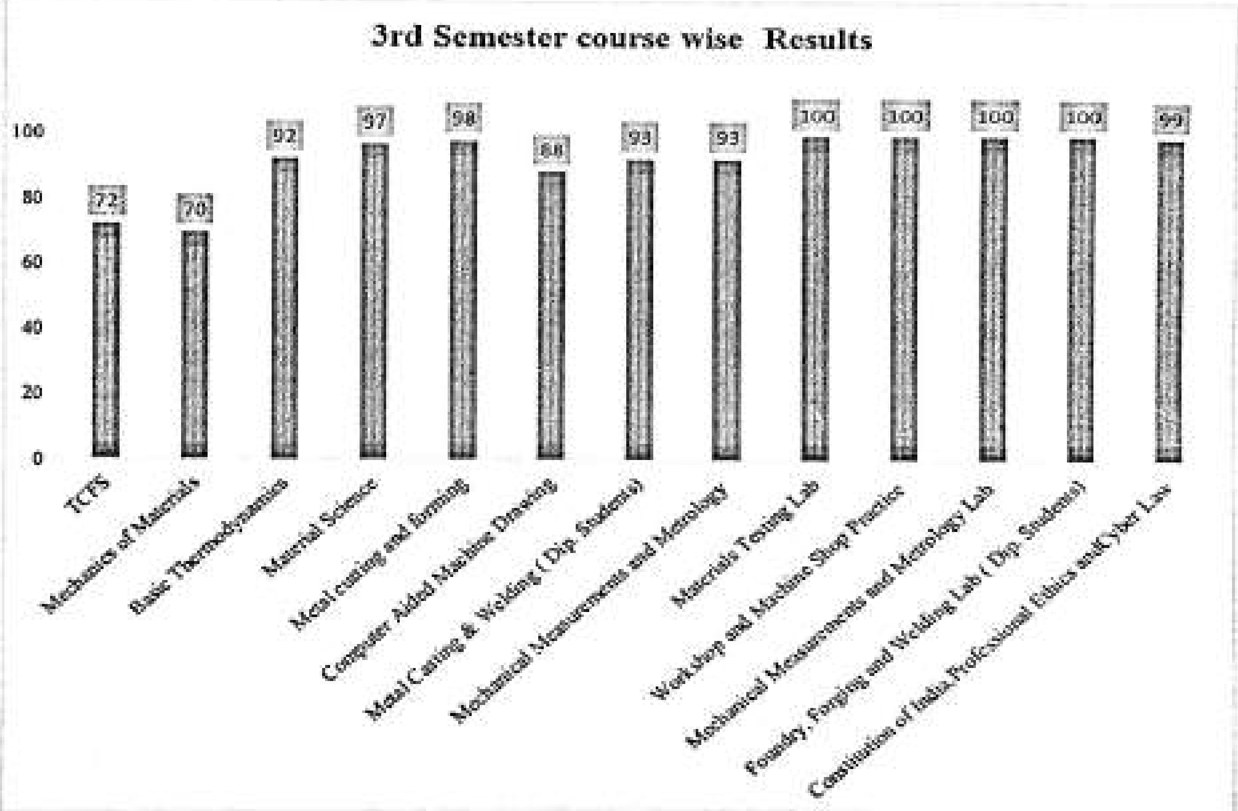
H.O.D.
Department of Mechanical Engineering
ATME College of Engineering, Mysuru

Copy to,
1) The Principal,
2) For circulation among PAC & DAB Members
3) For Internal Quality Assurance Committee (IQAC)

Result analysis of Odd Semester- Academic Year- 2019-20

Class	No. of Students	No. of Pass	FCD	FC	SC	Pass %
3rd semester						
Regular	52	26	4	13	9	50
Lateral	81	45	4	25	16	56
Overall	133	71	8	38	25	53
5th semester	103	69	18	40	11	67
7th semester	129	121	52	59	10	94

