S240 – ENGLISH - II

Lecture : 4 Periods/week	Internal Marks : 25
Tutorial :	External Marks : 75
Credits : 3	External Examination : 3 Hrs

UNIT - I

Environment (Learning English)

The World of Figures and Physics – Satyendranath Bose (Master Minds)

Grammar: Correction of sentences

Analytical Writing: Report Writing

UNIT - II

Inspiration (Learning English)

The Institution Builders– Santi Swarup Bhatnagar (Masterminds)

Grammar: If-clause; Question tags

Vocabulary: Idioms and Phrases

Analytical Writing: Resume'; Statement of Purpose

UNIT - III

Human Interest (Learning English)

The institution builders – MeghanadhSaha (Master Minds)

Grammar: Direct & Indirect Speeches

Vocabulary: Phrasal Verbs

Analytical Writing: Memo Drafting

UNIT – IV

Media (Learning English)

The New Age – HomiJehangirBhabha (Master Minds)

Grammar: Concord

Vocabulary: Analogy

Analytical Writing: Information Transfer/ Data Interpretation (Tables, Pie charts, Bar graphs, Tree diagrams, Pictograms, etc.)

UNIT – V

The New Age – Vikram Sarabhai (Master Minds)

Grammar: Gerunds & Infinitives; Correction of Sentences

Vocabulary: Words often confused

Analytical writing – Comprehension, Expansions (of a given topic/ proverbs)

TEXT BOOKS

1. "Learning English", Orient Longman Private Limited.JNTU edition,2008

2. EnakshiChatterjee, "Masterminds", Orient Longman Private Limited ,Reprint-2002

REFERENCES

1. KoneruAruna, "Professional Communication", Tata McGraw-Hill, New Delhi, 2007.

2. Rizvi, "Effective Technical Communication", Tata McGraw-Hills, New Delhi, 2009.

3. Andrea J. Rutherford, "Basic Communication Skills for Technology", Pearson Education., 1st edition, 2009

4. Kaplan and Baron's, "GRE and TOEFL', Latest editions.2008

Course Educational Objectives

In this course, the students will learn

- To write letters and reports effectively in formal and professional situations.
- To speak and write effectively in English in real life situations.
- To read speedily and meaningfully.

- Both active and passive vocabulary.
- The decision-making, while thinking logically and analyzing situations carefully.

Course Outcomes

After the completion of this course, prospective engineers will have the ability to

- Use English language effectively in written and spoken English
- Express the right ideas in right context
- Manage the situation and negotiate business with good English communication
- Think and analyze the situations and make good presentations of their work and decisions
- prepare oneself to face interviews and also to participate in group discussions

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	END Exams
8	Problems using software	Numerical treatment	
9	Self-study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
UNIT-I						
1	Introduction	08-12-2017		2	1	1,2,3,5,7

2	Environment	10-12-2017		2	1,3	
3	Environment	13-12-2017		2	1,3	
4	Environment	14-12-2017		2	1,3	
5	Correction of sentences	15-12-2017		2	1,9	
6	Correction of sentences – Quiz	17-12-2017		3	3,9	
7	Satyendranath Bose	20-12-2017		2	1,9	
8	Satyendranath Bose	21-12-2017		2	1,9	
9	Satyendranath Bose	22-12-2017		3	1,9	
10	Report Writing	24-12-2017		2	1,9	
11	Report Writing	27-12-2017		2	1,9	
12	Report Writing	28-12-2017		2	1,9	
13	Report Writing - Assignment	29-12-2017		2	3,9	
UNIT-II						
14	Inspiration	31-01-2017		2	1,3	1,2,3,5,7
15	Inspiration	03-01-2017		2	1,3	
16	Inspiration	04-01-2017		2	1,3	
17	Inspiration - Tutorial	05-01-2017		3	3,9	
18	If-Clause	07-01-2017		2	1,9	

19	Question Tags	17-01-2017		2	1,9	
20	If-Clause, Question Tags - Quiz	18-01-2017		3	3,9	
21	Idioms and Phrases	19-01-2017		2	1,9	
22	Idioms and Phrases	21-01-2017		2	1,9	
23	Santi Swarup Bhatnagar	24-01-2017		2	1,3	
24	Santi Swarup Bhatnagar - Tutorial	25-01-2017		3	3,9	
25	Resume	28-01-2017		2	1,9	
	MID - I	31-01-2017 T0 06-2017				5
UNIT-III						
29	Human Interest	07-02-2017		2	1,3	1,2,3,5,7
30	Human Interest	08-02-2017		2	1,3	
31	Human Interest - Tutorial	09-02-2017		3	3,9	
32	Direct and Indirect Speeches	14-02-2017		2	1,9	
33	Direct and Indirect Speeches	15-02-2017		2	1,9	
34	Phrasal Verbs	16-02-2017		2	1,9	
35	Phrasal Verbs Direct and Indirect Speeches - Quiz	18-02-2017		3	3,9	
36	Memo Drafting	21-02-2017		2	1,9	
37	MeghanadhSaha	22-02-2017		2	1,3	

38	Memo Drafting ; MeghanadhSaha - Assignment	25-02-2017		3	3,9	
UNIT-IV						
39	Information Transfer	28-02-2017		2	1,9	1,2,3,5,7
40	Information Transfer	01-03-2017		2	1,9	
41	Media	02-03-2017		2	1,3	
42	Media - Tutorial	04-03-2017		2	1,3	
43	Concord	07-03-2017		2	1,9	
44	Concord	08-03-2017		2	1,9	
45	Homi Jahangir Bhaba	09-03-2017		2	1,3	
46	Homi Jahangir Bhaba	14-03-2017		2	1,3	
UNIT-V						
47	Analogy	15-03-2017		2	1,9	1,2,3,5,7
48	Analogy	16-03-2017		2	1,9	
49	Vikram Sarabhai	18-03-2017		2	1,3	
50	Vikram Sarabhai	21-03-2017		2	1,3	
51	Vikram Sarabhai - Tutorial	22-03-2017		3	3,9	
52	Correction of sentences	23-03-2017		2	1,9	
53	Correction of sentences	25-03-2017		2	1,9	
54	Words often confused	28-03-2017		2	1,9	

55	Words often confused	29-03-2017		2	1,9	
56	Words often confused; Correction of sentences; -Quiz	30-03-2017		3	3,9	
57	Gerunds and Infinitives	01-04-2017		2	1,9	
58	Expansions	04-04-2017		2	1,9	
59	Comprehension	06-04-2017		2	1,9	
60	Comprehension; Expansions - Assignment	08-04-2017		3	3,9	
	MID-II	10-04-2017 To 17-04-2017				5

	Instructor	Course Coordinator	Module Coordinator	HOD
Name	K.Sridevi	Dr.B.Samrajya Lakshmi	Dr.B.Samrajya Lakshmi	Dr.A.Rami Reddy
Sign with Date				

LESSON PLAN

Course Code &Course Name: S 238, Engineering Physics SEM: II

Programme: I B. Tech Department: CSE-B

S.No	Tentative Date	Topics to be covered	No. of lectures	Actual date	Delivery Method
1.	08-12-16	**UNIT I INTERFERENCE:** Introduction	**01**		DM1
2.	09-12-16	Superposition of waves, Coherence	01		DM1
3.	10-12-16	Interference from thin films	01		DM1
4.	13-12-16	Newton's rings	01		DM8
5.	14-12-16	Newton's rings	01		DM8
6.	15-12-16	**DIFFRACTION:** Introduction – Diffraction and wave theory of light			DM8
7.	16-12-16	Difference between interference and diffraction, Types of diffraction	01		DM1
8.	17-12-16	***Tutorial***	01		DM2
9.	18-12-16	Single slit diffraction			DM8
10	20-12-16	Single slit diffraction	01		DM8
11	21-12-16	Double slit diffraction	01		DM8
12	22-12-16	diffraction –N parallel slits	01		DM1
13	23-12-16	Diffraction grating- Grating spectrum			DM1
14	24-12-16	***Tutorial***	01		DM2
15	27-12-16	**POLARISATION:** Introduction,	01		DM1
16	28-12-16	Polarization by reflection, Brewster's law	01		DM1
17	29-12-16	Polarization by scattering, Refraction and absorption	01		DM1
18	30-12-16	Double refraction, Nicol's prism			DM1
19	31-12-16	***Tutorial***	01		DM2
20	03-01-17	Optical Activity, QWP& HWP	01		DM1
21	04-01-17	***Assignment-1***	01		DM4
22	05-01-17	**Unit II Principles of Quantum mechanics Introduction**	01		DM1
23	06-01-17	De Broglie Hypothesis,	01		DM1
24	07-01-17	***Tutorial***			DM2
25	17-01-17	Properties Matter waves	01		DM1
26	18-01-17	G.P Thomsons Experiment	01		DM1
27	19-01-17	Davission &Germers experiment	01		DM1
28	20-01-17	Heisenberg's uncertainty principle	01		DM1
29	21-01-17	***Tutorial***	01		DM2
30	24-01-17	Schrodinger independent wave equation	01		DM1
31	25-01-17	Schrodinger independent wave equation	01		DM1
32	26-01-17	Physical significance of wave function	01		DM4
33	27-01-17	Particle in a box	01		DM1
34	28-01-17	***Tutorial***			DM2
35	31-01-17	Revision			DM8
36	01-02-17	***Assignment-2***			DM4
37	07-02-17	**UNIT III LASERS:** Introduction - characteristics of Lasers	01		DM1
38	08-02-17	Principle of laser (Absorption, Spontaneous and stimulated emission of radiation)	01		DM8
39	09-02-17	Difference between Spontaneous and stimulated emission of radiation	01		DM8
40	10-02-17	Meta stable state ,life time	01		DM1
41	11-02-17	***Tutorial***	01		DM2
42	14-02-17	Three and For level pumping	01		DM1
43	15-02-17	Population inversion	01		DM1

44	16-02-17	Einstein's coefficients	01		DM1
45	17-02-17	Ruby laser	01		DM8
46	18-02-17	***Tutorial***	01		DM2
47	20-02-17	He-Ne gas laser	01		DM8
48	21-02-17	**FIBER OPTICS** Introduction- principle and structure of optical fibre	01		DM8
49	22-02-17	Acceptance angle –acceptance cone-numerical aperture	01		DM1
50	23-02-17	optical fibres based on refractive index profile	01		DM1
51	25-02-17	***Tutorial***	01		DM2
52	28-02-17	Applications of optical fibers	01		DM1
53	01-03-17	***Assignment-3***	01		DM4
54	02-03-17	**Unit IV Magnetic materials Introduction**	01		DM3
55	03-03-17	Origin of Magnetic moment	01		DM1
56	04-03-17	***Tutorial***	01		DM2
57	07-03-17	Classification of magnetic materials(Para Dia,& Ferro)	01		DM1
58	08-03-17	Domain theory of ferromagnetism	01		DM8
59	09-03-17	Hysteresie loop,Soft and Hard Magnetic materials	01		DM8
60	10-03-17	Antiferro magnetic and ferrimagnetic materials	01		DM1
61	11-03-17	***Tutorial***	01		DM2
62	14-03-17	Applications	01		DM8
63	15-03-17	***Assignment-4***	01		DM4
64	16-03-17	**UNIT V SUPERCONDUCTIVITY:** Phenomenon, Critical Parameters	01		DM1
65	17-03-17	Meissner Effect and effect on electricity on super conductors	01		DM1
66	18-03-17	***Tutorial***	01		DM2
67	21-03-17	Type I, Type II Super conductors	01		DM1
68	22-03-17	BCS theory of Super Conductivity	01		DM8
69	23-03-17	Flux Quatisation	01		DM8
70	24-03-17	London equations, penetration depth	01		DM1
71	25-03-17	***Tutorial***	01		DM2
72	28-03-17	Josephson effect	01		DM8
73	30-03-17	Applications	01		DM8
74	31-03-17	SQUIDS	01		DM-1
75	01-04-17	***Assignment-5***	01		DM-4
76	04-04-17	***Revision***	01		DM-9
77	06-04-17	***Revision***	01		DM-9
78	07-04-17	***Revision***	01		DM-9
79	08-04-17	***Revision***	01		DM-9

Note:DELIVERY METHODS(DM) DM1:Lecture interspersed with discussions/BB,DM:2Tutorial, DM:3Lecture with quiz,DM:4 Assignment/Test,DM:5 Demonstration(laboratory, field visit),DM:6 Group discussion,DM:7 Group assignment/Project,DM8: Presentations/PPT,DM:9 Asynchronous Discussion.

