LAKKIREDDY 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, Certified by ISO 9001:2015
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

Part-A

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

ACADEMIC YEAR : 2019-20

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. Harshavardhan Reddy,

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	3-02-2020			Introduction to Auto CAD(2-D) Basics of AutoCAD Commands-Basic Drawing Commands	CO1
2	10-02-2020			Edit Commands-Copy, Move, Erase, Array Commands-Polar array, rectangular array	CO1
3	17-02-2020		Exp-1	Projection of Points	CO2
4	24-02-2020		Exp-2	Projection of Lines	CO2
5	02-03-2020		Exp-3	Projection of Lines	CO2
6	09-03-2020		Exp-4	Projection of planes	CO2
7	16-03-2020		Exp-5	Projection of solids	CO2
8	30-03-2020		Exp-6	Projection of solids	CO2
9	06-04-2020		Exp-7	Sections of solids	CO3
10	13-04-2020		Exp-8	Development of Surfaces	CO3
11	20-04-2020		Exp-9	Orthographic projections	CO4
12	27-04-2020		Exp-10	Isometric projections	CO4
13	04-05-2020		Exp-11	Orthographic projections to Isometric projections	CO4
14	1-06-2020		Exp-12	Isometric projections to Orthographic projections	CO4
16	08-06-2020			Internal Exam	

Contents beyond the Syllabus:

15	1-06-2020	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)

PEO1: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO2: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO3: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO4: 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.

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.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: To inculcate the investigating and adaptability skills into the students to carryout research on recent trends in Computer Science and Engineering Technology..

PSO2: To inculcate an ability to analyze, design and implement data driven applications into the students.

PSO3: Develop an ability to implement various processes/methodologies/practices employed in design, validation, testing and maintenance of software products.

Ashutosh Shukla	I.Dakshina Murthy	
Course Instructor	Module Coordinator	HOD

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FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

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

ACADEMIC YEAR : 2019-20

COURSE NAME & CODE : APPLIED PHYSICS & 17FE12

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

COURSE CREDITS : 4

COURSE INSTRUCTOR : **P.Vijaya Sirisha**

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 (Cos): At the end of the course, students are able to

CO 1	Define the nature of Interference and Diffraction.
CO 2	Describe the polarization and LASER, types of lasers and their applications.
CO 3	Estimate the electrical conductivity in metals.
CO 4	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):

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

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	HOD Sign Weekly
1.	Introduction to Subject, Course Outcomes	1	3/02/2020		**TLM1**	
2.	Introduction to UNIT-I Superposition of waves,	1	4/02/2020		**TLM1**	
3.	TUTORIAL-1	1	5/02/2020		**TLM3**	
4.	Coherence, Conditions for Interference	1	7/02/2020		**TLM1**	
5.	Interference from thin films	1	8/02/2020		**TLM1 TLM2**	
6.	Newton's rings	1	10/02/2020		**TLM1 TLM2**	
7.	Michelson's interferometer	1	11/02/2020		**TLM2**	
8.	TUTORIAL-2	1	12/02/2020		**TLM3**	
9.	Introduction – Diffraction	1	14/02/2020		**TLM1 TLM2**	
10.	Single slit diffraction	1	15/02/2020		**TLM1**	
11.	Double slit diffraction	1	17/02/2020		**TLM1 TLM2**	
12.	Diffraction –Circular aperture	1	18/02/2020		**TLM1 TLM2**	
13.	TUTORIAL-3	1	19/02/2020		**TLM3**	
14.	Diffraction –N parallel slits, Diffraction grating,	1	22/02/2020		**TLM1**	
15.	Resolving power of Telescope	1	24/02/2020		**TLM1**	
16.	Assignment/Quiz	1	25/02/2020			
17.	TUTORIAL-4	1	26/02/2020		**TLM3**	
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	HOD Sign Weekly
1.	**UNIT II :introduction** polarization of light,	1	28/02/2020		TLM1	

	Brewster's law					
2.	Double refraction, Geometry of calcite crystal	1	29/02/2020		TLM1	
3.	Nicol Prism,	1	2/03/2020		TLM1	
4.	QWP& HWP		3/03/2020		TLM1	
5.	TUTORIAL-5		4/03/2020		TLM1	
6.	Optical Activity, polarimeter	1	6/03/2020		TLM1	
7.	Problems	1	7/03/2020			
8.	Introduction - characteristics of Lasers	1	9/03/2020		TLM1	
9.	Principle of Laser,		10/03/2020		TLM1	
10.	TUTORIAL-6	1	11/03/2020		TLM3	
11.	Einstein's coefficients		13/03/2020			
12.	Population inversion,	1	14/03/2020		TLM1	
13.	Pumping mechanism,	1	16/03/2020		TLM1	
14.	Nd-YAG Laser	1	17/03/2020		TLM2	
15.	TUTORIAL-7	1	18/03/2020		TLM3	
16.	He-Ne gas laser	1	20/03/2020		TLM1	
17.	Applications of LASERS	1	21/03/2020		TLM1	
No. of classes required to complete UNIT-II: 17				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	HOD Sign Weekly
1.	Introduction to principles of quantum mechanics	1	30/03/2020		TLM1	
2.	De Broglie hypothesis	1	31/03/2020		TLM1	
3.	Experimental verification Davisson and Germer Experiment	1			TLM2	
4.	**TUTORIAL-8**	1	01/04/2020		TLM3	
5.	Schrodinger wave equation	1	03/04/2020		TLM1	
6.	Physical significance of wave function	1	04/04/2020		TLM1	
7.	Particle in a box	1	06/04/2020		TLM1	
8.	Classical free electron theory- postulates	1	07/04/2020		TLM1	
9.	**TUTORIAL-9**	1	08/04/2020		TLM3	
10.	Normal distribution problems	1	11/04/2020		TLM1	
11.	Expression for electrical conductivity and drift velocity	1	13/04/2020		TLM1	

12.	Advantageous and drawbacks	1	15/04/2020		TLM1	
13.	**TUTORIAL-10**	1	17/04/2020		TLM1	
14.	Fermi –Dirac statistics	1	18/04/2020		TLM1	
15.	Classification of band theory of Solids	1	20/04/2020		TLM1	
16.	Assignment / Quiz - 3	1	21/04/2020		TLM1	
17.	Tutorial-11		22/04/2020		TLM3	
No. of classes required to complete UNIT-III: 16				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	HOD Sign Weekly
1.	Classification of semiconductors	1	24/04/2020		TLM1	
2.	Carrier concentration in an intrinsic semiconductor	2	25/04/2020 27/04/2020		TLM1	
3.	Concentration and Fermi levels in an intrinsic semiconductor	2	28/04/2020 29/04/2020		TLM1	
4.	Tutorial-12	1	01/05/2020		TLM3	
5.	Conductivity of semiconductors	1	02/05/2020		TLM1	
6.	Drift and diffusion,	1	04/05/2020		TLM1	
7.	Einstein relation	1	05/05/2020		TLM1	
8.	Problems	1	06/05/2020		TLM1	
9.	Hall Effect	1	08/05/2020		TLM3	
10.	Direct band gap and indirect band gap semiconductors - differences	1	09/05/2020		TLM1	
11.	LED	1	11/05/2020		TLM2	
12.	Tutorial-12	1	12/05/2020		TLM3	
13.	Photo Detectors	1	13/05/2020		TLM1	
14.	Solar cell, Application of Solar cell	1	15/05/2020		TLM2	

15.	Assignment / Quiz - 4		16/05/2020			
No. of classes required to complete UNIT-IV: 17				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	HOD Sign Weekly
1.	**Introduction,** Dielectric parameters	1	01/06/2020		TLM1	
2.	Electronic Polarization	1	02/06/2020		TLM1	
3.	Tutorial-13	1	03/06/2020		TLM3	
4.	Ionic,Orientation and space charge polarization	1	03/06/2020		TLM1	
5.	Local field and classius mosotti equation	1	05/06/2020		TLM1	
6.	Dielectric loss	1	06/06/2020		TLM1	
7.	Dielectric breakdown	1	08/06/2020		TLM1	
8.	Ferro electricity and Piezo electricity	1	09/06/2020		TLM1	
9.	Tutorial-14	1	10/06/2020		TLM3	
10.	Applications of dielectric materials	1	12/06/2020		TLM3	
11.	Types of Samples (Content Beyond the Syllabus)	1	13/06/2020		TLM1	
No. of classes required to complete UNIT-V: 11				No. of classes taken:		

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 (R17 Regulations):

Evaluation Task	**Marks**
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20

I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	**100**

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in

	independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	**Communication:** Design and develop modern communication technologies for building the inter disciplinary skills to meet current and future needs of industry.
PSO 2	**VLSI and Embedded Systems:** 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
PSO 3	**Signal Processing:** Apply the Signal processing techniques to synthesize and realize the issues related to real time applications

Course Instructor	Course Coordinator	Module Coordinator	HOD
Dr. K.R. Kavitha	**Dr. K.R. Kavitha**	**Dr. A. Rami Reddy**	**Dr. A. Rami Reddy**

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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

COURSE HANDOUT
PART-A

Name of Course Instructor : Mr. J.V.PAVAN CHAND
Course Name & Code : BASIC ELECTRICAL ENGINEERING & 17EE52
L-T-P Structure : 2-2-0 Credits : 3
Program/Sem/Sec : B.Tech., CSE., II-Sem., Sections-A A.Y : 2019-20

Pre-requisites : --NIL
Course Educational 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 (COs): At the end of the course, students are able to

CO 1	Analyze AC and DC circuits
CO 2	Enumerate the working of rotating electrical machines
CO 3	Analyze the performance of electrical machines
CO 4	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 a	PSO b	PSO c	PSO d
CO1	3	2	3	-	2	-	-	-	-	-	-	1	-	-	-	-
CO2	3	2	1	2	-	-	-	-	-	-	-	1	-	-	-	-
CO3	3	1	3	-	3	-	-	-	-	-	-	2	-	-	-	-
CO4	3	2	2	2	-	-	-	-	-	-	-	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).

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.

REFERENCE BOOKS:

R1: Kothari and Nagarath, —Basic Electrical Engineering, TMH Publications, 3rd Edition.
R2: V.K.Mehta, —Principles of Electrical Engineering, S.Chand Publications.

