LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi, NAAC Accredited with 'A' grade, Accredited by NBA, Certified by ISO 9001:2015)
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

Part-A

PROGRAM : B.Tech. II-Sem., CSE (A)

ACADEMIC YEAR : 2018-19

COURSE NAME & CODE : Professional Communication - II (17FE02)

L-T-P STRUCTURE : 3-0-0

COURSE CREDITS : 3

COURSE INSTRUCTOR : Mr. B. Sreenivasa Reddy

COURSE COORDINATOR : Dr. B. Samrajya Lakshmi

PRE-REQUISITES: Students should have basics in English vocabulary and Grammar & they should write error free sentences.

Course Educational Objective (CEOs): To Improve vocabulary, Grammar, Verbal – Non verbal Communication; to develop adaptability, assertive skills and Team spirit for skillful management in work place; and to Interpret technical data given in the form of charts, graphs & pictograms for writing technical reports.

Course Outcomes (COs) : At the end of the course, the student will be able to

CO1: Use appropriate vocabulary to interpret data thoroughly and to write reports effectively.
CO2: Face any situation with confidence and voice opinions/decisions assertively.
CO3: Use English Language effectively in spoken and written forms.
CO4: Work effectively in teams for better result.
CO5: Communicate effectively using verbal and non-verbal dimensions aptly.

Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
17FE02	CO1	-	1	-	1	-	1	-	-	3	3	-	2	-	-	-
	CO2	-	1	-	1	-	1	-	-	3	3	-	2	-	-	-
	CO3	-	1	-	1	-	1	-	-	3	3	-	2	-	-	-
	CO4	-	1	-	1	-	1	-	-	3	3	-	2	-	-	-
	CO5	-	1	-	1	-	1	-	-	3	3	-	2	-	-	-
1 = Slight (Low) 2 = Moderate (Medium) 3-Substantial(High)																

BOS APPROVED TEXT BOOKS:

T1	Board of Editors, "Fluency in English – A Course book for Engineering Students", Orient Black Swan, Hyderabad, 2016.
T2	Dhanavel S.P, "English and Soft Skills", Orient Black Swan, Hyderabad, 2010.

BOS APPROVED REFERENCE BOOKS:

R1	Murphy, "English Grammar with CD", Cambridge University Press, New Delhi, 2004.
R2	Rizvi Ashraf M., "Effective Technical Communication", Tata Mc Graw Hill, New Delhi, 2008.
R3	Baradwaj Kumkum, "Professional Communication", I. K. International Publishing House Pvt.Lt., New Delhi, 2008.
R4	Raman, Meenakshi, Sharma, Sangeeta, . "Technical Communication -Principles and Practice" Oxford University Press, New Delhi, Third Edition. 2015.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): Section-A/B/C

UNIT-I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to Subject	1	17.12.2018					
2.	Course Outcomes	1	20.12.2018					
3.	Introduction to UNIT-I	1	21.12.2018		TLM1	CO1	T1	
4.	Good Manners – J.C.Hill	1	24.12.2018		TLM1	CO1	T1	
5.	Idioms	1	27.12.2018		TLM1, TLM2, TLM5	CO1	T1	
6.	One-word Substitutes	1	28.12.2018		TLM1, TLM2, TLM5	CO1	T1	
7.	Sequence of tenses	1	03.01.2019		TLM1, TLM2, TLM5	CO1	T1	
8.	Subject – Verb Agreement (Concord)	1	04.01.2019		TLM1, TLM2, TLM5	CO1	T1	
9.	If- Rudyard Kipling	1	07.01.2019		TLM1	CO1	T1	
10.	Information Transfer	1	10.01.2019		TLM1, TLM2,	CO1	T1	
11.	TUTORIAL-1	1	11.01.2019		TLM3	CO1	T1	
12.								

13.								
14.								
No. of classes required to complete UNIT-I					No. of classes taken:			

UNIT-II:

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
15.	Verger – Somerset Maugham / Assertive skills from the story	1	17.01.2019		TLM1, TLM6	CO2	T2	
16.	Assertive skills at personal level/workplace	1	18.01.2019		TLM1, TLM6	CO2	T2	
17.	Expanding proverbs on Assertive skills	1	21.01.2019		TLM1, TLM6	CO2	T2	
18.	White washing the fence – Mark Twain	1	24.01.2019		TLM1, TLM6	CO2	T2	
19.	Teamwork skills from the story/ Teamwork at work place & its Importance	1	25.01.2019		TLM1, TLM2, TLM5, TLM6	CO2	T2	
20.	Expanding proverbs on Teamwork	1	28.01.2019		TLM1, TLM6	CO2	T2	
21.	Note making/ Abstract/Summary writing	1	31.01.2019		TLM1, TLM6	CO2	T2	
22.	TUTORIAL-2	1	01.02.2019		TLM3	CO2		
23.								
24.								
25.								
26.								
No. of classes required to complete UNIT-II					No. of classes taken:			

UNIT-III :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
27.	Oh Father, Dear Father – Raj Kinger	1	11.02.2019		TLM1	CO3	T1	
28.	Foreign Languages and their Influence on English	1	14.02.2019		TLM1, TLM2, TLM5, TLM6	CO3	T1	
29.	Conditional Sentences	1	15.02.2019		TLM1, TLM2, TLM5, TLM6	CO3	T1	
30.	Degrees of Comparison	1	18.02.2019		TLM1, TLM2, TLM5, TLM6	CO3	T1	
31.	Question Tags	1	21.02.2019		TLM1, TLM2, TLM5, TLM6	CO3	T1	
32.	Basic Education – M.K. Gandhi	1	22.02.2019		TLM1, TLM6	CO3	T1	
33.	Report Writing	1	25.02.2019		TLM1, TLM2, TLM5, TLM6	CO3	T1	
34.	TUTORIAL-3	1	28.02.2019		TLM3	CO3	T1	
35.								
36.								
37.								
38.								
39.								
40.								
No. of classes required to complete UNIT-III					No. of classes taken:			

UNIT-IV :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
41.	Sen˜or Payroll – W E Barrett	1	01.03.2019		TLM1, TLM6	CO4	T2	
42.	Organizational Communication	1	07.03.2019		TLM1, TLM6	CO4	T2	
43.	Adaptability skills from the story	1	08.03.2019		TLM1, TLM6	CO4	T2	
44.	Adaptability skills at work place &	1	11.03.2019		TLM1, TLM6	CO4	T2	

	Real life							
45.	Expanding proverbs on Adaptability skills	1	14.03.2019		TLM1, TLM2, TLM5, TLM6	CO4	T2	
46.	Active & Passive Voice	1	15.03.2019		TLM1, TLM2, TLM5, TLM6	CO4	T2	
47.	Direct & Indirect Speech	1	18.03.2019		TLM1, TLM2, TLM5, TLM6	CO4	T2	
48.	TUTORIAL-4		21.03.2019		TLM3	CO4	T2	
49.								
50.								
51.								
No. of classes required to complete UNIT-IV					No. of classes taken:			

UNIT-V :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
52.	A real good smile – Bill Naughton	3	22.03.2019 25.03.2019 27.03.2019		TLM1, TLM6	CO5	T2	
53.	Non-Verbal Communication Skills from the story	2	28.03.2019 29.03.2019		TLM1, TLM6	CO5	T2	
54.	Non-Verbal Communication skills through real life experiences	1	01.04.2019		TLM1, TLM6	CO5	T2	
55.	articulation and gestures	1	04.01.2019		TLM1, TLM2, TLM5, TLM6	CO5	T2	
56.	'Wh' & 'Yes' or 'No' questions	1	05.04.2019		TLM1, TLM2, TLM5, TLM6	CO5	T2	
57.	Proverbial expansion on Non-Verbal Communication	1	08.04.2019		TLM1, TLM2, TLM5, TLM6	CO5	T2	

58.	Common Errors	1	11.04.2019		TLM1, TLM2, TLM5, TLM6	CO5	T2	
59.	TUTORIAL-5	1	12.04.2019		TLM3	CO5	T2	
No. of classes required to complete UNIT-V					No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign
60.								

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

Part - C

EVALUATION PROCESS:

Evaluation Task	**COs**	**Marks**
Assignment/Quiz – 1	1	A1=5
Assignment/Quiz – 2	2	A2=5
I-Mid Examination	1,2	B1=20
Assignment/Quiz – 3	3	A3=5
Assignment/Quiz – 4	4	A4=5
Assignment/Quiz – 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Evaluation of Assignment/Quiz Marks: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=5
Evaluation of Mid Marks: B=75% of Max(B1,B2)+25% of Min(B1,B2)	1,2,3,4,5	B=20
Cumulative Internal Examination : A+B	**1,2,3,4,5**	**A+B=25**
Semester End Examinations	**1,2,3,4,5**	**C=75**
Total Marks: A+B+C	**1,2,3,4,5**	**100**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PROGRAMME OUTCOMES (POs)

PSOs

Mr. B. Sreenivasareddy	Dr. B. Samrajya Lakshmi	Dr. B. Samrajya Lakshmi	Dr. A. Rami Reddy
Course Instructor	Course Coordinator	Module Coordinator	HOD

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COURSE HANDOUT

Part-A

PROGRAM : B.Tech. II-Sem., CSE (B)

ACADEMIC YEAR : 2018-19

COURSE NAME & CODE : Professional Communication - II (17FE02)

L-T-P STRUCTURE : 3-0-0

COURSE CREDITS : 3

COURSE INSTRUCTOR : Dr.B.Samrajya Lakshmi

COURSE COORDINATOR : Dr.B.Samrajya Lakshmi

PRE-REQUISITES: Students should have basics in English vocabulary and Grammar & they should write error free sentences

Course Educational Objective (CEOs): To Improve vocabulary, Grammar, Verbal – Non verbal Communication; to develop adaptability, assertive skills and Team spirit for skillful management in work place; and to Interpret technical data given in the form of charts, graphs & pictograms for writing technical reports.

Course Outcomes (COs) : At the end of the course, the student will be able to

- CO1 : Express the ideas aptly and briefly using word- substitutes and idioms effectively in spoken and written forms.
- CO2 : Comprehend the given texts and Communicate confidently in formal and informal contexts.
- CO3 : Use grammatically error free sentences in writing and speaking.
- CO4 : Interpret the information given in Tables, Bar graphs, Line graphs, Pie charts, Flow charts, Tree Diagrams & Pictograms accurately and present it aptly & ethically.
- CO5 : Write notes, reports & Abstract/Summary based on the information given ethically.

Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
17FE02	CO1		1		1		1			3	3		2			
	CO2		1		1		1			3	3		2			
	CO3		1		1		1			3	3		2			
	CO4		1		1		1		1	3	3		2			
	CO5		1		1		1		1	3	3		2			
1 = Slight (Low) 2 = Moderate (Medium) 3 =Substantial(High)																

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R3	Baradwaj Kumkum, "Professional Communication", I.K.International Publishing House Pvt.Lt., New Delhi, 2008.
R4	Raman, Meenakshi, Sharma, Sangeeta, . "Technical Communication -Principles and Practice" Oxford University Press, New Delhi, Third Edition. 2015.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): Section-B

UNIT-I :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to UNIT-I	1	17-12-2018		TLM1			
2.	Good Manners – J.C.Hill	1	21-12-2018		TLM1	CO1	T1	
3.	Idioms	1	22-12-2018		TLM1, TLM2, TLM5	CO1	T1,R1,R3	
4.	One-word Substitutes	1	24-12-2018		TLM1, TLM2, TLM5	CO1	T1,R1,R3	
5.	Sequence of tenses	1	28-12-2018		TLM1, TLM2, TLM5	CO1	T1,R1,R3	
6.	Subject – Verb Agreement (Concord)	1	29-12-2018		TLM1, TLM2, TLM5	CO1	T1,R1,R3	
7.	If- Rudyard Kipling	1	31-12-2018		TLM1	CO1	T1	
8.	Information Transfer	1	04-01-2019		TLM1, TLM2	CO1	T1,R2,R4	
No. of classes required to complete UNIT-I					No. of classes taken: 08			

UNIT-II:

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
9.	Verger – Somerset Maugham	1	05-01-2019		TLM1, TLM6	CO2	T2	
10.	Assertive skills from the story/ personal level/ workplace	1	07-01-2019		TLM1, TLM6	CO2	T2	
11.	Expanding proverbs on Assertive skills	1	11-01-2019		TLM1, TLM2, TLM5, TLM6	CO2	T2,R2,R4	
12.	White washing the fence – Mark Twain	1	21-01-2019		TLM1, TLM6	CO2	T2	
13.	Teamwork skills from the story/ work place	1	25-01-2019		TLM1, TLM6	CO2	T2	
14.	Expanding proverbs on Teamwork	1	25-01-2019		TLM1, TLM2, TLM5, TLM6	CO2	T2,R2,R4	
15.	Note-making	1	28-02-2019		TLM1, TLM2, TLM5, TLM6	CO2	T2,R2,R4	
16.	Abstract/Summary writing	1	28-02-2019		TLM1, TLM2, TLM5, TLM6	CO2	T2,R2,R4	
No. of classes required to complete UNIT-II					No. of classes taken: 8			

UNIT-III :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
17.	Oh Father, Dear Father – Raj Kinger	1	09-02-2019		TLM1	CO3	T1	
18.	Foreign Languages and their Influence on English	1	11-02-2019		TLM1, TLM2, TLM5, TLM6	CO3	T1,R2, R4	
19.	Conditional Sentences	1	15-02-2019		TLM1, TLM2, TLM5, TLM6	CO3	T1,R1, R3	

20.	Degrees of Comparison	1	16-02-2019		TLM1, TLM2, TLM5, TLM6	CO3	T1,R1, R3	
21.	Question Tags	1	18-02-2019		TLM1, TLM2, TLM5, TLM6	CO3	T1,R1, R3	
22.	Basic Education – M.K. Gandhi	1	22-02-2019		TLM1, TLM6	CO3	T1	
23.	Report Writing	1	23-02-2019		TLM1, TLM2, TLM5, TLM6	CO3	T1,R2, R4	
24.	Report Writing	1	25-02-2019		TLM1, TLM2, TLM5, TLM6	CO3	T1,R2, R4	
No. of classes required to complete UNIT-III					No. of classes taken:8			

UNIT-IV :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
25.	Sen˜or Payroll – W E Barrett	1	29-02-2019		TLM1, TLM6	CO4	T2	
26.	Organizational Communication	1	01-03-2019		TLM1, TLM6	CO4	T2,R2,R4	
27.	Adaptability skills from the story	1	02-03-2019		TLM1, TLM6	CO4	T2,R2,R4	
28.	Adaptability skills at work place & Real life	1	08-03-2019		TLM1, TLM6	CO4	T2,R2,R4	
29.	Expanding proverbs on Adaptability skills	1	11-03-2019		TLM1, TLM2, TLM5, TLM6	CO4	T2,R2,R4	
30.	Active & Passive Voice	1	15-03-2019		TLM1, TLM2, TLM5, TLM6	CO4	T2,R1,R3	
31.	Active & Passive Voice	1	16-03-2019		TLM1, TLM2, TLM5, TLM6	CO4	T2,R1,R3	
32.	Direct & Indirect Speech	1	18-03-2019		TLM1, TLM2, TLM5, TLM6	CO4	T2,R1,R3	
33.	Direct & Indirect Speech	1	22-03-2019		TLM1, TLM2, TLM5,	CO4	T2,R1,R3	

					TLM6			
No. of classes required to complete UNIT-IV					No. of classes taken: 9			

UNIT-V :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
34.	A real good smile – Bill Naughton	1	23-03-2019		TLM1, TLM6	CO5	T2	
35.	Non-Verbal Communication Skills from the story	1	25-03-2019		TLM1, TLM6	CO5	T2,R2,R4	
36.	Non-Verbal Communication skills through real life experiences	1	29-03-2019		TLM1, TLM6	CO5	T2,R2,R4	
37.	articulation and gestures	1	30-03-2019		TLM1, TLM2, TLM5, TLM6	CO5	T2,R2,R4	
38.	'Wh' & 'Yes' or 'No' questions	1	01-04-2019		TLM1, TLM2, TLM5, TLM6	CO5	T2,R1,R3	
39.	Proverbial expansion on Non-Verbal Communication	1	05-04-2019 06-04-2019		TLM1, TLM2, TLM5, TLM6	CO5	T2,R2,R4	
40.	Common Errors	1	08-04-2019 12-04-2019		TLM1, TLM2, TLM5, TLM6	CO5	T2,R1,R3	
No. of classes required to complete UNIT-V					No. of classes taken: 7			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign
41.	SOP	1	13-04-2019		TLM1, TLM2, TLM5, TLM6		R2,R4	
42.	Letter of Recommendation	1	13-04-2019		TLM1, TLM2, TLM5, TLM6		R2,R4	

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

Part - C

EVALUATION PROCESS:

Evaluation Task	Cos	Marks
Assignment/Quiz – 1	1	A1=5
Assignment/Quiz – 2	1,2	A2=5
I-Mid Examination	1,2	B1=20
Quiz -1	1,2	C1=10
Assignment/Quiz – 3	3	A3=5
Assignment/Quiz – 4	4	A4=5
Assignment/Quiz – 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Quiz -2	3,4,5	C2=10
Evaluation of Assignment/Quiz Marks: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=5
Evaluation of Mid Marks: B=75% of Max(B1,B2)+25% of Min(B1,B2)	1,2,3,4,5	B=20
Evaluation of Quiz Marks: C=75% of Max(C1,C2)+25% of Min(C1,C2)	1,2,3,4,5	C=10
Attendance Marks: D(>95%=5, 90-95%=4,85-90%=3,80-85%=2,75-80%=1)		D=5
Cumulative Internal Examination : A+B+C+D	**1,2,3,4,5**	**40**
Semester End Examinations	**1,2,3,4,5**	**E=60**
Total Marks: A+B+C+D+E	**1,2,3,4,5**	**100**

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO I: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO II: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO III: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO IV: To empower the student with the qualities of effective communication, team work, continues learning attitude, leadership needed for a successful computer professional.