Signature	Name of the faculty Name of Course Co-ordinator	
		HOD

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING, (AUTONOMOUS)
L.B.Reddy Nagar, Mylavaram – 521 230. Andhra Pradesh, INDIA
Department of Freshman Engineering

Engineering Physics Lab - Schedule

Faculty Name: N.Aruna **Date**: 8-12-16
Branch: I B. Tech –CSE - B **Semester :** II
Subject & Code: Engineering Physics Lab(L142) **A.Y.**: 2016-17

S.No	No. of lectures	Date	Planned Topics	Topics Covered	Remarks
80.	3	09-12-16	Introduction		
81.	3	16-12-16	Introduction		
82.	3	23-12-16	Demonstration		
83.	3	30-12-16	Experiment 1		
84.	3	06-01-17	Experiment 2		
85.	3	20-01-17	Experiment 3		
86.	3	27-01-17	Experiment 4		
87.	3	03-02-17	Experiment 5		
88.	3	10-02-17	Demonstration		
89.	3	17-02-17	Experiment 6		
90.	3	03-03-17	Experiment 7		
91.	3	10-03-17	Experiment 8		
92.	3	17-03-17	Experiment 9		
93.	3	24-03-17	Revision		
94.	3	31-03-17	**Internal Exam**		
95.	3	07-04-17	**Internal Exam**		

Faculty **Head of the Department**

16761A0561	16	18	13.5	4	18	5	23
16761A0562	17	20	15	4.25	19	5	24
16761A0563	4.5	5	3.75	1.125	5	4	9
16761A0564	8.5	5	6.375	1.25	8	4	12
16761A0565	3	6	4.5	0.75	5	5	10
16761A0566	16	19	14.25	4	18	5	23
16761A0567	16	20	15	4	19	5	24
16761A0568	12	10	9	2.5	12	4	16
16761A0569	20	19	15	4.75	20	5	25
16761A0570	3	7	5.25	0.75	6	4	10
16761A0571	17	0	12.75	0	13	5	18
16761A0572	5	4	3.75	1	5	4	9
16761A0573	3	7	5.25	0.75	6	4	10
16761A0574	13	15	11.25	3.25	15	5	20
16761A0575	5	12	9	1.25	10	4	14
16761A0576	**3**	5	3.75	0.75	5	4	9
16761A0577	5.5	13	9.75	1.375	11	5	16
16761A0578	10	18	13.5	2.5	16	4	20
16761A0579	13.5	12	10.125	3	13	5	18
16761A0580	17	15	12.75	3.75	17	5	22
16761A0581	12	16	12	3	15	5	20
16761A0582	19	18	14.25	4.5	19	5	24
16761A0583	6	1	4.5	0.25	5	4	9
16761A0584	14.5	16	12	3.625	16	5	21
16761A0585	16	15	12	3.75	16	5	21
16761A0586	9	18	13.5	2.25	16	4	20
16761A0587	3.5	8	6	0.875	7	5	12
16761A0588	0	13	9.75	0	10	3	13
16761A0589	**7**	**13**	9.75	1.75	12	3	15
16761A0590	19	18	14.25	4.5	19	5	24

16761A0591	1	14	10.5	0.25	11	4	15
16761A0592	6	8	6	1.5	8	4	12
16761A0593	0	9	6.75	0	7	3	10
16761A0595	17.5	20	15	4.375	19	5	24
16761A0596	4	11	8.25	1	9	5	14
16761A0597	12	15	11.25	3	14	5	19
16761A0598	5	10	7.5	1.25	9	4	13
16761A0599	12	13	9.75	3	13	5	18
16761A05A0	0	3	2.25	0	2	3	5
16761A05A1	10	9	7.5	2.25	10	5	15
16761A05A2	6	11	8.25	1.5	10	4	14
16761A05A3	5	10	7.5	1.25	9	3	12
16761A05A4	14	15	11.25	3.5	15	5	20
16761A05A5	20	19	15	4.75	20	5	25
16761A05A6	12	**17**	12.75	3	16	5	21
16761A05A7	15.5	6	11.625	1.5	13	5	18
16761A05A8	13	11	9.75	2.75	13	5	18
16761A05A9	19	20	15	4.75	20	5	25
16761A05B0	4	20	15	1	16	4	20
16761A05B1	19	20	15	4.75	20	5	25
16761A05B2	8	11	8.25	2	10	5	15
16761A05B3	18	17	13.5	4.25	18	5	23
16761A05B4	0	6	4.5	0	5	4	9
16761A05B5	18	16	13.5	4	18	5	23
16761A05B6	14	20	15	3.5	19	5	24
16761A05B7	4	5	3.75	1	5	4	9
16761A05B8	4	6	4.5	1	6	4	10
16761A05B9	13	15	11.25	3.25	15	5	20
16761A05C0	20	19	15	4.75	20	5	25

	Lakireddy Balireddy College of Engineering College L.B.Reddy Nagar, Mylavaram , Krishna District, A.P **FRESHMAN ENGINEERING DEPARTMENT**			
	LESSON PLAN			
	Subject **:**	**English - II- S240**		
	Academic Year :	**2016-17**	Semester : **II**	**Date: 08.12.2016**
	Year :	**I**	Section : **CSE A**	**To 12.04.2017**

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UNIT – V

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Grammar: Gerunds & Infinitives; Correction of Sentences

Vocabulary: Words often confused

Analytical writing – Comprehension, Expansions (of a given topic/ proverbs)

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7	Seminar	Mini Projects	END Exams
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
UNIT- I						
1	Introduction	**09.12.16**		2	1	
2	Environment	**10.12.16**		2	1,3	
3	Environment	**13.12.16**		2	1,3	
4	Environment	**14.12.16**		2	1,3	
5	Correction of sentences	**16.12.16**		2	1,9	
6	Correction of sentences - Quiz	**17.12.16**		3	1,9	
7	Satyendranath Bose	**20.12.16**		2	1,9	1,2,3,5,7
8	Satyendranath Bose	**21.12.16**		2	1,9	
9	Satyendranath Bose	**23.12.16**		3	1,9	
10	Report Writing	**24.12.16**		2	1,9	
11	Report Writing	**27.12.16**		2	1,9	
12	Report Writing - Assignment	**28.12.16**		2	1,9	
13	Inspiration	**30.12.16**		2	1, 3	
UNIT- II						
14	Inspiration	**31.12.16**		2	1,3	
15	Inspiration - Tutorial	**03.01.17**		2	1,3	
16	If-Clause	**04.01.17**		3	1,3	
17	Question Tags	**06.01.17**		2	1,9	
18	If-Clause, Question Tags - Quiz	**07.01.17**		2	1,9	
19	Idioms and Phrases	**10.01.17**		3	1,9	1,2,3,5,7
20	Idioms and Phrases	**11.01.17**		2	1,9	
21	Santi Swarup Bhatnagar	**17.01.17**		2	1,9	
22	Santi Swarup Bhatnagar	**18.01.17**		2	1,3	
23	Santi Swarup Bhatnagar	**20.01.17**		2	1,3	
24	Santi Swarup Bhatnagar - Tutorial	**21.01.17**		3	1,3	

25	Resume	**24.01.17**		2	1,9	
26	Resume	**25.01.17**		2	1,9	
27	Statement of Purpose	**27.01.17**		2	1,9	
28	Statement of Purpose	**28.01.17**		2	1,9	
29	Resume; Statement of Purpose- Assignment	**01.02.17**		2	1,9	
	M I D - I	**02-02-2017 T0 04-02-2017**				**5**
		UNIT- III				
30	Human Interest	**07.02.17**		2	1,3	1,2,3,5,7
31	Human Interest	**08.02.17**		2	1,3	
32	Human Interest	**10.02.17**		2	1,3	
33	Human Interest - Tutorial	**11.02.17**		3	1,3	
34	Direct and Indirect Speeches	**14.02.17**		2	1,9	
35	Direct and Indirect Speeches	**15.02.17**		2	1,9	
36	Phrasal Verbs	**17.02.17**		2	1,9	
37	Phrasal Verbs Direct and Indirect Speeches - Quiz	**18.02.17**		3	1,9	
38	Memo Drafting	**21.02.17**		2	1,9	
39	Memo Drafting	**22.02.17**		2	1,9	
40	Meghanadh Saha	**25.02.17**		2	1,3	
41	Meghanadh Saha	**28.02.17**		2	1,3	
42	Memo Drafting ; Meghanadh Saha - Assignment	**01.03.17**		3	1,9	
		UNIT- IV				
43	Information Transfer	**03.03.17**		2	1,9	
44	Media	**04.03.17**		2	1,3	
45	Media - Tutorial	**07.03.17**		2	1,3	
46	Concord	**08.03.17**		2	1,9	
47	Homi Jahagir Bhaba	**10.03.17**		2	1,3	

48	Homi Jahagir Bhaba	**11.03.17**		2	1,3	
49	Analogy	**14.03.17**		2	1,9	1,2,3,5,7
		UNIT- V				
50	Vikram Sarabhai	**15.03.17**		2	1,3	
51	Vikram Sarabhai - Tutorial	**17.03.17**		3	1,3	
52	Gerunds and Infinitives	**18.03.17**		2	1,9	
53	Gerunds and Infinitives	**21.03.17**		2	1,9	
54	Correction of sentences	**22.03.17**		2	1,9	
55	Words often confused	**24.03.17**		3	1,9	1,2,3,5,7
56	Words often confused	**25.03.17**		3	1,9	
57	Words often confused; Correction of sentences; Gerunds and Infinitives - Quiz	**28.03.17**		2	1,9	
58	Expansions	**31.03.17**		2	1,9	
59	Expansions	**01.04.17**		2	1,9	
60	Comprehension	**04.04.17**		3	1,9	
61	Comprehension; Expansions - Assignment	**07.04.17**		3	1,9	
62	Comprehension; Expansions - Assignment	**08.04.17**		3	1,9	
	MID-II	**(10-04-2017 to 12-04-2017)**				**5**

	Instructor	**Course Coordinator**	**Module Coordinator**	**H O D**
Name	Mr. B. Sreenivasa Reddy	Dr. B. Samrajya Lakshmi	Mr. B. Srajya Lakshmi	Dr. A. Rami Reddy
Sign. with Date				

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING, (AUTONOMOUS)
L.B.Reddy Nagar, Mylavaram – 521 230. Andhra Pradesh, INDIA
Department of Freshman Engineering

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COURSE : B.Tech, (II- Sem.,) **FACULTY** : Dr. T. Vasantha Rao

BRANCH : CSE -- A Section **Academic Year : 2016 – 2017**

SUBJECT : Engineering Physics **SUBJECT CODE : S- 238**

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Contents of the Course File (Bottom to Top)

1. Attendance Registers
2. Syllabus Copy
3. Previous Semester (Old) Question Papers
4. Course Outcomes
5. Lesson Plan
6. UNIT I: Descriptive Questions, Quiz Questions, Tutorials
7. UNIT II: Descriptive Questions, Quiz Questions, Tutorials
8. I-MID Examination Question Paper with Scheme of Valuation
9. UNIT III: Descriptive Questions, Quiz Questions, Tutorials
10. UNIT IV: Descriptive Questions, Quiz Questions, Tutorials
11. UNIT V: Descriptive Questions, Quiz Questions, Tutorials
12. II-MID Examination Question Paper with Scheme of Valuation
13. End Examination Question Paper with Scheme of Valuation
14. Assessment and Evaluation of Attainment of COs and POs

Note: Conduct minimum of 12 tutorials per course (2 tutorials per unit)

At the end of this course students will be able to:

COURSE OUTCOMES

S- 238.1: Identify the nature of Interference, Diffraction and Polarization.

S- 238.2: Analyze the dual nature of particle and significance of the wave function.

S- 238.3: Identify the principle of LASER and Optical fibers, types of lasers and their applications.

S- 238.4: Analyze the different types of magnetic materials and their uses.