Part - B
COURSE DELIVERY PLAN (LESSON PLAN): Section-B

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	HOD Sign Weekly
1.	Introduction	1	04-02-20		TLM1	
2.	Basic definitions	1	05-02-20		TLM1	
3.	Types of elements	1	06-02-20		TLM1	
4.	R,L,C parameters	1	07-02-20		TLM3	
5.	**TUTORIAL-I**	1	11-02-20		TLM1	
6.	Energy Sources	1	12-02-20		TLM1	
7.	Ohm‘s Law	1	13-02-20		TLM1	
8.	Kirchhoff‘s Laws	1	14-02-20		TLM3	
9.	**TUTORIAL-II**	1	15-02-20		TLM1	
10.	Series & parallel	1	18-02-20		TLM1	
11.	Star to delta	1	19-02-20		TLM1	
12.	Delta to star	1	20-02-20		TLM1	
13.	Source Transformations	1	22-02-20		TLM2	
14.	Numerical Problems	1	25-02-20		TLM1	
15.	Numerical Problems	1	26-02-20		TLM1	
16.	Numerical Problems	1	27-02-20		TLM1	
No. of classes required to complete UNIT-I : 16					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	HOD Sign Weekly
17.	Mesh Analysis	1	28-02-20		TLM1	
18.	Numerical Problems	1	29-02-20		TLM1	
19.	Nodal Analysis	1	03-03-20		TLM1	
20.	Numerical Problems	1	04-03-20		TLM1	
21.	Introduction to Theorems	1	05-03-20		TLM1	
22.	Superposition Theorem	1	06-03-20		TLM1	
23.	**TUTORIAL-III**	1	07-03-20		TLM1	
24.	Thevenin’s Theorem	1	11-03-20		TLM1	
25.	Numerical Problems	1	12-03-20		TLM1	
26.	Norton’s Theorem	1	13-03-20		TLM3	
27.	Numerical Problems	1	17-03-20		TLM1	
28.	Maximum Power Transfer Theorem	1	18-03-20		TLM1	
29.	Numerical Problems	1	19-03-20		TLM2	
30.	Numerical Problems	1	20-03-20		TLM3	
31.	**TUTORIAL-IV**	1	21-03-20		TLM1	
32.	MID-I		24-03-20			
33.	MID-I		25-03-20			
34.	MID-I		26-03-20			
35.	MID-I		27-03-20			
36.	MID-I		28-03-20			
No. of classes required to complete UNIT-II : 15					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	HOD Sign Weekly
37.	Peak, R.M.S, average and instantaneous values	1	31-03-20		TLM1	
38.	Form factor and Peak factor for periodic waveforms	1	01-04-20		TLM1	
39.	Phase and Phase difference	1	03-04-20		TLM3	
40.	**TUTORIAL-V**	1	04-04-20		TLM1	
41.	Numerical Problems	1	07-04-20		TLM1	
42.	Reactance, Impedance	1	08-04-20		TLM1	
43.	Susceptance and Admittance	1	09-04-20		TLM1	
44.	Real, Reactive powers	1			TLM1	
45.	apparent Powers, Power factor	1	15-04-20		TLM1	
46.	Resonance	1	16-04-20		TLM2	
47.	Numerical Problems	1	17-04-20		TLM3	
48.	**TUTORIAL-VI**	1	18-04-20		TLM1	
49.	Numerical Problems	1	21-04-20		TLM1	
No. of classes required to complete UNIT-III : 13					No. of classes taken:	

UNIT-IV : GENERALISED 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	HOD Sign Weekly
50.	Introduction	1	22-04-20		TLM1	
51.	Dynamo, Generator and Motor	1	23-04-20		TLM1	
52.	Basic Electro-Magnetic Laws	1	24-04-20 25-04-20		TLM1	
53.	**TUTORIAL-VII**	1	25-04-20		TLM1	
54.	EMF induced, Production of Torque	1	28-04-20		TLM1	
55.	Elementary concept of an electrical machine	2	29-04-20 30-04-20		TLM1	
56.	Features of rotating electrical machines	1	01-05-20		TLM3	
57.	**TUTORIAL-VIII**	1	02-05-20		TLM1	
58.	Types of rotating electrical machines	1	05-05-20		TLM2	
59.	Numerical Problems	1	06-05-20		TLM1	
60.	Numerical Problems	1	07-05-20		TLM1	
61.	Numerical Problems	1	08-05-20		TLM3	
No. of classes required to complete UNIT-IV : 13					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	Text Book followed	HOD Sign Weekly
62.	**1-Φ Transformers:** Constructional details	1	12-05-20			
63.	Principle & Operation	1	13-05-20			
64.	Emf equation	1	14-05-20			
65.	Losses, efficiency and regulation	1	15-05-20			
66.	**TUTORIAL-IX**	1	16-05-20			
67.	OC & SC Tests Numerical Problems	1	02-06-20			
68.	**Induction Motor:** Principle and operation, types	1	03-06-20			
69.	Slip, rotor emf and current-torque	1	04-06-20			
70.	starting torque-Maximum Torque	1	05-06-20			
71.	**TUTORIAL-X**	1	06-06-20			
72.	Slip-Torque characteristics	1	09-06-20			
73.	Measuring Instruments	1	10-06-20			
74.	MI Instruments	1	11-06-20			
75.	MI Instruments	1	12-06-20			
76.	MID-II		15-06-20			
77.	MID-II		17-06-20			
78.	MID-II		18-06-20			
79.	MID-II		19-06-20			
80.	MID-II		20-06-20			
No. of classes required to complete UNIT-V : 14					No. of classes taken:	

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 (R17 Regulations):

Evaluation Task	**Marks**
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO a	Specify, design and analyze systems that efficiently generate, transmit and distribute electrical power
PSO b	Design and analyze electrical machines, modern drive and lighting systems
PSO c	Specify, design, implement and test analog and embedded signal processing electronic systems
PSO d	Design controllers for electrical and electronic systems to improve their performance.

Mr. J.V.PAVAN CHAND	Mr. J.V.PAVAN CHAND	Dr. G.Nageswara Rao	Dr.M.S.GIRIDHAR
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	**:**	2019-20
COURSE NAME & CODE	**:**	APPLIED PHYSICS & 17 FE 62
L-T-P STRUCTURE	**:**	0-0 -2
COURSE CREDITS	**:**	1
COURSE INSTRUCTOR	**:**	**P VIJAYA SIRISHA/ Dr T VASANTHA RAO**
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**
CO2.	**3**	**3**	**2**	**1**	**1**	**1**	**1**					**1**

CO3.	**3**	**3**	**1**	**1**								**1**
CO4.	**3**	**3**	**1**	**1**								**1**
CO5.								**2**	**2**	**2**		
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	6/02/2020		**TLM4**	1,2,3,4	T1	
2.	Demonstration	2	13/02/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
3.	Experiment 1	2	20/02/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
4.	Experiment 2	2	27/02/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
5.	Experiment 3	2	05/03/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
6.	Experiment 4	2	12/03/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
7.	Experiment 5	2	19/03/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
8.	MID-1	2	26/03/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
9.	Demonstration	2	09/04/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
10.	Experiment 6	2	16/04/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
11.	Experiment 7	2	23/04/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
12.	Experiment 8	2	30/04/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
13.	Experiment 9	2	07/05/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
14.	**REVESION**	2	14/05/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
15.	**Internal Exam**	2	04/06/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	

16.	**Internal Exam**	2	11/06/2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
No. of classes required to complete lab		*30*			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

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FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor : Ms. K. Sridevi
Course Name & Code : ENGLISH COMMUNICATION SKILLS LAB - 17FE60
L-T-P Structure : 2-0-0
Credits : 1
Program/Sem/Sec : B.Tech. II-Sem.,CSE(A) A.Y : 2019-20

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

COURSE EDUCATIONAL OBJECTIVES (CEOs): 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 (COs): At the end of the course, the student will be able to

CO 1	Articulate English with good pronunciation.
CO 2	Manage skillfully through group discussions.
CO 3	Communicate with the people effectively.
CO 4	Collect and interpret data aptly.

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1					3					3	3				
CO2					3					3	3				
CO3					3					3	3				
CO4					3					3	3				

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

LAB. MANUAL:

T1 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):

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction	2	08-02-2020		TLM4	
2.	Self Introduction	2	15-02-2020		TLM4	
3.	JAM- I	2	22-02-2020		TLM4	
4.	JAM-II	2	29-02-2020		TLM4	
5.	Role Play-I	2	07-03-2020		TLM4	
6.	Role Play-II	2	14-03-2020		TLM4	
7.	Data Interpretation-I	2	21-03-2020		TLM2, TLM4	
8.	Data Interpretation-II	2	04-04-2020		TLM2, TLM4	
9.	Group Discussion-I	2	18-04-2020		TLM4, TLM6	
10.	Group Discussion-II	2	25-04-2020		TLM4, TLM6	
11.	Group Discussion-III	2	02-05-2020		TLM4, TLM6	
12.	Introduction to Phonetics	2	16-05-2020		TLM1, TLM2	
13.	Internal Lab Exam	2	06-06-2020			
14.	Total	30				
No. of classes required to complete the syllabus:				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	HOD Sign
1.	Public Speech	1	13-06-2020		TLM4	

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)**

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Instructor	Course Coordinator	Module Coordinator	HOD
K. Sridevi	Dr.B.Samrajya Lakshmi	Dr.B.Samrajya Lakshmi	Dr.B.Samrajya Lakshmi

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FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor : Ms. K. Sridevi
Course Name & Code : Professional Communication - II (17FE02)
L-T-P Structure : 3-0-0
Credits : 3
Program/Sem/Sec : B.Tech. II-Sem., CSE A.Y : 2019-20

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

COURSE EDUCATIONAL OBJECTIVES (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

CO 1	Express the ideas aptly and briefly using word- substitutes and idioms effectively in spoken and written forms.
CO 2	Comprehend the given texts and Communicate confidently in formal and informal Contexts.
CO 3	Use grammatically error free sentences in writing and speaking.
CO 4	Interpret the information given in Tables, Bar graphs, Line graphs, Pie charts, Flow charts, Tree Diagrams & Pictograms accurately and present it aptly & ethically.
CO 5	Write notes, reports & Abstract/Summary based on the information given ethically.

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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			

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

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.