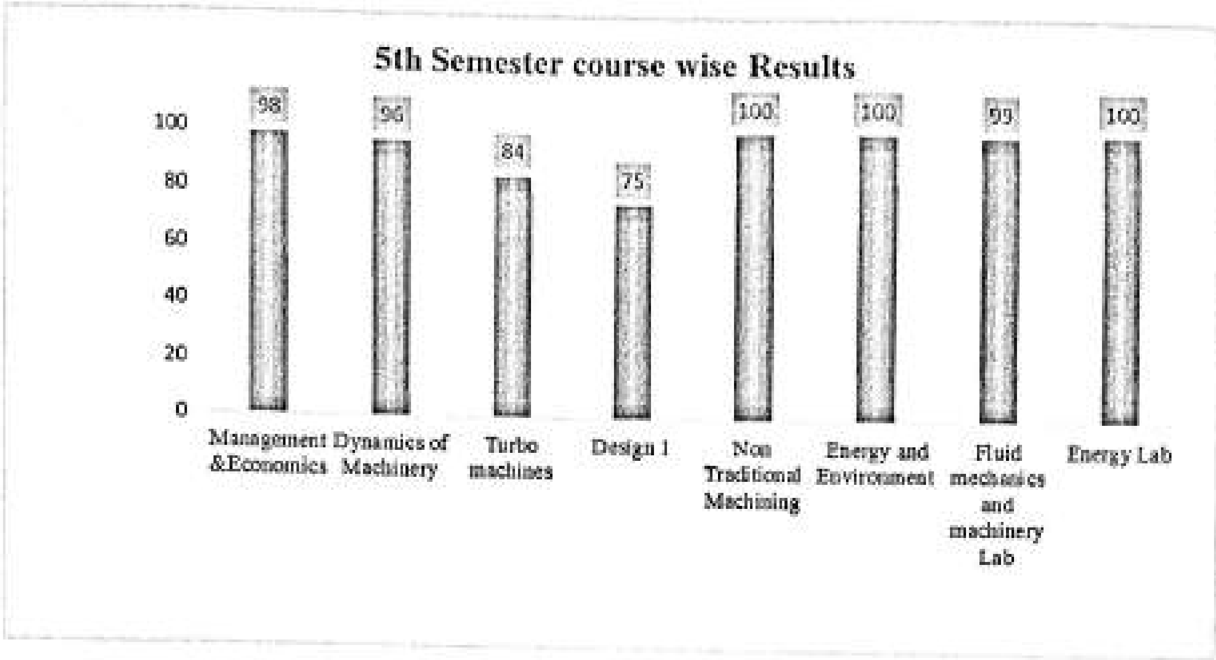
3rd Semester Course wise result



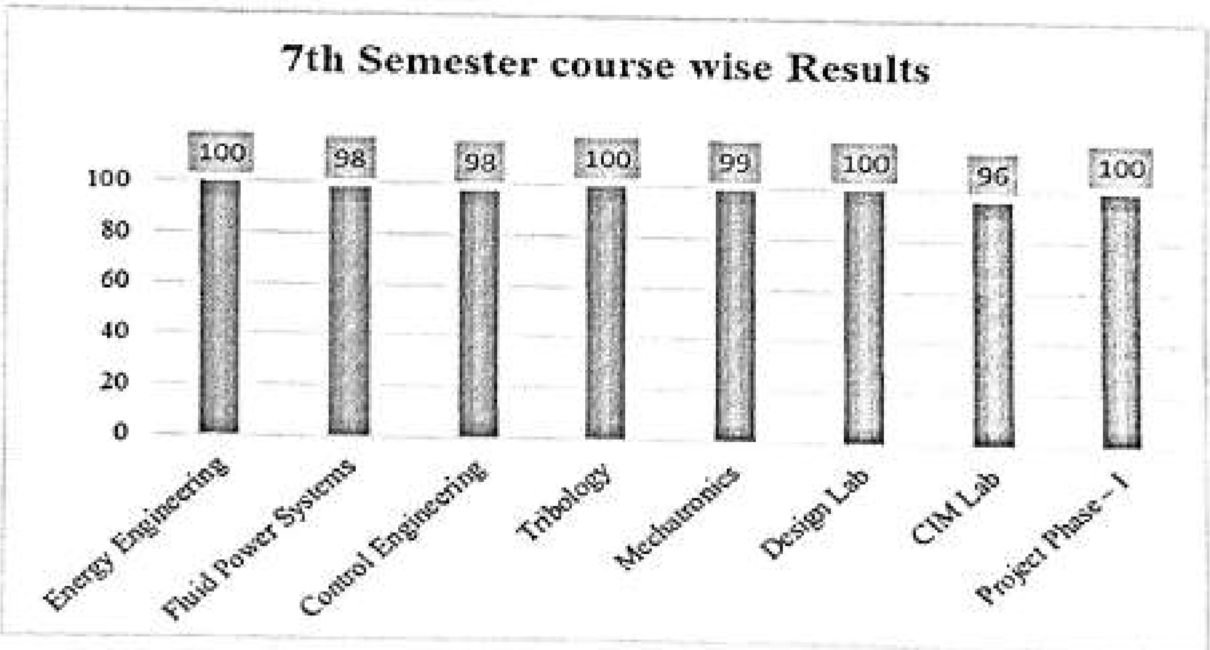
Result Analysis Coordinator

HoD
H.O.D.
Department of Mechanical Engineering
ATME College of Engineering, Mysuru

5th Semester Course-wise Result



7th Semester Course-wise Result



Result Analysis Coordinator

HoD
H.O.D.
Department of Mechanical Engineering
ATME College of Engineering, Mysuru

ATME
College of Engineering

VISION OF THE INSTITUTE

Development of academically excellent, culturally vibrant, socially responsible and globally competent human resources.

MISSION OF THE INSTITUTE

- To keep pace with advancements in knowledge and make the students competitive and capable at the global level.
- To create an environment for the students to acquire the right physical, intellectual, emotional and moral foundations and shine as torch bearers of tomorrow's society.
- To strive to attain ever-higher benchmarks of educational excellence.

VISION OF THE DEPARTMENT

To impart excellent technical education in Mechanical Engineering to develop technically competant, morally upright and socially responsible Mechanical Engineering professionals.

MISSION OF THE DEPARTMENT

- To provide an ambience which impart excellent technical education in mechanical Engineering.
- To enable the students to acquire skill development, knowledge of Research and recent trends in mechanical Engineering which will help them in life long learning.
- To engage students in co-curricular and extra-curricular activities to impart social + ethical values and imbibe leadership quality

ATME College of Engineering

Period From 29-07-2019 To 30-11-2019 Semester : Odd / ~~Even~~

Faculty Member : YASHWANTH N

Designation : ASSISTANT PROFESSOR

Department : MECHANICAL ENGINEERING

Faculty Member ID : ME01033

Sl. No.	Sem. / Sec. / Branch	Course Title	Course Code
1	7th - B	FLUID POWER SYSTEMS	15ME72
2	3 - A	MECHANICS OF MATERIALS	18ME32
3	7th - B3	CIM LAB	15MEL77
4	5th - A2	FLUID MECHANICS & MACHINERY LAB	17MEL57

	Review at the end of the				End of Semester
	1st Month	2nd Month	3rd Month	4th Month	
Staff	[signature]	[signature]	[signature]	[signature]	[signature]
HOD / Reviewer	[signature]	[signature]	[signature]	[signature]	[signature]