S- 238.5: Identify the phenomenon of superconductivity on different materials

LESSON PLAN

Process of Teaching, Learning, Delivery and Assessment Methods:

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

UNIT-I : INTERFERENCE,DIFFRACTION AND POLARIATION							
S.No.	**Topics to be covered**	**No. of Classes**	**Tentative Date**	**Actual Date**	**TLP**	**D M**	**AM**
1.	General introduction	1	09-12-16		2,3	1	1,2,5
2.	General introduction	1	10-12-16		2,3	1	1,2,5
3.	**INTERFERENCE:** Introduction	1	13-12-16		2,3	1	4,5
4.	Superposition of waves	1	14-12-16		2,3	1	3,5
5.	Coherent sources	1	16-12-16		2,3	1	3,5
6.	Interference from thin films	1	17-12-16		2,3	1	1,2,5
7.	Tutorial	1	19-12-16		2,3	1	3,4
8.	Wedge shaped film	1	20-12-16		2,3	1	1,2,5

9.	Newton's rings,	1	21-12-16		2,3	1	1,2,3,5
10.	**DIFFRACTION:** Introduction – Diffraction and wave theory of light	1	23-12-16		2,3	1	1,2,3,5
11.	Comparison between Fresnel and Fraunhofer's diffractions, differences between interference and diffraction,	1	24-12-16		1,2,3	1	1,2,3,5
12.	Fraunhofer's Single slit diffraction	1	26-12-16		1,2	1	1,2,3,5
13.	Intensity in single slit diffraction, calculating the intensity	1	27-12-16		1,2,3	1	1,2,5
14.	Double slit diffraction , Double slit interference and diffraction combined	1	28-12-16		2,3	1	1,2,3,4,5
15.	Diffraction grating- Grating spectrum	1	30-12-16		1,2,3	1	3,4
16.	*Tutorial*	1	31-12-16		1,2,3	1	1,2,5
17.	**POLARISATION:** Introduction plane of vibration and plane of polarization.	1	02-01-17		1,2,3	1	1,2,5
18.	polarization by reflection, Brewster's law	1	03-01-17		1,2,3	1	1,2,5
19.	Geometry of Calcite crystal, Double refraction	**1**	04-01-17		1,2,3	1	1,2,3,4
20.	Nicol prism	**1**	06-01-17		1,2,3	1	1,2,3,4
21.	***Tutorial***	**1**	07-01-17		1,2,3	1	1,2,5
22.	Quarter wave and half wave plates.	**1**	16-01-17		1,2,3	1	1,2,5
23.	Assignment	**1**	17-01-17		1,2,3	1	3,4
No. of classes required to complete UNIT-I		**21**	**No. of classes taken**				

UNIT-II: PRINCIPLES OF QUANTUM MECHANICS

S.No.	Topics to be covered	No. of Classes	Tentative Date	Actual Date	TLP	DM	AM
24.	Introduction to quantum mechanics	**1**	18-01-17		2,3	1	1,2,3,4
25.	de-Broglie hypothesis- Matter waves	**1**	20-01-17		1,2,3	1	1,2,3,4
26.	***Tutorial***	**1**	21-01-17		1,2	1	1,2,3,4
27.	Davisson and Germer experiment	1	23-01-17		1,2,3	1	1,2,5
28.	G.P Thomson experiment	1	24-01-17		1,2,3	1	1,2,5
29.	Heisenberg's Uncertainty principle	1	25-01-17		1,2,3	1	1,2,3
30.	Schrödinger time independent wave equation	1	27-01-17		1,2	1	1,2,3,5

31.	***Tutorial***	1	28-01-17		1,2	1	1,2,5
32.	Physical significance of wave function	1	30-01-17		1,2	1	1,2,3,4
33.	particle in a box	1	31-01-17		1,2	1	1,2,3,4,5
34.	Assignment	1	01-02-17		1,2,3	1	1,2,3,5
35.	MID EXAM	1	03-02-17		1,2,3	1	1,2,3,5
36.	MID EXAM	1	04-02-17		1,2,3	1	1,2,3,5
No. of classes required to complete UNIT-II		**11**	**No. of classes taken**				

UNIT-III: LASERS & FIBER OPTICS							
S.No.	**Topics to be covered**	**No. of Classes**	**Tentative Date**	**Actual Date**	**TLP**	**DM**	**AM**
37.	**LASERS:** Introduction – characteristics of Lasers	1	06-02-17		1,2,3	1	1,2,3,5
38.	Principle of laser (Absorption, Spontaneous and stimulated emission of radiation)	1	07-02-17		1,2,3	1	3,4
39.	Einstein coefficients	1	08-02-17		1,2,3	1	3,4
40.	Population inversion, three and four level schemes	1	10-02-17		1,2,3	1	1,2,5
41.	Pumping schemes, block diagram of laser	1	11-02-17				5
42.	Ruby laser	1	13-02-17				5
43.	He-Ne gas laser	1	14-02-17		1,2,3	1	1,2,3,5
44.	Applications of laser	1	15-02-17		1,2	1	1,2,3,5
45.	***Tutorial***	1	17-02-17		1,2	1	1,2,3,5
46.	**FIBER OPTICS** Introduction- principle of optical fibre	1	18-02-17		1,2	1	1,2,3,5
47.	Acceptance angle –acceptance cone-numerical aperture	1	20-02-17		1,2	1	1,2,3,5
48.	Types of optical fibres	1	21-02-17		1,2	1	1,2,5
49.	optical fibres based on refractive index profile**.**	1	22-02-17		1,2	1	1,2,5
50.	Applications of optical fibers	1	25-02-17		1,2,3	1	3,4
51.	***Tutorial***	1	27-02-17		1,2,3	1	1,2,3,5
52.	Assignment	1	28-02-17		1,2	1	1,2,5

No. of classes required to complete UNIT-III	16	No. of classes taken	

UNIT-IV: MAGNETIC MATERIALS							
S.No.	**Topics to be covered**	**No. of Classes**	**Tentative Date**	**Actual Date**	**TLP**	**DM**	**AM**
53.	Magnetic parameters-	1	01-03-17		1,2	1	1,2,5
54.	origin of magnetic moment.	1	03-03-17		1,2	1	1,2,5
55.	Classification of magnetic materials-Dia, para , ferro magnetic materials	1	04-03-17		1,2	1	1,2,3,5
56.	***Tutorial***	1	06-03-17		1,2,3	1	1,2,3,5
57.	Anti ferromagnetic, ferrimagnetic materials-	1	07-03-17		1,2,3	1	1,2,3,5
58.	domain theory of ferro magnetism	1	08-03-17		1,2,3	1	1,2,3,5
59.	Hysteresis curve-soft and hard magnetic materials,.	1	10-03-17		1,2,3	1	1,2,3,5
60.	applications of magnetic materials	1	11-03-17		1,2,3	1	1,2,3,5
61.	***Tutorial***	1	13-03-17		1,2,3	1	1,2,3,5
62.	Assignment	1	14-03-17		1,2	1	1,2,3,5
No. of classes required to complete UNIT-IV		**10**	**No. of classes taken**				

UNIT-V: SUPERCONDUCTIVITY:							
S.No.	**Topics to be covered**	**No. of Classes**	**Tentative Date**	**Actual Date**	**TLP**	**DM**	**AM**
63.	Phenomenon, Critical Parameters	1	15-03-17		1,2	1	1,2,3,5
64.	Meissner Effect	1	17-03-17		1,2	1	1,2,3,5
65.	Type I, Type II Super conductors	1	18-03-17		1,2	1	1,2,3,5
66.	BCS theory of Super Conductivity	1	20-03-17		1,2	1	3,4,5
67.	Flux quantization	1	21-03-17		1,2,3	1	1,2,3,5
68.	London equations, penetration depth	1	22-03-17		1,2,3	1	1,2,3,5
69.	Josephson effects	1	24-03-17		1,2	1	1,2,3,5
70.	Applications of Super Conductors.	1	25-03-17		1,2	1	1,3,4,5
71.	***Tutorial***	1	27-03-17		1,2	1	1,2,3,5

72.	Assignment	1	29-03-17		1,2	1	1,2,3,5
73.	**Revision**	1	31-03-17		1,2	1	1,2,3,5
74.	**Revision**	1	01-04-17		1,2	1	1,2,3,5
75.	**Revision**	1	03-04-17		1,2,3	1	3,4
76.	**Revision**	1	04-04-17		1,2,3	1	1,2,5
77.	**Revision**	1	07-04-17		1,2,3	1	1,2,3,5
78.	**Revision**	1	08-04-17		1,2,3	1	1,2,3,5
No. of classes required to complete UNIT-V		**10**	**No. of classes taken**				

Dr. T. Vasantha Rao	Dr. T. Vasantha Rao	Dr. T. Vasantha Rao	Prof.A. Rami Reddy
Subject Teacher	**Course Coordinator**	**Module Coordinator**	**HOD**

Assessment Summary:

Assessment Task	Weightage (Marks)	**Course Outcomes**				
		CO1	CO2	CO3	CO4	CO5
Attendance/Assignments/Quiz's	05					
Mid Exams	20					
End Exam	75					
Total	100					

Mapping of Course Outcomes (COs) with Programme Outcomes (POs):

CO	Program Outcomes												Program Specific Outcomes			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4
S 313.1																
S 313.2																
S 313.3																
S 313.4																
S 313.5																

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING, (AUTONOMOUS)
L.B.Reddy Nagar, Mylavaram – 521 230. Andhra Pradesh, INDIA

Department of Freshman Engineering

Engineering Physics Lab, Lesson Plan

Faculty Name : Dr. T. Vasantha Rao **Date** : 08-12-16
Branch : I B. Tech – CSE(A) **Semester** : II
Subject & Code : Engineering Physics Lab L-142 **A.Y.** : 2016-17

S. No	No. of hrs	Date	Planned Topics	Topics Covered	Remarks
1	03	08-12-16	Introduction		
2	03	15-12-16	Introduction		
3	03	22-12-16	Demonstration		
4	03	29-12-16	Experiment 1		
5	03	05-01-17	Experiment 2		
6	03	19-01-17	Experiment 3		
7	03	02-02-17	Experiment 4		
8	03	09-02-17	Experiment 5		
9	03	16-02-17	Demonstration		
10	03	23-02-17	Experiment 6		
11	03	02-03-17	Experiment 7		
12	03	09-03-17	Experiment 8		
13	03	16-03-17	Experiment 9		
14	03	23-03-17	Revision		
15	03	30-03-17	**Internal Exam**		
16	03	06-04-17	**Internal Exam**		

Faculty Signature **Signature of HOD**

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
UNIT-I:LAPLACE TRANSFORMS AND INVERSE LAPLACE TRANSFORMS						
1	Course Objective, introduction, their applications	08/12/16		2	1	1,2,3,5,7
2	Laplace Transforms of Standard Functions	09/12/16		2,3	1	
3	Laplace Transforms of Standard Functions	10/12/16		2,3	1	

4	Proprties	14/12/16		2,3	1	
5	First Shifting theorem, Change of Scale Property	14/12/16		2,3	1	
6	Multiplication and division by t	15/12/16		2,3	1	
7	Derivatives and integrals	16/12/16		2,3	1	
8	Problems	17/12/16		2,3	1	
9	Dirac's Delta functions	19/12/16		2,3		
10	Unit Step function, Periodic function	21/12/16		2,3	1	
11	Inverse Laplace Transforms	21/12/16		2,3	1	
12	Multiplication and division by s	22/12/16		2,3	1	
13	**TUTORIAL-1**	23/12/16		3	1,9	
14	Derivatives and integrals	24/12/16		2,3	1	
15	Inverse L T using Partial Fractions	26/12/16		2,3	1	
16	Inverse L T using Partial Fractions	28/12/16		2,3	1	
17	**TUTORIAL-2**	28/12/16		3	1,9	
18	Convolution theorem	29/12/16		2,3	1	
19	Solving of O.D.E using L.T.	30/12/16		2,3	1	
20	Solving of O.D.E using L.T.	31/12/16		2,3	1	
21	Problems	02/01/17		2,3	1	
22	**Assignment-I**	04/1/17		3		
23	**Quiz I**	04/1/17		3		
UNIT II:FOURIER SERIES						
24	Introduction to Fourier series	05/1/17		2,3	1	
25	**TUTORIAL-3**	06/01/17		3	1,9	
26	Determination of Fourier coefficients	07/01/17		2,3	1	
27	Fourier Series Problems	16/1/17		2,3	1	
28	Fourier Series Problems	18/1/17		2,3	1	
29	**TUTORIAL-4**	18/1/17		3	1,9	
30	Even and Odd Functions	19/1/17		2,3	1	
31	Fourier Cosine and Sine Series	20/1/17		2,3	1	
32	Fourier Cosine and Sine Series	21/1/17		2,3	1	
33	**TUTORIAL-5**	23/1/17		3	1,9	
34	Fourier Series in an arbitrary interval	25/1/17		2,3	1	
35	Fourier Series in an arbitrary interval	25/1/17		2,3	1	
36	**TUTORIAL-6**	26/1/17		3	1,9	