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):

UNIT-I:

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to UNIT-I	1	04-02-2020		TLM1	
2.	Good Manners – J.C.Hill	1	07-02-2020		TLM1	
3.	Idioms	1	08-02-2020		TLM1, TLM2, TLM5	
4.	One-word Substitutes	1	11-02-2020		TLM1, TLM2, TLM5	
5.	Sequence of tenses	1	14-02-2020		TLM1, TLM2, TLM5	
6.	Subject – Verb Agreement (Concord)	1	15-02-2020		TLM1, TLM2, TLM5	
7.	If- Rudyard Kipling	1	18-02-2020		TLM1	
8.	Information Transfer	1	22-02-2020		TLM1, TLM2	
9.	Information Transfer	1	25-02-2020		TLM1, TLM2	
No. of classes required to complete UNIT-I:09				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	HOD Sign Weekly
1.	Verger – Somerset Maugham	1	28-02-2020		TLM1, TLM6	
2.	Assertive skills from the story/ personal level/ workplace	1	29-02-2020		TLM1, TLM6	
3.	Expanding proverbs on Assertive skills	1	03-03-2020		TLM1, TLM2, TLM5, TLM6	
4.	White washing the fence – Mark Twain	1	06-03-2020		TLM1, TLM6	

5.	Teamwork skills from the story/ work place	1	07-03-2020		TLM1, TLM6	
6.	Expanding proverbs on Teamwork	1	10-03-2020		TLM1, TLM2, TLM5, TLM6	
7.	Expanding proverbs on Teamwork	1	13-03-2020		TLM1, TLM2, TLM5, TLM6	
8.	Expanding proverbs on Teamwork	1	14-03-2020		TLM1, TLM2, TLM5, TLM6	
9.	Note-making	1	17-03-2020		TLM1, TLM2, TLM5, TLM6	
10.	Note-making	1	20-03-2020		TLM1, TLM2, TLM5, TLM6	
11.	Abstract/Summary writing	1	21-03-2020		TLM1, TLM2, TLM5, TLM6	
No. of classes required to complete UNIT-II:12				No. of classes taken:		

UNIT-III: Fourier Transforms and Sampling Theorem

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Oh Father, Dear Father – Raj Kinger	1	31-03-2020		TLM1	
2.	Foreign Languages and their Influence on English	1	03-04-2020		TLM1, TLM2, TLM5, TLM6	
3.	Conditional Sentences	1	04-04-2020		TLM1, TLM2, TLM5, TLM6	
4.	Degrees of Comparison	1	07-04-2020		TLM1, TLM2, TLM5, TLM6	
5.	Question Tags	1	11-04-2020		TLM1, TLM2, TLM5, TLM6	
6.	Basic Education – M.K. Gandhi	1	17-04-2020		TLM1, TLM6	
7.	Report Writing	1	18-04-2020		TLM1, TLM2, TLM5, TLM6	
No. of classes required to complete UNIT-III:				No. of classes taken:		

UNIT-IV : Signal Transmission Through Linear Systems

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Sen˜or Payroll – W E Barrett	1	21-04-2020		TLM1, TLM6	
2.	Organizational Communication	1	24-04-2020		TLM1, TLM6	
3.	Adaptability skills from the story	1	25-04-2020		TLM1, TLM6	
4.	Adaptability skills at work place & Real life	1	28-04-2020		TLM1, TLM6	
5.	Expanding proverbs on Adaptability skills	1	01-05-2020		TLM1, TLM2, TLM5, TLM6	
6.	Active & Passive Voice	1	02-05-2020		TLM1, TLM2, TLM5, TLM6	
7.	Active & Passive Voice	1	05-05-2019		TLM1, TLM2, TLM5, TLM6	
8.	Direct & Indirect Speech	1	08-05-2020		TLM1, TLM2, TLM5, TLM6	
9.	Direct & Indirect Speech	1	12-05-2020		TLM1, TLM2, TLM5, TLM6	
No. of classes required to complete UNIT-IV:				No. of classes taken:		

UNIT-V : Laplace Transforms

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	A real good smile – Bill Naughton	1	15-05-2020		TLM1, TLM6	
2.	Non-Verbal Communication Skills from the story	1	16-05-2020		TLM1, TLM6	
3.	Non-Verbal Communication skills through real life experiences	1	02-06-2020		TLM1, TLM6	
4.	articulation and gestures, Wh' & 'Yes' or 'No' questions	1	05-06-2020		TLM1, TLM2, TLM5, TLM6	
5.	Proverbial	1	06-06-2020		TLM1, TLM2,	

	expansion on Non-Verbal Communication				TLM5, TLM6	
6.	Common Errors	1	09-06-2020		TLM1, TLM2, TLM5, TLM6	
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	HOD Sign
1.	SOP	1	12-06-2020		TLM1, TLM2, TLM5, TLM6	
2.	LOR	1	13-06-2020		TLM1, TLM2, TLM5, TLM6	

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 (R17 Regulations):

Evaluation Task	**Marks**
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Instructor	Course Coordinator	Module Coordinator	HOD
K. Sridevi	Dr.B.Samrajya Lakshmi	Dr.B.Samrajya Lakshmi	Dr.B.Samrajya Lakshmi

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L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor : **Dr. A. Rami Reddy**
Course Name & Code : Transformation Techniques and Vector Calculus, 17FE06
L-T-P Structure : 4-1-0 Credits : 4
Program/Sem/Sec : B.Tech., CSE, II-Sem., Section- A A.Y : 2019-20

PRE-REQUISITE: Integration and Vectors

COURSE EDUCATIONAL OBJECTIVES (CEOs): In this course the students are introduced to Integral transformations which include Laplace Transforms and Z – Transforms. They will also learn Multiple Integrals in different coordinate systems and Vector Calculus.

COURSE OUTCOMES (Cos): At the end of the course, students are able to

CO 1	Apply the concepts of Laplace Transforms to solve ordinary differential equations.
CO 2	Apply Z - Transforms to solve difference equations
CO 3	Discriminate among Cartesian, Polar and Spherical coordinates in multiple integrals and their respective applications to areas and volumes.
CO 4	Evaluate the directional derivative, divergence and angular velocity of a vector function.
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:

T1 T.K.V. Iyengar, B. Krishna Gandhi and others, Engineering Mathematics, Vol. III, S.Chand & Company, 7th Edition, 2009.

T2 B.S. Grewel, Higher Engineering Mathematics, Khanna Publications, 42nd edition, 2012.

BOS APPROVED REFERENCE BOOKS:

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

R2 Erwin Kreyszig, "Advanced Engineering Mathematics", 8thEdition, John Wiley & Sons, New Delhi, 2011.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: LAPALCE TRANSFORMS AND INVERSE LAPLACE TRANSFORMS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to Course and Course outcomes.	1	03/02/2020		TLM1	
2.	Introduction to Unit-I	1	04/02/2020		TLM1	
3.	Laplace Transforms of standard functions.	1	06/02/2020		TLM1	
4.	Linear Property, Shifting Theorems.	1	07/02/2020		TLM1	
5.	Change of Scale Property.	1	8/02/2020		TLM1	
6.	Multiplication by 't',	1	10/02/2020		TLM1	
7.	Division by 't'	1	11/02/2020			
8.	Unit Step function, Transforms of derivatives.	1	13/02/2020		TLM1	
9.	Tutorial-1	1	14/02/2020		TLM3	
10.	Transformation of integrals, Dirac's Delta function.	1	17/02/2020		TLM1	
11.	Inverse Laplace Transforms, Linear Property, Shifting Properties.	1	18/02/2020		TLM1	
12.	Inverse Laplace Transforms using Partial fractions.	1	20/02/2020		TLM1	
13.	Inverse Laplace Transforms using Partial fractions.	1	22/02/2020		TLM1	
14.	Convolution theorem.	1	24/02/2020		TLM1	
15.	Application of L.T. to ordinary differential equation.	1	25/02/2020		TLM1	
16.	Application of L.T. to ordinary differential equation.	1	27/02/2020		TLM1	
17.	Tutorial-2	1	28/02/2020		TLM3	
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	HOD Sign Weekly
1.	Introduction to UNIT- II.	1	29/02/2020		TLM1	
2.	Z-transform.	1	02/03/2020		TLM1	
3.	Z-transform of standard functions.	1	03/03/2020		TLM1	

4.	Damping rule	1	05/03/2020		TLM1	
5.	Tutorial-3	1	06/03/2020		TLM3	
6.	Shifting rule	1	07/03/2020		TLM1	
7.	Initial and final value theorems	1	09/03/2020		TLM1	
8.	Inverse Z-transform	1	12/03/2020		TLM1	
9.	Inverse Z-transform using Partial Fractions.	1	13/03/2020		TLM1	
10.	Tutorial-4	1	16/03/2020		TLM3	
11.	Inverse Z-transform using Partial Fractions.	1	17/03/2020		TLM1	
12.	Convolution theorem	1	19/03/2020		TLM1	
13.	Solution of difference equation by Z-transform.	1	20/03/2020		TLM1	
14.	Solution of difference equation by Z-transform.	1	21/03/2020		TLM1	
15.	Revision	1	30/03/2020			
No. of classes required to complete UNIT-II:			15	No. of classes taken:		

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	HOD Sign Weekly
1.	Introduction to UNIT III	1	31/03/2020		TLM1	
2.	Multiple Integrals.	1	03/04/2020		TLM1	
3.	Tutorial-5	1	04/04/2020		TLM3	
4.	Double Integrals	1	06/04/2020		TLM1	
5.	Change of variables.	1	07/04/2020		TLM1	
6.	Double Integrals- Polar co ordinates.	1	09/04/2020		TLM1	
7.	Triple Integrals	1	13/04/2020		TLM1	
8.	Triple Integrals - Spherical coordinates.	1	16/04/2020		TLM1	
9.	Triple Integrals - Cylindrical coordinates	1	17/04/2020		TLM1	
10.	Change of order of Integration.	1	18/04/2020		TLM1	
11.	Tutorial-6	1	20/04/2020		TLM3	
12.	Change of order of Integration	1	21/04/2020		TLM1	
13.	Applications to Areas.	1	23/04/2020		TLM1	
14.	Applications to Volumes	1	24/04/2020		TLM1	
No. of classes required to complete UNIT-III:			14	No. of classes taken:		

UNIT-IV : VECTOR DIFFERENTIATION

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to UNIT-IV	1	25/04/2020		TLM1	
2.	Vector Differentiation	1	27/04/2020		TLM1	
3.	Gradient	1	28/04/2020		TLM1	
4.	Directional Derivative	1	30/04/2020		TLM1	
5.	Applications of Gradient	1	01/05/2020		TLM1	
6.	Divergence	1	02/05/2020		TLM1	
7.	Tutorial-7	1	04/05/2020		TLM3	
8.	Curl	1	05/05/2020		TLM1	
9.	Solenoidal fields, Irrotational fields, potential surfaces	1	07/05/2020		TLM1	
10.	Laplacian second order operators	1	08/05/2020		TLM1	
11.	Properties	1	11/05/2020		TLM1	
12.	Tutorial-8	1	12/05/2020		TLM3	
13.	Properties	1	14/05/2020		TLM1	
No. of classes required to complete UNIT-IV:			13	No. of classes taken:		