Personal Timetable

DAY ↓ / TIME →	09:00 AM 10:00 AM	10:00 AM 11:00 AM	11:15 AM 12:15 PM	12:15 PM 01:15 PM		02:00 PM 02:55 PM	02:55 PM 03:50 PM	03:50 PM 04:45 PM
Monday	←	15ME177 - B3	→	18ME32	Lunch Break			
Tuesday	15ME72					18ME32		
Wednesday		15ME72				18ME32		
Thursday		15ME72		18ME32		←	17MEL57 -A2	→
Friday		18ME32		15ME72		←	17MEL58 - A1	→
Saturday								

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Course Outcomes	Course Title	MECHANICS OF MATERIALS	Course Code	18ME32
CO-1	Understand simple, thermal stresses and their relations – RBT L2			
CO-2	Analyse structural members for stresses, strains & deformations – RBT L4			
CO-3	Analyse the structural members subjected to bending & shear loads – RBT L4			
CO-4	Analyse shafts subjected to twisting loads and short columns for stability – RBT L4			
CO-5	Apply theories of failures for structural members and strain energy – RBT L3			
CO-6				

Course Title with Code :	MECHANICS OF MATERIALS – 18ME32											Semester : 3			
Course Outcomes	Program Outcomes											Program Specific Outcomes			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO-1	3	2	–	–	–	–	–	1	–	1	–	2	3	1	–	–
CO-2	3	3	2	2	–	–	–	1	–	1	–	2	3	1	–	–
CO-3	3	3	2	2	–	2	–	1	–	1	–	2	3	1	–	–
CO-4	3	3	2	2	–	2	–	1	–	1	–	2	3	1	–	–
CO-5	3	3	2	2	–	2	–	–	–	1	–	2	3	1	–	–
CO-6																

Course Outcomes	Course Title	FLUID POWER SYSTEMS	Course Code	15ME72
CO-1	Identify and analyse the functional requirements of a fluid power transmission system for a given application			
CO-2	Visualise how hydraulic components will work to accomplish the function			
CO-3	understand the functioning of valves and design an appropriate hydraulic circuit for given application			
CO-4	Selection of different components and design of pneumatic circuits			
CO-5	Develop a comprehensive circuit diagram by integrating the components selected for the given application.			
CO-6				

Course Title with Code :	FLUID POWER SYSTEMS – 7th SEM											Semester : 15ME72			
Course Outcomes	Program Outcomes											Program Specific Outcomes			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CO-1	2	1	1	–	–	1	1	–	–	1	1	1	2	-	1	-
CO-2	2	1	–	–	–	1	1	1	–	1	1	1	2	1	1	–
CO-3	2	1	3	1	–	1	1	1	–	1	1	1	3	1	1	-
CO-4	3	1	2	–	–	1	1	1	–	1	1	2	2	1	1	–
CO-5	3	1	2	1	1	–	1	–	–	1	-	2	3	1	1	-
CO-6																

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Lesson Plan

MECHANICS OF MATERIALS **Semester & Section :** 3-A

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	29-07-19	Introduction to the subject, COs & POs	29-07-19	
2	30-07-19	Properties of materials	30-07-19	
3	31-07-19	Stress, strain and Hooke's law	31-07-19	
4	01-08-19	Stress-strain diagram for ductile & brittle materials	01-08-19	
5	02-08-19	Problems on simple stress & strains	02-08-19 05-08-19	Problems were more
6	05-08-19	Problems on tapered bars & derivation	06-08-19 07-08-19	more cases were solved
7	06-08-19	Problems on compound bars & composite bars	08-08-19 09-08-19	Exam problems were included
8	07-08-19	True stress & strain, Temperature stresses.	13-08-19	
9	08-08-19	Problems on temperature stress in simple bars	14-08-19 16-08-19	students slow in problem solving
10	09-08-19	Problems on compound bars	19-08-19 20-08-19	
11	13-08-19	Problems on composite bars	21-08-19 23-08-19	Needed more classes for problem
12	14-08-19	Shear stress & strain, lateral strain	26-08-19	
13	16-08-19	Poisson's ratio and volumetric strain	27-08-19	
14	19-08-19	Problems on volumetric stress & strain	28-08-19	
15	20-08-19	Elastic constants and relations b/w them	29-08-19	
16	21-08-19	Module 2: 3D stress & stresses in inclined planes	30-08-19	
17	22-08-19	Principal stress, Principal angles	03-09-19	
18	23-08-19	Shear stress in Principal planes,	03-09-19	
19	26-08-19	max shear stress, mohr circle	04-09-19	
20	27-08-19	mohr circle for plane stress conditions.	05-09-19	
21	28-08-19	Thin cylinder: Hoop's stress derivation	06-09-19	
22	29-08-19	max shear stress, Circumferential & longitudinal strains	09-09-19	
23	30-08-19	Problems on thin cylinders	09-09-19 11-09-19	
24	03-09-19	Thick cylinders: Lames equations	11-09-19	
25	04-09-19	Problems on thick cylinders.	16-09-19 17-09-19	