37	Half-range Sine and Cosine series	27/1/17		2,3	1	1,2,3,5,7
38	Half-range Sine and Cosine series	28/1/17		2,3	1	
39	Half-range series in an arbitrary interval	30/1/17		2,3	1	
40	**TUTORIAL-7**	01/2/17		3	1,9	
41	Half-range series in an arbitrary interval	01/2/17		2,3	1	
50	I MID EXAM	02/2/17				
51	I MID EXAM	03/2/17				
52	I MID EXAM	04/2/17				
UNIT IV:Z -TRANSFORMS						
53	Introduction to Z-Transform	06/2/17		2,3	1	1,2,3,5,7
54	Properties	08/2/17		2,3	1	
55	Damping Rule	08/2/17		2,3	1	
56	Shifting Rule	09/2/17		2,3	1	
57	Initial and Final Value Theorems	11/2/17		2,3	1	
58	**TUTORIAL-8**	13/2/17		3	1,9	
59	Problems	15/2/17		2,3	1	
60	Inverse Z-Transform	15/2/17		2,3	1	
61	Inverse Z-Transform	16/2/17		2,3	1	
62	Convolution theorem	17/2/17		2,3	1	
63	Convolution theorem	18/2/17		2,3	1	
64	Sol. of difference equation by Z-Transform	20/2/17		2,3	1	
65	**TUTORIAL-9**	22/2/17		3	1,9	1,2,3,5,7
66	Sol. of difference equation by Z-Transform	22/2/17		2,3	1	
67	Problems	23/2/17		2,3	1	
68	**Assignment-IV**	25/2/17		3		
69	**Quiz IV**	27/2/17		3		
70	**TUTORIAL-10**	01/3/17			1,9	
UNIT III:FOURIER TRANSFORMS						
71	Fourier Integral theorem	1/3/17		2,3	1	
72	Fourier Integral theorem	2/3/17		2,3	1	
73	Fourier sine and cosine integrals	3/3/17		2,3	1	
74	Fourier Transform	4/3/17		3	1	
75	**TUTORIAL-11**	6/3/17		2,3	1,9	

76	Fourier Transform	8/3/17		2,3	1	1,2,3,5,7
77	Sine and cosine transforms	8/3/17		2,3	1	
78	Sine and cosine transforms	9/3/17		2,3	1	
79	Properties	10/3/17		2,3	1	
80	Inverse Transform	13/3/17		2,3	1	
81	Inverse Transform	15/3/17		2,3	1	
82	**TUTORIAL-12**	15/3/17		3	1,9	
83	Finite Fourier Transforms	16/3/17		2,3	1	
84	Finite Fourier Transforms	17/3/17		2,3	1	
85	Problems	18/3/17		3	1	1,2,3,5,7
86	**Assignment-III**	20/3/17		3		
87	**Quiz III**	22/3/17		3		
UNIT-V: MULTIPLE INTEGRALS						
88	Multiple Integrals	22/3/17		2,3	1	1,2,3,5,7
89	Double integrals-Cartesian	23/3/17		2,3	1	
90	**TUTORIAL 13**	24/3/17		3	1,9	
91	Double integrals-Polar	25/3/17		2,3	1	
92	Triple integrals-Cartesian	27/3/17		2,3	1	
93	Triple integrals-Polar	29/3/17		2,3	1	
94	Triple integrals-Spherical	29/3/17				
95	**TUTORIAL 14**	30/3/17		2,3	1	
96	Change of order of Integration	31/3/17		3	1,9	
97	Change of order of Integration	01/4/17		2,3	1	
98	Applications to Areas	03/4/17		2,3	1	
99	Applications to Areas	05/4/17		3	1,9	
100	Applications to Volumes	05/4/17		2,3	1	
101	**Assignment-IV**	06/4/17		2,3	1	
102	**Quiz IV**	07/4/17		3	1	
103	**REVISION**	08/4/17		3	1	
104	II MID EXAM	10/4/17		2,3	1	
105	II MID EXAM	11/4/17		3		
106	II MID EXAM	12/4/17		3		

K. Jhansi Rani

Signature of faculty Signature of Course Coordinator Signature of HOD

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING, (AUTONOMOUS)
L.B.Reddy Nagar, Mylavaram – 521 230. Andhra Pradesh, INDIA

Department of Freshman Engineering

Engineering Physics Lab, Lesson Plan

Faculty Name : Dr. T. Vasantha Rao **Date** : 08-12-16
Branch : I B. Tech – CSE(A) **Semester** : II
Subject & Code : Engineering Physics Lab L-142 **A.Y.** : 2016-17

S. No	No. of hrs	Date	Planned Topics	Topics Covered	Remarks
1	03	08-12-16	Introduction		
2	03	15-12-16	Introduction		
3	03	22-12-16	Demonstration		
4	03	29-12-16	Experiment 1		
5	03	05-01-17	Experiment 2		
6	03	19-01-17	Experiment 3		
7	03	02-02-17	Experiment 4		
8	03	09-02-17	Experiment 5		
9	03	16-02-17	Demonstration		
10	03	23-02-17	Experiment 6		
11	03	02-03-17	Experiment 7		
12	03	09-03-17	Experiment 8		
13	03	16-03-17	Experiment 9		
14	03	23-03-17	Revision		
15	03	30-03-17	**Internal Exam**		
16	03	06-04-17	**Internal Exam**		

Faculty Signature **Signature of HOD**

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
UNIT-I:LAPLACE TRANSFORMS AND INVERSE LAPLACE TRANSFORMS						
1	Course Objective, introduction, their applications	08/12/16		2	1	1,2,3,5,7
2	Laplace Transforms of Standard Functions	09/12/16		2,3	1	
3	Laplace Transforms of Standard Functions	10/12/16		2,3	1	

4	Problems	12/12/16		2,3	1	
5	First Shifting theorem, Change of Scale Property	14/12/16		2,3	1	
6	Multiplication and division by t	15/12/16		2,3	1	
7	Derivatives and integrals	16/12/16		2,3	1	
8	Problems	17/12/16		2,3	1	
9	Dirac's Delta functions	19/12/16		2,3		
10	Unit Step function, Periodic function	20/12/16		2,3	1	
11	Inverse Laplace Transforms	21/12/16		2,3	1	
12	Multiplication and division by s	22/12/16		2,3	1	
13	**TUTORIAL-1**	23/12/16		3	1,9	
14	Derivatives and integrals	24/12/16		2,3	1	
15	Inverse L T using Partial Fractions	26/12/16		2,3	1	
16	Inverse L T using Partial Fractions	27/12/16		2,3	1	
17	**TUTORIAL-2**	28/12/16		3	1,9	
18	Convolution theorem	29/12/16		2,3	1	
19	Solving of O.D.E using L.T.	30/12/16		2,3	1	
20	Solving of O.D.E using L.T.	31/12/16		2,3	1	
21	Problems	02/01/17		2,3	1	
22	**Assignment-I**	03/1/17		3		
23	**Quiz I**	04/1/17		3		
UNIT II:FOURIER SERIES						
24	Introduction to Fourier series	05/1/17		2,3	1	
25	**TUTORIAL-3**	06/01/17		3	1,9	
26	Determination of Fourier coefficients	07/01/17		2,3	1	
27	Fourier Series Problems	16/1/17		2,3	1	
28	Fourier Series Problems	17/1/17		2,3	1	
29	**TUTORIAL-4**	18/1/17		3	1,9	
30	Even and Odd Functions	19/1/17		2,3	1	
31	Fourier Cosine and Sine Series	20/1/17		2,3	1	
32	Fourier Cosine and Sine Series	21/1/17		2,3	1	
33	**TUTORIAL-5**	23/1/17		3	1,9	
34	Fourier Series in an arbitrary interval	24/1/17		2,3	1	
35	Fourier Series in an arbitrary interval	25/1/17		2,3	1	
36	**TUTORIAL-6**	26/1/17		3	1,9	

37	Half-range Sine and Cosine series	27/1/17		2,3	1	1,2,3,5,7
38	Half-range Sine and Cosine series	28/1/17		2,3	1	
39	Half-range series in an arbitrary interval	30/1/17		2,3	1	
40	**TUTORIAL-7**	31/1/17		3	1,9	
41	Half-range series in an arbitrary interval	01/2/17		2,3	1	
50	I MID EXAM	02/2/17				
51	I MID EXAM	03/2/17				
52	I MID EXAM	04/2/17				
UNIT IV:Z -TRANSFORMS						
53	Introduction to Z-Transform	06/2/17		2,3	1	1,2,3,5,7
54	Properties	07/2/17		2,3	1	
55	Damping Rule	08/2/17		2,3	1	
56	Shifting Rule	09/2/17		2,3	1	
57	Initial and Final Value Theorems	11/2/17		2,3	1	
58	**TUTORIAL-8**	13/2/17		3	1,9	
59	Problems	14/2/17		2,3	1	
60	Inverse Z-Transform	15/2/17		2,3	1	
61	Inverse Z-Transform	16/2/17		2,3	1	
62	Convolution theorem	17/2/17		2,3	1	
63	Convolution theorem	18/2/17		2,3	1	
64	Sol. of difference equation by Z-Transform	20/2/17		2,3	1	
65	**TUTORIAL-9**	21/2/17		3	1,9	1,2,3,5,7
66	Sol. of difference equation by Z-Transform	22/2/17		2,3	1	
67	Problems	23/2/17		2,3	1	
68	**Assignment-IV**	25/2/17		3		
69	**Quiz IV**	27/2/17		3		
70	**TUTORIAL-10**	28/2/17			1,9	
UNIT III:FOURIER TRANSFORMS						
71	Fourier Integral theorem	1/3/17		2,3	1	
72	Fourier Integral theorem	2/3/17		2,3	1	
73	Fourier sine and cosine integrals	3/3/17		2,3	1	
74	Fourier Transform	4/3/17		3	1	
75	**TUTORIAL-11**	6/3/17		2,3	1,9	

76	Fourier Transform	7/3/17		2,3	1	1,2,3,5,7
77	Sine and cosine transforms	8/3/17		2,3	1	
78	Sine and cosine transforms	9/3/17		2,3	1	
79	Properties	10/3/17		2,3	1	
80	Inverse Transform	13/3/17		2,3	1	
81	Inverse Transform	14/3/17		2,3	1	
82	**TUTORIAL-12**	15/3/17		3	1,9	
83	Finite Fourier Transforms	16/3/17		2,3	1	
84	Finite Fourier Transforms	17/3/17		2,3	1	
85	Problems	18/3/17		3	1	1,2,3,5,7
86	**Assignment-III**	20/3/17		3		
87	**Quiz III**	21/3/17		3		
UNIT-V: MULTIPLE INTEGRALS						
88	Multiple Integrals	22/3/17		2,3	1	1,2,3,5,7
89	Double integrals-Cartesian	23/3/17		2,3	1	
90	**TUTORIAL 13**	24/3/17		3	1,9	
91	Double integrals-Polar	25/3/17		2,3	1	
92	Triple integrals-Cartesian	27/3/17		2,3	1	
93	Triple integrals-Polar	29/3/17		2,3	1	
94	Triple integrals-Spherical	30/3/17		2,3	1	
95	**TUTORIAL 14**	31/3/17		3	1,9	
96	Change of order of Integration	01/4/17		2,3	1	
97	Change of order of Integration	03/4/17		2,3	1	
98	Applications to Areas	04/4/17		3	1,9	
99	Applications to Areas	05/4/17		2,3	1	
100	Applications to Volumes	06/4/17		2,3	1	
101	**Assignment-IV**	07/4/17		3	1	
102	**Quiz IV**	08/4/17		3	1	
103	II MID EXAM	10/4/17		2,3	1	
104	II MID EXAM	11/4/17		3		
105	II MID EXAM	12/4/17		3		

Dr. A. Rami Reddy
Signature of faculty Signature of Course Coordinator Signature of HOD

	LakireddyBalireddy College of Engineering College L.B.Reddy Nagar, Mylavaram , Krishna District, A.P **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**				
	LESSON PLAN				
	Subject **:**	**L131 Digital Electronics Lab**			
	Academic Year :	**2016-17**	Semester :	**II**	**Date: 08.12.2016**
	Year :	**II (2016-20)**	Section :	**A**	**To 17.04.2016**

L131 Digital Electronics Lab

Lecture : 3 Periods/week **Internal Marks : 25**

Tutorial **External Marks : 75**

Credits : 2 **External Examination : 3 Hrs**

CYCLE 1

1.a) Basic Gates Function Verification using truth tables.

i) AND Gate using 7408 IC

ii) OR Gate using 7432 IC

iii) NOT Gate using 7404 IC

b) Universal Gates Functional Verification

i) NAND Gate using 7400 IC

ii) NOR Gate using 7402 IC

c) Special Gates Functional verification

i) XOR Gate using 7486 IC

ii) XNOR Gate using XOR followed by NOT Gate

2. Realization of following gates using universal gates and its functional verification.

AND, OR, XOR, NOT

3. a) Design Half-adder and Full-adder circuits and verify its functionality.

b) Verify the functionality of four bit ripple carry adder for signed and unsigned integers with the verification of overflow condition.

4. Design a four bit comparator and verify its functionality(using logic gates or IC's)

5. Design a BCD to Excess-3 code converter and verify its functionality by using gates.

6. Design a BCD to Gray code converter and verify its functionality by using gates.

7. Design and verify the functionality of Decoders and multiplexers of different inputs.

CYCLE 2

8. Verify the functionality of following Flip-Flops.

a) SR Flip-Flop

b) JK Flip-Flop

c) D Flip-Flop

d) T Flip-Flop

9. a) Design a UP-Counter using JK/T Flip-Flop.

b) Design a MOD-3 Counter.