UNIT-V: VECTOR INTEGRATION

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to UNIT V	1	15/05/2020		TLM1	
2.	Line Integral	1	16/05/2020		TLM1	
3.	Work done and area	1	1/06/2020		TLM1	
4.	Surface Integrals	1	02/06/2020		TLM1	
5.	Volume Integrals	1	04/06/2020		TLM1	
6.	Greens theorem	1	05/06/2020		TLM1	
7.	Stokes theorem	1	06/06/2020		TLM1	
8.	Tutorial-9	1	08/06/2020		TLM3	
9.	Gauss Divergence theorem	1	09/06/2020		TLM1	
10.	Related problems	1	11/06/2020		TLM1	
11.	Tutorial-10	1	12/06/2020		TLM3	
12.	Revision	1	13/06/2020			
No. of classes required to complete UNIT-V:			12	No. of classes taken:		

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 (R17 Regulations):

Evaluation Task	Marks
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	**100**

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations

PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Instructor	Course Coordinator	Module Coordinator	HOD
Dr. A. Rami Reddy	**Dr. K. Jhansi Rani**	**Dr. A. Rami Reddy**	**Dr. A. Rami Reddy**

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

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

ACADEMIC YEAR : 2019-20

COURSE NAME & CODE : Digital Logic design – 17CS60

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

COURSE CREDITS : **1**

COURSE INSTRUCTOR : V Siva Krishna

COURSE COORDINATOR: J. Nageswara Rao

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	**PO2**	**PO3**	**PO4**	**PO 5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO 10**	**PO 11**	**PO 12**	**PSO1**	**PSO2**	**PSO3**
COURSE OUTCOMES	CO 1	2	1	3	1	3	-	-	-	-	-	-	-	1	-	-
	Co2	1	2	3	1	3	-	-	-	-	-	-	-	1	-	-
	CO 3	1	2	3	1	3	-	-	-	-	-	-	-	1	-	-
	CO 4	-	-	-	-	-	-	-	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	**Cycle 1**
	b) Universal Gates Functional Verification i. NAND Gate using 7400 IC ii. NOR Gate using 7402 IC	
	c) Special Gates Functional verification i. XOR Gate using 7486 IC ii. XNOR Gate using XOR followed by NOT Gate	
2	Realization of following gates using universal gates and its functional verification. AND, OR, XOR, NOT	
3	a) Design Half-adder and Full-adder circuits and verify its functionality. b) Verify the functionality of four bit ripple carry adder for signed and unsigned integers with the verification of overflow condition.	
4	Design a four bit comparator and verify its functionality (using logic gates or IC's)	
5	Design a BCD to Excess-3 code converter and verify its functionality by using gates.	
6	Design a BCD to Gray code converter and verify its functionality by using gates.	
7	Design and verify the functionality of Decoders and multiplexers of different inputs.	
	CYCLE 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.	

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	05-02-2020		5
	b) Universal Gates Functional Verification iii. NAND Gate using 7400 IC iv. NOR Gate using 7402 IC			5
	c) Special Gates Functional verification iii. XOR Gate using 7486 IC iv. XNOR Gate using XOR followed by NOT Gate			5
2	Realization of following gates using universal gates and its functional verification.AND, OR, XOR, NOT	12-02-2020		5
3	c) Design Half-adder and Full-adder circuits and verify its functionality. d) Verify the functionality of four bit ripple carry adder for signed and unsigned integers with the verification of overflow condition.	19-02-2020 26-02-2020		1,5
4	Design a four bit comparator and verify its functionality (using logic gates or IC's)	04-03-2020		5
5	Design a BCD to Excess-3 code converter and verify its functionality by using gates.	11-03-2020		1,5
6	Design a BCD to Gray code converter and verify its functionality by using gates.	18-03-2020		1,5
7	Design and verify the functionality of Decoders and multiplexers of different inputs.	01-04-2020		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	08-04-2020		1,5
9	a) Design a UP-Counter using JK/T Flip-Flop. b) Design a MOD-3 Counter.	15-04-2020		5
10	Design a Bi-directional Counter using JK/T Flip-Flop.	22-04-2020		5
11	Design Shift Registers	29-04-2020		1,5
12	Revision-Cycle-1	06-05-2020		1,5
13	Revision-Cycle-2	13-05-2020		1,5
14	**LAB INTERNAL EXAMINATION**	03-06-2020 OR 10-06-2020		1,5
				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**

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HAMDOUT

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

ACADEMIC YEAR : 2019-20

COURSE NAME & CODE : Digital Logic Design – 17CI02

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

COURSE CREDITS : **3**

COURSE INSTRUCTOR : V Siva Krishna

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..

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	1	03-02-2020		TLM1	CO1	T1	
2.	Introduction to Digital Systems	1	04-02-2020		TLM1		T1	
3.	Introduction to Number Systems	1	05-02-2020		TLM1		T1	
4.	Number Base Conversions	1	06-02-2020		TLM1		T1, R1	
5.	Number Base Conversions	1	07-02-2020		TLM1, TLM2		T1, R1	
6.	TUTORIAL	1	10-02-2020		TLM3		T1, R1	
7.	R's Complement and R-1's Complement	1	11-02-2020		TLM1, TLM2		T1, R1	
8.	Addition and Subtraction of Unsigned Numbers.	1	12-02-2020		TLM1, TLM2		T1	
9.	Addition and Subtraction of Signed Numbers.	1	13-02-2020		TLM1, TLM2		T1	
10.	Binary Codes, Binary Storage and Registers	1	14-02-2020		TLM1, TLM2		T1	
11.	TUTORIAL	1	17-02-2020		TLM3		T1	
12.	Logic Gates	1	18-02-2020		TLM1		T1	
13.	Logic Gates	1	19-02-2020		TLM1		T1	
14.	Logic Gates	1	20-02-2020		TLM1		T1	
15.	TUTORIAL	1	24-02-2020		TLM1		T1	
16.	Error Detection and Correction.	1	25-02-2020		TLM1		T1	
17.	Review of Unit-1	1	26-02-2020		TLM2		T1	
No. of classes required to complete UNIT-I:		**17**	**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
18.	Introduction to Boolean algebra	1	27-02-2020		TLM1, TLM2		T1	
19.	Basic theorems and Properties of Boolean Algebra	1	28-02-2020		TLM1, TLM2		T1	
20.	TUTORIAL	1	02-03--2020		TLM3		T1	
21.	Dual and Complement of Boolean Expressions	1	03-03-2020		TLM1, TLM2		T1	
22.	Minimization of Logic Functions using Boolean Theorems	1	04-03-2020		TLM1, TLM2		T1, R2	
23.	Karnaugh Maps	1	05-03-2020		TLM1, TLM2		T1, R2	
24.	One Variable, Two variable, Three Variable maps	1	06-03-2020		TLM1, TLM2		T1, R2	
25.	TUTORIAL	1	09-03-2020		TLM3	CO2	T1, R2	
26.	Four Variable Map	1	11-03-2020		TLM1, TLM2		T1, R2	
27.	Four Variable Map Problems on K-Maps	1	12-03-2020		TLM1, TLM2		T1	
28.	Five Variable K-Map and Examples	1	13-03-2020		TLM1, TLM2		T1	
29.	TUTORIAL	1	16-03-2020		TLM3		T1	
30.	Six Variable K-Maps Examples	1	17-03-2020		TLM1, TLM2		T1	
31.	Minimal Expressions for incomplete Boolean functions	1	18-03-2020		TLM1, TLM2		T1	
32.	Quine-McCluskey Method	1	19-03-2020		TLM1, TLM2		T1	
33.	Prime implicants	1	20-03-2020		TLM1, TLM2		T1	
No. of classes required to complete UNIT-II:		**16**	**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
34.	Introduction to Combinational Logic, Design Procedure, Analysis Procedure	1	30-03-2020		TLM1, TLM2	CO3	T1, R2	
35.	Adders, Sub tractors	1	31-03-2020		TLM1, TLM2		T1, R2	
36.	Code Conversion	1	01-04-2020		TLM1, TLM2		T1	
37.	Multilevel NAND circuits, Multilevel NOR circuits	1	03-04-2020		TLM1, TLM2		T1, R2	
38.	TUTORIAL	1	06-04-2020		TLM3		T1, R2	
39.	Introduction to Combinational Logic with MSI And LSI	1	07-04-2020		TLM1, TLM2		T1	
40.	Binary Parallel Adder, Decimal Adder	1	08-04-2020		TLM1, TLM2		T1	
41.	Magnitude Comparator	1	09-04-2020		TLM1, TLM2		T1	
42.	TUTORIAL	1	13-04-2020		TLM3		T1	
43.	Decoders and Multiplexers	1	14-04-2020		TLM1, TLM2		T1	
44.	Decoders and Multiplexers	1	15-04-2020		TLM1, TLM2		T1	
45.	Decoders and Multiplexers	1	16-04-2020		TLM1, TLM2		T1	
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
46.	Introduction to Sequential Logic	1	17-04-2020		TLM1, TLM2	CO4	T1	
47.	TUTORIAL	1	20-04-2020		TLM3		T1	
48.	Flip Flops	1	21-04-2020		TLM1, TLM2		T1	
49.	Flip Flops	1	22-04-2020		TLM1, TLM2		T1	
50.	Triggering of Flip-Flops	1	23-04-2020		TLM1, TLM2		T1	
51.	Analysis of Clocked Sequential Circuits	1	24-04-2020		TLM1, TLM2		T1	
52.	TUTORIAL	1	27-04-2020		TLM3		T1	
53.	State Reduction and Assignment	1	28-04-2020		TLM1, TLM2		T1	
54.	Flip-Flop Excitation tables	1	29-04-2020		TLM1, TLM2		T1	
55.	Design of Counters, Introduction to Registers, Shift registers	1	30-04-2020		TLM1, TLM2		T1	
56.	Ripple Counters, Synchronous Counters	1	01-05-2020		TLM1, TLM2		T1	
57.	Timing sequences And Memory unit	1	04-05-2020		TLM1, TLM2		T1	
No. of classes required to complete UNIT-IV		**12**	**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
58.	Read – Only Memory (ROM)	1	05-05-2020		TLM1, TLM2	CO5	T1	
59.	Problems On ROM	1	06-05-2020		TLM1, TLM2		T1	
60.	Programmable Read Only memory	1	07-05-2020		TLM1, TLM2		T1	
61.	Problems on PROM	1	08-05-2020		TLM1, TLM2		T1	
62.	TUTORIAL	1	11-05-2020		TLM3		T1	
63.	Programmable Logic Device (PLD)	1	12-05-2020		TLM1, TLM2		T1	
64.	Problems on PLD	1	13-05-2020		TLM1, TLM2		T1	
65.	Programmable Logic Array	1	14-05-2020		TLM1, TLM2		T1	
66.	Programmable Array Logic (PAL)	1	15-05-2020		TLM1, TLM2		T1	
67.	Problems on PLA and PAL	1	01-06-2020		TLM1, TLM2		T1	
68.	Programmable Logic Array	1	02-06-2020		TLM1, TLM2		T1	
69.	Revision-Unit 3	1	03-06-2020		TLM1, TLM2		T1	
70.	Revision-Unit 4	1	04-06-2020		TLM1, TLM2		T1	
71.	Revision-Unit 5	1	05-06-2020		TLM1, TLM2		T1	
72.	Revision-Unit 1	1	08-06-2020		TLM1, TLM2		T1	
73.	Revision-Unit 2	1	09-06-2020		TLM1, TLM2		T1	
No. of classes required to complete UNIT-V		**16**	**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
74.	PROM related problems	1	10-06-2020		TLM2	CO5		
75.	Ripple Counters	1	11-06-2020		TLM2	CO5		
76.	How magnitude comparators are	1	12-06-2020		TLM2	CO5		