PROGRAM OUTCOMES

Engineering Graduates will be able to:

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

2. **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.

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.

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.

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.

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.

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.

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

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

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.

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.

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.

Course Instructor	Course Coordinator	Module Coordinator	HOD

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DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

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COURSE HANDOUT

Part-A

PROGRAM : B.Tech., II-Sem., CSE-A

ACADEMIC YEAR : 2018-19

COURSE NAME & CODE : **TRANSFORMATION TECHNIQUES & VECTOR CALCULUS & 17FE06**

L-T-P STRUCTURE : 4-1-0

COURSE CREDITS : 3

COURSE INSTRUCTOR : **Dr.A.RAMI REDDY**

COURSE COORDINATOR : Mr. Y.P.C.S ANIL KUMAR

PRE-REQUISITES: Fundamental knowledge of Differentiation and Integration

COURSE EDUCATIONAL OBJECTIVES (CEOs) :

This course provides the knowledge of

- The basic concepts of Laplace Transforms
- The concepts of Inverse Laplace Transforms and their applications to differential equations.
- Z-transform and its role in discrete analysis and in solving Difference equations.
- The concepts of multiple integrals and changing of order of integration
- The concepts of Vector Calculus, Vector Differentiation and Conservative Fields.
- The concepts of line integrals, surface and volume integrals , vector integral theorems and their applications

COURSE OUTCOMES (COs)

Upon The Successful Completion of This Course Students Will be Able To:

CO1: Apply the concept of Laplace Transforms to solve a differential equation of any order using Laplace Transforms.

CO2: Understand the analogy between Laplace Transform and Z-Transform and apply it wherever necessary

CO3: Learn Multiple Integrals in various coordinate systems

CO4: Understand the Vector, Solenoidal and Conservative Fields and will be to apply it in necessary areas.

CO5: Apply Vector Integration for curves, surfaces and volumes and relationship among themselves.

COURSE ARTICULATION MATRIX (Correlation between COs&POs,PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	**3**	**2**		**1**								**1**
CO2	**3**	**2**		**1**								**1**
CO3	**3**	**2**		**1**								**1**
CO4	**3**	**2**		**1**								**1**
CO5	**3**	**2**		**1**								**1**

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight (Low), **2 –** Moderate (Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

Text Books:

T1: Dr. B.S. Grewal, "*Higher Engineering Mathematics*", 42nd Edition, Khanna Publishers, New Delhi, 2012.

T2. Dr. B. V. Ramana, "*Higher Engineering Mathematics*", 1st Edition, TMH, New Delhi, 2010.

References:

R1: Michael D. Greenberg , "*Advanced Engineering Mathematics*", 2nd Edition, TMH, New Delhi, 2011.

R2 : Erwin Krezig, "*Advanced Engineering Mathematics*", 8th Edition, John Wiley & Sons, New Delhi, 2011.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I : Laplace Transforms

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to Subject & Course Outcomes	1	17-12-2018		**TLM1**	CO1	T1, T2	
2.	Laplace transforms of standard functions	1	18/12/2018		**TLM1**	CO1	T1, T2	
3.	Linear Property	1	19/12/2018		**TLM1**	CO1	T1, T2	
4.	Shifting Theorems	1	20/12/2018		**TLM1**	CO1	T1, T2	
5.	TUTORIAL-1	1	21/12/2018		**TLM3**	CO1	T1, T2	
6.	Change of Scale Property	1	24/12/2018		**TLM1**	CO1	T1, T2	
7.	Multiplication by t	1	26-12-2018		**TLM1**	CO1	T1, T2	
8.	Division by 't'	1	27-12-2018		**TLM1**	CO1	T1, T2	

9.	Transforms of derivatives and integrals	1	28/12/2018		**TLM1**	CO1	T1, T2	
10.	Unit step function – Dirac's delta function.	1	31/12/2018		**TLM1**	CO1	T1, T2	
11.	Inverse Laplace transforms– Linear Property	1	2/1/2019		**TLM1**	CO1	T1, T2	
12.	TUTORIAL-2	1	3/1/2019		**TLM3**	CO1	T1, T2	
13.	Shifting Properties	1	4/1/2019		**TLM1**	CO1	T1, T2	
14.	Multiplication and division by 's'	1	7/1/2019		**TLM1**	CO1	T1, T2	
15.	Convolution theorem	1	8/1/2019		**TLM1**	CO1	T1, T2	
16.	Applications of Laplace transforms toordinary differential equations.	1	9/1/2019		**TLM1**	CO1	T1, T2	
17.	TUTORIAL-3	1	10/1/2019		**TLM3**	CO1	T1, T2	
No. of classes required to complete UNIT-I		17			No. of classes taken:			

UNIT-II : Z-Transforms

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
18.	**Introduction**	1	11/1/2019		**TLM1**	CO2	T1, T2	
19.	Z-transform properties	1	17/1/2019		**TLM1**	CO2	T1, T2	
20.	Damping rule	1	18/1/2019		**TLM1**	CO2	T1, T2	
21.	Shifting rule	1	21/1/2019		**TLM1**	CO2	T1, T2	
22.	TUTORIAL-4	1	22/1/2019		**TLM3**	CO2	T1, T2	
23.	Initial and final value theorems	1	23/1/2019		**TLM1**	CO2	T1, T2	
24.	Inverse Z – transform	1	24/1/2019		**TLM1**	CO2	T1, T2	
25.	Partial fraction method	1	25/1/2019		**TLM1**	CO2	T1, T2	
26.	Convolution theorem	1	28/1/2019		**TLM1**	CO2	T1, T2	
27.	Solution of difference equation by Z-transforms.	1	29/1/2019		**TLM1**	CO2	T1, T2	
28.	Solution of difference equation by Z-transforms	1	30/1/2019		**TLM1**	CO2	T1, T2	
29.	TUTORIAL-5	1	31/1/2019		**TLM3**	CO2	T1, T2	
30.	Revision	1	1/2/2019		**TLM3**	CO2	T1, T2	
No. of classes required to		13			No. of classes taken:			

complete UNIT-II		

UNIT-III : Multiple Integrals

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
31.	Introduction	1	11/2/2019		**TLM1**	CO3	T1, T2	
32.	Multiple integrals	1	12/2/2019		**TLM1**	CO3	T1, T2	
33.	double and triple integrals (Cartesian)	1	13/2/2019		**TLM1**	CO3	T1, T2	
34.	TUTORIAL-2	1	14/2/2019		**TLM3**	CO3	T1, T2	
35.	double integrals (Cartesian)	1	15/2/2019		**TLM1**	CO3	T1, T2	
36.	double integrals (Cartesian)	1	18/2/2019		**TLM1**	CO3	T1, T2	
37.	triple integrals (Cartesian)	1	19/2/2019		**TLM1**	CO3	T1, T2	
38.	double integrals -polar	1	20/2/2019		**TLM1**	CO3	T1, T2	
39.	double integrals polar	1	21/2/2019		**TLM1**	CO3	T1, T2	
40.	triple integrals -spherical	1	22/2/2019		**TLM1**	CO3	T1, T2	
41.	TUTORIAL-2	1	25/2/2019		**TLM3**	CO3	T1, T2	
42.	Changing of order of Integration	1	26/2/2019		**TLM1**	CO3	T1, T2	
43.	Changing of order of Integration	1	27/2/2019		**TLM1**	CO3	T1, T2	
44.	Applications to areas and volumes.	1	28/2/2019		**TLM1**	CO3	T1, T2	
45.	TUTORIAL-2	1	1/3/2019		**TLM3**	CO3	T1, T2	
No. of classes required to complete UNIT-III		15				No. of classes taken:		

UNIT-IV : Vector Differentitation

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
46.	Introduction on Vector Differentiation	1	5/3/2019		**TLM1**	CO4	T1, T2	
47.	Gradient	1	6/3/2019		**TLM1**	CO4	T1, T2	
48.	Directional	1	7/3/2019		**TLM1**	CO4	T1, T2	

	Derivatives							
49.	Directional Derivatives	1	8/3/2019		**TLM1**	CO4	T1, T2	
50.	Divergence	1	11/3/2019		**TLM1**	CO4	T1, T2	
51.	Solenoidal field	1	12/3/2019		**TLM1**	CO4	T1, T2	
52.	TUTORIAL-2	1	13/3/2019		**TLM3**	CO4	T1, T2	
53.	Curl	1	14/3/2019		**TLM1**	CO4	T1, T2	
54.	Curl problems	1	15/3/2019		**TLM1**	CO4	T1, T2	
55.	Irrotational fields	1	18/3/2019		**TLM1**	CO4	T1, T2	
56.	Potential surfaces	1	19/3/2019		**TLM1**	CO4	T1, T2	
57.	Laplacian and second order operators	1	20/3/2019		**TLM1**	CO4	T1, T2	
58.	Properties of sums and products	1	22/3/2019		**TLM1**	CO4	T1, T2	
59.	TUTORIAL-8	1	25/3/2019		**TLM3**	CO4	T1, T2	
No. of classes required to complete UNIT-IV		14			No. of classes taken:			

UNIT-V : Vector Intergration

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
60.	Vector Integration	1	26/3/2019		**TLM1**	CO5	T1, T2	
61.	Line integral	1	27/3/2019		**TLM1**	CO5	T1, T2	
62.	work done –area	1	28/3/2019		**TLM1**	CO5	T1, T2	
63.	TUTORIAL-2	1	29/3/2019		**TLM3**	CO5	T1, T2	
64.	surface integrals	1	29/3/2019		**TLM1**	CO5	T1, T2	
65.	volume integrals	1	1/4/2019		**TLM1**	CO5	T1, T2	
66.	Greens Theorem	1	2/4/2019		**TLM1**	CO5	T1, T2	
67.	Stokes Theorem	1	3/4/2019		**TLM1**	CO5	T1, T2	
68.	Gauss Divergence Theorem	1	4/4/2019		**TLM1**	CO5	T1, T2	
69.	Gauss Divergence Theorem	1	5/4/2019		**TLM1**	CO5	T1, T2	
70.	TUTORIAL-2	1	8/4/2019		**TLM3**	CO5	T1, T2	

71.	Revision	1	9/4/2019		**TLM3**	CO5	T1, T2	
No. of classes required to complete UNIT-V		11				No. of classes taken:		

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed
72.	Applications of Laplace trans forms in signal processing	2	10,11, 12-04-2018		TLM1		T1, T2

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

Part - C
EVALUATION PROCESS:

Evaluation Task	**COs**	**Marks**
I-Mid Examination (Descriptive) =**A**	1,2	A=20
II-Mid Examination (Descriptive) =**B**	3,4,5	B=20
Evaluation of Mid Marks: **A+B** =75% of Max(A,B)+25% of Min(A,B)	1,2,3,4,5	A+B=20
Evaluation of quiz =**C**	1,2,3,4,5	C=10
Evaluation of assignments	1,2,3,4,5	D= 5
ATTENDANCE		E= 5
Cumulative Internal Examination : A+B+C+D+E	**1,2,3,4,5**	**A+B+C+D+E=**
Semester End Examinations =D	**1,2,3,4,5**	**D=60**
Total Marks: A+B+C+D	**1,2,3,4,5**	**100**

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO I: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO II: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO III: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO IV: To empower the student with the qualities of effective communication, team work, continues learning attitude, leadership needed for a successful computer professional.

PROGRAM OUTCOMES:

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. 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.
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.

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.
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.
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.
7. Environment and sustainability: Understand the impact of the professional engineering solution sin societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
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.
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.
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.

PROGRAM SPECIFIC OUTCOMES(PSOs):-

1. Programming Paradigms:

To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.

2. Data Engineering:

To inculcate an ability to Analyse, Design and implement data driven applications into the students.

3. Software Engineering:

Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

Dr. A. RAMI REDDY	Y.P.C.S. ANIL KUMAR	Dr. A. RAMI REDDY
Course Instructor	Course Coordinator	HOD

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE ENGINEERING
(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi, NAAC Accredited , Accredited by NBA, Certified by ISO 9001:2015)
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

Part-A

PROGRAM : B.Tech., II-Sem., CSE-B

ACADEMIC YEAR : 2017-18

COURSE NAME & CODE : TRANSFORMATION TECHNIQUES & VECTOR CALCULUS & 17FE06

L-T-P STRUCTURE : 4-1-0

COURSE CREDITS : 3

COURSE INSTRUCTOR : **Mr. CH. CHAITANYA**

COURSE COORDINATOR : **Mr. Y.P.C.S ANIL KUMAR**

PRE-REQUISITES: Fundamental knowledge of Differentiation and Integration

COURSE EDUCATIONAL OBJECTIVES (CEOs) :

This course provides the knowledge of

- The basic concepts of Laplace Transforms
- The concepts of Inverse Laplace Transforms and their applications to differential equations.
- Z-transform and its role in discrete analysis and in solving Difference equations.
- The concepts of multiple integrals and changing of order of integration
- The concepts of Vector Calculus, Vector Differentiation and Conservative Fields.
- The concepts of line integrals, surface and volume integrals , vector integral theorems and their applications

COURSE OUTCOMES (COs)

Upon The Successful Completion of This Course Students Will be Able To:

CO1: Apply the concept of Laplace Transforms to solve a differential equation of any order using Laplace Transforms.

CO2: Understand the analogy between Laplace Transform and Z-Transform and apply it wherever necessary

CO3: Learn Multiple Integrals in various coordinate systems

CO4: Understand the Vector, Solenoidal and Conservative Fields and will be to apply it in necessary areas.

CO5: Apply Vector Integration for curves, surfaces and volumes and relationship among themselves.

COURSE ARTICULATION MATRIX (Correlation between COs&POs,PSOs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2		1								1
CO2	3	2		1								1
CO3	3	2		1								1
CO4	3	2		1								1
CO5	3	2		1								1

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight (Low), **2 –** Moderate (Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

Text Books:

T1: Dr. B.S. Grewal, "*Higher Engineering Mathematics*", 42nd Edition, Khanna Publishers, New Delhi, 2012.

T2. Dr. B. V. Ramana, "*Higher Engineering Mathematics*", 1st Edition, TMH, New Delhi, 2010.

References:

R1: Michael D. Greenberg , "*Advanced Engineering Mathematics*", 2nd Edition, TMH, New Delhi, 2011.