26	05-09-19	Repeatition of problems from module 1 & 2	—	
27	06-09-19	Module 4: Maximum principal stress theory	19-09-19	
28	09-09-19	Problems on max principal stress theory	20-09-19	
29	11-09-19	Maximum shear stress theory	23-09-19	
30	16-09-19	Problems on max shear stress theory	24-09-19 25-09-19	Additional Problems Solved
31	17-09-19	Torsion in circular solid and hollow shafts	30-09-19 01-10-19	
32	18-09-19	Power transmission of straight & stepped shafts	03-10-19	
33	19-09-19	Twist in shaft sections	04-10-19	
34	23-09-19	Thin tubular sections	9-10-19	Had additional class
35	24-09-19	Thin walled sections, Torsional moment	9-10-19	
36	25-09-19	Module 5: Buckling & stability, Critical load	11-10-19	
37	26-09-19	columns with pinned ends	12-10-19	Had additional class
38	01-10-19	columns with other support conditions	12-10-19	
39	3-10-19	Effective length of columns	12-10-19	
40	9-10-19	Secant formula for columns	13-10-19	
41	10-10-19	strain energy due to axial shear forces	15-10-19 16-10-19	
42	14-10-19	strain energy due to bending & torsion	17-10-19 30-10-19	
43	15-10-19	Castigliano's theorem I & II	31-10-19	
44	16-10-19	Applications of Castigliano's theorem	31-10-19	
45	17-10-19	Module 3: Types of beams, loads & reactions	4-11-19 5-11-19	
46	23-10-19	Shear force & bending moments for Cantilever beams	6-11-19 7-11-19	
47	24-10-19	Pin supported beams subjected to concentrated loads	8-11-19 11-11-19	
48	28-10-19	Roller supported beams subjected to uniformly distributed loads	12-11-19	
49	30-10-19	cases on uniformly varying loads	13-11-19 14-11-19	
50	31-10-19	Bending & shear stress in I, T sections	18-11-19	

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Lesson Plan

FLUID POWER SYSTEMS - 15ME72 **Semester & Section :** 7-B

Class No	Date Planned	Topics proposed to be covered	Topic Covered Date	Remarks
1	13-08-19	Module1: Fluid power systems, components & Applications	14-08-19	
2	14-08-19	Advantages of FPS, Transmission of power	16-08-19	
3	16-08-19	Pascal's law & its applications, Problems.	20-08-19	
4	20-08-19	Problems on pascal's law.	21-08-19	
5	21-08-19	Fluids for hydraulic system, types & Properties.	04-09-19	
6	22-08-19	Selection of fluids, Additives.	04-09-19	
7	23-08-19	Seals and sealing materials	05-09-19	
8	27-08-19	Types of pipes, hoses & quick acting couplings	05-09-19	
9	28-08-19	Fluid conditioning through filters & strainers	06-09-19	
10	29-08-19	Contamination control & Heat exchangers	1[illegible]-09-19	
11	30-08-19	Module2: Classification of pumps & Pumping theory	17-09-19	
12	03-09-19	Construction & working of Gear, vane pumps	18-09-19 19-09-19	
13	04-09-19	Piston pumps, pump performance characteristics	20-09-19	
14	05-09-19	Pump selection factors and problems	23-09-19 24-09-19	Additional Problems solved
15	06-09-19	Accumulators, types & selection procedure	31-10-19	
16	11-09-19	Application of Accumulators, Intensifiers	31-10-19	
17	17-09-19	Actuators: linear and rotary motors	25-09-19	
18	18-09-19	Single & Double acting Cylinder, types	26-09-19	
19	19-09-19	Construction & working of rotary actuators	27-09-19	
20	20-09-19	Numerical problems	01-10-19 03-10-19	
21	24-09-19	Symbolic representation of hydraulic actuators	04-10-19	
22	25-09-19	Module 3: Classification of control valves	09-10-19	
23	26-09-19	DCV; poppet, sliding spool valves	11-10-19	
24	27-09-19	Pilot operated DCV and check valves	12-10-19	
25	1-10-19	Pressure control valves	14-10-19	

26	3-10-19	Flow control valves – compensated & non-compensated	15-10-19	Additional class taken
27	4-10-19	Needle valve and symbolic representation	15-10-19	
28	9-10-19	Hydraulic circuit design: single & double acting	16-10-19	
29	10-10-19	Regenerative & pump unloading circuit	16-10-19 17-10-19	
30	11-10-19	counterbalance valve application	17-10-19	
31	15-10-19	metering in and metering out circuit	30-10-19	
32	16-10-19	Hydraulic circuits with accumulators.	31-10-19	
33	17-10-19	module 4: Pneumatic power system, applications	5-11-19	
34	23-10-19	advantages, limitations, choice of working medium	5-11-19	
35	24-10-19	characteristics of compressed air & air compressors	6-11-19	
36	25-10-19	structure of Pneumatic control system, FRL unit	6-11-19	
37	30-10-19	Pneumatic actuators: construction & working	6-11-19	
38	31-10-19	end position cushioning, mounting arrangements	7-11-19	
39	5-11-19	Rotary cylinders: construction & working	7-11-19	
40	6-11-19	Pneumatic control valves: DCV, Poppet, spool	7-11-19	
41	7-11-19	Pressure control valves, flow control valves,	8-11-19	
42	8-11-19	memory valve, Quick exhaust valve	8-11-19	
43	12-11-19	time delay valve, twin pressure valve & symbols	8-11-19	
44	13-11-19	module 5: simple pneumatic control – speed control of cylinders	12-11-19	
45	14-11-19	supply air throttling & exhaust air throttling	13-11-19	
46	19-11-19	signal processing elements: use of logic gates OR & AND gates in Pneumatic application	14-11-19	
47	20-11-19	Practical examples involving the use of logic gates	14-11-19	
48	21-11-19	multicylinder application: motion control diagrams, signal elimination methods	19-11-19	
49	26-11-19	cascading method principle, practical applications	20-11-19	
50	27-11-19	Electro-pneumatic control: solenoid control DCV, use of relay & contactors.	21-11-19	