	different from Decoders							

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 +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 + attendance: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=20
Evaluation of Mid Marks: B=75% of Max(B1,B2)+25% of Min(B	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=60**
Total Marks: A+B+C	**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**

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FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor : Dr. T. Vasantha Rao
Course Name & Code : Applied Physics Lab, 17FE62
L-T-P Structure : 0-0-2 Credits : 1
Program/Sem/Sec : B.Tech., CSE, II-Sem., Section- B A.Y: 2019-2020

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:	Analyze the wave characteristics of Light.
Co2:	Estimate the wave length and width of the slit with Laser light source.
Co3:	Analyze the characteristics of Semiconductor Diodes.
Co4:	Determine the energy band gap and the Dielectric Constant of a Material.
Co5:	Improve report writing skills, Individual and team work with Ethical values.

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**
CO2.	**3**	**3**	**2**	**1**	**1**	**1**	**1**					**1**
CO3.	**3**	**3**	**1**	**1**								**1**
CO4.	**3**	**3**	**1**	**1**								**1**
CO5.								**2**	**2**	**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 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	HOD Sign Weekly
1.	Introduction	2	07-02-2020		**TLM4**	
2.	Demonstration	2	14-02-2020		**TLM4**	
3.	Experiment 1	2	28-02-2020		**TLM4**	
4.	Experiment 2	2	06-03-2020		**TLM4**	
5.	Experiment 3	2	13-03-2020		**TLM4**	
6.	Experiment 4	2	20-03-2020		**TLM4**	
7.	Mid - I	2	27-03-2020		**TLM4**	
8.	Demonstration	2	03-04-2020		**TLM4**	
9.	Experiment 5	2	17-04-2020		**TLM4**	
10.	Experiment 6	2	24-04-2020		**TLM4**	
11.	Experiment 7	2	01-05-2020		**TLM4**	
12.	Experiment 8	2	08-05-2020		**TLM4**	
13.	**Internal Exam**	2	05-06-2020		**TLM4**	
14.	**Internal Exam**	2	12-06-2020		**TLM4**	
No. of classes required to complete Lab:		26			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**

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.

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.
PSO 2	To inculcate an ability to Analyse, Design and implement data driven applications into the students.
PSO 3	Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

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

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Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada
L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor : Dr. T. Vasantha Rao
Course Name & Code : Applied Physics, 17FE12
L-T-P Structure : 3-2-0 Credits : 4
Program/Sem/Sec : B.Tech., CSE, II-Sem., Section- B A.Y: 2019-2020

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	**Programme Outcomes**											
PO's →	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1.	**3**	**3**	**1**	**1**	**1**	**1**	**1**					**1**
CO2.	**3**	**3**	**2**	**1**	**1**	**1**	**1**					**1**
CO3.	**3**	**3**	**1**	**1**	**1**	**1**	**1**					**1**
CO4.	**3**	**3**	**1**	**1**	**1**	**1**	**1**					**1**
CO5.	**3**	**3**	**1**	**1**	**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:

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- A

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	HOD Sign Weekly
1.	Introduction to Subject, Course Outcomes	1	03-02-2020		**TLM2**	
2.	Introduction to UNIT-I	1	04-02-2020		**TLM1**	
3.	Superposition of waves,	1	06-02-2020		**TLM1**	
4.	Coherence, Conditions for Interference	1	07-02-2020		**TLM1**	
5.	Interference from thin films	1	08-02-2020		**TLM1**	
6.	Newton's rings	1	10-02-2020		**TLM1**	
7.	Michelson's interferometer	1	11-02-2020		**TLM1**	
8.	Tutorial 1	1	13-02-2020		**TLM3**	
9.	Introduction – Diffraction	1	14-02-2020		**TLM1**	
10.	ANNUAL DAY		15-02-2020			
11.	Single slit diffraction	1	17-02-2020		**TLM1**	
12.	Double slit diffraction	1	18-02-2020		**TLM1**	
13.	Diffraction –Circular aperture	1	20-02-2020		**TLM1**	
14.	Diffraction –N parallel slits, Diffraction grating	1	22-02-2020		**TLM1**	
15.	Resolving power of grating, & Telescope	1	24-02-2020		**TLM1**	
16.	TUTORIAL-2	1	25-02-2020		**TLM3**	

17.	Assignment/Quiz	1	27-02-2020		**TLM3**	
18.	Revision	1	28-02-2020		**TLM1**	
19.	Revision	1	29-02-2020		**TLM2**	
No. of classes required to complete UNIT-I		19			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	HOD Sign Weekly
20.	**UNIT II :Introduction** polarization of light, Brewster's law	1	02-03-2020		**TLM1**	
21.	Double refraction, Geometry of calcite crystal	1	03-03-2020		**TLM1**	
22.	Nicol Prism,	1	05-03-2020		**TLM1**	
23.	QWP& HWP	1	06-03-2020		**TLM1**	
24.	Optical Activity, polarimeter	1	07-03-2020		**TLM1 TLM2**	
25.	TUTORIAL-3	1	09-03-2020		**TLM3**	
26.	Introduction - characteristics of Lasers	1	10-03-2020		**TLM1**	
27.	Principle of Laser, Einstein's coefficients	1	12-03-2020		**TLM1**	
28.	Population inversion,	1	13-03-2020		**TLM1**	
29.	Pumping mechanism,	1	14-03-2020		**TLM1**	
30.	Nd-YAG Laser	1	16-03-2020		**TLM1**	
31.	He-Ne gas laser	1	17-03-2020		**TLM1, TLM2**	
32.	TUTORIAL-4	1	19-03-2020		**TLM3**	
33.	Assignment / Quiz	1	20-03-2020		**TLM3**	
34.	Revision	1	21-03-2020		**TLM1**	
35.	**I MID**	1	23-03-2020			
36.	**I MID**	1	24-03-2020			
37.	**I MID**	1	26-03-2020			
38.	**I MID**	1	27-03-2020			
39.	**I MID**	1	28-03-2020			
No. of classes required to complete UNIT-II		15			No. of classes taken:	

UNIT-III : Principles 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	HOD Sign Weekly

40.	Introduction to principles of quantum mechanics	1	30-03-2020		**TLM1**	
41.	De Broglie hypothesis	1	31-03-2020		**TLM1**	
42.	Experimental verification Davisson and Germer Experiment	1	03-04-2020		**TLM1**	
43.	Schrodinger wave equation	1	04-04-2020		**TLM1**	
44.	Physical significance of wave function	1	06-04-2020		**TLM1**	
45.	Particle in a box	1	07-04-2020		**TLM1**	
46.	TUTORIAL-5	1	09-04-2020		**TLM3**	
47.	Classical free electron theory- postulates	1	11-04-2020		**TLM1**	
48.	Expression for electrical conductivity and drift velocity	1	13-04-2020		**TLM1**	
49.	Advantageous and drawbacks	1	16-04-2020		**TLM1**	
50.	Fermi –Dirac statistics	1	17-04-2020		**TLM1**	
51.	Classification of band theory of Solids	1	18-04-2020		**TLM1**	
52.	Tutorial - 6	1	20-04-2020		**TLM3**	
53.	Assignment / Quiz - 3	1	21-04-2020		**TLM3**	
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	HOD Sign Weekly
54.	Classification of semiconductors	1	23-04-2020		**TLM1**	
55.	Carrier concentration in an intrinsic semiconductor	1	24-04-2020		**TLM1**	
56.	Concentration and Fermi levels in an intrinsic semiconductor	1	25-04-2020		**TLM1**	
57.	Conductivity of semiconductors	1	27-04-2020		**TLM1**	
58.	Drift and diffusion, Einstein relation	1	28-04-2020		**TLM1**	

59.	TUTORIAL-7	1	30-04-2020		**TLM3**	
60.	Hall Effect	1	01-05-2020		**TLM1**	
61.	Direct band gap and indirect band gap semiconductors - differences	1	02-05-2020		**TLM1**	
62.	LED	1	04-05-2020		**TLM1**	
63.	Photo Detectors	1	05-05-2020		**TLM1, TLM2**	
64.	Solar cell, Application of Solar cell	1	07-05-2020		**TLM1**	
65.	TUTORIAL-8	1	08-05-2020		**TLM3**	
66.	Assignment / Quiz - 4	1	09-05-2020		**TLM3**	
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	HOD Sign Weekly
67.	**Introduction,** Dielectric parameters	1	11-05-2020		**TLM1**	
68.	Electronic Polarization	1	12-05-2020		**TLM1**	
69.	Ionic polarization	1	14-05-2020		**TLM1**	
70.	Orientation and space charge polarization	1	15-05-2020		**TLM1**	
71.	Local field and classius mosotti equation	1	16-05-2020		**TLM1**	
72.	TUTORIAL-9	1	01-06-2020		**TLM3**	
73.	Dielectric loss	1	02-06-2020		**TLM1**	
74.	Dielectric breakdown	1	04-06-2020		**TLM1**	
75.	Ferro electricity and Piezo electricity	1	05-06-2020		**TLM1**	
76.	Applications of dielectric materials	1	06-06-2020		**TLM1, TLM2**	
77.	TUTORIAL-10	1	08-06-2020		TLM3	
78.	Assignment / Quiz - 5	1	09-06-2020		TLM3	
79.	Revision	1	11-06-2020		**TLM1**	
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	HOD Sign Weekly
1.	Nano materials preparation	1	12-06-2020		**TLM2**	
2.	applications	1	13-06-2020		**TLM2**	
3.	**II MID**	1	15-06-2020			
4.	**II MID**	1	16-06-2020			
5.	**II MID**	1	18-06-2020			
6.	**II MID**	1	19-06-2020			

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

Part - C

EVALUATION PROCESS:

Evaluation Task	**Units**	**Marks**
Assignment– 1	1	A1=5
Assignment– 2	2	A2=5
I-Mid Examination	1,2	B1=20
Online Quiz-1	1,2	C1=10
Assignment– 3	3	A3=5
Assignment– 4	4	A4=5
Assignment– 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Online Quiz-2	3,4,5	C2=10
Evaluation of Assignment: A=Avg(Best of Four(A1,A2,A3,A4,A5))	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 Online Quiz Marks: C=75% of Max(C1,C2)+25% of Min(C1,C2)	1,2,3,4,5	C=10
Attendance Marks based on Percentage of attendance		D=5
Cumulative Internal Examination : A+B+C+D	**1,2,3,4,5**	**40**
Semester End Examinations : E	**1,2,3,4,5**	**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.