R2 : Erwin Krezig, "*Advanced Engineering Mathematics*", 8th Edition, John Wiley & Sons, New Delhi, 2011.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to Subject & Course Outcomes	1	12/17/2018		**TLM1**	CO1	T1, T2	
2.	Laplace transforms of standard functions	1	12/18/2018		TLM1	CO1	T1, T2	
3.	Linear Property	1	12/19/2018		**TLM1**	CO1	T1, T2	
4.	Shifting Theorems	1	12/20/2018		**TLM1**	CO1	T1, T2	
5.	TUTORIAL-1	1	12/21/2018		**TLM3**	CO1	T1, T2	
6.	Change of Scale Property	1	12/24/2018		**TLM1**	CO1	T1, T2	
7.	Multiplication by t	1	12/26/2018		**TLM1**	CO1	T1, T2	
8.	Division by 't'	1	12/27/2018		**TLM1**	CO1	T1, T2	
9.	Transforms of derivatives and integrals	1	12/28/2018		**TLM1**	CO1	T1, T2	

10.	Unit step function –Dirac's delta function.	1	12/31/2018		**TLM1**	CO1	T1, T2	
11.	Inverse Laplace transforms– Linear Property	1	1/2/2019		**TLM1**	CO1	T1, T2	
12.	TUTORIAL-2	1	1/3/2019		**TLM3**	CO1	T1, T2	
13.	Shifting Properties	1	1/4/2019		**TLM1**	CO1	T1, T2	
14.	Multiplication and division by 's'	1	1/7/2019		**TLM1**	CO1	T1, T2	
15.	Convolution theorem	1	1/8/2019		**TLM1**	CO1	T1, T2	
16.	Applications of Laplace transforms to ordinary differential equations.	1	1/9/2019		**TLM1**	CO1	T1, T2	
17.	TUTORIAL-3	1	1/10/2019		**TLM3**	CO1	T1, T2	
No. of classes required to complete UNIT-I		17		No. of classes taken:				

UNIT-II :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
18.	**Introduction**	1	1/11/2019		**TLM1**	CO2	T1, T2	
19.	Z-transform properties	1	1/17/2019		**TLM1**	CO2	T1, T2	
20.	Damping rule	1	1/18/2019		**TLM1**	CO2	T1, T2	
21.	Shifting rule	1	1/21/2019		**TLM1**	CO2	T1, T2	
22.	TUTORIAL-4	1	1/22/2019		**TLM3**	CO2	T1, T2	
23.	Initial and final value theorems	1	1/23/2019		**TLM1**	CO2	T1, T2	
24.	Inverse Z –transform	1	1/24/2019		**TLM1**	CO2	T1, T2	
25.	Partial fraction method	1	1/25/2019		**TLM1**	CO2	T1, T2	
26.	Convolution theorem	1	1/28/2019		**TLM1**	CO2	T1, T2	
27.	Solution of difference equation by Z-transforms.	1	1/29/2019		**TLM1**	CO2	T1, T2	
28.	Solution of difference equation by Z-transforms	1	1/30/2019		**TLM1**	CO2	T1, T2	
29.	TUTORIAL-5	1	1/31/2019		**TLM3**	CO2	T1, T2	
30.	Revision	1	2/01/2019		**TLM3**	CO2	T1, T2	
No. of classes required to complete UNIT-II		13		No. of classes taken:				

UNIT-III :

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
31	Introduction	1	2/11/2019		**TLM1**	CO3	T1, T2	
32	Multiple integrals	1	2/12/2019		**TLM1**	CO3	T1, T2	
33	double and triple integrals (Cartesian)	1	2/13/2019		**TLM1**	CO3	T1, T2	
34	TUTORIAL-2	1	2/14/2019		**TLM3**	CO3	T1, T2	
35	double integrals (Cartesian)	1	2/15/2019		**TLM1**	CO3	T1, T2	
36	double integrals (Cartesian)	1	2/18/2019		**TLM1**	CO3	T1, T2	
37	triple integrals (Cartesian)	1	2/19/2019		**TLM1**	CO3	T1, T2	
38	double integrals -polar	1	2/20/2019		**TLM1**	CO3	T1, T2	
39	double integrals polar	1	2/21/2019		**TLM1**	CO3	T1, T2	
40	triple integrals -spherical	1	2/22/2019		**TLM1**	CO3	T1, T2	
41	TUTORIAL-2	1	2/25/2019		**TLM3**	CO3	T1, T2	
42	Changing of order of Integration	1	2/26/2019		**TLM1**	CO3	T1, T2	
43	Changing of order of Integration	1	2/27/2019		**TLM1**	CO3	T1, T2	
44	Applications to areas and volumes.	1	2/28/2019		**TLM1**	CO3	T1, T2	
45	TUTORIAL-2	1	3/1/2019		**TLM3**	CO3	T1, T2	
No. of classes required to complete UNIT-III		15				No. of classes taken:		

UNIT-IV :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
46.	Introduction on Vector Differentiation	1	3/5/2019		**TLM1**	CO4	T1, T2	
47.	Gradient	1	3/6/2019		**TLM1**	CO4	T1, T2	
48.	Directional Derivatives	1	3/7/2019		**TLM1**	CO4	T1, T2	
49.	Directional Derivatives	1	3/8/2019		**TLM1**	CO4	T1, T2	
50.	Divergence	1	3/11/2019		**TLM1**	CO4	T1, T2	
51.	Solenoidal field	1	3/12/2019		**TLM1**	CO4	T1, T2	

52.	TUTORIAL-2	1	3/13/2019		**TLM3**	CO4	T1, T2	
53.	Curl	1	3/14/2019		**TLM1**	CO4	T1, T2	
54.	Curl problems	1	3/15/2019		**TLM1**	CO4	T1, T2	
55.	Irrotational fields	1	3/18/2019		**TLM1**	CO4	T1, T2	
56.	Potential surfaces	1	3/19/2019		**TLM1**	CO4	T1, T2	
57.	Laplacian and second order operators	1	3/20/2019		TLM1	CO4	T1, T2	
58.	Properties of sums and products	1	3/22/2019		**TLM1**	CO4	T1, T2	
59.	TUTORIAL-8	1	3/25/2019		**TLM3**	CO4	T1, T2	
No. of classes required to complete UNIT-IV		14			No. of classes taken:			

UNIT-V :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
60.	Vector Integration	1	3/26/2019		**TLM1**	CO5	T1, T2	
61.	Line integral	1	3/27/2019		**TLM1**	CO5	T1, T2	
62.	work done –area	1	3/28/2019		**TLM1**	CO5	T1, T2	
63.	TUTORIAL-2	1	3/29/2019		TLM3	CO5	T1, T2	
64.	surface integrals	1	3/29/2019		TLM1	CO5	T1, T2	
65.	volume integrals	1	4/1/2019		TLM1	CO5	T1, T2	
66.	Greens Theorem	1	4/2/2019		**TLM1**	CO5	T1, T2	
67.	Stokes Theorem	1	4/3/2019		**TLM1**	CO5	T1, T2	
68.	Gauss Divergence Theorem	1	4/4/2019		**TLM1**	CO5	T1, T2	
69.	Gauss Divergence Theorem	1	4/8/2019		**TLM1**	CO5	T1, T2	
70.	TUTORIAL-2	1	4/9/2019		**TLM3**	CO5	T1, T2	
71.	Revision	1	4/10/2019		**TLM3**	CO5	T1, T2	
No. of classes required to complete UNIT-V		11			No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed
72.	Applications of Laplace trans forms in signal processing	2	11,12-04-2018		TLM1		T1, T2

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

Part - C
EVALUATION PROCESS:

Evaluation Task	COs	Marks
I-Mid Examination (Descriptive) =**A**	1,2	A=20
II-Mid Examination (Descriptive) =**B**	3,4,5	B=20
Evaluation of Mid Marks: **A+B** =75% of Max(A,B)+25% of Min(A,B)	1,2,3,4,5	A+B=20
Evaluation of quiz =**C**	1,2,3,4,5	C=10
Evaluation of assignments	1,2,3,4,5	D= 5
ATTENDANCE		E= 5
Cumulative Internal Examination : A+B+C+D+E	**1,2,3,4,5**	**A+B+C+D+E=4(**
Semester End Examinations =D	**1,2,3,4,5**	**D=60**
Total Marks: A+B+C+D	**1,2,3,4,5**	**100**

PROGRAM EDUCATIONAL OBJECTIVES (PEOS)

PEO I: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO II: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO III: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO IV: To empower the student with the qualities of effective communication, team work, continues learning attitude, leadership needed for a successful computer professional.

PROGRAM OUTCOMES:

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. 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.
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.
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.
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.
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.
7. Environment and sustainability: Understand the impact of the professional engineering solution sin societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
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.

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.

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.

PROGRAM SPECIFIC OUTCOMES(PSOs):-

1. Programming Paradigms:

To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.

2. Data Engineering:

To inculcate an ability to Analyse, Design and implement data driven applications into the students.

3. Software Engineering:

Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

CH.CHAITANYA		Y.P.C.S. ANIL KUMAR		Dr. A. RAMI REDDY	
Course Instructor		Course Coordinator		HOD	

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE ENGINEERING
(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi,
NAAC Accredited with 'A' grade, Accredited by NBA, Certified by ISO 9001:2015)
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

Part-A

PROGRAM **:** B.Tech., II-Sem., CSE-A

ACADEMIC YEAR **:** 2018-19

COURSE NAME & CODE **:** APPLIED PHYSICS & 17FE12

L-T-P STRUCTURE **:** 3-2-0

COURSE CREDITS **:** 4

COURSE INSTRUCTOR **: P.Vijaya Sirisha**

COURSE COORDINATOR **: Dr T VASANTHA RAO**

Pre-requisites **:** Basics in Light, Conductivity in different solid materials etc.,

Course Educational Objectives : To make students learn the basic concepts of Optics such as Interference, Diffraction, Polarization and Lasers; the principle of quantum mechanics, free electron theory of metals, Concept of semi conductors, diodes and different types of polarizations in dielectrics and their applications.

Course Outcomes : At the end of the course, the student will be able to :

Co1: Define the nature of Interference and Diffraction.
Co2: Describe the polarization and LASER, types of lasers and their applications.
Co3: Estimate the electrical conductivity in metals.
Co4: Design the circuits of semiconductor diodes, LED, Photodiode, Solar cell.
Co5: Classify the different types of polarizations in dielectric materials.

COURSE ARTICULATION MATRIX (Correlation between Cos & POs, PSOs):

APPLIED PHYSICS												
COURSE DESIGNED BY	**FRESHMAN ENGINEERING DEPARTMENT**											
Course Outcomes PO's →	**Programme Outcomes**											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1.	**3**	**3**	**2**	**2**								**3**
CO2.	**3**	**3**	**3**	**2**								**3**
CO3.	**3**	**3**	**2**	**2**								**3**
CO4.	**3**	**3**	**2**	**2**								**3**
CO5.	**3**	**3**	**2**	**2**								**3**
CATEGORY	**BASIC SCIENCES**											
APPROVAL	**APPROVED BY ACADEMIC COUNCIL, 2017.**											

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight (Low), **2 –** Moderate (Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

Text Books:

TEXT BOOKS

T1 : V. Rajendran, "*Engineering Physics*", TMH, New Delhi, 6th Edition, 2013.

T2 : D. K.Bhattacharya, Poonam Tandon, " Applied *Physics*", Oxford press, New Delhi, 1st Edition, 2016.

REFERENCES

R1: M.N. Avadhanulu, TVS Arun Murthy, "Applied *Physics*", S. Chand & Co., 2nd Edition, 2007.

R2 : P.K. Palani Samy, "*Applied Physics*", Sci. Publ. Chennai, 4th Edition, 2016.

R3 : P. Sreenivasa Rao, K Muralidhar, "*Applied Physics*", Him. Publi. Mumbai,1st Edition, 2016.

R4 : Hitendra K Mallik , AK Singh " *Engineering Physics*", TMH, New Delhi, 1st Edition, 2009.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): Section- B

UNIT-I : Interference and diffraction

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to Subject, Course Outcomes	1	17-12-2018		**TLM2**	CO1	T1 or T2	
2.	Introduction to UNIT-I Superposition of waves,	1	18-12-2018		**TLM1**	CO1	T1 or T2	
3.	Coherence, Conditions for Interference	1	20-12-2018		**TLM1**	CO1	T1 or T2	
4.	Interference from thin films	1	21-12-2018		**TLM1**	CO1	T1 or T2	
5.	Newton's rings	1	22-12-2018		**TLM1 TLM2**	CO1	T1 or T2	
6.	Michelson's interferometer	1	24-12-2018		**TLM1 TLM2**	CO1	T1 or T2	
7.	Tutorial 1	1	27-12-2018		**TLM3**	CO1	T1 or T2	
8.	Introduction – Diffraction	1	28-12-2018		**TLM1**	CO1	T1 or T2	
9.	Single slit diffraction	1	29-12-2018		**TLM1 TLM2**	CO1	T1 or T2	
10.	Double slit diffraction	1	31-01-2019		**TLM1**	CO1	T1 or T2	
11.	Diffraction –Circular aperture	1	03-01-2019		**TLM1 TLM2**	CO1	T1 or T2	
12.	Diffraction –N parallel slits, Diffraction grating,	1	04-01-2019		**TLM1 TLM2**	CO1	T1 or T2	

13.	Resolving power of grating,	1	05-01-2019		**TLM1**	CO1	T1 or T2	
14.	Resolving power of Telescope	1	06-01-2019		**TLM1**	CO1	T1 or T2	
15.	TUTORIAL-2	1	07-01-2019		**TLM3**	CO1	T1 or T2	
16.	Assignment/Quiz	1	09-01-2019			CO1	T1 or T2	
No. of classes required to complete UNIT-I		17			No. of classes taken:			

UNIT-II : Polarisation and Lasers

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
17.	**UNIT II :introduction** polarization of light, Brewster's law	1	10-01-2019		**TLM1 TLM2**	CO2	T1 or T2	
18.	Double refraction, Geometry of calcite crystal	1	18-01-2019		**TLM1 TLM2**	CO2	T1 or T2	
19.	Nicol Prism, QWP& HWP	1	19-01-2019		**TLM1**	CO2	T1 or T2	
20.	Optical Activity, polarimeter	1	21-01-2019		**TLM1**	CO2	T1 or T2	
21.	TUTORIAL-3	1	22-01-2019		**TLM3**	CO2	T1 or T2	
22.	Introduction - characteristics of Lasers	1	24-01-2019		**TLM1 TLM2**	CO2	T1 or T2	
23.	Principle of Laser, Einstein's coefficients	1	25-01-2019		**TLM1**	CO2	T1 or T2	
24.	Population inversion,	1	28-01-2019		**TLM1**	CO2	T1 or T2	
25.	Pumping mechanism,	1	29-01-2019		**TLM1**	CO2	T1 or T2	
26.	Nd-YAG Laser	1	31-01-2019		**TLM1, TLM2**	CO2	T1 or T2	
27.	He-Ne gas laser	1	01-02-2019		**TLM1, TLM2**	CO2	T1 or T2	
28.	TUTORIAL-4	1	02-02-2019		**TLM3**	CO2	T1 or T2	
No. of classes required to complete UNIT-II		12			No. of classes taken:			

UNIT-III : Pricoiples of Quantum Mechanics and Free electron theory

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
29	**I MID**		04-02-2019			Co1,Co2		
30	**I MID**		05-02-2019			Co1,Co2		
31	**I MID**		07-02-2019			Co1,Co2		
32	**I MID**		08-02-2019			Co1,Co2	T1 or T2	
33	Introduction to principles of quantum mechanics	1	09-02-2019		**TLM1**	CO3	T1 or T2	
34	De Broglie hypothesis	1	11-02-2019		**TLM1**	CO3	T1 or T2	
35	Experimental verification Davisson and Germer Experiment	1	12-02-2019		**TLM1 TLM2**	CO3	T1 or T2	
36	Schrodinger wave equation	1	14-02-2019		**TLM1**	CO3	T1 or T2	
37	Physical significance of wave function	1	15-02-2019		**TLM1**	CO3	T1 or T2	
38	Particle in a box	1	16-02-2019		**TLM1 TLM2**	CO3	T1 or T2	
39	TUTORIAL-5	1	18-02-2019		**TLM3**	CO3	T1 or T2	
40	Classical free electron theory-postulates	1	19-02-2019		**TLM1**	CO3	T1 or T2	
41	Expression for electrical conductivity and drift velocity	1	21-02-2019		**TLM1**	CO3	T1 or T2	
42	Advantageous and drawbacks	1	22-02-2019		**TLM1**	CO3	T1 or T2	
43	Fermi –Dirac statistics	1	23-02-2019		**TLM1**	CO3	T1 or T2	
44	Classification of band theory of Solids	1	25-02-2019		**TLM1 TLM2**	CO3	T1 or T2	
45	Tutorial - 6	1	26-02-2019		**TLM3**	CO3	T1 or T2	
46	Assignment / Quiz - 3	1	28-02-2019		**TLM1**	CO3	T1 or T2	
No. of classes required to complete UNIT-III		14				No. of classes taken:		

UNIT-IV : Semiconductor Physics

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
47.	Classification of semiconductors	1	01-03-2019		**TLM1**	CO4	T1 or T2	
48.	Carrier concentration in an intrinsic semiconductor	1	02-03-2019		**TLM1**	CO4	T1 or T2	
49.	Concentration and Fermi levels in an intrinsic semiconductor	1	05-03-2019		**TLM1**	C04	T1 or T2	
50.	Conductivity of semiconductors	1	07-03-2019		**TLM1**	CO4	T1 or T2	
51.	Drift and diffusion, Einstein relation	1	08-03-2019		**TLM1**	CO4	T1 or T2	
52.	TUTORIAL-7	1	11-03-2019		**TLM3**	CO4	T1 or T2	
53.	Hall Effect	1	12-03-2019		**TLM1 TLM2**	CO4	T1 or T2	
54.	Direct band gap and indirect band gap semiconductors - differences	1	14-03-2019		**TLM1 TLM2**	CO4	T1 or T2	
55.	LED	1	15-03-2019		**TLM1**	CO4	T1 or T2	
56.	Photo Detectors	1	16-03-2019		**TLM1**	CO4	T1 or T2	
57.	Solar cell, Application of Solar cell	1	18-03-2019		**TLM1 TLM2**	CO4	T1 or T2	
58.	TUTORIAL-8	1	19-03-2019		**TLM3**	CO4	T1 or T2	
59.	Assignment / Quiz - 4	1	22-03-2019		**TLM1**	CO4	T1 or T2	
No. of classes required to complete UNIT-IV		13			No. of classes taken:			

UNIT-V : Dielectric materials

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
60.	**Introduction,** Dielectric parameters	1	23-03-2019		**TLM1**	CO5	T1 or R2	
61.	Electronic Polarization	1	25-03-2019		**TLM1**	CO5	T1 or R2	
62.	Ionic polarization	1	26-03-2019		**TLM1**	CO5	T1 or R2	
63.	Orientation and space charge polarization	1	28-03-2019		**TLM1**	CO5	T1 or R2	
64.	Local field and classius mosotti equation	1	29-03-2019		**TLM1**	CO5	T1 or R2	
65.	TUTORIAL-9	1	30-03-2019		**TLM3 TLM2**	CO5	T1 or R2	

66.	Dielectric loss	1	01-04-2019		**TLM1**	CO5	T1 or R2	
67.	Dielectric breakdown	1	02-04-2019		TLM1	CO5	T1 or R2	
68.	Ferro electricity and Piezo electricity	1	04-04-2019		TLM1 **TLM2**	CO5	T1 or R2	
69.	Applications of dielectric materials	1	08-04-2019		TLM1 **TLM2**	CO5	T1 or R2	
70.	TUTORIAL-10	1	09-04-2019		**TLM3**	CO5	T1 or R2	
71.	Assignment / Quiz - 5	1	11-04-2019			CO5	T1 or R2	
No. of classes required to complete UNIT-V		12				No. of classes taken:		

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Nano materials preparation,applications	1	12-04-2019		**TLM1 TLM2**	CO5	T1 or T2	
2.	II MID EXAM		15-04-2019			CO3,CO4,CO5		
3.	II MID EXAM		16-04-2019			CO3,CO4,CO5		
4.	II MID EXAM		17-04-2019			CO3,CO4,CO5		
5.	II MID EXAM		18-04-2019			CO3,CO4,CO5		

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

Part - C

EVALUATION PROCESS:

Evaluation Task	COs	Marks
I-Mid Examination (Descriptive) =**A**	1,2	A=20
II-Mid Examination (Descriptive) =**B**	3,4,5	B=20
Evaluation of Mid Marks: **A+B** =75% of Max(A,B)+25% of Min(A,B)	1,2,3,4,5	A+B = 20
I- QUIZ Examination(ONLINE) = **C**	1,2	C =10
II- QUIZ Examination (ONLINE) =**D**	3,4,5	D =10
Evaluation of QUIZ Marks: **C+D** =75% of Max(C,D)+25% of Min(C,D)	1,2,3,4,5	C+D = 10
Evaluation of assignments /quiz =**E**	1,2,3,4,5	E = 5
Evaluation of attendance Marks = **F**	1,2,3,4,5	F = 5
Cumulative Internal Examination : (A + B) + (C + D) + E + F = 40	**1,2,3,4,5**	**40**
Semester End Examinations = G	**1,2,3,4,5**	**G = 60**
Total Marks: (A + B) + (C + D) + E + F + G =	**1,2,3,4,5**	**100**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

Graduates of Information Technology programme will be:

PEO I: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO II: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO III: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO IV: To empower the student with the qualities of effective communication, team work, continues learning attitude, leadership needed for a successful computer professional.