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WORK DONE DIARY

WEEK 1		MONDAY DATE 29/7/19	TUESDAY DATE 30/7/19	WEDNESDAY DATE 31/7/19
ACTIVITY	Class Hours	4th hour - 18ME32 - Introduction to the course. Discussion of CO-PO assessment & applications of the subject to be studied.	5th hour - 18ME32 - Properties of materials, Elasticity, plasticity, Ductility, Brittleness etc	5th hour - 18ME32 - Stresses and strains. Tensile & compressive loads, Hooke's law for Young's modulus.
	Others			

WEEK 2		MONDAY DATE 5/8/19	TUESDAY DATE 6/8/19	WEDNESDAY DATE 7/8/19
ACTIVITY	Class Hours	4th hour - 18ME32 calculation of stresses & strains in stepped bars and its deformation.	5th hour - 18ME32 - Derivation of stress and strain in tapering circular & rectangular section bars	5th hour - 18ME32 - Problems on tapered bars & compound bars with multiple cases were solved
	Others			

WEEK 3		MONDAY DATE 12/8/19	TUESDAY DATE 13/8/19	WEDNESDAY DATE 14/8/19
ACTIVITY	Class Hours	Holiday on the occasion of "BAKRID"	Introduction to the concepts of temper stresses and strains. 1st hour - 15ME72 - Introduction to FPS, Discussion of COs and POs	2nd hour - 15ME72 - Fluid power systems, structure of FPS, Applications 5th hour - 18ME32 - Problems on thermal stresses & strains
	Others			

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WEEK 1		THURSDAY DATE 1/8/19	FRIDAY DATE 2/8/19	SATURDAY DATE 3/8/19
ACTIVITY	Class Hours	4th hour - 18ME32 - stress strain relationship for ductile & brittle materials. 5th - 7th hour - 17MEL57 Introduction to fluid mechanics & machinery lab.	2nd hour - 18ME32 - Problems on simple stresses and strains for straight bars.	Non-working Saturday
	Others			
WEEK 2		**THURSDAY DATE 8/8/19**	**FRIDAY DATE 9/8/19**	**SATURDAY DATE 10/8/19**
ACTIVITY	Class Hours	4th hour - 18ME32 - Problems on compound bars were continued & exams problems were solved. 5th - 7th hour - 17MEL57 Calibration of venturi-meter & orificemeter.	2nd hour - 18ME32 Problems on composite bars were solved for different variables	"INDUCTION PROGRAM" for first year students.
	Others			
WEEK 3		**THURSDAY DATE 15/8/19**	**FRIDAY DATE 16/8/19**	**SATURDAY DATE 17/8/19**
ACTIVITY	Class Hours	Holiday on the occasion of "INDEPENDENCE DAY"	2nd hour - 18ME32 - Problems on thermal stresses & strains 4th hour - 15ME72 - Advantages of FPS, transmission of power in static & dynamic states	Non-working Saturday.
	Others			Industrial visit to "BEML, Mysuru" 5th B students.

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WEEK	ACTIVITY	MONDAY	TUESDAY	WEDNESDAY
WEEK 4		DATE 19/8/19	DATE 20/8/19	DATE 21/8/19
	Class Hours	1st-3rd hour - 15MEL77 - Introduction to CIM Lab, G-codes & M-codes, Programming 4th hour - 18ME32 - Problems on compound bars	1st hour - 15ME72 - Pascal's law its applications in FPS. 5th hour - 18ME32 - Problems on compound bars.	2nd hour - 15ME72 - Problems on pascal's law. 5th hour - 18ME32 - Problems on composite bars.
	Others	Collected feedback from students regarding industrial visit to BEML.		contacted 1st students and communicated them the facilities available in our college and asked them to visit our
WEEK 5		DATE 26/8/19	DATE 27/8/19	DATE 28/8
	Class Hours	4th hour - 18ME32 - Problems on temperature stresses & strains.	5th hour - 18ME32 - concept of shear stress, strain, Poisson's ratio and volumetric strain	5th hour - 18ME32 - Problems on volumetric strain, Elastic constants - Modulus of Elasticity, Rigidity & Bulk modulus.
	Others	Updated the attendance record to the new document provided	Co-ordinated for the event "Golden Girls" organised by Malabar Gold & TOI	conducted club activity for 3-sem students on social responsibility, voting & Democracy.
WEEK 6		DATE 2/9/19	DATE 3/9	DATE 4/9
	Class Hours	Holiday on the occasion of "GOWRI-GANESHA FESTIVAL"	1st hour: Importance of awareness on job positions for the subject of study - Hydraulics & Pneumatics 5th hour: - 18ME32 - Principal stresses & shear stress in planes	2nd hour - 15ME72 - Fluids for hydraulic systems, types & properties. 5th hour - 18ME32 - max shear stress & Mohr circle
	Others		Visited "CIPET" to discuss the possible trainings & Internship courses for our students	

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WEEK 4		THURSDAY DATE 22/8/19	FRIDAY DATE 23/8/19	SATURDAY DATE 24/8/19
ACTIVITY	Class Hours	4th hour - 18ME32 - Problems on thermal stresses for composite bars. 5th-7th hour - 17MEL57 Calibration of Nozzle-meter for flow rate	2nd hour - 18ME32 - Problems on combination of compound & composite bars.	2nd hour: Mechanics of Materials - Thermal stress and strains - Revision of problems
	Others	Meeting conducted in EEE staff room to discuss the plan of action for E-cell	Contacted 30+ lateral entry students and given information about the college and asked them to join.	3rd-7th hour: Industrial visit to "TVS motor company", Nanjangud - 5th A & 3-A students

WEEK 5		THURSDAY DATE 29/8/19	FRIDAY DATE 30/8/19	SATURDAY DATE 31/8/19
ACTIVITY	Class Hours	4th hour - 18ME32 - Derivation of relationship b/w the different Elastic constants. 5-7th hour - 17MEL57 - Calibration of V-notch major losses through pipes	2nd hour - 18ME32 - 3D stress & strain in inclined planes. Principal stress 5th-7th hour - 17MEL58 - Redwood viscometer.	1st-3rd hour - 15MEL77 Programmes on CNC Turning 4th hour - Industrial visit to "Rane Madras" for 3-A students. Monday T.T
	Others		Admission work	Attended workshop on "ICT & Pedagogy" by Dattakumar in the department.