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	To inculcate algorithmic thinking, formulation techniques and visualization, leading to problem solving skills using different programming paradigms.
PSO 2	To inculcate an ability to Analyse, Design and implement data driven applications into the students.
PSO 3	Develop an ability to implement various processes / methodologies /practices employed in design, validation, testing and maintenance of software products.

Dr T. VASANTHA RAO	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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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

COURSE HANDOUT
PART-A

Name of Course Instructor : Mr. A.V.RAVIKUMAR
Course Name & Code : BASIC ELECTRICAL ENGINEERING & 17EE52
L-T-P Structure : 2-2-0 Credits : 3
Program/Sem/Sec : B.Tech., CSE., II-Sem., Sections- B A.Y : 2019-20

Pre-requisites : --NIL
Course Educational 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 (COs): At the end of the course, students are able to

CO 1	Analyze AC and DC circuits
CO 2	Enumerate the working of rotating electrical machines
CO 3	Analyze the performance of electrical machines
CO 4	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 a	PSO b	PSO c	PSO d
CO1	3	2	3	-	2	-	-	-	-	-	-	1	-	-	-	-
CO2	3	2	1	2	-	-	-	-	-	-	-	1	-	-	-	-
CO3	3	1	3	-	3	-	-	-	-	-	-	2	-	-	-	-
CO4	3	2	2	2	-	-	-	-	-	-	-	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).

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.

REFERENCE BOOKS:

R1: Kothari and Nagarath, —Basic Electrical Engineering, TMH Publications, 3rd Edition.
R2: V.K.Mehta, —Principles of Electrical Engineering, S.Chand Publications.

Part - B
COURSE DELIVERY PLAN (LESSON PLAN): Section-B

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	HOD Sign Weekly
1.	Introduction	1	03-02-20		TLM1	
2.	Basic definitions	1	05-02-20		TLM1	
3.	Types of elements	1	06-02-20		TLM1	
4.	**TUTORIAL-I**	1	07-02-20		TLM3	
5.	R,L,C parameters	1	10-02-20		TLM1	
6.	Energy Sources	1	12-02-20		TLM1	
7.	Ohm's Law	1	13-02-20		TLM1	
8.	**TUTORIAL-II**	1	14-02-20		TLM3	
9.	Kirchhoff's Laws	1	15-02-20		TLM1	
10.	Series & parallel	1	17-02-20		TLM1	
11.	Star to delta	1	19-02-20		TLM1	
12.	Delta to star	1	20-02-20		TLM1	
13.	Source Transformations	1	22-02-20		TLM2	
14.	Numerical Problems	1	24-02-20		TLM1	
15.	Numerical Problems	1	26-02-20		TLM1	
16.	Numerical Problems	1	27-02-20		TLM1	
No. of classes required to complete UNIT-I : 16					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	HOD Sign Weekly
17.	Mesh Analysis	1	28-02-20		TLM1	
18.	Numerical Problems	1	29-02-20		TLM1	
19.	Nodal Analysis	1	02-03-20		TLM1	
20.	Numerical Problems	1	04-03-20		TLM1	
21.	Introduction to Theorems	1	05-03-20		TLM1	
22.	Superposition Theorem	1	06-03-20		TLM1	
23.	Numerical Problems	1	07-03-20		TLM1	
24.	Thevenin's Theorem	1	11-03-20		TLM1	
25.	Numerical Problems	1	12-03-20		TLM1	
26.	**TUTORIAL-III**	1	13-03-20		TLM3	
27.	Norton's Theorem	1	16-03-20		TLM1	
28.	Numerical Problems	1	18-03-20		TLM1	
29.	Maximum Power Transfer Theorem	1	19-03-20		TLM2	
30.	**TUTORIAL-IV**	1	20-03-20		TLM3	
31.	Numerical Problems	1	21-03-20		TLM1	
32.	MID-I		23-03-20			
33.	MID-I		26-03-20			
34.	MID-I		27-03-20			
35.	MID-I		28-03-20			
No. of classes required to complete UNIT-II : 15					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	HOD Sign Weekly
36.	Peak, R.M.S, average and instantaneous values	1	30-03-20		TLM1	
37.	Form factor and Peak factor for periodic waveforms	1	01-04-20		TLM1	
38.	**TUTORIAL-V**	1	03-04-20		TLM3	
39.	Phase and Phase difference	1	04-04-20		TLM1	
40.	Numerical Problems	1	06-04-20		TLM1	
41.	Reactance, Impedance	1	08-04-20		TLM1	
42.	Susceptance and Admittance	1	09-04-20		TLM1	
43.	Real, Reactive powers	1	13-04-20		TLM1	
44.	apparent Powers, Power factor	1	15-04-20		TLM1	
45.	Resonance	1	16-04-20		TLM2	
46.	**TUTORIAL-VI**	1	17-04-20		TLM3	
47.	Numerical Problems	1	18-04-20		TLM1	
48.	Numerical Problems	1	20-04-20		TLM1	
No. of classes required to complete UNIT-III : 13					No. of classes taken:	

UNIT-IV : GENERALISED 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	HOD Sign Weekly
49.	Introduction	1	22-04-20		TLM1	
50.	Dynamo, Generator and Motor	1	23-04-20		TLM1	
51.	Basic Electro-Magnetic Laws	2	24-04-20 25-04-20		TLM1	
52.	EMF induced, Production of Torque	1	27-04-20		TLM1	
53.	Elementary concept of an electrical machine	2	29-04-20 30-04-20		TLM1	
54.	**TUTORIAL-VII**	1	01-05-20		TLM3	
55.	Features of rotating electrical machines	1	02-05-20		TLM1	
56.	Types of rotating electrical machines	1	04-05-20		TLM2	
57.	Numerical Problems	1	06-05-20		TLM1	
58.	Numerical Problems	1	07-05-20		TLM1	
59.	**TUTORIAL-VIII**	1	08-05-20		TLM3	
No. of classes required to complete UNIT-IV : 13					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	Text Book followed	HOD Sign Weekly
60.	**1-Φ Transformers:** Constructional details	1	11-05-20			
61.	Principle & Operation	1	13-05-20			
62.	Emf equation	1	14-05-20			
63.	Losses, efficiency and regulation	1	15-05-20			
64.	OC & SC Tests	1	16-05-20			
65.	Numerical Problems	1	01-06-20			
66.	**Induction Motor:** Principle and operation, types	1	03-06-20			
67.	Slip, rotor emf and current-torque	1	04-06-20			
68.	**TUTORIAL-IX**	1	05-06-20			
69.	starting torque-Maximum Torque	1	06-06-20			
70.	Slip-Torque characteristics	1	08-06-20			
71.	Measuring Instruments	1	10-06-20			
72.	MI Instruments	1	11-06-20			
73.	**TUTORIAL-X**	1	12-06-20			
74.	MID-II		15-06-20			
75.	MID-II		17-06-20			
76.	MID-II		18-06-20			
77.	MID-II		19-06-20			
78.	MID-II		20-06-20			
No. of classes required to complete UNIT-V : 14					No. of classes taken:	

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 (R17 Regulations):

Evaluation Task	**Marks**
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

PEO1.	Design and develop innovative products and services in the field of Electrical and Electronics Engineering and allied engineering disciplines.
PEO2.	Apply the knowledge of Electrical and Electronics Engineering to solve problems of social relevance, pursue higher education and research.
PEO3.	Work effectively as individuals and as team members in multidisciplinary projects.
PEO4.	Engage in lifelong learning, career enhancement and adapt to changing professional and societal needs.

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO a	Specify, design and analyze systems that efficiently generate, transmit and distribute electrical power
PSO b	Design and analyze electrical machines, modern drive and lighting systems
PSO c	Specify, design, implement and test analog and embedded signal processing electronic systems
PSO d	Design controllers for electrical and electronic systems to improve their performance.

Mr. A.V.RAVIKUMAR	Mr. J.V.PAVAN CHAND	Dr. G.Nageswara Rao	Dr.M.S.GIRIDHAR
Course Instructor	Course Coordinator	Module Coordinator	HOD

LAKKIREDDY BALI REDDY COLLEGE OF ENGINEERING

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

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Accredited by NAAC& NBA, Certified by ISO 9001:2015
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE HANDOUT

Part-A

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

ACADEMIC YEAR : 2019-20

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

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

COURSE CREDITS : 2

COURSE INSTRUCTORS : Mr.Nazumuddin Shaik, Mr. Ashutosh Shukla and Mr. B. Harshavardhan Reddy

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	-	-	1	2	-	1	1	3	3
CO2	3	-	-	-	3	2	-	-	2	3	-	1	2	3	3
CO3	3	-	-	-	3	-	-	-	2	3	-	2	2	3	3
CO4	3	-	-	-	3	-	-	-	2	3	-	2	2	3	3

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	HOD Sign Weekly
1	04-02-2020			Introduction to Auto CAD(2-D) Basics of AutoCAD Commands- Basic Drawing Commands	CO1	
2	11-02-2020			Edit Commands-Copy, Move, Erase Array Commands-Polar array, rectangular array	CO1	
3	18-02-2020		Exp-1	Projection of Points	CO2	
4	25-02-2020		Exp-2	Projection of Lines	CO2	
5	03-03-2020		Exp-3	Projection of Lines	CO2	
6	10-03-2020		Exp-4	Projection of planes	CO2	
7	17-03-2020		Exp-5	Projection of solids	CO2	
8	31-03-2020		Exp-6	Projection of solids	CO2	
9	07-04-2020		Exp-7	Sections of solids	CO3	
10	21-04-2020		Exp-8	Development of Surfaces	CO3	
11	28-04-2020		Exp-9	Orthographic projections	CO3&CO4	
12	05-05-2020		Exp-10	Isometric projections	CO4	
13	12-05-2020		Exp-11	Orthographic projections to Isometric projections	CO4	
14	02-06-2020			Repetition Lab		
15	09-06-2020			Internal Exam		

Contents beyond the Syllabus:

16	05-05-2020	Drawing of 3D solid models	CO3 & CO4

17	12-05-2020	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)

PEO1: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO2: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO3: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO4: 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.