PROGRAM OUTCOMES:

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. 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.
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.
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.
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.
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.
7. Environment and sustainability: Understand the impact of the professional engineering solution sin societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
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.
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.
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.

PROGRAM SPECIFIC OUTCOMES (PSOs):

Graduate of the Information Technology will have the ability to

1.Organize, Analyze and Interpret the data to extract meaningful conclusions.
2.Design, Implement and Evaluate a computer-based system to meet desired needs.
3. Develop IT application services with the help of different current engineering tools.

P VIJAYA SIRISHA	Dr T. VASANTHA RAO	Dr T. VASANTHA RAO	Dr A. RAMIREDDY
Course Instructor	Course Coordinator	Module Coordinator	HOD

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
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L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

Part-A

PROGRAM : B. Tech., II-Sem., CSE-B

ACADEMIC YEAR : 2018-19

COURSE NAME & CODE : Applied Physics- 17FE12

L-T-P STRUCTURE : 4-1-0

COURSE CREDITS : 4

COURSE INSTRUCTOR : **Dr. S. YUSUB**

COURSE COORDINATOR : **Dr. T. Vasanta Rao**

PRE-REQUISITE: Basics in Light, Conductivity in different solid materials etc.

COURSE EDUCATIONAL OBJECTIVES(CEOs) : To make students learn the basic concepts of Optics such as Interference, Diffraction, Polarization and Lasers; the principle of quantum mechanics, free electron theory of metals, Concept of semi conductors, diodes and different types of polarizations in dielectrics and their applications.

Course Outcomes: At the end of the course, the student will be able to:

Co1: Define the nature of Interference and Diffraction.
Co2: Describe the polarization and LASER, types of lasers and their applications.
Co3: Estimate the electrical conductivity in metals.
Co4: Design the circuits of semiconductor diodes, LED, Photodiode, Solar cell.
Co5: Classify the different types of polarisations in dielectric materials.

COURSE ARTICULATION MATRIX (Correlation between COs& POs, PSOs):

APPLIED PHYSICS												
COURSE DESIGNED BY	**FRESHMAN ENGINEERING DEPARTMENT**											
Course Outcomes PO's →	**Programme Outcomes**											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1.	**3**	**3**	**1**	**1**								**1**
CO2.	**3**	**3**	**2**	**1**								**1**
CO3.	**3**	**3**	**1**	**1**								**1**
CO4.	**3**	**3**	**1**	**1**								**1**
CO5.	**3**	**3**	**1**	**1**								**1**
CATEGORY	**BASIC SCIENCES**											
APPROVAL	**APPROVED BY ACADEMIC COUNCIL, 2017.**											

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**

1- Slight (Low), **2 –** Moderate (Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

T1 V. Rajendran, "*Engineering Physics*", TMH, New Delhi, 6th Edition, 2013.

T2 D. K.Bhattacharya, Poonam Tandon, " Applied *Physics*", Oxford press, New Delhi, 1st Edition, 2016.

BOS APPROVED REFERENCE BOOKS:

R1 M.N. Avadhanulu, TVS Arun Murthy, "Applied *Physics*", S. Chand & Co., 2nd Edition, 2007.

R2 P.K. Palani Samy, "*Applied Physics*", Sci. Publ. Chennai, 4th Edition, 2016.

R3 P. Sreenivasa Rao, K Muralidhar, "*Applied Physics*", Him. Publi. Mumbai, 1st Edition, 2016.

R4 Hitendra K Mallik , AK Singh " *Engineering Physics*", TMH, New Delhi, 1st Edition, 2009.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): CSE-B

UNIT-I : Interference and diffraction

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to Subject	1	17-12-2018		TLM1	CO1	T1	
2.	Course Outcomes	1	18-12-2018		TLM1	CO1	T1	
3.	Introduction to UNIT-I INTERFERENCE	1	19-12-2018		TLM1	CO1	T1	
4.	Coherence, Conditions	1	20-12-2018		TLM1	CO1	T1	
5.	Thin films, parallel film	1	22-12-2018		TLM1	CO1	T1	
6.	Newton's rings	1	24-12-2018		TLM1	CO1	T1	
7.	Newton's rings	1	26-12-2018		TLM1	CO1	T1	
8.	Michelson interferometer	1	27-12-2017		TLM1	CO1	T1	
9.	Tutorial-1	1	29-12-2018		TLM3			
10.	Introduction Diffraction	1	**31-12-2018**		TLM1	CO1	T1	
11.	Fraunhofer diffraction Single slit	1	02-01-2019		TLM1	CO1	T1	
12.	Circular aperture	1	03-01-2019		TLM1	CO1	T1	

13.	Tutorial-2	1	05-01-2019		TLM3			
14.	Diffraction due to N-Slits	1	07-01-2019		TLM1	CO1	T1	
15.	Diffraction Grating	1	08-01-2019		TLM3	CO1	T1	
16.	Resolving power of Grating	1	09-01-2019		TLM1	CO1	T1	
17.	Assignment/Quiz	1	14-01-2019		TLM6			
No. of classes required to complete UNIT-I		17			No. of classes taken:			

UNIT-II : Polarisation and Lasers

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
18.	Introduction to Unit II Polarization of light	1	15-01-2019		TLM1	CO2	T1	
19.	Brewster's law	1	16-01-2019		TLM1	CO2	T1	
20.	Double refraction	1	17-01-2019		TLM1	CO2	T1	
21.	Tutorial-3	1	19-01-2019		TLM3			
22.	Quarter, Half wave plates	1	21-01-2019		TLM1	CO2	T1	
23.	Polarimeter	1	22-01-2019		TLM1	CO2	T1	
24.	Characteristics of Laser.	1	23-01-2019		TLM1	CO2	T1	
25.	Einstein's coefficients	1	24-01-2019		TLM1	CO2	T1	
26.	Tutorial-4	1	26-01-2019		TLM3			
27.	NdYAG laser	1	28-01-2019		TLM1	CO2	T1	
28.	He-Ne laser	1	29-01-2019		TLM1	CO1	T1	
29.	He-Ne laser	1	30-01-2019		TLM1	CO1	T1	
30.	Assignment/Quiz	1	31-01-2019		TLM6			
31.	TUTORIAL-5	1	02-02-18		TLM3			
32.	**I MID**		04-02-18			CO1, CO2		

33.	**I MID**		05-02-18			CO1, CO2		
34.	**I MID**		06-02-18			CO1, CO2		
35.	**I MID**		07-02-18			CO1, CO2		
36.	**I MID**		08-02-18			CO1, CO2		
No. of classes required to complete UNIT-II		10		No. of classes taken:				

UNIT-III : PRINCIPLES OF QUANTUM MECHANICS & FREE ELECTRON THEORY

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
37	Introduction to Unit III, de-Broglie hypothesis	1	**11-02-2019**		TLM1	CO3	T1	
38	Broglie waves	1	12-02-2019		TLM1	CO3	T1	
39	Expt. verification	1	13-02-2019		TLM1	CO3	T1	
40	Schrodinger wave equation	1	**14-02-2019**		TLM1	CO3	T1	
41	TUTORIAL-6	1	16-02-2019		TLM3			
42	physical significance of the wave function	1	18-02-2019		TLM1	CO3	T1	
43	particle in a box	1	19-02-2019		TLM1	CO3	T1	
44	Classical free electron theory- Postulates	1	20-02-2019		TLM1	CO3	T1	
45	Expression for electrical conductivity and drift velocity	1	21-02-2019		TLM1	CO3	T1	
46	TUTORIAL-7	1	23-02-2019		TLM3			
47	Advantages and Draw backs	1	**25-02-2019**		TLM1	CO3	T1	
48	Fermi-Dirac statistics	1	26-02-2019		TLM1	CO3	T1	
49	Classification of Solids on the basis of Band theory.	1	27-02-2019		TLM1	CO3	T1	
50	Classification of Solids on the basis of Band theory	1	28-02-2019		TLM1	CO3	T1	

51	Assignment/Quiz	1	02-03-2019		TLM6			
No. of classes required to complete UNIT-III		15			No. of classes taken:			

UNIT-IV : SEMI CONDUCTOR PHYSICS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
52.	Introduction to unit IV, Carrier concentration in n-type semiconductor	1	04-03-2019		TLM1	CO4	T1	
53.	Carrier concentration in p-type semiconductor	1	05-03-2019		TLM1	CO4	T1	
54.	Conductivity of Intrinsic and Extrinsic semiconductors	1	**06-03-2019**		TLM1	CO4	T1	
55.	Drift and diffusion	1	07-03-2019		TLM3	CO4	T1	
56.	Einstein relation	1	11-03-2019		TLM1	CO4	T1	
57.	Hall effect	1	12-03-2019		TLM1	CO4	T1	
58.	Hall effect	1	13-03-2019		TLM1	CO4	T1	
59.	Direct and indirect band gap semiconductors	1	14-03-2019		TLM1	CO4	T1	
60.	Tutorial-8	1	16-03-2019		TLM3			
61.	LED	1	18-03-2019		TLM1	CO4	T1	
62.	Photo detecto	1	19-03-2019		TLM1	CO4	T1	
63.	Solar cell	1	20-03-2019		TLM1	CO4	T1	
64.	Applications of solar cells	1	21-03-2019		TLM1	CO4	T1	
65.	Assignment/Quiz	1	23-03-2019		TLM6			
No. of classes required to complete UNIT-IV		14			No. of classes taken:			

UNIT-V : DIELECTRIC MATERIALS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
66.	Introduction to unit V Dielectric materials	1	**25-03-2019**		TLM1	CO5	T1	
67.	Dielectric polarization	1	26-03-2019		TLM1	CO5	T1	
68.	Electronic polarization	1	27-03-2019		TLM1		T1	

69.	Ionic polarization	1	28-03-2019		TLM1	CO5	T1	
70.	Tutorial-9	1	30-03-2019		TLM3			
71.	Orientation and space charge polarizations	1	01-04-2019		TLM3	CO5	T1	
72.	Local field	1	02-04-2019		TLM1	CO5	T1	
73.	Clausius-Mossitti relation	1	03-04-2019		TLM1	CO5	T1	
74.	Dieelctric loss	1	04-04-2019		TLM1	CO5	T1	
75.	Tutorial-10	1	06-04-2019		TLM3			
76.	Ferro electricity	1	08-04-2019		TLM1	CO5	T1	
77.	Piezo electricity	1	09-04-2019		TLM1	CO5	T1	
78.	Dielectric breakdown strength , Appications	1	10-04-2019		TLM1	CO5	T1	
79.	Assignment/Quiz	1	11-04-2019		TLM6			
No. of classes required to complete UNIT-V		14			No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign
80.	SEM	1	08-04-2019		TLM1		R1	
81.	Nano materials	1	09-04-2019		TLM1		R1	
75	Mid II		15-04-2019			Co3, Co4, Co5		
76	Mid II		16-04-2019			Co3, Co4, Co5		
77	Mid II		17-04-2019			Co3, Co4, Co5		
78	Mid II		18-04-2019			Co3, Co4, Co5		
79	Mid II		19-04-2019			Co3, Co4, Co5		

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

Part - C

EVALUATION PROCESS:

Evaluation Task	COs	Marks
Assignment/Quiz – 1	1	A1=5
Assignment/Quiz – 2	2	A2=5
I-Mid Examination	1,2	B1=20
Assignment/Quiz – 3	3	A3=5
Assignment/Quiz – 4	4	A4=5
Assignment/Quiz – 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Evaluation of Assignment/Quiz Marks: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=5
Evaluation of Mid Marks: B=75% of Max(B1,B2)+25% of Min(B1,B2)	1,2,3,4,5	B=20
Cumulative Internal Examination : A+B	**1,2,3,4,5**	**A+B=25**
Semester End Examinations	**1,2,3,4,5**	**C=75**
Total Marks: A+B+C	**1,2,3,4,5**	**100**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

Graduates of Information Technology programme will be:

PEO 1: Pursue a successful career in the area of Information Technology or its allied fields.

PEO 2: Exhibit sound knowledge in the fundamentals of Information Technology and apply practical experience with programming techniques to solve real world problems.

PEO 3: Able to demonstrate self-learning, life-long learning and work in teams on multidisciplinary projects.

PEO 4: Able to understand the professional code of ethics and demonstrate ethical behaviour, effective communication, team work and leadership skills in their job.

PROGRAM OUTCOMES:

Engineering Graduates will be able to:

1. Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. 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.
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.
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.
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.
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.
7. Environment and sustainability: Understand the impact of the professional engineering solution sin societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings
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.

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.

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.

PROGRAM SPECIFIC OUTCOMES (PSOs):

Graduate of the Information Technology will have the ability to

1.Organize, Analyze and Interpret the data to extract meaningful conclusions.

2.Design, Implement and Evaluate a computer-based system to meet desired needs.

3. Develop IT application services with the help of different current engineering tools.

Dr. S. YUSUB	Dr T. VASANTHA RAO	Dr T. VASANTHA RAO	Dr A. RAMIREDDY
Course Instructor	Course Coordinator	Module Coordinator	HOD

LAKKIREDDY BALI REDDY COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi, NAAC Accredited with 'A' grade, Accredited by NBA, Certified by ISO 9001:2015)
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

PROGRAM : B.Tech. II-Sem., CSE-A

ACADEMIC YEAR : 2018-19

COURSE NAME & CODE : **BASIC ELECTRICAL ENGINEERING - 17EE52**

L-T-P STRUCTURE : 2-2-0

COURSE CREDITS : 3

COURSE INSTRUCTOR : **Mr.E.RAGHU BABU**

COURSE COORDINATOR : **Mr.E.RAGHU BABU**

PRE-REQUISITE: Engineering Physics

COURSE OBJECTIVE: This course enables the student to illustrate the basics of circuits and AC electrical machines. It also deals with basic principles of measuring instruments.

COURSE OUTCOMES (CO)
CO1: Analyze AC and DC circuits.
CO2: Enumerate the working of static & rotating electrical machines.
CO3: Analyze the performance of electrical machines.
CO4: Interpret the working of various electrical measuring instruments.

COURSE ARTICULATION MATRIX (Correlation between COs&POs, PSOs):

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	**3**	**2**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**
CO2	**3**	**2**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**
CO3	**3**	**2**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**
CO4	**3**	**2**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight (Low), **2 -** Moderate (Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

T1 M.S Naidu and S. Kamakshaiah,"Introduction to Electrical Engineering", TMH Publication, 3rd Edition

T2 A.Sudhakar and Shyammohan S Palli,"Electrical Circuits" Tata McGraw-Hill, 3rd Edition.

BOS APPROVED REFERENCE BOOKS:

R1 Kothari and Nagarath, "Basic Electrical Engineering" ,TMH Publications, 3rd Edition.

R2 V.K.Mehta, "Principles of Electrical Engineering" , S.Chand Publications.

PROGRAMEDUCATIONALOBJECTIVES (PEOS):

PEO I: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO II: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO III: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO IV: To empower the student with the qualities of effective communication, team work, continues learning attitude, leadership needed for a successful computer professional.