10. Design a Bi-directional Counter using JK/T Flip-Flop.

CYCLE 3

11. IC555 Timer- Astable Operations-Monostable Operations.

12. PCB Drawing

13. Project**.**

	LAB PLAN	
	Sub Name : **DIGITAL LOGIC DESIGN LAB**	**Date: 08.12.16** **To 17.04.17**
	Branch: CSE (sec-B) **Semester: II**	

COURSE OBJECTIVE:

The course will provide the student with a firm foundation of the principles of digital design by building a working knowledge of digital electronics and its applications. By the end of the semester, the student shall have acquired the basic skill in using the digital design kit;

- Use of prototyping board.

- Use of basic gates, decoders and multiplexers.
- Use of PLDs
- Use of flip-flops, counters and shift registers.
- Use of logic probe.

COURSE OUTCOMES:

A student who successfully fulfills the course requirements will have demonstrated:

1. An ability to operate laboratory equipment.
2. An ability to construct, analyzes, and troubleshoots simple combinational and sequential circuits.
3. An ability to design and troubleshoot a simple state machine.
4. An ability to measure and record the experimental data, analyze the results, and prepare a formal laboratory report.

	LAB PLAN	
	Sub Name : **DIGITAL LOGIC DESIGN LAB** **Branch: CSE (sec-B)** **Semester: II**	**Date: 08.12.16** **To 17.04.17**

Lesson Plan for CSE (SEC-B)

CYCLE-I

Program: 1

Basic gates (AND, OR, NOT), Universal gates (NAND, NOR) and Special gates (XOR, XNOR) function verification using truth tables.

Session No	Topics to be covered	Date	Teaching Method	Remarks
1	Introduction to logisim software	12.12.2016	BB	
2	Basic gates verification	19.12.2016	BB	

Program: 2

Realize the gates(AND,OR, NOT, XOR) using the universal gates(NAND, NOR) and also prove the theorems of Boolean algebra.

Session No	Topics to be covered	Date	Teaching Method	Remarks
3	Realization of AND, OR, NOT, XOR gates	26.12.2016	BB	

Program: 3

Designing the half adder, full adder, half subtractor, full subtractor and the ripple carry adder of digital circuits.

Session No	Topics to be covered	Date	Teaching Method	Remarks
6	Half adder, Full adder, Half subtractor	02.01.2017	BB	
7	Full subtractor, Ripple carry adder	09.01.2017	BB	

Program:4

Designing the four bit comparator and verify the functionality.

Session No	Topics to be covered	Date	Teaching Method	Remarks
8	Four bit comparator	23.01.2017	BB	

	LAB PLAN	
	Sub Name : **DIGITAL LOGIC DESIGN LAB** **Branch: CSE (sec-B)** **Semester: II**	**Date: 08.12.16** **To 17.04.17**

Program:5

Designing the BCD to Excess-3 code converter and verify the functionality.

Session No	Topics to be covered	Date	Teaching Method	Remarks
9	BCD to Excess-3 code converter	30.01.2017	BB	

Program:6

Designing the BCD to Gray code converter and verify the functionality.

Session No	Topics to be covered	Date	Teaching Method	Remarks
9	BCD to Gray code converter	06.02.2017	BB	

Program:7

Verify the functionality of decoders and multiplexers.

Session No	Topics to be covered	Date	Teaching Method	Remarks
10	Decoders, Multiplexer	13.02.2017	BB	

CYCLE-II

Program:8

Verify the functionality of J-K Flip-flop, D-Flip-flop, T- Flip-flop, S-R Flip-flop.

Session No	Topics to be covered	Date	Teaching Method	Remarks
11	Flip-flops	20.02.2017	BB	

Program:9

Design the UP and Mod-3 and Down counter using JK/T Flip-flops

Session No	Topics to be covered	Date	Teaching Method	Remarks
12	UP counter, Mod-3 counter	27.02.2017	BB	
13	Down counter	06.03.2017	BB	

	LAB PLAN	
	Sub Name : **DIGITAL LOGIC DESIGN LAB** **Branch: CSE (sec-B)** **Semester: II**	**Date: 08.12.16** **To 17.04.17**

Program:10

Design the Bidirectional counter using JK/T Flip-flops

Session No	Topics to be covered	Date	Teaching Method	Remarks
14	Bidirectional counter	06.03.2017	BB	

Program:11

Design the Astable-Monostable Operations of IC 555 Timer

Session No	Topics to be covered	Date	Teaching Method	Remarks
14	IC 555 Timer – Astable-Monostable Operations	20.03.2017	BB	

Program:12

Design a Project of any Application.

Session	Topics to be covered		Teaching Method	Remarks

No		Date		
15	PCB Drawing Techniques	27.03.2017	BB	
16	Lab Internal Exam	03.04.2017	BB	
17	Project	11.04.2017	BB	

	Instructor	Course Coordinator	Module Coordinator	HOD
Name	A.RAJAGOPAL			Dr. N. Ravi Shankar
Sign with Date	07-12-2016			07-12-2016

	LakireddyBalireddy College of Engineering College L.B.Reddy Nagar, Mylavaram , Krishna District, A.P **DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**				
	LESSON PLAN				
	Subject **:**	**L131 Digital Electronics Lab**			
	Academic Year :	**2016-17**	Semester :	**II**	**Date: 08.12.2016**
	Year :	**II (2016-20)**	Section :	**A**	**To 17.04.2016**

L131 Digital Electronics Lab

Lecture : 3 Periods/week **Internal Marks : 25**

Tutorial **External Marks : 75**

Credits : 2 **External Examination : 3 Hrs**

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b) Verify the functionality of four bit ripple carry adder for signed and unsigned integers with the verification of overflow condition.

4. Design a four bit comparator and verify its functionality(using logic gates or IC's)

5. Design a BCD to Excess-3 code converter and verify its functionality by using gates.

6. Design a BCD to Gray code converter and verify its functionality by using gates.

7. Design and verify the functionality of Decoders and multiplexers of different inputs.

CYCLE 2

8. Verify the functionality of following Flip-Flops.

a) SR Flip-Flop

b) JK Flip-Flop

c) D Flip-Flop

d) T Flip-Flop

9. a) Design a UP-Counter using JK/T Flip-Flop.

b) Design a MOD-3 Counter.

10. Design a Bi-directional Counter using JK/T Flip-Flop.

CYCLE 3

11. IC555 Timer- Astable Operations-Monostable Operations.

12. PCB Drawing

13. Project**.**

	LAB PLAN	
	Sub Name : **DIGITAL LOGIC DESIGN LAB** **Branch: CSE (sec-B)** **Semester: II**	**Date: 08.12.16** **To 17.04.17**

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- Use of basic gates, decoders and multiplexers.
- Use of PLDs
- Use of flip-flops, counters and shift registers.
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3. An ability to design and troubleshoot a simple state machine.
4. An ability to measure and record the experimental data, analyze the results, and prepare a formal laboratory report.

	LAB PLAN	
	Sub Name : **DIGITAL LOGIC DESIGN LAB** **Branch: CSE (sec-B)** **Semester: II**	**Date: 08.12.16** **To 17.04.17**

Lesson Plan for CSE (SEC-B)

CYCLE-I

Program: 1

Basic gates (AND, OR, NOT), Universal gates (NAND, NOR) and Special gates (XOR, XNOR) function verification using truth tables.

Session No	Topics to be covered	Date	Teaching Method	Remarks
1	Introduction to logisim software	12.12.2016	BB	
2	Basic gates verification	19.12.2016	BB	

Program: 2

Realize the gates(AND,OR, NOT, XOR) using the universal gates(NAND, NOR) and also prove the theorems of Boolean algebra.

Session No	Topics to be covered	Date	Teaching Method	Remarks
3	Realization of AND, OR, NOT, XOR gates	26.12.2016	BB	

Program: 3

Designing the half adder, full adder, half subtractor, full subtractor and the ripple carry adder of digital circuits.

Session No	Topics to be covered	Date	Teaching Method	Remarks
6	Half adder, Full adder, Half subtractor	02.01.2017	BB	
7	Full subtractor, Ripple carry adder	09.01.2017	BB	

Program:4

Designing the four bit comparator and verify the functionality.

Session No	Topics to be covered	Date	Teaching Method	Remarks
8	Four bit comparator	23.01.2017	BB	

	LAB PLAN	
	Sub Name : **DIGITAL LOGIC DESIGN LAB** **Branch: CSE (sec-B)** **Semester: II**	**Date: 08.12.16** **To 17.04.17**

Program:5

Designing the BCD to Excess-3 code converter and verify the functionality.

Session No	Topics to be covered	Date	Teaching Method	Remarks
9	BCD to Excess-3 code converter	30.01.2017	BB	

Program:6

Designing the BCD to Gray code converter and verify the functionality.

Session No	Topics to be covered	Date	Teaching Method	Remarks
9	BCD to Gray code converter	06.02.2017	BB	

Program:7

Verify the functionality of decoders and multiplexers.

Session No	Topics to be covered	Date	Teaching Method	Remarks
10	Decoders, Multiplexer	13.02.2017	BB	

CYCLE-II

Program:8

Verify the functionality of J-K Flip-flop, D-Flip-flop, T- Flip-flop, S-R Flip-flop.

Session No	Topics to be covered	Date	Teaching Method	Remarks
11	Flip-flops	20.02.2017	BB	

Program:9

Design the UP and Mod-3 and Down counter using JK/T Flip-flops

Session No	Topics to be covered	Date	Teaching Method	Remarks
12	UP counter, Mod-3 counter	27.02.2017	BB	
13	Down counter	06.03.2017	BB	

	LAB PLAN	
	Sub Name : **DIGITAL LOGIC DESIGN LAB** **Branch: CSE (sec-B)** **Semester: II**	**Date: 08.12.16** **To 17.04.17**

Program:10

Design the Bidirectional counter using JK/T Flip-flops

Session No	Topics to be covered	Date	Teaching Method	Remarks
14	Bidirectional counter	06.03.2017	BB	

Program:11

Design the Astable-Monostable Operations of IC 555 Timer

Session No	Topics to be covered	Date	Teaching Method	Remarks
14	IC 555 Timer – Astable-Monostable Operations	20.03.2017	BB	

Program:12

Design a Project of any Application.

Session No	Topics to be covered	Date	Teaching Method	Remarks
15	PCB Drawing Techniques	27.03.2017	BB	
16	Lab Internal Exam	03.04.2017	BB	
17	Project	11.04.2017	BB	

	Instructor	Course Coordinator	Module Coordinator	HOD
Name	A.RAJAGOPAL			Dr. N. Ravi Shankar
Sign with Date	07-12-2016			07-12-2016

S191 – DIGITAL LOGIC DESIGN

Lecture : 5 Periods/week **Internal Marks : 25**

Tutorial : 1 **External Marks : 75**

Credits : 4 **External Examination : 3 Hrs**

UNIT - I

Binary Systems: Digital Computers and Digital Systems, Binary Numbers, Number base Conversion, Octal and Hexadecimal Numbers, Complements, Binary Codes, Binary Storage and Registers, Binary Logic, Integrated Circuits. **Boolean Algebra And Logic Gates:** Basic Definitions, Axiomatic definition of Boolean Algebra, Basic theorems and Properties of Boolean Algebra, Boolean functions, Canonical and Standard Forms, Other operations, Digital Logic Gates.

UNIT - II

Simplification Of Boolean Expressions: Formulation of simplification problem, Prime Implicants and irredundant disjunctive and conjunctive expression, Karnaugh Maps, Minimal Expressions for complete and incomplete Boolean functions. Five and Six Variable K-Maps, Quine-McCluskey Method, Prime Implicants and Implicate tables and irredundant expressions, and Table reductions.

UNIT - III

Combinational Logic: Design Procedure, Adders, Subtractors, Code Conversion, Analysis Procedure, multilevel NAND and NOR circuits. Combinational Logic with MSI And LSI: Binary Parallel Adder, Decimal Adder, Magnitude Comparator, Decoders, Multiplexers.

UNIT - IV

Sequential Logic: Flip Flops, Triggering of Flip-Flops, Analysis of Clocked Sequential Circuits, State Reduction and Assignment, Flip-Flop Excitation tables, Design Procedure, Design of Counters, Design with state equations Registers, Counters and Memory : Registers. Shift registers, Ripple Counters, Synchronous Counters, Timing sequences, the memory unit.

UNIT - V

Programmable Logic: Read – Only Memory (ROM), PROM, Programmable Logic Device (PLD), Programmable Logic Array (PLA), Programmable Array Logic (PAL), 555 Timer, Astable and Monostable timers.