WEEK 6		THURSDAY DATE 5/9	FRIDAY DATE 6/9	SATURDAY DATE 7/9
ACTIVITY	Class Hours	2nd hour - 15ME72 - Seals & sealing materials, Types of pipes & hoses 4th hour - 18ME32 - Mohr's circle for plane stress conditions 5th-7th hour - 17MEL57 - Major loss & V-notch.	2nd hour - 18ME32 - Thin cylinders, Hoop stress derivation. 4th hour - 15ME72 - Fluid conditioning through filters & strainers 5th-7th hour - 17MEL58 - Boy's gas calorimeter.	Non-working Saturday
	Others			

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WEEK 7		MONDAY DATE 9/9	TUESDAY DATE 10/9	WEDNESDAY DATE 11/9
ACTIVITY	Class Hours	1st-3rd hour - 15MEL77 - Programs on turning operations. 4th hour - 18ME32 - Problems on thin cylinders.	Holiday on occasion of "MOHARAM LAST Day"	2nd hour - 15ME72 - Classification of pumps, pumping theory for Positive displacement pumps 5th hour - 18ME32 - problems on thin cylinders, Lames equation.
	Others	Rearranged the dept library and organised books according to its stream.		Preparation of final IA question paper and scheme, Admission work

WEEK 8		MONDAY DATE 16/9	TUESDAY DATE 17/9	Thursday DATE [illegible]/9
ACTIVITY	Class Hours	1st-3rd hour - 15MEL77 Programs on milling operations 4th hour - 18ME32 - Problems on thick cylinders.	1st hour - 15ME72 - Classification of pump and pumping theory of positive displacement pumps 5th hour - problems on thick cylinders.	2nd hour - 15ME72 - working of lever pumps & unbalanced vane pumps 4th hour - 18ME32 - Theories of failure, Principal stress theory 5th-9th hour - Preparation classes
	Others	E-cell - mission + vision framework, Action plan preparation. Text book evaluation.	Discussion with Partasarathy sir regarding E-cell, plan of action + scheme preparation	Preparation for regular classes.

WEEK 9		MONDAY DATE 23/9	TUESDAY DATE 24/9	WEDNESDAY DATE 25/9
ACTIVITY	Class Hours	1st-3rd hour - 15MEL77 - Programs on milling, slotting & contouring 4th hour - 18ME32 - Problems on theories of failures	1st hour - 15ME72 - Pump selection factors, Problems on pumps 5th hour - 18ME32 - Problems on Max normal stress & shear stress theory.	2nd hour - 15ME72 - Linear cylinders, Special cylinders. 5th hour - 18ME32 - Problems on thin cylinders on theories of failures.
	Others	Project work - Preparation for phase 1 - 2 batches.	E-cell mission + vision finalization, Project work phase -1-	Awareness program for civil + electrical dept on E-cell: Prospero.

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WEEK 7		THURSDAY DATE 12/9	FRIDAY DATE 13/9	SATURDAY DATE 14/9
ACTIVITY	Class Hours	"FIRST INTERNALS"	"FIRST INTERNALS"	"CASUAL LEAVE"
	Others	Admission work. Preparation of Scheme and Solution	Admission work.. Evaluation of blue books	

WEEK 8		wednesday DATE 18/9	FRIDAY DATE 20/9	SATURDAY DATE 21/9
ACTIVITY	Class Hours	1st hour - 15ME72 - working & construction of external & internal gear pumps	2nd hour - 18ME32 - max shear stress theory & problems on Principal stress theory 4th hour - swash plate & bent axis type piston pumps 5th-9th hour - Repetition classes.	Non-working Saturday
	Others	Industrial visit to "L&T+TC mysuru"	Blue book evaluation.	

WEEK 9		THURSDAY DATE 26/9	FRIDAY DATE 27/9	SATURDAY DATE 28/9
ACTIVITY	Class Hours	2nd hour - 15ME72 - cushioning of cylinders, cylinder mountings 4th hour - 18ME32 - Problems on axial loads 5th-9th hour - 17MEL57 minor losses in Pipes.	2nd hour - 18ME32 - Scheme of evaluation discussion & revision of problems 4th hour - construction & working of rotary actuator 5th-9th hour - 17MEL58 four stroke Diesel engine	Holiday on the occasion of "MAHALAYA AMAVASYE"
	Others	Communication to VTU, special officer ED cell regarding our E-cell.	Blue Book evaluation.	Industrial visit to "NESTLE, NANJANGUD"