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:-

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

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.

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.

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.

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.

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.

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.

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

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

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.

Project management and finance: Demonstrate knowledge and understanding of the engineer**ing 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.

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):-

1.Programming Paradigms:

To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.

2. Data Engineering:

To inculcate an ability to Analyze, Design and implement data driven applications into the students.

3. Software Engineering:

Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

COURSE DELIVERY PLAN (LESSON PLAN): Section-A

UNIT-I: Electrical Circuit Fundamentals

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to Subject, Course Outcomes	1	18-12-2018		TLM1	CO1	T2	
2.	Basic definitions	1	19-12-2018		TLM1	CO1	T2	
3.	Types of elements-active and passive	1	21-12-2018		TLM1	CO1	T2	
4.	Types of elements-active and passive	1	22-12-2018		TLM1	CO1	T2	
5.	Ohm's Law	1	25-12-2018		TLM1	CO1	T2	
6.	Kirchhoff's Laws	1	26-12-2018		TLM1	CO1	T2	
7.	Kirchhoff's Laws	1	28-12-2018		TLM1	CO1	T2	
8.	TUTORIAL-1	1	29-12-2018		TLM3		T2	
9.	Network reduction techniques-series, parallel	1	02-01-2019		TLM1	CO1	T2	
10.	star to delta transformations	1	04-01-2019		TLM1	CO1	T2	
11.	delta to star transformations	1	05-01-2019		TLM1	CO1	T2	
12.	source transformations	1	08-01-2019		TLM1	CO1	T2	
13.	TUTORIAL-2	1	09-01-2019		TLM3		T2	
No. of classes required to complete UNIT-I		13			No. of classes taken:			

UNIT-II: Network Theorems without proofs (DC Networks)

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
14.	Mesh Analysis	1	11-01-2019		TLM1	CO1	T2	

15.	Mesh Analysis	1	12-01-2019		TLM1	CO1	T2	
16.	Nodal Analysis	1	16-01-2019		TLM1	CO1	T2	
17.	Nodal Analysis	1	18-01-2019		TLM1	CO1	T2	
18.	TUTORIAL-3	1	19-01-2019		TLM3		T2	
19.	Superposition theorem	1	22-01-2019		TLM1	CO1	T2	
20.	Superposition theorem	1	23-01-2019		TLM1	CO1	T2	
21.	TUTORIAL-4	1	25-01-2019		TLM3		T2	
22.	Thevenin's theorem	1	29-01-2019		TLM1	CO1	T2	
23.	Thevenin's theorem	1	30-01-2019		TLM1	CO1	T2	
24.	Norton's theorems	1	31-01-2019		TLM1	CO1	T2	
25.	Maximum Power Transfer theorem	1	01-02-2019		TLM1	CO1	T2	
26.	MID-I	1	05-02-2019					
27.	MID-I	1	06-02-2019					
28.	MID-I	1	08-02-2019					
No. of classes required to complete UNIT-II		12			No. of classes taken:			

UNIT-III: AC Fundamentals

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
29.	Peak, R.M.S, average and instantaneous values for periodic waveforms	1	09-02-2019		TLM1	CO1	T2	
30.	Peak, R.M.S, average and instantaneous values for periodic waveforms	1	12-02-2019		TLM1	CO1	T2	
31.	Phase and Phase difference	1	13-02-2019		TLM1	CO1	T2	
32.	TUTORIAL-5	1	15-02-2019		TLM3		T2	
33.	Concepts of Reactance, Impedance, Susceptance	1	16-02-2019		TLM1	CO1	T2	
34.	Admittance, Real , Reactive and apparent Powers, Power Factor	1	19-02-2019		TLM1	CO1	T2	
35.	Admittance, Real , Reactive and apparent Powers, Power Factor	1	20-02-2019		TLM1	CO1	T2	
36.	TUTORIAL-6	1	22-02-2019		TLM3		T2	
37.	Resonance	1	23-02-2019		TLM1	CO1	T2	

38.	Resonance	1	26-02-2019		TLM1	CO1	T2	
39.	Numerical problems	1	27-02-2019		TLM3	CO1	T2	
40.	Numerical problems	1	01-03-2019		TLM3	CO1	T2	
No. of classes required to complete UNIT-III		12		No. of classes taken:				

UNIT-IV: Generalized Treatment of Electrical Machines

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
41.	Introduction to Dynamo, Generator and Motor	1	02-03-2019		TLM1	CO2,CO3	T1,R1,R2	
42.	basic Electro-Magnetic Laws-EMF induced in a coil rotating in a magnetic field	1	05-03-2019		TLM1	CO2,CO3	T1,R1,R2	
43.	physical concept of production of torque-elementary concept of an electrical machine	1	06-03-2019		TLM1	CO2,CO3	T1,R1,R2	
44.	TUTORIAL-7	1	08-03-2019		TLM3		T1,R1,R2	
45.	physical concept of production of torque-elementary concept of an electrical machine	1	09-03-2019		TLM1	CO2,CO3	T1,R1,R2	
46.	Common features of rotating electrical machines.	1	12-03-2019		TLM1	CO2,CO3	T1,R1,R2	
47.	TUTORIAL-8	1	13-03-2019		TLM3	CO2,CO3	T1,R1,R2	
48.	Types of rotating electrical machines	1	15-03-2019		TLM1	CO2,CO3	T1,R1,R2	
49.	Numerical problems.	1	16-03-2019		TLM3		T1,R1,R2	
No. of classes required to complete UNIT-IV		9		No. of classes taken:				

UNIT-V: Single Phase Transformers & 3-Phase Induction Motor

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
50.	Constructional details of transformers	1	19-03-2019		TLM1	CO2,CO3	T1,R1,R2	
51.	principle and operation of single phase transformers	1	20-03-2019		TLM1	CO2,CO3	T1,R1,R2	
52.	Emf equation of transformer	1	22-03-2019		TLM1	CO2,CO3	T1,R1,R2	
53.	TUTORIAL-9	1	23-03-2019		TLM3		T1,R1,R2	
54.	Losses and efficiency of transformer	1	26-03-2019		TLM1	CO2,CO3	T1,R1,R2	
55.	O.C test on Transformer	1	27-03-2019		TLM1	CO2,CO3	T1,R1,R2	
56.	S.C test on Transformer	1	29-03-2019		TLM1	CO2,CO3	T1,R1,R2	

57.	Principle and operation of Induction Motors	1	30-03-2019		TLM1	CO2,CO3	T1,R1,R2	
58.	Types of rotors Slip ring and Squirrel cage motors	1	02-04-2019		TLM1	CO2,CO3	T1,R1,R2	
59.	Slip- rotor emf and current	1	03-04-2019		TLM1	CO2,CO3	T1,R1,R2	
60.	torque-starting torque-condition for Maximum Torque	1	05-04-2019		TLM1	CO2,CO3	T1,R1,R2	
61.	TUTORIAL-10	1	09-04-2019		TLM3		T1,R1,R2	
62.	Slip-Torque characteristics	1	10-04-2019		TLM1	CO2,CO3	T1,R1,R2	
63.	Electrical Measuring instruments (Qualitatve treatment)	1	12-04-2019		TLM1	CO4	T1,R1,R2	
64.	MID-II	1	16-04-2019					
65.	MID-II	1	17-04-2019					
66.	MID-II	1	19-04-2019					
No. of classes required to complete UNIT-V		14		No. of classes taken:				

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
67.	Applications of rotating electrical machines	1	13-4-18		TLM1/ TLM2	CO2,CO3	T2,R1,R2	

Teaching Learning Methods					
TLM1	Chalk and Talk	**TLM4**	Problem Solving	**TLM7**	Seminars or GD
TLM2	PPT	**TLM5**	Programming	**TLM8**	Lab Demo
TLM3	Tutorial	**TLM6**	Assignment or Quiz	**TLM9**	Case Study

Course Instructor **Course Coordinator** **Module Coordinator** **HOD**

LAKKIREDDY BALI REDDY COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi, NAAC Accredited with 'A' grade, Accredited by NBA, Certified by ISO 9001:2015)
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

PROGRAM : B.Tech. II-Sem., CSE-B

ACADEMIC YEAR : 2018-19

COURSE NAME & CODE : **BASIC ELECTRICAL ENGINEERING - 17EE52**

L-T-P STRUCTURE : 2-2-0

COURSE CREDITS : 3

COURSE INSTRUCTOR : **Mr.E.RAGHU BABU**

COURSE COORDINATOR : **Mr.E.RAGHU BABU**

PRE-REQUISITE: Engineering Physics

COURSE OBJECTIVE: This course enables the student to illustrate the basics of circuits and AC electrical machines. It also deals with basic principles of measuring instruments.

COURSE OUTCOMES (CO)
CO1: Analyze AC and DC circuits.
CO2: Enumerate the working of static & rotating electrical machines.
CO3: Analyze the performance of electrical machines.
CO4: Interpret the working of various electrical measuring instruments.

COURSE ARTICULATION MATRIX (Correlation between COs&POs, PSOs):

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3	PSO 4
CO1	**3**	**2**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**
CO2	**3**	**2**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**
CO3	**3**	**2**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**
CO4	**3**	**2**	**-**	**1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**-**	**-**	**-**

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight (Low), **2 -** Moderate (Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

T1 M.S Naidu and S. Kamakshaiah,"Introduction to Electrical Engineering", TMH Publication, 3rd Edition

T2 A.Sudhakar and Shyammohan S Palli,"Electrical Circuits" Tata McGraw-Hill, 3rd Edition.

BOS APPROVED REFERENCE BOOKS:

R1 Kothari and Nagarath, "Basic Electrical Engineering" ,TMH Publications, 3rd Edition.

R2 V.K.Mehta, "Principles of Electrical Engineering" , S.Chand Publications.

PROGRAMEDUCATIONALOBJECTIVES (PEOS):

PEO I: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO II: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO III: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO IV: To empower the student with the qualities of effective communication, team work, continues learning attitude, leadership needed for a successful computer professional.

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:-

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

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.

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.

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.

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.

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.

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.

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

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

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.

Project management and finance: Demonstrate knowledge and understanding of the engineer**ing 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.

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):-

1.Programming Paradigms:

To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.

2. Data Engineering:

To inculcate an ability to Analyze, Design and implement data driven applications into the students.

3. Software Engineering:

Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

COURSE DELIVERY PLAN (LESSON PLAN): Section-A

UNIT-I: Electrical Circuit Fundamentals

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to Subject, Course Outcomes	1	18-12-2018		TLM1	CO1	T2	
2.	Basic definitions	1	20-12-2018		TLM1	CO1	T2	
3.	Types of elements-active and passive	1	21-12-2018		TLM1	CO1	T2	
4.	Types of elements-active and passive	1	22-12-2018		TLM1	CO1	T2	
5.	Ohm's Law	1	25-12-2018		TLM1	CO1	T2	
6.	Kirchhoff's Laws	1	27-12-2018		TLM1	CO1	T2	
7.	Kirchhoff's Laws	1	28-12-2018		TLM1	CO1	T2	
8.	TUTORIAL-1	1	29-12-2018		TLM3		T2	
9.	Network reduction techniques-series, parallel	1	03-01-2019		TLM1	CO1	T2	
10.	star to delta transformations	1	04-01-2019		TLM1	CO1	T2	
11.	delta to star transformations	1	05-01-2019		TLM1	CO1	T2	
12.	source transformations	1	08-01-2019		TLM1	CO1	T2	
13.	TUTORIAL-2	1	10-01-2019		TLM3		T2	
No. of classes required to complete UNIT-I		13			No. of classes taken:			

UNIT-II: Network Theorems without proofs (DC Networks)

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
14.	Mesh Analysis	1	11-01-2019		TLM1	CO1	T2	

15.	Mesh Analysis	1	12-01-2019		TLM1	CO1	T2	
16.	Nodal Analysis	1	17-01-2019		TLM1	CO1	T2	
17.	Nodal Analysis	1	18-01-2019		TLM1	CO1	T2	
18.	TUTORIAL-3	1	19-01-2019		TLM3		T2	
19.	Superposition theorem	1	22-01-2019		TLM1	CO1	T2	
20.	Superposition theorem	1	24-01-2019		TLM1	CO1	T2	
21.	TUTORIAL-4	1	25-01-2019		TLM3		T2	
22.	Thevenin's theorem	1	29-01-2019		TLM1	CO1	T2	
23.	Thevenin's theorem	1	31-01-2019		TLM1	CO1	T2	
24.	Norton's theorems	1	01-02-2019		TLM1	CO1	T2	
25.	Maximum Power Transfer theorem	1	02-02-2019		TLM1	CO1	T2	
26.	MID-I	1	05-02-2019					
27.	MID-I	1	07-02-2019					
28.	MID-I	1	08-02-2019					
No. of classes required to complete UNIT-II		12			No. of classes taken:			

UNIT-III: AC Fundamentals

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
29.	Peak, R.M.S, average and instantaneous values for periodic waveforms	1	09-02-2019		TLM1	CO1	T2	
30.	Peak, R.M.S, average and instantaneous values for periodic waveforms	1	12-02-2019		TLM1	CO1	T2	
31.	Phase and Phase difference	1	14-02-2019		TLM1	CO1	T2	
32.	TUTORIAL-5	1	15-02-2019		TLM3		T2	
33.	Concepts of Reactance, Impedance, Susceptance	1	16-02-2019		TLM1	CO1	T2	
34.	Admittance, Real , Reactive and apparent Powers, Power Factor	1	19-02-2019		TLM1	CO1	T2	
35.	Admittance, Real , Reactive and apparent Powers, Power Factor	1	21-02-2019		TLM1	CO1	T2	
36.	TUTORIAL-6	1	22-02-2019		TLM3		T2	
37.	Resonance	1	23-02-2019		TLM1	CO1	T2	

38.	Resonance	1	26-02-2019		TLM1	CO1	T2	
39.	Numerical problems	1	28-02-2019		TLM3	CO1	T2	
40.	Numerical problems	1	01-03-2019		TLM3	CO1	T2	
No. of classes required to complete UNIT-III		12		No. of classes taken:				

UNIT-IV: Generalized Treatment of Electrical Machines

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
41.	Introduction to Dynamo, Generator and Motor	1	02-03-2019		TLM1	CO2,CO3	T1,R1,R2	
42.	basic Electro-Magnetic Laws-EMF induced in a coil rotating in a magnetic field	1	05-03-2019		TLM1	CO2,CO3	T1,R1,R2	
43.	physical concept of production of torque-elementary concept of an electrical machine	1	07-03-2019		TLM1	CO2,CO3	T1,R1,R2	
44.	TUTORIAL-7	1	08-03-2019		TLM3		T1,R1,R2	
45.	physical concept of production of torque-elementary concept of an electrical machine	1	09-03-2019		TLM1	CO2,CO3	T1,R1,R2	
46.	Common features of rotating electrical machines.	1	12-03-2019		TLM1	CO2,CO3	T1,R1,R2	
47.	TUTORIAL-8	1	14-03-2019		TLM3	CO2,CO3	T1,R1,R2	
48.	Types of rotating electrical machines	1	15-03-2019		TLM1	CO2,CO3	T1,R1,R2	
49.	Numerical problems.	1	16-03-2019		TLM3		T1,R1,R2	
No. of classes required to complete UNIT-IV		9		No. of classes taken:				

UNIT-V: Single Phase Transformers & 3-Phase Induction Motor

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
50.	Constructional details of transformers	1	19-03-2019		TLM1	CO2,CO3	T1,R1,R2	
51.	principle and operation of single phase transformers	1	22-03-2019		TLM1	CO2,CO3	T1,R1,R2	
52.	Emf equation of transformer	1	23-03-2019		TLM1	CO2,CO3	T1,R1,R2	
53.	TUTORIAL-9	1	26-03-2019		TLM3		T1,R1,R2	
54.	Losses and efficiency of transformer	1	28-03-2019		TLM1	CO2,CO3	T1,R1,R2	
55.	O.C test on Transformer	1	29-03-2019		TLM1	CO2,CO3	T1,R1,R2	
56.	S.C test on Transformer	1	30-03-2019		TLM1	CO2,CO3	T1,R1,R2	

57.	Principle and operation of Induction Motors	1	02-04-2019		TLM1	CO2,CO3	T1,R1,R2	
58.	Types of rotors Slip ring and Squirrel cage motors	1	04-04-2019		TLM1	CO2,CO3	T1,R1,R2	
59.	Slip- rotor emf and current	1	05-04-2019		TLM1	CO2,CO3	T1,R1,R2	
60.	torque-starting torque-condition for Maximum Torque	1	09-04-2019		TLM1	CO2,CO3	T1,R1,R2	
61.	TUTORIAL-10	1	11-04-2019		TLM3		T1,R1,R2	
62.	Slip-Torque characteristics	1	12-04-2019		TLM1	CO2,CO3	T1,R1,R2	
63.	Electrical Measuring instruments (Qualitatve treatment)	1	13-04-2019		TLM1	CO4	T1,R1,R2	
64.	MID-II	1	16-04-2019					
65.	MID-II	1	18-04-2019					
66.	MID-II	1	19-04-2019					
No. of classes required to complete UNIT-V		14		No. of classes taken:				

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
67.	Applications of rotating electrical machines	1	14-4-18		TLM1/ TLM2	CO2,CO3	T2,R1,R2	

Teaching Learning Methods					
TLM1	Chalk and Talk	**TLM4**	Problem Solving	**TLM7**	Seminars or GD
TLM2	PPT	**TLM5**	Programming	**TLM8**	Lab Demo
TLM3	Tutorial	**TLM6**	Assignment or Quiz	**TLM9**	Case Study

Course Instructor **Course Coordinator** **Module Coordinator** **HOD**

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (A)
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi, NAAC Accredited with 'A' grade, Certified by ISO 9001:2015)
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

PROGRAM : B.Tech. II-Sem., CSE-A/S

ACADEMIC YEAR : 2018-19

COURSE NAME & CODE : Digital Logic design – 17CI02

L-T-P STRUCTURE : **2-2**

COURSE CREDITS : **3**

COURSE INSTRUCTOR : J. Nageswara Rao

COURSE COORDINATOR : J. Nageswara Rao

PRE-REQUISITE: Mathematics, Discrete mathematics

COURSE OBJECTIVE:

The main objective of this course is to enable the students to know about applying the knowledge of mathematics, Computer science and engineering, realize complex logic functions utilizing programmable logic, Design digital circuitry, analyze and interpret data to learn simple digital circuits in preparation for computer engineering

COURSE OUTCOMES (CO):

CO1: Evaluate digital number systems and use Boolean algebra theorems, Properties and canonical forms for digital logic circuit design.