Prerequisites:

1. Basic computer knowledge.
2. Basic Mathematics fundamentals**.**
3. Number systems.

Course Educational Objectives:

This course enables the students to know about

1. Apply the knowledge of mathematics, Computer science and engineering.
2. Realize complex logic functions utilizing programmable logic.
3. Design digital circuitry, analyze and interpret data

DIGITAL LOGIC DESIGN

Course Outcomes(COs):

By the completion of the course, the students are able to:

CO 1.Understand different Number systems, Codes,Logic Gates, Boolean laws &theorems.

CO 2. Simplify the Boolean functions to the minimum number of literals using K-Maps.

CO 3. Design & implement different types of combinational logic circuits using Logic gates.

CO 4. Design & implement different types of sequential logic circuits using Flip Flops.

CO 5. Design & implement different types of Counters, Registers, and Programmable Logic Devices.

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
1.	**UNIT-1 : BINARY SYSTEMS** Introduction to Digital Systems	08.12.2016		2	1	

2.	Digital Systems,	08.12.2016		2	1	
3.	Binary Numbers	09.12.2016		2	1	
4.	Number base Conversion	13.12.2016		2	1	
5.	Octal and Hexadecimal Numbers	14.12.2016		2	1,9	
6.	Complements	15.12.2016		2	1,9	
7.	**TUTORIL/ASSIGNMENT/QUIZ**	15.12.2016		2	1,9	
8.	Binary Codes	16.12.2016		2	1	
9.	Binary Codes	19.12.2016		2	1	
10.	Binary Storage and Registers,	20.12.2016		2	1	
11.	Binary Logic	21.12.2016		2	1,9	
12.	Integrated Circuits	22.12.2016		2	1,9	
13.	Introduction to Boolean algebra	22.12.2016		2	1,9	
14.	Basic Definitions, Axiomatic definition of Boolean Algebra	23.12.2016		2	1,9	
15.	Axiomatic definition of Boolean Algebra	26.12.2016		2	1	
16.	Axiomatic definition of Boolean Algebra	27.12.2016		2	1	
17.	Basic theorems and Properties of Boolean Algebra	28.12.2016		2	1	
18.	Basic theorems and Properties of Boolean Algebra	29.12.2016		2	1,9	
19.	**TUTORIL/ASSIGNMENT/QUIZ**	29.12.2016		2	1,9	

20.	Boolean functions	30.12.2017		2	1,9	
21.	Boolean functions	02.01.2017		2	1,9	
22.	Boolean functions	03.01.2017		2	1	
23.	Canonical and Standard Forms	04.01.2017			1	
24.	Canonical and Standard Forms	05.01.2017			1	
25.	Other operations – SOP to POS and vice-versa conversions	05.01.2017		2	1,9	
26.	Digital Logic Gates	06.01.2017		2	1,9	
27.	Digital Logic Gates – Universal Gates	09.01.2017		2	1,9	
28.	Realization of basic gates	10.01.2017		2	1,9	
29.	Realization of basic gates	11.01.2017		2	1,9	
30.	Slip test on UNIT-1	12.01.2017		2	1,9	
31.	**UNIT-II: SIMPLIFICATION OF BOOLEAN EXPRESSIONS,** Introduction					1,3,5,7
32.	Introduction to Karnaugh Maps	12.01.2017		2	1,9	
33.	One Variable, Two variable, Three Variable maps	17.01.2017		2	1	
34.	Four Variable Map	18.01.2017		2	1	
35.	Four Variable Map - Problems	19.01.2017		2	1	
36.	**TUTORIL/ASSIGNMENT/QUIZ**	19.01.2017		2	1,9	
37.	Five Variable K-Map and Examples	20.01.2017		2	1,9	

38.	Six Variable K-Maps Examples	23.01.2017		2	1	
39.	Minimal Expressions for incomplete Boolean functions	24.01.2017		2	1,9	
40.	Quine-McCluskey Method	25.01.2017		2	1,9	
41.	Prime implicants and Essential Prime Implicants	26.01.2017		2		
42.	**TUTORIL/ASSIGNMENT/QUIZ**	26.01.2017		2		
43.	Pertickson Method for irredundant expression	27.01.2017		2		
44.	Slip Test on UNIT-2	30.01.2017		2		
45.	**I-MID EXAMS**	31.01.2017 to 06.02.2017				
46.	**UNIT-III: COMBINATIONAL LOGIC:** Introduction, Design Procedure, Analysis Procedure	07.02.2017		2		
47.	Adders , Subtractors	08.02.2017		2		
48.	Code Conversion	09.02.2017		2	1	
49.	Multilevel NAND circuits	09.02.2017		2		
50.	Multilevel NOR circuits	10.02.2017		2	1,2	
51.	**TUTORIL/ASSIGNMENT/QUIZ**	13.02.2017		2	1,2	
52.	Binary Parallel Adder, Decimal Adder	14.02.2017		2		1,3,5,7
53.	Decimal Adder	15.02.2017		2	1,2	Slip test

54.	Magnitude Comparator	16.02.2017		2	1,2	on Unit-4
55.	Decoders	16.02.2017		2	1,2	
56.	Multiplexers	17.02.2017		2	1,2	
57.	**TUTORIL/ASSIGNMENT/QUIZ**	20.02.2017		2	1,2	
58.	Slip test on UNIT-3	21.02.2017		2	1,2	
59.	**UNIT-IV: SEQUENTIAL LOGIC:** Introduction to Sequential Logic, Flip Flops	22.02.2017				
60.	Triggering of Flip-Flops,	23.02.2017		2	1,2	
61.	Analysis of Clocked Sequential Circuits	23.02.2017		2	1,2	1,3,5,7
62.	State Reduction and Assignment	27.02.2017		2	1,2	
63.	Flip-Flop Excitation tables	28.02.2017		2	1,2	
64.	Design Procedure, Design of Counters	01.03.2017		2	1,2	
65.	**TUTORIL/ASSIGNMENT/QUIZ**	02.03.2017		2	1,2	
66.	Introduction to Registers, Shift registers	02.03.2017		2	1,2	
67.	Ripple Counters	03.03.2017		2	1,2	
68.	Synchronous Counters	06.03.2017		2	1,2	
69.	Timing sequences	07.03.2017		2	1,2	
70.	the memory unit	08.03.2017		2	1,2	
71.	**TUTORIL/ASSIGNMENT/QUIZ**	09.03.2017			1,2	

72.	Slip test on Unit-4	09.03.2017		2	1,2	
73.	**UNIT-V: PROGRAMMABLE LOGIC & CLOCK CIRCUITS:** Introduction	10.03.2017		2	1,2	
74.	Read – Only Memory (ROM)	14.03.2017			1,2	
75.	Read – Only Memory (ROM)	15.03.2017		2	1,2	
76.	Problems	16.03.2017		2	1,2	
77.	Programmable Read Only memory	16.03.2017		2	1,2	1,3,5,7
78.	Programmable Read Only memory	17.03.2017		2	1,2	
79.	Programmable Logic Device (PLD)	20.03.2017		2	1,2	
80.	Programmable Logic Device (PLD)	21.03.2017		2	1,2	
81.	Problems	22.03.2017		2	1,2	
82.	Programmable Logic Array	23.03.2017		2	1,2	
83.	**TUTORIL/ASSIGNMENT/QUIZ**	23.03.2017		2	1,2	
84.	Programmable Logic Array	24.03.2017		2	1,2	
85.	Problems	27.03.2017		2	1,2	
86.	Programmable Array Logic (PAL).	29.03.2017		2	1,2	
87.	555 Timer	30.03.2017		2	1,2	
88.	**TUTORIL/ASSIGNMENT/QUIZ**	30.03.2017		2	1,2	
89.	Astable and Monostable operations	31.03.2017		2	1,2	

90.	Slip Test on UNIT-5	03.04.2017		2	1,2	
91.	Revision	04.04.2017		2	1,2	
92.	Revision	06.04.2017		2	1,2	
93.	Content beyond syllabus/New applications	06.04.2017		2	1,2	
94.	Content beyond syllabus/New applications	07.04.2017		2	1,2	
	II-MID EXAMS	10-04-2017 TO 17-04-2016				

Assessment Summary:

Assessment Task	Weight age (Marks)	**Course Outcomes**				
		CO1	CO2	CO3	CO4	CO5
Assignments	05					
Quizzes	--					
Tutorials	--					
Surprise Tests	--					
Mid Exams	20					
Model Exams	--					
End Exam	75					
Attendance	--					
Total	100					

Mapping Course Outcomes with Programme Outcomes:

Course Code	Unit	Course Outcomes					Programme Outcomes										
		1	2	3	4	5	a	b	c	d	e	f	g	h	i	j	k
S191	I						2	1	1		2				3	2	1
	II						2	1	1		2				3	2	1
	III						2	1	1		2				3	2	1
	IV						2	1	1		2				3	2	1
	V						2	1	1		2				3	2	1

	Instructor	Course Coordinator	Module Coordinator	HOD
Name	A.RAJAGOPAL			Dr. N. Ravi Shankar
Sign with Date	07-12-2016			

S191 – DIGITAL LOGIC DESIGN

Lecture : 5 Periods/week	**Internal Marks : 25**
Tutorial : 1	**External Marks : 75**
Credits : 4	**External Examination : 3 Hrs**

UNIT - I

Binary Systems: Digital Computers and Digital Systems, Binary Numbers, Number base Conversion, Octal and Hexadecimal Numbers, Complements, Binary Codes, Binary Storage and Registers, Binary Logic, Integrated Circuits. **Boolean Algebra And Logic Gates:** Basic Definitions, Axiomatic definition of Boolean Algebra, Basic theorems and Properties of Boolean Algebra, Boolean functions, Canonical and Standard Forms, Other operations, Digital Logic Gates.

UNIT - II

Simplification Of Boolean Expressions: Formulation of simplification problem, Prime Implicants and irredundant disjunctive and conjunctive expression, Karnaugh Maps, Minimal Expressions for complete and incomplete Boolean functions. Five and Six Variable K-Maps, Quine-McCluskey Method, Prime Implicants and Implicate tables and irredundant expressions, and Table reductions.

UNIT - III

Combinational Logic: Design Procedure, Adders, Subtractors, Code Conversion, Analysis Procedure, multilevel NAND and NOR circuits. Combinational Logic with MSI And LSI: Binary Parallel Adder, Decimal Adder, Magnitude Comparator, Decoders, Multiplexers.

UNIT - IV

Sequential Logic: Flip Flops, Triggering of Flip-Flops, Analysis of Clocked Sequential Circuits, State Reduction and Assignment, Flip-Flop Excitation tables, Design Procedure, Design of Counters, Design with state equations Registers, Counters and Memory : Registers. Shift registers, Ripple Counters, Synchronous Counters, Timing sequences, the memory unit.

UNIT - V

Programmable Logic: Read – Only Memory (ROM), PROM, Programmable Logic Device (PLD), Programmable Logic Array (PLA), Programmable Array Logic (PAL), 555 Timer, Astable and Monostable timers.

Prerequisites:

4. Basic computer knowledge.
5. Basic Mathematics fundamentals**.**
6. Number systems.

Course Educational Objectives:

This course enables the students to know about

3. Apply the knowledge of mathematics, Computer science and engineering.
4. Realize complex logic functions utilizing programmable logic.
3. Design digital circuitry, analyze and interpret data

DIGITAL LOGIC DESIGN

Course Outcomes(COs):

By the completion of the course, the students are able to:

CO 1.Understand different Number systems, Codes,Logic Gates, Boolean laws &theorems.

CO 2. Simplify the Boolean functions to the minimum number of literals using K-Maps.

CO 3. Design & implement different types of combinational logic circuits using Logic gates.

CO 4. Design & implement different types of sequential logic circuits using Flip Flops.

CO 5. Design & implement different types of Counters, Registers, and Programmable Logic Devices.