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.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1:Programming Paradigms:

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

PSO2:Data Engineering

To inculcate an ability to analyze, design and implement data driven applications into the students.

PSO3:Software Engineering

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

Mr.Nazumuddin Shaik	Mr.Nazumuddin Shaik	Mr.I. Dakshina Murthy	Dr.D. Veeraiah
Course Instructor	Course Coordinator	Module Coordinator	HOD

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FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor :
Course Name & Code : ENGLISH COMMUNICATION SKILLS LAB - 17FE60
L-T-P Structure : 2-0-0
Credits : 1
Program/Sem/Sec : B.Tech. II-Sem.,CSE(B) A.Y : 2019-20

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

COURSE EDUCATIONAL OBJECTIVES (CEOs): 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 (COs): At the end of the course, the student will be able to

CO 1	Articulate English with good pronunciation.
CO 2	Manage skillfully through group discussions.
CO 3	Communicate with the people effectively.
CO 4	Collect and interpret data aptly.

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1					3					3	3				
CO2					3					3	3				
CO3					3					3	3				
CO4					3					3	3				

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

LAB. MANUAL:

T1 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):

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction	2	05-02-2020		TLM4	
2.	Self Introduction	2	12-02-2020		TLM4	
3.	JAM- I	2	19-02-2020		TLM4	
4.	JAM-II	2	26-02-2020		TLM4	
5.	Role Play-I	2	04-03-2020		TLM4	
6.	Role Play-II	2	11-03-2020		TLM4	
7.	Data Interpretation-I	2	18-03-2020		TLM2, TLM4	
8.	Data Interpretation-II	2	01-04-2020		TLM2, TLM4	
9.	Group Discussion-I	2	08-04-2020		TLM4, TLM6	
10.	Group Discussion-II	2	15-04-2020		TLM4, TLM6	
11.	Group Discussion-III	2	22-04-2020		TLM4, TLM6	
12.	Introduction to Phonetics	2	29-04-2020		TLM1, TLM2	
13.	Introduction to Phonetics	2	06-05-2020		TLM1, TLM2	
14.	Introduction to Phonetics	2	13-05-2020		TLM1, TLM2	
15.	Internal Lab Exam	2	03-06-2020			
16.	Total	30				
No. of classes required to complete the syllabus:				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	HOD Sign
1.	Public Speech	1	10-06-2020		TLM4	

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)**

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Instructor	Course Coordinator	Module Coordinator	HOD
(Name)	Dr.B.Samrajya Lakshmi	Dr.B.Samrajya Lakshmi	Dr.B.Samrajya Lakshmi

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FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor : Dr. B. Samrajya Lakshmi
Course Name & Code : Professional Communication - II (17FE02)
L-T-P Structure : 3-0-0
Credits : 3
Program/Sem/Sec : B.Tech. II-Sem., CSE(B) A.Y : 2019-20

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

COURSE EDUCATIONAL OBJECTIVES (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

CO 1	Express the ideas aptly and briefly using word- substitutes and idioms effectively in spoken and written forms.
CO 2	Comprehend the given texts and Communicate confidently in formal and informal Contexts.
CO 3	Use grammatically error free sentences in writing and speaking.
CO 4	Interpret the information given in Tables, Bar graphs, Line graphs, Pie charts, Flow charts, Tree Diagrams & Pictograms accurately and present it aptly & ethically.
CO 5	Write notes, reports & Abstract/Summary based on the information given ethically.

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
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			

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

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.

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):

UNIT-I:

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to UNIT-I	1	03-02-2020		TLM1	
2.	Good Manners – J.C.Hill	1	06-02-2020		TLM1	
3.	Idioms	1	07-02-2020		TLM1, TLM2, TLM5	
4.	One-word Substitutes	1	10-02-2020		TLM1, TLM2, TLM5	
5.	Sequence of tenses	1	13-02-2020		TLM1, TLM2, TLM5	
6.	Subject – Verb Agreement (Concord)	1	14-02-2020		TLM1, TLM2, TLM5	
7.	If- Rudyard Kipling	1	17-02-2020		TLM1	
8.	Information Transfer	1	20-02-2020		TLM1, TLM2	
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	HOD Sign Weekly
1.	Verger – Somerset Maugham	1	24-02-2020		TLM1, TLM6	
2.	Assertive skills from the story/ personal level/ workplace	1	27-02-2020		TLM1, TLM6	
3.	Expanding proverbs on Assertive skills	1	28-02-2020		TLM1, TLM2, TLM5, TLM6	

4.	White washing the fence – Mark Twain	1	02-03-2020		TLM1, TLM6	
5.	Teamwork skills from the story/ work place	1	05-03-2020		TLM1, TLM6	
6.	Expanding proverbs on Teamwork	1	06-03-2020		TLM1, TLM2, TLM5, TLM6	
7.	Expanding proverbs on Teamwork	1	09-03-2020		TLM1, TLM2, TLM5, TLM6	
8.	Note-making	1	12-03-2020		TLM1, TLM2, TLM5, TLM6	
9.	Abstract/Summary writing	1	16-03-2020		TLM1, TLM2, TLM5, TLM6	
10.	Abstract/Summary writing	1	19-03-2020		TLM1, TLM2, TLM5, TLM6	
No. of classes required to complete UNIT-II:10				No. of classes taken:		

UNIT-III: Fourier Transforms and Sampling Theorem

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Oh Father, Dear Father – Raj Kinger	1	30-03-2020		TLM1	
2.	Foreign Languages and their Influence on English	1	03-04-2020		TLM1, TLM2, TLM5, TLM6	
3.	Conditional Sentences	1	06-04-2020		TLM1, TLM2, TLM5, TLM6	
4.	Degrees of Comparison	1	09-04-2020		TLM1, TLM2, TLM5, TLM6	
5.	Question Tags	1	13-04-2020		TLM1, TLM2, TLM5, TLM6	
6.	Basic Education – M.K. Gandhi	1	16-04-2020		TLM1, TLM6	
7.	Report Writing	1	17-04-2020		TLM1, TLM2, TLM5, TLM6	
8.	Report Writing	1	20-04-2020		TLM1, TLM2, TLM5, TLM6	
No. of classes required to complete UNIT-III:				No. of classes taken:		

UNIT-IV : Signal Transmission Through Linear Systems

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Sen˜or Payroll – W E Barrett	1	23-04-2020		TLM1, TLM6	
2.	Organizational Communication	1	24-04-2020		TLM1, TLM6	
3.	Adaptability skills from the story	1	27-04-2020		TLM1, TLM6	
4.	Adaptability skills at work place & Real life	1	30-04-2020		TLM1, TLM6	
5.	Expanding proverbs on Adaptability skills	1	01-05-2020		TLM1, TLM2, TLM5, TLM6	
6.	Active & Passive Voice	1	04-05-2020		TLM1, TLM2, TLM5, TLM6	
7.	Active & Passive Voice	1	07-05-2020		TLM1, TLM2, TLM5, TLM6	
8.	Direct & Indirect Speech	1	08-05-2019		TLM1, TLM2, TLM5, TLM6	
9.	Direct & Indirect Speech	1	11-05-2020		TLM1, TLM2, TLM5, TLM6	
No. of classes required to complete UNIT-IV:				No. of classes taken:		

UNIT-V : Laplace Transforms

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	A real good smile – Bill Naughton	1	14-05-2020		TLM1, TLM6	
2.	Non-Verbal Communication Skills from the story	1	15-05-2020		TLM1, TLM6	
3.	Non-Verbal Communication skills through real life experiences	1	01-06-2020		TLM1, TLM6	
4.	articulation and gestures	1	04-06-2020		TLM1, TLM2, TLM5, TLM6	
5.	'Wh' & 'Yes' or 'No'	1	05-06-2020		TLM1, TLM2,	

	questions				TLM5, TLM6	
6.	Proverbial expansion on Non-Verbal Communication	1	08-06-2020		TLM1, TLM2, TLM5, TLM6	
7.	Common Errors	1	11-06-2020		TLM1, TLM2, TLM5, TLM6	
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	HOD Sign
1.	SOP	1	12-06-2020		TLM1, TLM2, TLM5, TLM6	

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 (R17 Regulations):

Evaluation Task	**Marks**
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60

Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Instructor	Course Coordinator	Module Coordinator	HOD
(Name)	Dr.B.Samrajya Lakshmi	Dr.B.Samrajya Lakshmi	Dr.B.Samrajya Lakshmi

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L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

DEPARTMENT OF COMPUTER SICENCE AND ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor : Y.P.C.S. Anil Kumar
Course Name & Code : Transformation Techniques & Vector Calculus 17FE06
L-T-P Structure : 3-2-0 Credits : 4
Program/Sem/Sec : B.Tech., CSE., II-Sem., Section- B A.Y : 2019-20

PRE-REQUISITE: Basics of Integral Calculus and Vector Calculus

COURSE EDUCATIONAL OBJECTIVES (CEOs): In this course the students are introduced to Integral transformations which includes Laplace Transforms and Z – Transforms. They will also learn Multiple Integrals in different coordinate systems and Vector Calculus.

COURSE OUTCOMES (COs): At the end of the course, students are able to

CO 1	**Apply** the concepts of Laplace Transforms to solve ordinary differential equations.
CO 2	**Apply** Z- Transforms to solve difference equations.
CO 3	**Discriminate** among Cartesian, Polar and Spherical coordinates in multiple integrals and their respective applications to areas and volumes.
CO 4	**Evaluate** the directional derivative, divergence and angular velocity of a vector function.
CO 5	**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	PSO1	PSO2	PSO3
CO1	3	2	1	2	-	-	-	-	-	-	-	2	-	-	-
CO2	3	2	2	3	-	-	-	-	-	-	-	2	-	-	-
CO3	3	2	2	2	-	-	-	-	-	-	-	2	-	-	-
CO4	3	2	3	3	-	-	-	-	-	-	-	2	-	-	-
CO5	3	2	2	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).