CO2: Apply K-Maps and Tabulation methods for simplification of Boolean expressions and construct logic circuits.

CO3: design Combinational logic circuits using Adders, Subtractors, Decoders, Multiplexers and magnitude Comparators.

CO4: Design sequential logic circuits using Flip-Flops, shift registers, Counters, and Memory unit.

CO5: Contrast Programmable logic devices (PROM, PAL, and PLA) and its design.

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

		PROGRAM OUTCOMES												PROGRAM SPECIFIC 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	PS O1	PS O2	PS O3
COURSE OUTCOMES	CO1	3	3	1	-	-	-	-	-	-	-	-	1	2	-	1
	CO2	3	3	3	1	-	-	-	-	-	-	-	-	2	-	-
	CO3	3	3	3	1	-	-	-	-	-	-	-	-	2	-	-
	CO4	3	3	3	1	-	-	-	-	-	-	-	-	2	-	-
	CO5	2	3	3	1	-	-	-	-	-	-	-	-	2	-	1

Note: 1- Slight (Low), **2 -** Moderate (Medium), **3 -** Substantial (High

BOS APPROVED TEXT BOOKS:

T1 Morris mano, Michael D Ciletti ,"Digital Design" , 4/e,, PEA

BOS APPROVED REFERENCE BOOKS:

R1 Leach, Malvino, saha,"Digital Logic design", TMH.

R2 R.P.jain,"Modern Digital Electronics", TMH.

R3 A.Anand Kumar,"Switching Theory and logic Design", Prentice-hall Of India pvt..

R4 A.P Godse,G.A Godse,"Digital Logic Design", T-Publishers,

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT – 1: NUMBER SYSTEMS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Discussion of Cos and POs	1	17/12/18		TLM1	CO1	T1	
2.	Introduction to Digital Systems	1	19/12/18		TLM1	CO1	T1	
3.	Digital Systems, Binary Numbers	1	20/12/18		TLM1	CO1	T1	
4.	Number base Conversion, Octal and Hexadecimal Numbers	2	21/12/18 24/12/18		TLM1, TLM2, TLM8	CO1	T1, R1	
5.	Complements	2	26/12/18 27/12/18		TLM1, TLM2,	CO1	T1, R1	
6.	Binary Codes, Binary Storage and Registers	1	28/01/19		TLM1, TLM2,	CO1	T1, R1	
7.	Binary Logic	1	31/12/18		TLM1, TLM2	CO1	T1, R1	
8.	Introduction to Boolean algebra, Basic theorems and Properties of Boolean Algebra	1	02/01/19		TLM1, TLM2, TLM8	CO1	T1	
9.	Boolean functions, Canonical and Standard Forms, Digital Logic Gates	1	3/01/19		TLM1, TLM2	CO1	T1	
10.	**TUTORIAL – 1**	1	04/01/19		TLM3	CO1	---	
11.	**Assignment / Quiz – 1**	1	09/01/19		TLM6	CO1	---	

No. of classes required to complete UNIT-I:	13	No. of classes taken:

UNIT – 2: LOGIC GATES AND BOOLEAN ALGEBRA

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
12.	Simplification Of Boolean Expressions	1	10/01/19		TLM1, TLM2	CO2	T1	
13.	Introduction to Karnaugh Maps	1	11/01/19		TLM1, TLM2	CO2	T1	
14.	One Variable, Two variable, Three Variable maps	1	16/01/19		TLM1, TLM2	CO2	T1	
15.	Four Variable Map	1	17/01/19		TLM1, TLM2	CO2	T1	
16.	Problems on K-Maps	2	18/01/19		TLM1, TLM2	CO2	T1, R2	
17.	Five Variable K-Map and Examples	1	21/01/19		TLM1, TLM2	CO2	T1, R2	
18.	Six Variable K-Maps Examples	1	23/01/19		TLM1, TLM2	CO2	T1, R2	
19.	Minimal Expressions for incomplete Boolean functions	1	24/01/19		TLM1, TLM2	CO2	T1, R2	
20.	Quine-McCluskey Method	1	25/01/19		TLM1, TLM2	CO2	T1, R2	
21.	Prime implicants and Essential Prime Implicants	1	28/01/19		TLM9	CO2	T1	
22.	**TUTORIAL – 2**	1			TLM3	CO2	---	
23.	**Assignment / Quiz – 2**	1			TLM6	CO2	---	

No. of classes required to complete UNIT-II:	13	No. of classes taken:

UNIT – 3: COMBINATIONAL LOGIC CIRCUITS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
24.	Introduction to Combinational Logic, Design Procedure, Analysis Procedure	1	30/01/19		TLM1, TLM2	CO3	T1, R2	
25.	Adders, Sub tractors	2	31/01/19		TLM1, TLM2, TLM8	CO3	T1, R2	
26.	Code Conversion	1	11/02/19		TLM9	CO3	T1	
27.	Multilevel NAND circuits, Multilevel NOR circuits	1	13/02/19		TLM1, TLM2	CO3	T1, R2	
28.	Intoduction to Combinational Logic with MSI And LSI	1	14/02/19		TLM1, TLM2, TLM8	CO3	T1, R2	
29.	Binary Parallel Adder, Decimal Adder	2	18/02/19		TLM9	CO3	T1	
30.	Magnitude Comparator	1	20/02/19		TLM9	CO3	T1	
31.	Decoders and Multiplexers	1	21/02/19		TLM9	CO3	T1	
32.	**TUTORIAL – 3**	1	22/02/19		TLM3	CO3	---	
33.	**Assignment / Quiz – 3**	1	22/02/19		TLM6	CO3	---	
No. of classes required to complete UNIT-III:		**12**	**No. of classes taken:**					

UNIT – 4: SEQUENTIAL LOGIC CIRCUITS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
34.	Introduction to Sequential Logic, Flip Flops	2	25/02/19		TLM1, TLM2	CO4	T1	
35.	Triggering of Flip-Flops,	1	27/03/19		TLM1, TLM2	CO4	T1	
36.	Analysis of Clocked Sequential Circuits	1	28/03/19		TLM1, TLM2, TLM8	CO4	T1	
37.	State Reduction and Assignment	1	06/03/19		TLM1, TLM2	CO4	T1	
38.	Flip-Flop Excitation tables	1	07/03/19		TLM1, TLM2, TLM8	CO4	T1	
39.	Design of Counters, Introduction to Registers, Shift registers	1	08/03/19		TLM1, TLM2	CO4	T1	
40.	Ripple Counters, Synchronous Counters	1	11/03/19		TLM1, TLM2, TLM8	CO4	T1	
41.	Timing sequences And Memory unit	1	13/03/19		TLM9	CO4	T1	
42.	**TUTORIAL – 4**	1	14/03/19		TLM3	CO4	---	
43.	**Assignment / Quiz – 4**	1	15/03/19		TLM6	CO4	---	
No. of classes required to complete UNIT-IV		**11**	**No. of classes taken:**					

UNIT – 5: PROGRAMMABLE LOGIC DEVICES

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly

44.	Read – Only Memory (ROM)	1	18/03/19		TLM1, TLM2	CO5	T1	
45.	Problems On ROM	1	20/03/19		TLM1, TLM2	CO5	T1	
46.	Programmable Read Only memory	1	21/03/19		TLM1, TLM2	CO5	T1	
47.	Problems on PROM	1	22/03/19		TLM1, TLM2	CO5	T1	
48.	Programmable Logic Device (PLD),Problems on PLD	1	25/03/19		TLM1, TLM2, TLM8	CO5	T1	
49.	Programmable Logic Array	1	27/03/19		TLM1, TLM2	CO5	T1	
50.	Programmable Array Logic (PAL).	1	28/03/19		TLM1, TLM2	CO5	T1	
51.	Problems on PLA and PAL	1	29/03/19		TLM9	CO5	T1	
52.	**TUTORIAL – 5**	1	01/04/19					
53.	**Assignment / Quiz – 5**	1	03/04/19		TLM3	CO5	---	
54.	Programmable Logic Array	1	04/04/19		TLM6	CO5	---	
No. of classes required to complete UNIT-V		**11**	**No. of classes taken:**					

Contents beyond the Syllabus:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome Cos	Text Book followed	HOD Sign Weekly
55.	PROM related problems	1	08/04/19		TLM3	CO5		
56.	Ripple Counters	1	10/04/19		TLM6	CO5		
57.	How magnitude comparators are different from Decoders	1	11/04/19		TLM3	CO5		

Teaching Learning Methods					
TLM1	Chalk and Talk	**TLM4**	Problem Solving	**TLM7**	Seminars or GD
TLM2	PPT	**TLM5**	Programming	**TLM8**	Lab Demo
TLM3	Tutorial	**TLM6**	Assignment or Quiz	**TLM9**	Case Study

EVALUATION PROCESS:

Evaluation Task	COs	Marks
Assignment –1	1	A1=5
Assignment –2	2	A2=5
Quiz-1	1,2	B1=10
I-Mid Examination	1,2	C1=20
Assignment –3	3	A3=5
Assignment –4	4	A4=5
Assignment --5	5	A5=5
Quiz-2	3,4,5	B2=10
II-Mid Examination	3,4,5	C2=20
Evaluation of Assignment Marks: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=5
Evaluation of Quiz Marks: B=75% of Max(B1,B2)+25% of Min(B1,B2)	1,2,3,4,5	B=10
Evaluation of Mid Marks: C=75% of Max(C1,C2)+25% of Min(C1,C2)	1,2,3,4,5	C=20
Attendance	-	D=5
Cumulative Internal Examination : A+B+C+D	**1,2,3,4,5**	**A+B+C+D=40**
Semester End Examinations	**1,2,3,4,5**	**E=60**
Total Marks: A+B+C+D+E	**1,2,3,4,5**	**100**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

PEO I: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO II: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO III: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO IV: To empower the student with the qualities of effective communication, team work, continues learning attitude, leadership needed for a successful computer professional.

PROGRAMME OUTCOMES (POs):

Engineering Graduates will be able to:

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

2. **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.

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.

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.

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.

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.
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.

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

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

11. **Project management and finance**: Demonstrate knowledge and understanding of the engineer**ing 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.

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.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

1. Programming Paradigms:

To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.

2. Data Engineering:

To inculcate an ability to Analyze, Design and implement data driven applications into the students.

3. Software Engineering:

Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

Course Instructor **Course Coordinator** **Module Coordinator** **HOD**

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (A)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi, NAAC Accredited with 'A' grade, Certified by ISO 9001:2015)

L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

PROGRAM : B.Tech., II-Sem., CSE-B/S

ACADEMIC YEAR : 2018-19

COURSE NAME & CODE : Digital Logic design – 17CI02

L-T-P STRUCTURE : **2-2--**

COURSE CREDITS : 3

COURSE INSTRUCTOR : K RANGACHARY

COURSE COORDINATOR : J NAGESWARARAO

PRE-REQUISITE: Mathematics, Discrete mathematics

COURSE OBJECTIVE:

This course enables the students to know about applying the knowledge of mathematics, Computer science and engineering, realize complex logic functions utilizing programmable logic, Design digital circuitry, analyze and interpret data to learn simple digital circuits in preparation for computer engineering

COURSE OUTCOMES (CO):

CO1: Evaluate digital number systems and use Boolean algebra theorems, Properties and canonical forms for digital logic circuit design.

CO2: Apply K-Maps and Tabulation methods for simplification of Boolean expressions and construct logic circuits.

CO3: design Combinational logic circuits using Adders, Subtractors, Decoders, Multiplexers and magnitude Comparators.

CO4: Design sequential logic circuits using Flip-Flops, shift registers, Counters, and Memory unit.

CO5: Design Programmable logic devices (PROM, PAL, and PLA)

COURSE ARTICULATION MATRIX (Correlation between COs, POs & PSOs):

		PROGRAM OUTCOMES												PROGRAM SPECIFIC 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	PS O1	PS O2	PS O3
COURSE OUTCOMES	CO1	3	3	1	-	-	-	-	-	-	-	-	1	2	-	1
	CO2	3	3	3	1	-	-	-	-	-	-	-	-	2	-	-
	CO3	3	3	3	1	-	-	-	-	-	-	-	-	2	-	-
	CO4	3	3	3	1	-	-	-	-	-	-	-	-	2	-	-
	CO5	2	3	3	1	-	-	-	-	-	-	-	-	2	-	1

Note: 1- Slight (Low), **2 -** Moderate (Medium), **3 -** Substantial (High)

BOS APPROVED TEXT BOOKS:

T1 Morris mano, Michael D Ciletti ,"Digital Design" , 4/e,, PEA

BOS APPROVED REFERENCE BOOKS:

R1 Leach, Malvino, saha,"Digital Logic design", TMH.

R2 R.P.jain,"Modern Digital Electronics", TMH.

R3 A.Anand Kumar,"Switching Theory and logic Design", Prentice-hall Of India pvt..

R4 A.P Godse,G.A Godse,"Digital Logic Design", T-Publishers,

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT – 1: NUMBER SYSTEMS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Discussion of COs and POs	1	12/18/2018		TLM1	CO1	T1	
2.	Introduction to Digital Systems	1	12/19/2018		TLM1	CO1	T1	
3.	Digital Systems, Binary Numbers	1	12/20/2018		TLM1	CO1	T1	
4.	Number base Conversion, Octal and Hexadecimal Numbers	2	12/22/2018 12/26/2018		TLM1, TLM2, TLM8	CO1	T1, R1	
5.	Complements	1	12/27/2018		TLM1, TLM2, TLM8	CO1	T1, R1	
6.	Binary Codes, Binary Storage and Registers	1	12/29/2018		TLM1, TLM2, TLM8	CO1	T1, R1	
7.	Binary Logic	1	1/2/2019		TLM1, TLM2	CO1	T1, R1	
8.	Introduction to Boolean algebra, Basic theorems and Properties of Boolean Algebra	1	1/3/2019		TLM1, TLM2, TLM8	CO1	T1	
9.	Boolean functions, Canonical and Standard Forms, Digital Logic Gates	1	1/5/2019		TLM1, TLM2	CO1	T1	
10.	**TUTORIAL – 1**	1	1/8/2019		TLM3	CO1	---	

11.	**Assignment / Quiz – 1**	1	1/9/2019		TLM6	CO1	---	
No. of classes required to complete UNIT-I:		**12**	**No. of classes taken:**					

UNIT – 2: LOGIC GATES AND BOOLEAN ALGEBRA

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
12.	Simplification Of Boolean Expressions	2	1/10/2019 1/12/2019		TLM1, TLM2	CO2	T1	
13.	One Variable, Two variable, Three Variable maps	1	1/17/2019		TLM1, TLM2	CO2	T1	
14.	Four and five Variable Map	1	1/19/2019		TLM1, TLM2	CO2	T1	
15.	Six Variable K-Maps Examples	1	1/22/2019		TLM1, TLM2	CO2	T1, R2	
16.	Minimal Expressions for incomplete Boolean functions	1	1/23/2019		TLM1, TLM2	CO2	T1, R2	
17.	Quine-McCluskey Method	2	1/24/2019 1/29/2019		TLM1, TLM2	CO2	T1, R2	
18.	Prime implicants and Essential Prime Implicants	1	1/30/2019		TLM9	CO2	T1	
19.	**TUTORIAL – 2**	1	1/31/2019		TLM3	CO2	---	
20.	**Assignment / Quiz – 2**	1	2/2/2019		TLM6	CO2	---	
No. of classes required to complete UNIT-II:		**11**	**No. of classes taken:**					

UNIT – 3: COMBINATIONAL LOGIC CIRCUITS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
21.	Introduction to Combinational	1	2/9/2019		TLM1, TLM2	CO3	T1, R2	