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
1	Introduction to Digital Systems	09.12.2016		2	1	1,3, 5,7
2	Digital Systems,	10.12.2016		2	1	
3	Binary Numbers	13.12.2016		2	1	
4	Number base Conversion	14.12.2016		2	1	
5	Number base Conversion	14.12.2016		2	1	
6	Octal and Hexadecimal Numbers	16.12.2016		2	1,9	
7	Complements	17.12.2016		2	1,9	
8	Complements	19.12.2016		2	1,9	
9	Binary Codes	20.12.2016		2	1	
10	Binary Codes	21.12.2016		2	1	
11	Binary Storage and Registers,	21.12.2016		2	1	
12	Binary Logic	23.12.2016		2	1,9	
13	Integrated Circuits	24.12.2016		2		
14	Tutorial	26.12.2016		2		

15	Introduction to Boolean algebra	27.12.2016		2		
16	Basic Definitions, Axiomatic definition of Boolean Algebra	28.12.2016		2		
17	Basic theorems and Properties of Boolean Algebra	28.12.2016		2		
18	Boolean functions	30.12.2016		2		
19	Canonical and Standard Forms	31.12.2016		2		
20	Canonical and Standard Forms	02.01.2016		2		
21	Other operations, Digital Logic Gates	03.01.2017		2		
22	Realization of basic gates	04.01.2017		2		
23	Slip test on UNIT-1	04.01.2017		2		
24	Simplification Of Boolean Expressions	06.01.2017				
25	Introduction to Karnaugh Maps	07.01.2017				
26	One Variable, Two variable, Three Variable maps	09.01.2017		2	1	
27	Four Variable Map	10.01.2017		2	1,9	
28	Four Variable Map	11.01.2017		2	1,9	
29	Problems	11.01.2017		2	1,9	
30	Five Variable K-Map and Examples	17.01.2017				
31	Six Variable K-Maps Examples	18.01.2017				
32	Minimal Expressions for incomplete Boolean functions	18.01.2017		2	1	
33	Quine-McCluskey Method	20.01.2017		2	1	1,3, 5,7
34	Quine-McCluskey Method	21.01.2017		2	1	
35	Prime implicants and Essential Prime Implicants	23.01.2017		2	1	
36	Pertickson Method for irredundant expression	24.01.2017		2	1,9	
37	Slip Test on UNIT-2	25.01.2017		2	1,9	
38	Introduction to Combinational Logic, Design Procedure, Analysis Procedure	25.01.2017		2	1	
39	Adders	27.01.2017		2	1,9	

40	Subtractors	28.01.2017		2	1,9	
41	Code Conversion	30.01.2017		2		
42	Multilevel NAND circuits	31.01.2017		2		
43	Multilevel NOR circuits	01.02.2017				
44	Tutorial	02.02.2017				
45	Intoduction to Combinational Logic with MSI And LSI	03.02.2017		2	1	
46	Binary Parallel Adder, Decimal Adder	04.02.2017		2	1	
47	Decimal Adder	06.02.2017		2	1,9	
48	Magnitude Comparator	07.02.2017		2	1	
49	Decoders	08.02.2017		2	1	1,3, 5,7
50	Multiplexers	08.02.2017		2	1,9	
51	Tutorial	10.02.2017		2		
52	Slip test on UNIT-3	11.02.2017		2		
53	Introduction to Sequential Logic, Flip Flops	13.02.2017		2	1	
54	Triggering of Flip-Flops,	14.02.2017		2		
55	Analysis of Clocked Sequential Circuits	15.02.2017		2	1,2	
56	State Reduction and Assignment	15.02.2017		2	1,2	
57	Flip-Flop Excitation tables	17.02.2017		2		
58	Design Procedure	18.02.2017		2	1,2	
59	Design of Counters	20.02.2017		2	1,2	
60	Introduction to Registers, Shift registers	21.02.2017		2	1,2	1,3, 5,7
61	Ripple Counters	22.02.2017		2	1,2	Slip test on Uni t-4
62	Synchronous Counters	22.02.2017		2	1,2	
63	Timing sequences	25.02.2017		2	1,2	
64	the memory unit	27.02.2017				
65	Tutorial	28.02.2017		2	1,2	

66	Slip test on Unit-4	01.03.2017		2	1,2	
67	Read – Only Memory (ROM)	01.03.2017		2	1,2	
68	Problems	03.03.2017		2	1,2	
69	Programmable Read Only memory	04.03.2017		2	1,2	
70	Problems	06.03.2017		2	1,2	
71	Programmable Logic Device (PLD)	07.03.2017		2	1,2	1,3, 5,7
72	Problems	08.03.2017		2	1,2	
73	Programmable Logic Array	08.03.2017		2	1,2	
74	Problems	10.03.2017		2	1,2	
75	Programmable Array Logic (PAL).	11.03.2017		2	1,2	
76	Problems	15.03.2017				
77	Tutorial	15.03.2017		2		
78	Slip Test on UNIT-5	17.03.2017		2		
79	Revision	18.03.2017				
80	Revision	20.03.2017		2		
81	Revision	21.03.2017		2		
82	Revision	22.03.2017		2		
83	Revision	22.03.2017		2		
84	Revision	25.03.2017				
85	Revision	27.03.2017				
86	Revision	29.03.2017				
87	Content beyond syllabus/Tools	31.03.2017		2		1,3, 5,7
88	Content beyond syllabus/Research papers	01.04.2017		2		
89	Content beyond syllabus/New applications	03.04.2017		2		
90	Content beyond syllabus/R & D	04.04.2017		2		
91	Content beyond syllabus/New applications	07.04.2017		2		

92	Content beyond syllabus/New applications	08.04.2017		2		
	II-MID EXAMS	10-04-2016 TO 17-04-2016				

Assessment Summary:

Assessment Task	Weight age (Marks)	**Course Outcomes**				
		CO1	CO2	CO3	CO4	CO5
Assignments	05					
Quizzes	--					
Tutorials	--					
Surprise Tests	--					
Mid Exams	20					
Model Exams	--					
End Exam	75					
Attendance	--					
Total	100					

Mapping Course Outcomes with Programme Outcomes:

Course Code	**Unit**	**Course Outcomes**					**Programme Outcomes**										
		1	2	3	4	5	a	b	c	d	e	f	g	h	i	j	k
S191	I						2	1	1		2				3	2	1
	II						2	1	1		2				3	2	1
	III						2	1	1		2				3	2	1
	IV						2	1	1		2				3	2	1
	V						2	1	1		2				3	2	1

	Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Name	T N V S PRAVEEN			Dr. N. Ravi Shankar
Sign with Date				

L128 – DATA STRUCTURES LAB

Lab.	**: 3 Periods/week**	**Internal Marks**	**: 25**
Tutorial	**:**	**External Marks**	**: 50**
Credits	**: 2**	**External Examination**	**: 3 Hrs**

Lab Programs:

S.No.	Name of the program
1	Write a C program to implement various operations on List using arrays.
2	Write a C program to implement various operations on Single linked List using pointers.
3	Write an interactive C program to create a linear linked list of customer names and their telephone numbers. The program should be menu-driven and include features for adding a new customer, deleting an existing customer and for displaying the list of all customers.
4	Write a C program to create a circular linked list so that the input order of data items is maintained. Add the following functions to carry out the following operations on circular single linked lists. a) Count the number of nodes. b) insert a node c) delete a node
5	Write a C program that will remove a specified node from a given doubly linked list and insert it at the end of the list on an existing list. Also write a function to display the contents of the list.
6	Write a C program to implement a stack using array &linked list in which Push, Pop and display can be performed.
7	Write a program to convert infix expression to post fix expressions using array implementation of stack
8	Write a program for evaluating post fix expressions using array implementation of stack
9	Write a C program to implement a queue using arrays and linked list in which insertions, deletions and display can be performed.
10	Write a C program to implement insertion sort& shell sort
11	Write a C program to implement Selection sort.
12	Write a C Program to implement Merge Sort
13	Sort a sequence of n integers using Quick sort technique and then search for a key in the sorted array using Binary search, linear search techniques.
14	Write a C program to Heap sort
15	Write a C program to construct a binary tree and do inorder, preorder and

	post order traversals, printing the sequence of nodes visited in each case.
16	Write a C program to implement BST operations- insert, search and delete
17	Write a C program to implement the following graph Traversals a) DFS b) BFS

Pre-requisites:

- Students should have a good knowledge in C Programming Language

Course Educational Objectives(CEOs):

The course content enables students to:

1. Write algorithms to implement various operations involved in different data structures.

2. Implement stacks, queues and apply them to write complex algorithms.

3. Implement different tree structures.

Course Outcomes (COs):

By the completion of the course, the students are able to:

CO1. Implement various data structures like linked list, stacks, queues and trees.

CO2. Implement various searching, sorting and graph traversal techniques.

Session No	**Program to be executed**	**Date**	**Remarks**
1	Sample programs on arrays and structures		**Cycle-1**
2	1. Write a C program to implement various operations on List using arrays. 2. Write a C program to implement various operations on Single linked List using pointers.		
3	3. Write an interactive C program to create a linear linked list of customer names and their telephone numbers. The program should be menu-driven and include features for adding a new customer, deleting an existing customer		

	and for displaying the list of all customers.		
4	4. Write a C program to create a circular linked list so that the input order of data items is maintained. Add the following functions to carry out the following operations on circular single linked lists. a) Count the number of nodes. b) insert a node c) delete a node		
5	5. Write a C program that will remove a specified node from a given doubly linked list and insert it at the end of the list on an existing list. Also write a function to display the contents of the list. 6. Write a C program to implement a stack using array &linked list in which Push, Pop and display can be performed.		
6	7. Write a program to convert infix expression to post fix expressions using array implementation of stack 8. Write a program for evaluating post fix expressions using array implementation of stack		
7	9. Write a C program to implement a queue using arrays and linked list in which insertions, deletions and display can be performed.		
8	10. Write a C program to implement insertion sort& shell sort		
9	11. Write a C program to implement Selection sort. 12. Write a C Program to implement Merge Sort		
10	13. Sort a sequence of n integers using Quick sort technique and then search for a key in the sorted array using Binary search, linear search techniques.		
11	14. Write a C program to Heap sort		
12	15. Write a C program to construct a binary tree and do inorder, preorder and post order traversals, printing the sequence of nodes visited in each case.		

13	16. Write a C program to implement BST operations- insert, search and delete 17. Write a C program to implement the following graph Traversals a) DFS b) BFS		**Cycle-2**
14	**LAB INTERNAL**		

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Assessment Summary:

Assessment Task	Weight age (Marks)	CO1	CO2
Assignments	--		
Quizzes	--		
Tutorials	--		
Surprise Tests	--		
Internal Exams	10		
Day-to-Day Evaluation	10		
Lab Record	05		
End Exam	50		
Total	75		

Mapping Course Outcomes with Programme Outcomes:

Course Code	Unit	Course Outcomes		Programme Outcomes										
		1	2	a	b	c	d	e	f	g	h	i	j	k
L128	I	S		M	L									
	II	S			L									
	III		S	L	L									
	IV	S			L									
	V		S		L									

	Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Name	L.V.Krishnarao			Dr. N. Ravi Shankar
Sign with Date				

L128 – DATA STRUCTURES LAB

Lab.	**: 3 Periods/week**	**Internal Marks**	**: 25**
Tutorial	**:**	**External Marks**	**: 50**
Credits	**: 2**	**External Examination**	**: 3 Hrs**

Lab Programs:

S.No.	Name of the program
1	Write a C program to implement various operations on List using arrays.
2	Write a C program to implement various operations on Single linked List using pointers.
3	Write an interactive C program to create a linear linked list of customer names and their telephone numbers. The program should be menu-driven and include features for adding a new customer, deleting an existing customer and for displaying the list of all customers.
4	Write a C program to create a circular linked list so that the input order of data items is maintained. Add the following functions to carry out the following operations on circular single linked lists. a) Count the number of nodes. b) insert a node c) delete a node
5	Write a C program that will remove a specified node from a given doubly linked list and insert it at the end of the list on an existing list. Also write a function to display the contents of the list.
6	Write a C program to implement a stack using array &linked list in which Push, Pop and display can be performed.
7	Write a program to convert infix expression to post fix expressions using array implementation of stack
8	Write a program for evaluating post fix expressions using array implementation of stack
9	Write a C program to implement a queue using arrays and linked list in which insertions, deletions and display can be performed.
10	Write a C program to implement insertion sort& shell sort
11	Write a C program to implement Selection sort.
12	Write a C Program to implement Merge Sort
13	Sort a sequence of n integers using Quick sort technique and then search for a key in the sorted array using Binary search, linear search techniques.
14	Write a C program to Heap sort
15	Write a C program to construct a binary tree and do inorder, preorder and

	post order traversals, printing the sequence of nodes visited in each case.
16	Write a C program to implement BST operations- insert, search and delete
17	Write a C program to implement the following graph Traversals a) DFS b) BFS

Pre-requisites:

- Students should have a good knowledge in C Programming Language

Course Educational Objectives(CEOs):

The course content enables students to:

1. Write algorithms to implement various operations involved in different data structures.

2. Implement stacks, queues and apply them to write complex algorithms.

3. Implement different tree structures.

Course Outcomes(COs):

By the completion of the course, the students are able to:

CO1. Implement various data structures like linked list, stacks, queues and trees.

CO2. Implement various searching, sorting and graph traversal techniques.