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WEEK 10		MONDAY 30/9 DATE	TUESDAY 1/10 DATE	WEDNESDAY 2/10 DATE
ACTIVITY	Class Hours	15MEL77 - 1st - 3rd hour - CNC milling operations, Program 3 & 4, CNC Drilling operations. 4th hour - 18ME32 - Discussion on topics covered till date & doubt clearing session.	15ME72 - 1st hour - Gear motors, vane motors & performance Parameters of Hydraulic motors. 18ME32 - 5th hour - Derivation of Torsional equations.	Holiday on the occasion of "GANDHI JAYANTHI".
	Others	Project work discussion with students for Phase - 1. Student counseling (5 students)	Completion of Test assessment for first IA.	
WEEK 11		**MONDAY 7/10 DATE**	**TUESDAY 8/10 DATE**	**WEDNESDAY 9/10 DATE**
ACTIVITY	Class Hours	Holiday on the occasion of "AYUDHA POOJA"	Holiday on the occasion of "VIJAYADASHAMI".	2nd hour - 15ME72 - Control valves, Classification & graphical representation of DCVs. 5th hour - 18ME32 - Twist in shaft sections and tubular sections
	Others			4th hour - 18ME32 - Torsional moment & thin walled sections. "Parent - Teacher" meeting
WEEK 12		**MONDAY 14/10 DATE**	**TUESDAY 15/10 DATE**	**WEDNESDAY 16/10 DATE**
ACTIVITY	Class Hours	15MEL77 - 1st - 3rd hour. Capsmill programs using Capsmill software. 4th hour - 18ME32 - Strain energy due to axial shear stress	15ME72 - 1st hour - Pressure control valves, Pressure relief valve & Pressure reducing valve. 18ME32 - 5th hour - Problems on strain energy due to axial loads	15ME72 - 2nd hour - Design of hydraulic circuits, control of single & double acting cylinder. 18ME32 - 5th hour - Strain energy due to bending
	Others	- Revaluation result updated. - Student counselling - ECell student registration.	15ME72 - 3rd hour - Flow control valve, needle valve, Pressure compensated FCV.	15ME72 - 1st hour - Student response system - Quiz-1.

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WEEK 10		THURSDAY 3/10 DATE	FRIDAY 4/10 DATE	SATURDAY 5/10 DATE
ACTIVITY	Class Hours	2nd hour - 15ME72 - Problems on hydraulic motors & efficiencies 4th hour - 18ME32 - Problems on Torsion 5th - 7th hour - 17MEL57 - Performance evaluation of Pelton wheel.	2nd hour - 18ME32 - Problems on Torsional equation 4th hour - 15ME72 - Control valves, classification & graphical representation 5th - 7th hour - 17MEL58 Two stroke Petrol Engine	"AYUDHA POOJA" celebration in the college
	Others	Registration for Swayam exam on "manufacturing of composites"	Assignment evaluation of mechanics of materials.	
WEEK 11		**THURSDAY 10/10 DATE**	**FRIDAY 11/10 DATE**	**SATURDAY 12/10 DATE**
ACTIVITY	Class Hours	CASUAL LEAVE "FRIEND MARRIAGE"	2nd hour - 18ME32 - Thin walled sections, Torsion. 4th hour - 15ME72 - Dcv, poppet, check valves 5th - 7th hour - 17MEL58 Two stroke Petrol Engine	2nd hour - 15ME72 - Pilot operated check valve, shuttle valve, solenoid operated valve 5th hour - 18ME32 - Strain energy of elastic bar for axial loads
	Others		Prepared registration form for E-cell and created whatsapp group for registered members	4th hour - 18ME32 - Problems on strain energy "Parent - Teacher" meeting.
WEEK 12		**THURSDAY 17/10 DATE**	**FRIDAY 18/10 DATE**	**SATURDAY 19/10 DATE**
ACTIVITY	Class Hours	2nd hour - 15ME72 - Sequencing circuit, double pump circuit. 4th hour - 18ME32 - Problems on strain energy due to Torsion & bending 5th - 7th hour - 17MEL57 - Impact of jet on vanes	"SECOND INTERNALS"	"Non-working Saturday"
	Others	Question paper setting for internals-2. Getting it printed from the library		

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WEEK 13		MONDAY 21/10 DATE	TUESDAY 22/10 DATE	WEDNESDAY 23/10 DATE
ACTIVITY	Class Hours	"SECOND INTERNALS"	"SECOND INTERNALS"	CASUAL LEAVE "SISTER WEDDING"
	Others			
WEEK 14		**MONDAY 28/10 DATE**	**TUESDAY 29/10 DATE**	**WEDNESDAY 30/10 DATE**
ACTIVITY	Class Hours	1st-3rd hour - 15MEL77 capsmill & capsturn programs 4th hour - IA marks distribution & scheme of valuation discussion	Holiday on the occassion of "DEEPAVALI"	2nd hour - 15ME72 - Synchronizing circuits, meter-in & meter-out circuits 5th hour - 18ME32 - Numericals on strain energy due to Torsion
	Others	Completed faculty appraisal process in CERP.		4th hour - 15ME72 - (additional class) Accumulators & its types.
WEEK 15		**MONDAY 4/11 DATE**	**TUESDAY 5/11 DATE**	**WEDNESDAY 6/11 DATE**
ACTIVITY	Class Hours	1st-3rd hour - 15MEL77 capsturn programs, windup of CIM lab 4th hour - module 1 BMD & SFD diagrams, Types of Loads & beams	1st hour - 15ME72 - Structure of pneumatic system, selection of working medium. 5th hour - 18ME32 - Types of support & BMD & SFD	2nd hour - 15ME72 - Advantages, limitations of Pneumatic system, Pneumatic actuators 5th hour - 18ME32 - cantilever beams subjected to different types of load.
	Others	Prepared presentation on "National Innovation Startup Policy-2019"	Counselling of students & blue book mapping	E-cell meeting with students & selection of E-leaders

WORK DONE DIARY

WEEK 13	THURSDAY 24/10 DATE	FRIDAY 25/10 DATE	SATURDAY 26/10 DATE
ACTIVITY: Class Hours	"CASUAL LEAVE"	"CASUAL LEAVE"	Attended one day workshop on "VIRTUAL LABS".
ACTIVITY: Others			