	Logic, Design Procedure, Analysis Procedure							
22.	Adders, Subtractors	2	2/12/2019 2/13/2019		TLM1, TLM2, TLM8	CO3	T1, R2	
23.	Code Conversion	1	2/14/2019		TLM9	CO3	T1	
24.	Multilevel NAND circuits, Multilevel NOR circuits	1	2/16/2019		TLM1, TLM2	CO3	T1, R2	
25.	Intoduction to Combinational Logic with MSI And LSI	1	2/19/2019		TLM1, TLM2, TLM8	CO3	T1, R2	
26.	Binary Parallel Adder, Decimal Adder	2	2/20/2019 2/21/2019		TLM9	CO3	T1	
27.	Magnitude Comparator	1	2/23/2019					
28.	Decoders and Multiplexers	1	2/26/2019					
29.	**TUTORIAL – 3**	1	2/27/2019		TLM3	CO3	---	
30.	**Assignment / Quiz – 3**	1	2/28/2019		TLM6	CO3	---	
No. of classes required to complete UNIT-III:		**12**	**No. of classes taken:**					

UNIT – 4: SEQUENTIAL LOGIC CIRCUITS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
31.	Introduction to Sequential Logic, Flip Flops	2	3/2/2019 3/5/2019		TLM1, TLM2	CO4	T1	
32.	Triggering of Flip-Flops,	1	3/6/2019		TLM1, TLM2	CO4	T1	
33.	Analysis of Clocked Sequential Circuits	1	3/7/2019		TLM1, TLM2,	CO4	T1	

					TLM8			
34.	State Reduction and Assignment	1	3/9/2019		TLM1, TLM2	CO4	T1	
35.	Flip-Flop Excitation tables	1	3/12/2019		TLM1, TLM2, TLM8	CO4	T1	
36.	Design of Counters, Introduction to Registers, Shift registers	1	3/13/2019		TLM1, TLM2	CO4	T1	
37.	Ripple Counters, Synchronous Counters	1	3/14/2019		TLM1, TLM2, TLM8	CO4	T1	
38.	Timing sequences And Memory unit	1	3/16/2019		TLM9	CO4	T1	
39.	**TUTORIAL – 4**	1	3/19/2019		TLM3	CO4	---	
40.	**Assignment / Quiz – 4**	1	3/20/2019		TLM6	CO4	---	
No. of classes required to complete UNIT-IV		**11**	**No. of classes taken:**					

UNIT – 5: PROGRAMMABLE LOGIC DEVICES

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
41.	Read – Only Memory (ROM)	1	3/21/2019		TLM1, TLM2	CO5	T1	
42.	Problems On ROM	1	3/23/2019		TLM1, TLM2	CO5	T1	
43.	Programmable Read Only memory	1	3/26/2019		TLM1, TLM2	CO5	T1	
44.	Problems on PROM	1	3/27/2019		TLM1, TLM2	CO5	T1	
45.	Programmable Logic Device (PLD),Problems on PLD	1	3/28/2019		TLM1, TLM2, TLM8	CO5	T1	
46.	Programmable Logic Array	1	3/30/2019		TLM1, TLM2	CO5	T1	

47.	Programmable Array Logic (PAL).	1	4/2/2019		TLM1, TLM2	CO5	T1	
48.	Problems on PLA and PAL	1	4/3/2019		TLM9	CO5	T1	
49.	**TUTORIAL – 5**	1	4/4/2019					
50.	**Assignment / Quiz – 5**	1	4/9/2019		TLM3	CO5	---	
51.	Programmable Logic Array	1	4/10/2019		TLM6	CO5	---	
No. of classes required to complete UNIT-V		**11**	**No. of classes taken:**					

Contents beyond the Syllabus:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome Cos	Text Book followed	HOD Sign Weekly
52.	PROM related problems	1	4/11/2019					
53.	Ripple Counters	1	4/11/2019					
54.	How magnitude comparators are different from Decoders	1	4/13/2019					

Teaching Learning Methods					
TLM1	Chalk and Talk	**TLM4**	Problem Solving	**TLM7**	Seminars or GD
TLM2	PPT	**TLM5**	Programming	**TLM8**	Lab Demo
TLM3	Tutorial	**TLM6**	Assignment or Quiz	**TLM9**	Case Study

EVALUATION PROCESS:

Evaluation Task	**COs**	**Marks**
Assignment –1	1	A1=5
Assignment –2	2	A2=5
Quiz-1	1,2	B1=10
I-Mid Examination	1,2	C1=20
Assignment –3	3	A3=5
Assignment –4	4	A4=5
Assignment --5	5	A5=5
Quiz-2	3,4,5	B2=10
II-Mid Examination	3,4,5	C2=20
Evaluation of Assignment Marks: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=5
Evaluation of Quiz Marks: B=75% of Max(B1,B2)+25% of Min(B1,B2)	1,2,3,4,5	B=10
Evaluation of Mid Marks: C=75% of Max(C1,C2)+25% of Min(C1,C2)	1,2,3,4,5	C=20
Attendance	-	D=5

Cumulative Internal Examination : A+B+C+D	**1,2,3,4,5**	**A+B+C+D=40**
Semester End Examinations	**1,2,3,4,5**	**E=60**
Total Marks: A+B+C+D+E	**1,2,3,4,5**	**100**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

PEO I: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO II: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

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Engineering Graduates will be able to:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
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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.
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8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
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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.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

1. Programming Paradigms:

To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.

2. Data Engineering:

To inculcate an ability to Analyze, Design and implement data driven applications into the students.

3. Software Engineering:

Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

Course Instructor **Course Coordinator** **Module Coordinator** **HOD**

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi, NAAC Accredited with 'A' grade, Accredited by NBA, Certified by ISO 9001:2015)
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

Part-A

PROGRAM	**:**	B.Tech., II-Sem.,CSE (A)
ACADEMIC YEAR	**:**	2017-18
COURSE NAME & CODE	**:**	APPLIED PHYSICS & 17 FE 62
L-T-P STRUCTURE	**:**	0-0 -2
COURSE CREDITS	**:**	1
COURSE INSTRUCTOR	**:**	**P VIJAYA SIRISHA**
COURSE COORDINATOR	**:**	**Dr T VASANTHA RAO**

Pre-requisites : Awareness about the usage of Vernier callipers, Screw Gauge etc.,

Course Educational Objective :

To make students learn the theoretical concepts, Analytical techniques and graphical analysis through completing a host of experiments with the procedures and observational skills using simple and complex apparatus.

Course Outcomes: At the end of the course, the student will be able to :

Co1: Find the wave length of Laser light source and width of single slit by forming Diffraction pattern.
Co2: Estimate the Radius of curvature of Plano convex lens by forming Newton's Rings.
Co3: Analyze the characteristics of different Diodes.
Co4: Determine the energy band gap of a semi conductor Diode.

COURSE ARTICULATION MATRIX (Correlation between Cos & POs, PSOs):

Applied Physics Lab												
COURSE DESIGNED BY	**FRESHMAN ENGINEERING DEPARTMENT**											
Course Outcomes	**Programme Outcomes**											
PO's →	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1.	**3**	**3**	**3**	**2**					**3**			**3**
CO2.	**3**	**3**	**2**	**2**					**3**			**3**

CO3.	**3**	**3**	**2**	**2**					**3**			**3**
CO4.	**3**	**3**	**2**	**2**					**3**			**3**
CATEGORY	**BASIC SCIENCES**											
APPROVAL	**APPROVED BY ACADEMIC COUNCIL, 2017.**											

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**

1- Slight (Low), **2 –** Moderate (Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

1. Lab Manual Prepared by the LBRCE.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): Section- B

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction	2	17-12-18		**TLM4**	1,2,3,4	T1	
2.	Demonstration	2	24-12-18		**TLM4**	CO1, CO2, CO3, CO4	T1	
3.	Experiment 1	2	31-12-18		**TLM4**	CO1, CO2, CO3, CO4	T1	
4.	Experiment 2	2	29-12-18		**TLM4**	CO1, CO2, CO3, CO4	T1	
5.	Experiment 3	2	06-01-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
6.	Experiment 4	2	21-01-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
7.	Experiment 5	2	28-01-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
8.	Demonstration	2	11-02-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
9.	Experiment 6	2	18-02-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
10.	Experiment 7	2	25-02-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
11.	Experiment 8	2	11-03-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
12.	Experiment 9	2	18-03-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
13.	**REVESION**	2	25-03-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
14.	**Internal Exam**	2	01-04-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
15.	**Internal Exam**	2	08-04-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
No. of classes required to complete lab		28			No. of classes taken:			

EVALUATION PROCESS:

Evaluation Task	**Expt. no's**	**Marks**
Day to Day work = **A**	1,2,3,4,5,6,7,8	A=20
Internal test = **B**	1,2,3,4,5,6,7,8	B=10
Evaluation of viva voce = **C**	1,2,3,4,5,6,7,8	C = 5
Evaluation of attendance Marks = **D**	1,2,3,4,5,6,7,8	D = 5
Cumulative Internal Examination : A + B + C + D = 40	1,2,3,4,5,6,7,8	**40**
Semester End Examinations = E	1,2,3,4,5,6,7,8	**E = 60**
Total Marks: A + B + C + D + E = 100	1,2,3,4,5,6,7,8	**100**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

Graduates of Information Technology programme will be:

PEO I: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO II: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO III: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO IV: To empower the student with the qualities of effective communication, team work, continues learning attitude, leadership needed for a successful computer professional.

PROGRAM OUTCOMES:

Engineering Graduates will be able to:

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

(2). **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.

(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.

(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.

(5). **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an

understanding of the limitations.

(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.

(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.

(8). **Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

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

(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.

(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.

(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.

PROGRAM SPECIFIC OUTCOMES (PSOs):

Graduate of the ECE will have the ability to

(1) Design and develop modern communication technologies for building the inter disciplinary skills to meet current and future needs of industry.

(2) Design and Analyze Analog and Digital Electronic Circuits or systems and Implement real time applications in the field of VLSI and Embedded Systems using relevant tools

(3) Apply the Signal processing techniques to synthesize and realize the issues related to real time applications

P VIJAYA SIRISHA	Dr T. VASANTHA RAO	Dr T. VASANTHA RAO	Dr A. RAMIREDDY
Course Instructor	Course Coordinator	Module Coordinator	HOD

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi, NAAC Accredited with 'A' grade, Accredited by NBA, Certified by ISO 9001:2015)
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

Part-A

PROGRAM	**:**	B.Tech., II-Sem., CSE-B
ACADEMIC YEAR	**:**	2018-19
COURSE NAME & CODE	**:**	APPLIED PHYSICS & 17 FE 62
L-T-P STRUCTURE	**:**	0-0-2
COURSE CREDITS	**:**	1
COURSE INSTRUCTOR	**:**	**Dr. S. YUSUB**
COURSE COORDINATOR	**:**	**Dr. T. VASANTHA RAO**

Pre-requisites : Awareness about the usage of Vernier callipers, Screw Gauge etc.,

Course Educational Objective :

To make students learn the theoretical concepts, Analytical techniques and graphical analysis through completing a host of experiments with the procedures and observational skills using simple and complex apparatus.

Course Outcomes: At the end of the course, the student will be able to :

Co1: Find the wave length of Laser light source and width of single slit by forming Diffraction pattern.
Co2: Estimate the Radius of curvature of Plano convex lens by forming Newton's Rings.
Co3: Analyze the characteristics of different Diodes.
Co4: Determine the energy band gap of a semi conductor Diode.

COURSE ARTICULATION MATRIX (Correlation between Cos & POs, PSOs):

Applied Physics Lab												
COURSE DESIGNED BY	**FRESHMAN ENGINEERING DEPARTMENT**											
Course Outcomes	**Programme Outcomes**											
PO's →	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1.	**3**	**3**	**1**	**1**					**1**			**1**
CO2.	**3**	**3**	**2**	**1**					**1**			**1**

CO3.	**3**	**3**	**1**	**1**					**1**			**1**
CO4.	**3**	**3**	**1**	**1**					**1**			**1**
CATEGORY	**BASIC SCIENCES**											
APPROVAL	**APPROVED BY ACADEMIC COUNCIL, 2017.**											

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**

1- Slight (Low), **2 –** Moderate (Medium), **3 -** Substantial (High).

BOS APPROVED TEXT BOOKS:

1. Lab Manual Prepared by the LBRCE.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): Section- C

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction	2	19-12-18		**TLM4**	1,2,3,4	T1	
2.	Demonstration	2	26-12-18		**TLM4**	CO1, CO2, CO3, CO4	T1	
3.	Experiment 1	2	02-01-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
4.	Experiment 2	2	09-01-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
5.	Experiment 3	2	23-01-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
6.	Experiment 4	2	30-01-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
7.	Experiment 5	2	06-02-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
8.	Demonstration	2	13-02-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
9.	Experiment 6	2	20-02-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
10.	Experiment 7	2	27-02-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
11.	Experiment 8	2	06-03-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
12.	Experiment 9	2	13-03-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
13.	Repeat	2	20-03-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
14.	Repeat	2	27-03-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
15.	**Internal Exam**	2	03-04-19		**TLM4**	CO1, CO2, CO3, CO4	T1	
16.	**Internal Exam**	2	10-04-19		**TLM4**	CO1, CO2, CO3, CO4	T1	

No. of classes required to complete UNIT-I	32	No. of classes taken:

EVALUATION PROCESS:

Evaluation Task	**Expt. no's**	**Marks**
Day to Day work = **A**	1,2,3,4,5,6,7,8	A=20
Internal test = **B**	1,2,3,4,5,6,7,8	B=10
Evaluation of viva voce = **C**	1,2,3,4,5,6,7,8	C = 5
Evaluation of attendance Marks = **D**	1,2,3,4,5,6,7,8	D = 5
Cumulative Internal Examination : A + B + C + D = 40	1,2,3,4,5,6,7,8	**40**
Semester End Examinations = E	1,2,3,4,5,6,7,8	**E = 60**
Total Marks: A + B + C + D + E = 100	1,2,3,4,5,6,7,8	**100**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

1.To Attain a solid foundation in Electronics & Communication Engineering fundamentals with an attitude to pursue continuing education.
2. To Function professionally in the rapidly changing world with advances in technology.
3. To Contribute to the needs of the society in solving technical problems using Electronics & Communication Engineering principles, tools and practices.
4. To Exercise leadership qualities, at levels appropriate to their experience, which addresses issues in a responsive, ethical, and innovative manner .

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(3) Apply the Signal processing techniques to synthesize and realize the issues related to real time applications.

Dr. S. YUSUB	Dr T. VASANTHA RAO	Dr T. VASANTHA RAO	Dr A. RAMIREDDY
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COURSE HANDOUT

Part-A

PROGRAM : B.Tech. II-Sem., CSE (A)

ACADEMIC YEAR : 2018-19

COURSE NAME & CODE : ENGLISH COMMUNICATION SKILLS LAB - 17FE60

L-T-P STRUCTURE : **0**-0-2

COURSE CREDITS : 1

COURSE INSTRUCTOR : Mr. B. Sreenivasa Reddy

COURSE COORDINATOR : Dr. B. Samrajya Lakshmi

PRE-REQUISITES : Students should have fundamental knowledge in making sentences and be with readiness to speak

Course Educational Objective : Improve the proficiency of students in English with an emphasis on better communication in formal and informal situations; Develop speaking skills required for expressing their knowledge and abilities and to face interviews with confidence.

Course Outcomes : At the end of the course, the student will be able to

CO1 : Articulate English with good pronunciation.
CO2 : Manage skillfully through group discussions.
CO3 : Communicate with the people effectively.
CO4 : Collect and interpret data aptly.

Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
17FE60	CO1				3					3	3		2			
	CO2				3					3	3		2			
	CO3				3					3	3		2			
	CO4				3					3	3		2			
	CO5				3					3	3		2			
1 = Slight (Low) **2 = Moderate (Medium)** **3-Substantial(High)**																

Note: Enter Correlation Levels **1** or **2** or **3.** If there is no correlation, **put '-'**
1- Slight (Low), **2 –** Moderate (Medium), **3 -** Substantial (High).

Bos Approved Lab Manual:

- Board of Editors, "ELCS Lab Manual – A Workbook of CALL and ICS Lab Activities", Orient Black Swan Pvt. Ltd., Hyderabad, 2016.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): Section-A

S.No.	Activity	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
1.	Self Introduction	2	18.12.2018		TLM4	CO3	
2.	Self Introduction	2	08.01.2019		TLM4	CO3	
3.	JAM- I	2	22.01.2019		TLM4	CO3	
4.	JAM-II	2	29.01.2019		TLM4	CO3	
5.	JAM-III	2	12.02.2019		TLM4	CO3	
6.	Role Play	2	19.02.2019		TLM4	CO3	
7.	Role Play	2	26.02.2019		TLM4	CO3	
8.	Group Discussion	2	05.03.2019		TLM2, TLM4	CO4	
9.	Group Discussion	2	12.03.2019		TLM4, TLM6	CO2	
10.	Data Interpretation	2	19.03.2019		TLM4, TLM6	CO2	
11.	Data Interpretation	2	26.03.2019		TLM4, TLM6	CO2	
12.	Introduction to Phonetics	2	02.04.2019		TLM1, TLM2	CO1	
13.	Internal Lab Exam	2	09.04.2019				
14.	**Total**	**26**					

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/Swayam Prabha/MOOCS)
TLM3	Tutorial	**TLM6**	Group Discussion/Project

Part - C

EVALUATION PROCESS:

According to Academic Regulations of R17 Distribution and Weightage of Marks For Laboratory Courses is as follows.