Session No	**Program to be executed**	**Date**	**Remarks**
1	Sample programs on arrays and structures		**Cycle-1**
2	1. Write a C program to implement various operations on List using arrays. 2. Write a C program to implement various operations on Single linked List using pointers.		
3	3. Write an interactive C program to create a linear linked list of customer names and their telephone numbers. The program should be menu-driven and include features for adding a new customer, deleting an existing customer		

	and for displaying the list of all customers.		
4	4. Write a C program to create a circular linked list so that the input order of data items is maintained. Add the following functions to carry out the following operations on circular single linked lists. a) Count the number of nodes. b) insert a node c) delete a node		
5	5. Write a C program that will remove a specified node from a given doubly linked list and insert it at the end of the list on an existing list. Also write a function to display the contents of the list. 6. Write a C program to implement a stack using array &linked list in which Push, Pop and display can be performed.		
6	7. Write a program to convert infix expression to post fix expressions using array implementation of stack 8. Write a program for evaluating post fix expressions using array implementation of stack		
7	9. Write a C program to implement a queue using arrays and linked list in which insertions, deletions and display can be performed.		
8	10. Write a C program to implement insertion sort& shell sort		
9	11. Write a C program to implement Selection sort. 12. Write a C Program to implement Merge Sort		
10	13. Sort a sequence of n integers using Quick sort technique and then search for a key in the sorted array using Binary search, linear search techniques.		
11	14. Write a C program to Heap sort		
12	15. Write a C program to construct a binary tree and do inorder, preorder and post order traversals, printing the sequence of nodes visited in each case.		

13	16. Write a C program to implement BST operations- insert, search and delete 17. Write a C program to implement the following graph Traversals a) DFS b) BFS		**Cycle-2**
14	**LAB INTERNAL**		

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs
8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Assessment Summary:

Assessment Task	Weight age (Marks)	CO1	CO2
Assignments	--		
Quizzes	--		
Tutorials	--		
Surprise Tests	--		
Internal Exams	10		
Day-to-Day Evaluation	10		
Lab Record	05		
End Exam	50		
Total	75		

Mapping Course Outcomes with Programme Outcomes:

Course Code	Unit	Course Outcomes		Programme Outcomes										
		1	2	a	b	c	d	e	f	g	h	i	j	k
L128	I	S		M	L									
	II	S			L									
	III		S	L	L									
	IV	S			L									
	V		S		L									

	Instructor	Course Coordinator	Module Coordinator	HOD
Name	K.Rangachary			Dr. N. Ravi Shankar
Sign with Date				

S178 – DATA STRUCTURES

Lecture: 5 Periods/week **Internal Marks : 25**

Tutorial: 1 **External Marks : 75**

Credits : 4 **External Examination : 3 Hrs**

UNIT - I

Algorithm Analysis:

Mathematical Background, Model, Analysis and Run Time Calculations, Lists: Abstract Data Types, List using arrays and pointers, Singly Linked, Doubly Linked, Circular Linked Lists, Polynomial ADT.

UNIT – II:

Stacks: The Stack: Definition, operations, implementation using arrays, linked list and Stack

Applications: Infix to postfix expression conversion, Evaluation of Postfix expressions, Balancing the symbols.Queue: definition, operations, implementation using arrays, linked list&it'sApplications.Circular queue: definition&its operations, implementation, De queue:

definition & its types, implementation.

UNIT - III

Searching: Linear and Binary Searching. Sorting: Insertion Sort, Selection sort, Shell Sort, Heap Sort, Merge Sort, Quick Sort, and Bucket Sort.

UNIT - IV

Trees: Terminology, Binary Trees: definition, types of binary trees, Representation, Implementation (linked list), Tree traversals: Recursive techniques, Expression Tress, Search Tree: Binary Search Tree-search, insert, Delete, Balanced Tree –Introduction to AVL tree and Rotations.

UNIT - V

Graphs: Fundamentals, Representation of graphs, Graph Traversals: BFS, DFS, Minimum cost spanning tree: Definition, Prim's Algorithm, Kruskal's algorithm.

Hashing: Hash Table, Hash Function, Collision resolution Techniques- separate Chaining, open addressing, rehashing, extendible hashing.

TEXT BOOKS :

1 Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", Pearson Education, 2ndedition.

2. ReemaThareja ,Data Structures using c , Oxford Publications. 3. N.B.Venkateswarlu and E.V.Prasad ,C and Data Structures.

REFERENCES.

1. Langson, Augenstein&Tenenbaum, 'Data Structures using C and C++', 2nd ed, PHI.

2. RobertL.Kruse, Leung and Tando, 'Data Structures and Program Design in C', 2ndedition,PHI. 3. D Samantha ,Classic Data Structures.

Pre-requisite:

- Students should have a good knowledge in C Programming Language

Course Educational Objectives (CEOs):

To make students familiar with :

- Writing algorithms to implement operations involved in different data structures
- Implement stack and queue using arrays as well as linked list
- Apply stack and queue to write some complex algorithms
- Implement different types of trees and their application
- Implement various searching and sorting techniques
- Use Hash Tables to handle large amount of data

DATA STRUCTURES

Course Outcomes(COs):

By the completion of the course, the students are able to:

CO1: Analyze worst-case running times of algorithms using asymptotic analysis and implement various data structures like linked lists.

CO2: Understand and implement stacks and queues using arrays and linked lists.

CO3: Analyze and implement various searching and sorting algorithms.

CO4: Build various tree structures like Binary Trees, Binary Search Trees and AVL Trees.

CO5: Know the various graph traversal algorithms, implement suitable Hash Tables to handle large amount of data and design appropriate hash functions and collision-resolution algorithms.

S.No	Teaching Learning Process (TLP)	Delivery Methods (DM)	Assessment Methods (AM)
1	Solving Real world problem	Chalk & Talk	Assignments
2	Explaining application before theory	ICT tools	Quiz
3	Solving problems	Group discussions	Tutorials
4	Designing of experiments	Industrial visit	Surprise Tests
5	Problems on environmental, economics, health & safety	Field work	Mid Exams
6	Problems on professional & ethics	Case studies	Model Exam
7	Seminar	Mini Projects	QAs

8	Problems using software	Numerical treatment	
9	Self study	Design / Exercises	

Detailed Lesson Plan

S.NO	TOPIC TO BE COVERED	Date		TLP	DM	AM
		Tentative	Actual			
UNIT –I:						
1	Introduction	08-12-2016		2	1	
2	**Unit 1**: Data structures: Introduction	10-12-2016		2	1	
3	Types of data structures	10-12-2016		2	1	
4	Mathematical Background	12-12-2016		2	1	
5	Algorithm Analysis	13-12-2016		2	1	
6	Run Time Calculations	14-12-2016		2	1,9	
7	Run Time Calculations	15-12-2016		2	1,9	1,3, 5,7
8	Run Time Calculations	17-12-2016		2	1,9	
9	Lists: Introduction	17-12-2016		2	1	
10	Abstract Data Types(ADT)	19-12-2016		2	1	
11	List using arrays	20-12-2016		2	1	
12	**Tutorial-I**	21-12-2016		2	1,9	
13	List using pointers: Singly Linked List	22-12-2016		2	1,9	

14	Singly Linked List ADT	24-12-2016		2	1,9	
15	Polynomial ADT	24-12-2016		2	1,9	
16	Polynomial ADT	26-12-2016		2	1,9	
17	Circular Linked Lists	27-12-2016		2	1,9	
18	Circular Linked List ADT	28-12-2016		2	1,9	
19	Doubly Linked List	29-12-2016		2	1,9	
20	Doubly Linked List ADT	31-12-2016		2	1,9	
21	**Tutorial-II**	31-12-2016		2	1,9	
UNIT –II:						
22	Introduction to Stack :operations	02-01-2017		2	1	1,3, 5,7
23	Implementation using array	03-01-2017		2	1,9	
24	Implementation using linked list	04-01-2017		2	1,9	
25	Applications: Infix to postfix conversion	05-01-2017		2	1,9	
26	Infix to postfix conversion	07-01-2017		2	1,9	
27	**Tutorial-III**	07-01-2017		2	1,9	
28	Evaluation of postfix expression	09-01-2017		2	1	
29	Evaluation of postfix expression	10-01-2017		2	1	
30	Balancing the symbols	11-01-2017		2	1	

31	Queues –Introduction, Applications	12-01-2017		2	1	
32	Implementation using arrays	17-01-2017		2	1,9	
33	Implementation using linked lists	18-01-2017		2	1,9	
34	Implementation using linked lists	19-01-2017		2	1	
35	Circular Queue: Operations	21-01-2017		2	1,9	
36	Circular Queue Implementation	21-01-2017		2	1,9	
37	DeQueue: operations	23-01-2017		2	1,9	
38	DeQueue Implementation	24-01-2017		2	1,9	
39	DeQueue Implementation	25-01-2017		2	1,9	
40	**Tutorial-IV**	28-01-2017		2	1,9	
41	**Revision on Unit-I**	28-01-2017		2		
42	**Revision on Unit-II**	30-01-2017		2		
	I-MID Exams	31-01-2017 To 05-02-2017				
UNIT –III:						
43	**Unit-3:**Searching techniques-Linear, Binary	06-02-2017		2	1	
44	Introduction to sorting : Insertion sort	07-02-2017		2	1	
45	Selectin sort	08-02-2017		2	1,9	

46	Shell sort	09-02-2017		2	1	
47	Merge sort	11-02-2017		2	1	1,3,5,7
48	Merge sort	11-02-2017		2	1,9	
49	**Tutorial-V**	13-02-2017		2	1,9	
50	Quick sort	14-02-2017		2	1,9	
51	Quick sort	15-02-2017		2	1	
52	Bucket sort	16-02-2017		2	1,9	
53	Heap sort	18-02-2017		2	1,2	
54	Heap sort	18-02-2017		2	1,2	
UNIT –IV:						
55	**Unit-4:**Introduction to trees ,Tree terminology	20-02-2017		2	1,2	
56	binary trees	21-02-2017		2	1,2	
57	**Tutorial-VI**	22-02-2017		2	1,2	1,3,5,7
58	binary tree traversals	23-02-2017		2	1,2	
59	Representation and implementation.	25-02-2017		2	1,2	
60	binary tree traversals, Expression trees	25-02-2017		2	1,2	
61	Implementation of trees using Lists	27-02-2017		2	1,2	
62	Implementation of trees using Lists	28-02-2017		2	1,2	

63	Binary Search Tree	01-03-2017		2	1,2	
64	**Assignment/Quiz**	02-03-2017		2	1,2	
65	Recursive Techniques	04-03-2017		2	1,2	
66	Expression Trees	04-03-2017		2	1,2	
67	Binary Search Tree operations	06-03-2017		2	1,2	
68	Binary Search Tree operations	07-03-2017		2	1,2	
69	Binary Search Tree operations	08-03-2017		2	1,2	1,3, 5,7
70	Binary Search Tree operations	09-03-2017		2	1,2	
71	Balanced Tree: Introduction to AVL Trees	11-03-2017		2	1,2	
72	AVL Tree operations	11-03-2017		2	1,2	
73	AVL Tree Rotations	13-03-2017		2	1,2	
74	AVL Tree Rotations	14-03-2017		2	1,2	
UNIT –V:						
75	**Unit 5: Graphs:** Fundamentals	15-03-2017		2	1,2	
76	Representation of graphs	16-03-2017		2	1,2	
77	Graphs Traversals: BFS, DFS	18-03-2017		2	1,2	
78	Graphs Traversals: BFS, DFS	18-03-2017		2	1,2	
79	MCST definition, Prim's Algorithm	20-03-2017		2	1,2	

80	Kruskal's Algoritm	21-03-2017		2	1,2	
81	**Assignment/Quiz**	22-03-2017		2	1,2	1,3,5,7
82	Introduction to hashing	23-03-2017		2	1,2	
83	Hash Functions	25-03-2017		2	1,2	
84	Collision resolution techniques	25-03-2017		2	1,2	
85	Separate chaining, Open addressing	27-03-2017		2	1,2	
86	Rehashing, Extendible Hashing	29-03-2017		2	1,2	
87	Rehashing, Extendible Hashing	30-03-2017		2	1,2	
88	**Tutorial-VII**	01-04-2017		2		
89	**Revision**	01-04-2017		2		
90	**Revision**	03-04-2017		2		
91	**Revision**	04-04-2017		2		
92	**Revision**	05-04-2017		2		
93	**Revision**	06-04-2017		2		
94	**Revision**	08-04-2017		2		
	II-MID EXAMS	10-04-2017 TO 12-04-2017				

Assessment Summary:

Assessment Task	Weight age (Marks)	Course Outcomes				
		CO1	CO2	CO3	CO4	CO5
Assignments	05					
Quizzes	--					
Tutorials	--					
Surprise Tests	--					
Mid Exams	20					
Model Exams	--					
End Exam	75					
Attendance	--					
Total	100					

Mapping Course Outcomes with Programme Outcomes:

Course Code	**Unit**	**Course Outcomes**					**Programme Outcomes**										
		1	2	3	4	5	a	B	c	d	e	f	g	h	i	j	k
S178	I						2	1	1		2				3	2	1
	II						2	1	1		2				3	2	1
	III						2	1	1		2				3	2	1
	IV						2	1	1		2				3	2	1
	V						2	1	1		2				3	2	1

	Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Name				
Sign with Date				