WEEK 14	THURSDAY 31/10 DATE	FRIDAY 1/11 DATE	SATURDAY 2/11 DATE
ACTIVITY: Class Hours	2nd hour - 15ME72 - Accumulator circuits with applications 4th hour - 18ME32 - Castigliano's theorem I & II 5th-7th hour - 17MEL57 Record evaluation.	Holiday on the occasion of "KANNADA RAJYOTSAVA"	Non-working Saturday
ACTIVITY: Others			

WEEK 15	THURSDAY 7/11 DATE	FRIDAY 8/11 DATE	SATURDAY 9/11 DATE
ACTIVITY: Class Hours	2nd hour - 15ME72 - memory valve, Quick exhaust valve, Time-delay valve 4th hour - 18ME32 - Problems on cantilever beam to find reaction components & draw	2nd hour - 18ME32 - Problems on cantilever beams with UDL & Point load 4th hour - 15ME72 - Direct and indirect actuation of Pneumatic systems	Holiday on "AYODHYA VERDICT"
ACTIVITY: Others	BMD & SFD. 5th-7th hour - 17MEL57 - Performance evaluation of centrifugal blower.	5th-7th hour - 17MEL58	

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WORK DONE DIARY

WEEK 16		MONDAY 11/11 DATE	TUESDAY 12/11 DATE	WEDNESDAY 13/11 DATE
ACTIVITY	Class Hours	1st-3rd hour - 15MEL77 Capstan & capsmill Problems repetition 4th hour - 18ME32 Problems on simply supported beams	1st hour - 15ME72 - Speed control of Pneumatic cylinders supply air throttling. 5th hour - 18ME32 Problems continued on simply supported beam	2nd hour - 15ME72 - Exhaust air throttling use of logic gates 5th hour - 18ME32 - Problems on overhanging beams
	Others			

WEEK 17		MONDAY 18/11 DATE	TUESDAY 19/11 DATE	WEDNESDAY 20/11 DATE
ACTIVITY	Class Hours	1st-3rd hour - 15MEL77 lab record finalization & repetitions of Programs. 4th hour - 18ME32 Roller supported beams subjected to UDL	1st hour - 15ME72 - Signal elimination method, cascading method principle 5th hour - 18ME32 - Bending stress & shears loads on I beams	2nd hour - 15ME72 - Electro-pneumatic control, solenoid control DCV, 5th hour - completion of problems related to BMD & SFD
	Others			

WEEK 18		MONDAY 25/11 DATE	TUESDAY 26/11 DATE	WEDNESDAY 27/11 DATE
ACTIVITY	Class Hours	"THIRD INTERNALS"	"Lab internal assesment" - CIM lab 15MEL77	Lab Record finalization - "CIM lab"
	Others			

WORK DONE DIARY

WEEK 16		THURSDAY 14/11 DATE	FRIDAY 15/11 DATE	SATURDAY 16/11 DATE
ACTIVITY	Class Hours	2nd hour - 15ME92 - OR & AND gates in Pneumatic applications examples in use of logic gates 4th hour - 18ME32 - Problems continued on overhanging beams	Holiday on the occasion of "KANAKA DASA JAYANTHI"	18ME32 - 2nd hour - Problems on overhanging beams 15ME92 - 4th hour - Discussion of previous year QPs
	Others	5th-7th hour - 17MEL57 Performance evaluation of reciprocating pump.		Half Day CL - Exam preparation of NPTEL, SWAYAM

friday T.T

WEEK 17		THURSDAY 21/11 DATE	FRIDAY 22/11 DATE	SATURDAY 23/11 DATE
ACTIVITY	Class Hours	2nd hour - 15ME92 - Repetition, solving of previous year QPs 4th hour - 18ME32 Doubt clarification lessons on problems of BMD & SFD	"THIRD INTERNALS"	"THIRD INTERNALS"
	Others	5th-7th hour - 17MEL57 completion of lab records & repetitions of experiments.		

WEEK 18		THURSDAY 28/11 DATE	FRIDAY 29/11 DATE	SATURDAY 30/11 DATE
ACTIVITY	Class Hours	'Lab internal assessment' conduction - 'Fluid mechanics & Machinery lab'	Improvement Test "Mechanics of materials'.	LAB Record finalization - 'Fluid mechanics & machinery lab'
	Others			

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LEAVE DETAILS

Sl. No.	Date	Type	Reason	Actual Class Allotted (Course Code/Time)	Substitute Faculty Member	Signature of Substitute Faculty Member
1	14-09-19	CL	Personal work	← Internal Assessment →		
2	10-10-19	CL	Friend marriage	15ME72 (10-11Am)	Md Nadeem	[signature]
				18ME32 (12.15-1.15)	Deepak MVS	[signature]
				17MEL57 (2-4.45)	Pavankumar KP	[signature]
3	23-10-19	CL	Sister wedding	15ME72 (10-11Am)	Karthik Kumar	[signature]
	24-10-19	CL		18ME32 (2-2.55pm)	Pavankumar KP	
	25-10-19	CL		15ME72 (10-11Am)	Md Nadeem	
				18ME32 (12.15-1.15)	Rohith S	[signature]
				17MEL37 (2-4.45)	Niranjan Sir	[signature]
				18ME32 (10-11Am)	Pavan Kumar KP	
				15ME72 (12.15-1.15)	Karthik Kumar	[signature]
				17MEL58 (2-2.45)	Pavankumar KP	
4	16-11-19 (AN)	CL	Exam preparation NPTEL	—	—	—

PROGRAM OUTCOMES (PO'S)

PO:1	**Engineering Knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems
PO:2	**Problem Analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
PO:3	**Design/Development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
PO:4	**Conduct investigations of Complex Problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions
PO:5	**Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations
PO:6	**The Engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO:7	**Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO:8	**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice
PO:9	**Individual and Teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
PO:10	**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions
PO:11	**Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments
PO:12	**Life-Long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change