(a) Continuous Internal Evaluation (CIE):

- ✓ The continuous internal evaluation for laboratory courses (including Computer aided engineering drawing, computer aided engineering graphics, Computer aided machine drawing etc.) is based on the following parameters:

Parameter		**Marks**
Day – to – Day Work	Observation	10 Marks
	Record	10 Marks
Internal Test		10 Marks
Attendance		05 Marks
Viva – Voce During Regular Lab Sessions		05 Marks
Total		**40 Marks**

% of Attendance	**Marks**
≥ 95	05 Marks
90 to < 95	04 Marks
85 to < 90	03 Marks
80 to < 85	02 Marks
75 to < 80	01 Mark

(b) Semester End Examinations (SEE:

- ✓ The performance of the student in laboratory courses shall be evaluated jointly by internal and external examiners for 3 hours duration as per the parameters indicated below:

Parameter	**Marks**
Phonemes	05 Marks
Short answers on phonetics	05 Marks
Transcription	10 Marks
Dialogue writing	10 Marks
Presentation	10 Marks
Interview	20 Marks
Total	**60 Marks**

Rubrics For Evaluation of Laboratory Courses

Day-To-Day Lab (Observation) Performance Evaluation (R-17)					**Record Performance Evaluation (R-17)**			
S.N	**Criteria**	**Poor**	**Average**	**Good**	**Criteria**	**Poor**	**Average**	**Good**
1	Language suitability **(4 Marks)**	Wrong usage of words Grammatical errors **(2 Marks)**	Some points are missing from the data written Wrong usage of grammar & vocabulary. **(3 Marks)**	Well-written & spoken Language is error free **(4 Marks)**	Language **(4 Marks)**	Language used is not suitable Full of incorrect vocabulary **(2 Marks)**	Some words are inappropriately used / wrongly spelt **(3Marks)**	Language used is good No word/ spelling errors **(4 Marks)**
2	Content **(4Marks)**	Unable to Deliver all the pints Delivering Irrelevant point **(2 Marks)**	Some points are not given Point analysis is not upto the mark **(3 Marks)**	All the points are analysed properly More content was delivered. **(4 Marks)**	Content **(4 Marks)**	Very less points were written Points were not analysed properly **(2 Marks)**	Some of the points were missing Some points are not properly analysed **(3 Marks)**	Complete information is provided for the topic Important information is provided with illustrations/ exaamples **(4 Marks)**
3	Style of Presentation **(2 Marks)**	Inappropriate body language Improper prentation **(0 Marks)**	Prentation is not upto the mark **(1 Mark)**	Presented well with appropriate ettiquett All important conclusions have been clearly made, student shows good understanding of the topic. **(2 Marks)**	Grammar & Neatness **(2 Mark)**	Frequent grammar and/r spelling errors writing style is rough and immature **(1/2 Mark)**	Some grammatical errors **(1 Marks)**	No grammar/ spelling corrections are found and well-written **(2 Marks)**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To Attain a solid foundation in Electronics & Communication Engineering fundamentals with an attitude to pursue continuing education.
PEO2: To Function professionally in the rapidly changing world with advances in technology
PEO3: To Contribute to the needs of the society in solving technical problems using Electronics & Communication Engineering principles, tools and practices.
PEO4: To Exercise leadership qualities, at levels appropriate to their experience, this addresses issues in a responsive, ethical, and innovative manner

PROGRAMME OUTCOMES (POs)

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 modelling to complex engineering activities with an understanding of the limitations.
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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.
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PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Design and develop modern communication technologies for building the inter disciplinary skills to meet current and future needs of industry.

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PSO3: Apply the Signal processing techniques to synthesize and realize the issues related to real time applications

Mr. B. Sreenivasa Reddy	Dr. B. Samrajya Lakshmi	Dr. B. Samrajya Lakshmi	Dr .A. Rami Reddy
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COURSE HANDOUT

Part-A

PROGRAM : B.Tech. II-Sem., CSE (B)

ACADEMIC YEAR : 2018-19

COURSE NAME & CODE : ENGLISH COMMUNICATION SKILLS LAB - 17FE60

L-T-P STRUCTURE : **0**-0-2

COURSE CREDITS : 1

COURSE INSTRUCTOR : **Dr.B.Samrajya Lakshmi**

COURSE COORDINATOR : **Dr.B.Samrajya Lakshmi**

PRE-REQUISITES : Students should have fundamental knowledge in making sentences and be with readiness to speak

Course Educational Objective : Improve the proficiency of students in English with an emphasis on better communication in formal and informal situations; Develop speaking skills required for expressing their knowledge and abilities and to face interviews with confidence.

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		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
17FE60	CO1									3	3		2			
	CO2				2				1	3	3		2			
	CO3									3	3		2			
	CO4				2				2	3	3		2			
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Part-B

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1.	Introduction	2	21-12-2018		TLM4		
2.	Self Introduction	2	28-12-2018		TLM4	CO3	
3.	JAM- I	2	04-01-2019		TLM4	CO3	
4.	JAM-II	2	11-01-2019		TLM4	CO3	
5.	JAM-III	2	25-01-2019		TLM4	CO3	
6.	Role Play	2	01-02-2019		TLM4	CO3	
7.	Role Play	2	08-02-2019		TLM4	CO3	
8.	Role Play	2	15-02-2019		TLM4	CO3	
9.	Data Interpretation	2	22.02.2019		TLM2, TLM4	CO4	
10.	Data Interpretation	2	01-03-2019		TLM2, TLM4	CO4	
11.	Group Discussion	2	08-03-2019		TLM4, TLM6	CO2	
12.	Group Discussion	2	15-03-2019		TLM4, TLM6	CO2	
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15.	Introduction to Phonetics	2	05.04.2019		TLM1, TLM2	CO1	
16.	Internal Lab Exam	2	12.04.2019				
17.	Total	32					

Teaching Learning Methods			
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Part - C

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PEO4: To Exercise leadership qualities, at levels appropriate to their experience, this addresses issues in a responsive, ethical, and innovative manner

PROGRAMME OUTCOMES (POs)

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 modelling 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.

Prof.A.Rami Reddy

Course Instructor Course Coordinator Module Coordinator HOD

	DLD LAB-LESSON PLAN	
	Department: CSE	**Program:** B.Tech
	Course: Digital design Lab (17CS60**)**	**Lab:** 2 hours/week
	SEM: II SEM	**Academic Year: 2018-19**
	Internal Marks: 40	**External marks:** 60

1. **Pre-requisites:** Knowledge of gates designing

2. **Course Educational Objectives (CEOs):**

   This course enables the students to know about use of basic gates, decoders and multiplexers, flip-flops, counters, shift registers and PLDs.

3. **Course Outcomes (COs):** At the end of the course, the student will be able to :

   CO1: Design and Test the functionalities and Properties of Basic Gates, Universal Gates and Special Gates using Logisim Software.

   CO2: Design and verify functionalities of basic building blocks used in Combinational logic circuits

   CO3: Design and verify functionalities of basic building blocks used in Sequential logic circuits

   CO4: Improve individual / team work skills, communication & report writing skills with ethical values.

4. **Course Articulation Matrix:**

		PROGRAM OUTCOMES												PROGRAM SPECIFIC 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**	**PS O1**	**PS O2**	**PS O3**
COURSE OUTCOMES	CO1	2	1	3	1	3	-	-	-	-	-	-	-	1	-	-
	Co2	1	2	3	1	3	-	-	-	-	-	-	-	1	-	-
	CO3	1	2	3	1	3	-	-	-	-	-	-	-	1	-	-
	CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-

5. **List of Experiments**

S No	Program to be executed	Lab Cycle
	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	Cycle 1
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 II		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.	
11	IC555 Timer- Astable Operations-Monostable Operations.	Cycle 3
12	PCB Drawing and project	

6. Course Delivery Plan:

S No	Program to be executed	Tentative dates	Actual Dates	DM
1	a) Basic Gates Function Verification using truth tables. iv. AND Gate using 7408 IC v. OR Gate using 7432 IC vi. NOT Gate using 7404 IC	19/12/2018		5
	b) Universal Gates Functional Verification iii. NAND Gate using 7400 IC iv. NOR Gate using 7402 IC	26/12/2018		5
	c) Special Gates Functional verification iii. XOR Gate using 7486 IC iv. XNOR Gate using XOR followed by NOT Gate	02/01/2019		5
2	Realization of following gates using universal gates and its functional verification. AND, OR, XOR, NOT	09/01/2019		5
3	c) Design Half-adder and Full-adder circuits and verify its functionality. d) Verify the functionality of four bit ripple carry	23/01/2019		1,5

	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)	27/02/2019		5
5	Design a BCD to Excess-3 code converter and verify its functionality by using gates.	13/03/2019		1,5
6	Design a BCD to Gray code converter and verify its functionality by using gates.	13/03/2019		1,5
7	Design and verify the functionality of Decoders and multiplexers of different inputs.	20/02/2019		5
	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	27/03/2019		1,5
9	a) Design a UP-Counter using JK/T Flip-Flop. b) Design a MOD-3 Counter.	13/03/2019		5
10	Design a Bi-directional Counter using JK/T Flip-Flop.	27/03/2019		5
11	Design Shift Registers	03/04/2019		1,5
12	INTERNAL LAB	10/04/2019		1,5
LAB INTERNAL EXAMINATION				3,4

Delivery Methods (DM):

1. Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz

5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty				

	DLD LAB-LESSON PLAN	
	Department: CSE	**Program:** B.Tech
	Course: Digital design Lab (17CS60**)**	**Lab:** 2 hours/week
	SEM: II SEM	**Academic Year: 2018-19**
	Internal Marks: 40	**External marks:** 60

1. **Pre-requisites:** Knowledge of gates designing

2. **Course Educational Objectives (CEOs):**

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COURSE OUTCOMES	CO1	2	1	3	1	3	-	-	-	-	-	-	-	1	-	-
	Co2	1	2	3	1	3	-	-	-	-	-	-	-	1	-	-
	CO3	1	2	3	1	3	-	-	-	-	-	-	-	1	-	-
	CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-

5. **List of Experiments**

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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.	
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CYCLE II		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	
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10	Design a Bi-directional Counter using JK/T Flip-Flop.	
11	IC555 Timer- Astable Operations-Monostable Operations.	Cycle 3
12	PCB Drawing and project	

6. Course Delivery Plan:

S No	Program to be executed	Tentative dates	Actual Dates	DM
1	a) Basic Gates Function Verification using truth tables. iv. AND Gate using 7408 IC v. OR Gate using 7432 IC vi. NOT Gate using 7404 IC	12/17/2018		5
	b) Universal Gates Functional Verification iii. NAND Gate using 7400 IC iv. NOR Gate using 7402 IC	12/17/2018		5
	c) Special Gates Functional verification iii. XOR Gate using 7486 IC iv. XNOR Gate using XOR followed by NOT Gate	12/17/2018		5
2	Realization of following gates using universal gates and its functional verification. AND, OR, XOR, NOT	12/24/2018		5
3	c) Design Half-adder and Full-adder circuits and verify its functionality. d) Verify the functionality of four bit ripple carry	12/31/2018		1,5

	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)	1/7/2019		5
5	Design a BCD to Excess-3 code converter and verify its functionality by using gates.	1/21/2019		1,5
6	Design a BCD to Gray code converter and verify its functionality by using gates.	1/28/2019		1,5
7	Design and verify the functionality of Decoders and multiplexers of different inputs.	1/28/2019		5
	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	2/11/2019		1,5
9	a) Design a UP-Counter using JK/T Flip-Flop. b) Design a MOD-3 Counter.	2/18/2019		5
10	Design a Bi-directional Counter using JK/T Flip-Flop.	2/25/2019		5
11	Design Shift Registers	3/11/2019		1,5
12	Design Code Converters (i.e. Gray to Binary and Gray to BCD conversion)	3/18/2019		1,5
13	Designing Code converter for EXCESS to BCD code.	3/25/2019		5
14	Mini Project	4/1/2019		1,5,6
LAB INTERNAL EXAMINATION		4/8/2019		3,4

Delivery Methods (DM):

1. Chalk & Talk 2. ICT Tools 3. Tutorial 4. Assignment/Test/Quiz

5. Laboratory/Field Visit 6. Web based learning.

	Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**
Signature				
Name of the Faculty				

LAKKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

Part-A

PROGRAM : B.Tech.I-Sem., CSE

ACADEMIC YEAR : 2018-19

COURSE NAME & CODE : Computer Aided Engineering Drawing Lab-17ME75

L-T-P STRUCTURE : 1-0-2

COURSE CREDITS : 2

COURSE INSTRUCTORS : Mr. Ashutosh Shukla, Mr.Nazumuddin Shaik, Mr. Dileep kumar

COURSE COORDINATOR: Mr.Nazumuddin Shaik

PRE-REQUISITE : NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs):

The main objectives of this course are to familiarize various commands used in Auto-CAD and to visualize the isometric and orthographic views of any solid object.

COURSE OUTCOMES(COs)

After completion of the course, the student will be able

CO1: Apply Auto-CAD basics to solve practical problems used in industries where the speed and accuracy can be achieved.

CO2: Apply the principle of Orthographic projections of points, lines, planes and solids.

CO3: Evaluate their ability in applying various concepts to solve practical problems related to engineering drawing.

CO4: Convert orthographic to isometric vice versa.

COURSE ARTICULATION MATRIX (Correlation between COs&POs,PSOs):

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	-	-	-	-	3	3	-	-	-	-	-	2	1	3	-
CO2	3	-	-	-	3	2	-	-	-	-	-	2	1	3	-
CO3	3	-	-	-	3	-	-	-	-	-	-	2	1	3	2
CO4	3	-	-	-	3	-	-	-	-	-	-	2	1	3	2

Note: Enter Correlation Levels **1** or **2** or **3.**If there is no correlation, **put '-'**
1- Slight(Low), **2 -** Moderate(Medium), **3 -** Substantial (High).

BOS APPROVED REFERENCE BOOKS:

R1	M. Kulkarni, A.P Rastogi, and A.K. Sarkar, Engineering Graphics with AutoCAD, PHI Learning Private Limited, New Delhi, 2009.
R2	Bethune, Engineering Graphics with AutoCAD, PHI Learning Private Limited, New Delhi, 2009.
R3	N. D. Bhatt, Engineering Drawing, 51th Revised and Enlarged Edition, Charotar Publishers, 2012.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN):

S.No	Tentative Date of Completion	Actual Date of Completion	Topics to be covered / List of Experiments		Learning Outcome COs
1	22-12-2018			Introduction to Auto CAD(2-D) Basics of AutoCAD Commands-Basic Drawing Commands	CO1
2	29-12-2018			Edit Commands-Copy, Move, EraseArray Commands-Polar array, rectangular array	CO1
3	05-01-2019		Exp-1	Projection of Points	CO2
4	02-01-2019		Exp-2	Projection of Lines	CO2
5	19-01-2019		Exp-3	Projection of Lines	CO2
6	26-01-2019		Exp-4	Projection of planes	CO2
7	02-02-2019		Exp-5	Projection of solids	CO2
8	16-02-2019		Exp-6	Projection of solids	CO2
9	23-022019		Exp-7	Sections of solids	CO3
10	02-03-2019		Exp-8	Development of Surfaces	CO3
11	16-03-2019		Exp-9	Orthographic projections	CO4
12	23-03-2019		Exp-10	Isometric projections	CO4
13	30-03-2019		Exp-11	Orthographic projections to Isometric projections	CO4
14	06-04-2019		Exp-12	Isometric projections to Orthographic projections	CO4
16	13-04-2019			Internal Exam	

Contents beyond the Syllabus:

15		Exp-13	Drawing of 3D solid models	CO3 & CO4
16		Exp-14	Drawing of 3D solid models	CO3& CO4

Part - C

EVALUATION PROCESS:

Parameter		Marks
Day – to – Day Work	Observation	A1 = 10 Marks
	Record	A2 = 10 Marks
Internal Test		B =10 Marks
Attendance		C = 05 Marks
Viva – Voce During Regular Lab Sessions		D = 05 Marks
Cumulative Internal Examination		**A1+ A2 + B+C+D = 40 Marks**
Semester End Examinations		**E = 60 Marks**
Total Marks: A1+ A2 + B + C + D + E		**100 Marks**

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO I: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO II: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO III: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO IV:To empower the student with the qualities of effective communication, team work, continues learning attitude, leadership needed for a successful computer professional.

PROGRAMME OUTCOMES (POs)

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

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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.

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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):-

1. Programming Paradigms:

To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.

2. Data Engineering:

To inculcate an ability to Analyse, Design and implement data driven applications into the students.

3. Software Engineering:

Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

Ashutosh Shukla	Mr.Nazumuddin Shaik	I.Dakshina Murthy	Dr. Ch.V Narayana
Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**

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COURSE HANDOUT

Part-A

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ACADEMIC YEAR : 2018-19

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COURSE CREDITS : 2

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PRE-REQUISITE : NIL

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After completion of the course, the student will be able

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Part - C

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3. Software Engineering:

Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

P Dileep kumar	Mr.Nazumuddin Shaik	I.Dakshina Murthy	Dr. Ch.V Narayana
Course Instructor	**Course Coordinator**	**Module Coordinator**	**HOD**