TEXT BOOKS:

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

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

.

REFERENCE BOOKS:

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	HOD Sign Weekly
1.	Introduction to Subject, course outcomes	1	3-2-2020		TLM1	
2.	Introduction to Laplace Transforms	1	4-2-2020		TLM1	
3.	Transforms of Elementary functions	1	5-2-2020		TLM1	
4.	Linear Property	1	7-2-2020		TLM1	
5.	Shifting Property	1	10-2-2020		TLM1	
6.	Change of Scale Property	1	11-2-2020		TLM1	
7.	Multiplication by 't'	1	12-2-2020		TLM1	
8.	Tutorial-1	1	14-2-2020		TLM3	
9.	Division by 't'	1	15-2-2020		TLM1	
10.	Transforms of derivatives and integrals	1	17-2-2020		TLM1	
11.	Unit Step Function and Dirac's Delta Function	1	18-2-2020		TLM1	
12.	Inverse Laplace Transforms	1	19-2-2020		TLM1	
13.	Properties	1	22-2-2020		TLM1	
14.	Inverse Transforms by Partial fractions	1	24-2-2020		TLM1	
15.	Convolution Theorem	1	25-2-2020		TLM1	
16.	Application of Laplace Transforms to ODE	1	26-2-2020		TLM1	
17.	Tutorial -2	1	29-2-2020		TLM3	
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	HOD Sign Weekly
1.	Introduction to Z – Transforms	1	2-3-2020		TLM1	
2.	Linear Property	1	3-3-2020		TLM1	
3.	Damping Rule	1	4-3-2020		TLM1	
4.	Shifting Rule	1	6-3-2020		TLM1	
5.	Initial and Final Value Theorems	1	7-3-2020		TLM1	
6.	Tutorial	1	10-3-2020		TLM3	
7.	Inverse Z – Transforms	1	11-3-2020		TLM1	
8.	Inverse Transforms by partial fractions	1	13-3-2020		TLM1	
9.	Convolution Theorem	1	16-3-2020		TLM1	
10.	probems	1	17-3-2020		TLM1	
11.	Applications to Difference Equations	2	18-3-2020 20-3-2020		TLM1	
12.	Tutorial	1	21-3-2020		TLM3	
No. of classes required to complete UNIT-II: 13				No. of classes taken:		

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	HOD Sign Weekly
1.	Introduction	1	30-3-2020		TLM1	
2.	Double Integrals	1	31-3-2020		TLM1	

3.	Double integrals	1	1-4-2020		TLM1	
4.	problems	1	3-4-2020		TLM1	
5.	Triple Integrals	1	4-4-2020		TLM1	
6.	Problems	1	6-4-2020		TLM1	
7.	Tutorial-5	1	7-4-2020		TLM3	
8.	Application of Integrals to areas	1	8-4-2020		TLM1	
9.	Application of Integrals to volumes	1	13-4-2020		TLM1	
10.	Change of Order of Integration	1	15-4-2020		TLM1	
11.	Problems	1	17-4-2020		TLM1	
12.	Problems	1	18-4-2020		TLM1	
13.	Tutorial-6	1	20-4-2020		TLM3	
No. of classes required to complete UNIT-III: 13				No. of classes taken:		

UNIT-IV : Vector Differentiation

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction	1	21-4-2020		TLM1	
2.	Vector Differentiation	1	22-4-2020		TLM1	
3.	Gradient	1	24-4-2020		TLM1	
4.	Directional Derivatives	1	25-4-2020		TLM1	
5.	Problems	1	27-4-2020		TLM1	
6.	Divergence	1	28-4-2020		TLM1	
7.	Curl	1	29-4-2020		TLM1	
8.	Tutorial-7	1	1-5-2020		TLM3	
9.	Solenoidal Fields and Irrotational Fields	1	2-5-2020		TLM1	
10.	Laplacian operator	1	4-5-2020		TLM1	
11.	Vector Identities	1	5-5-2020		TLM1	
12.	Vector Identities	1	6-5-2020		TLM1	
13.	Tutorial-8	1	8-5-2020		TLM3	
No. of classes required to complete UNIT-IV: 13				No. of classes taken:		

UNIT-V : Correlation & Regression

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Line Integral	1	11-5-2020		TLM1	
2.	Work done	1	12-5-2020		TLM1	
3.	Surface Integrals	1	13-5-2020		TLM1	
4.	problems	1	15-5--2020		TLM1	
5.	Volume Integrals	1	16-5-2020		TLM1	
6.	Tutorial-9	1	1-6-2020		TLM1	
7.	Problems	1	2-6-2020		TLM1	
8.	Green's Theorem	1	3-6-2020		TLM3	
9.	problems	1	5-6-2020		TLM1	
10.	Stoke's Theorem	1	6-6-2020		TLM1	
11.	problems	1	8-6-2020		TLM1	
12.	Divergence Theorem	1	9-6-2020		TLM1	
13.	problems	1	10-6-2020		TLM1	
14.	Tutorial-10	1	12-6-2020		TLM3	
No. of classes required to complete UNIT-V: 14				No. of classes taken:		

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 (R17 Regulations):

Evaluation Task	Marks
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	**Communication:** Design and develop modern communication technologies for building the inter disciplinary skills to meet current and future needs of industry.
PSO 2	**VLSI and Embedded Systems:** 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
PSO 3	**Signal Processing:** Apply the Signal processing techniques to synthesize and realize the issues related to real time applications

Y.P.C.S.ANIL KUMAR	**Dr. K. Jhansi Rani**	**Dr. A. RAMI REDDY**	**Dr. A. RAMI REDDY**
Course Instructor	Course Coordinator	Module Coordinator	HOD
(Name)	(Name)	(Name)	(Name)

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

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

ACADEMIC YEAR : 2019-20

COURSE NAME & CODE : Digital Logic design – 17CS60

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

COURSE CREDITS : **1**

COURSE INSTRUCTOR : T Udaya Kumar

COURSE COORDINATOR: J. Nageswara Rao

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	**PO2**	**PO3**	**PO4**	**PO 5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO 10**	**PO 11**	**PO 12**	**PSO1**	**PSO2**	**PSO3**
COURSE OUTCOMES	CO 1	2	1	3	1	3	-	-	-	-	-	-	-	1	-	-
	Co2	1	2	3	1	3	-	-	-	-	-	-	-	1	-	-
	CO 3	1	2	3	1	3	-	-	-	-	-	-	-	1	-	-
	CO 4	-	-	-	-	-	-	-	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	**Cycle 1**
	b) Universal Gates Functional Verification i. NAND Gate using 7400 IC ii. NOR Gate using 7402 IC	
	c) Special Gates Functional verification i. XOR Gate using 7486 IC ii. XNOR Gate using XOR followed by NOT Gate	
2	Realization of following gates using universal gates and its functional verification. AND, OR, XOR, NOT	
3	a) Design Half-adder and Full-adder circuits and verify its functionality. b) Verify the functionality of four bit ripple carry adder for signed and unsigned integers with the verification of overflow condition.	
4	Design a four bit comparator and verify its functionality (using logic gates or IC's)	
5	Design a BCD to Excess-3 code converter and verify its functionality by using gates.	
6	Design a BCD to Gray code converter and verify its functionality by using gates.	
7	Design and verify the functionality of Decoders and multiplexers of different inputs.	
	CYCLE 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.	

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	06-02-2020		5
	b) Universal Gates Functional Verification iii. NAND Gate using 7400 IC iv. NOR Gate using 7402 IC			5
	c) Special Gates Functional verification iii. XOR Gate using 7486 IC iv. XNOR Gate using XOR followed by NOT Gate			5
2	Realization of following gates using universal gates and its functional verification.AND, OR, XOR, NOT	13-02-2020		5
3	c) Design Half-adder and Full-adder circuits and verify its functionality. d) Verify the functionality of four bit ripple carry adder for signed and unsigned integers with the verification of overflow condition.	20-02-2020 27-02-2020		1,5
4	Design a four bit comparator and verify its functionality (using logic gates or IC's)	05-03-2020		5
5	Design a BCD to Excess-3 code converter and verify its functionality by using gates.	12-03-2020		1,5
6	Design a BCD to Gray code converter and verify its functionality by using gates.	19-03-2020		1,5
7	Design and verify the functionality of Decoders and multiplexers of different inputs.	09-04-2020		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	16-04-2020		1,5
9	a) Design a UP-Counter using JK/T Flip-Flop. b) Design a MOD-3 Counter.	23-04-2020		5
10	Design a Bi-directional Counter using JK/T Flip-Flop.	30-04-2020		5
11	Design Shift Registers	07-05-2020		1,5
12	Revision-Cycle-1	14-05-2020		1,5
13	Revision-Cycle-2	04-06-2020		1,5
14	**LAB INTERNAL EXAMINATION**	11-06-2020		

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**

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HAMDOUT

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

ACADEMIC YEAR : 2019-20

COURSE NAME & CODE : Digital Logic Design – 17CI02

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

COURSE CREDITS : **3**

COURSE INSTRUCTOR : T Udaya Kumar

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..

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	1	03-02-2020		TLM1	CO1	T1	
2.	Introduction to Digital Systems	1	04-02-2020		TLM1		T1	
3.	Introduction to Number Systems	1	05-02-2020		TLM1		T1	
4.	TUTORIAL	1	06-02-2020		TLM3		T1, R1	
5.	Number Base Conversions	1	08-02-2020		TLM1, TLM2		T1, R1	
6.	Number Base Conversions	1	10-02-2020		TLM1, TLM2		T1, R1	
7.	R's Complement and R-1's Complement	1	11-02-2020		TLM1, TLM2		T1, R1	
8.	Addition and Subtraction of Unsigned Numbers.	1	12-02-2020		TLM1, TLM2		T1	
9.	TUTORIAL	1	13-02-2020		TLM3		T1	
10.	Addition and Subtraction of Signed Numbers.	1	15-02-2020		TLM1		T1	
11.	Binary Codes, Binary Storage and Registers	1	17-02-2020		TLM1		T1	
12.	Logic Gates	1	18-02-2020		TLM1		T1	
13.	Logic Gates	1	19-02-2020		TLM1		T1	
14.	TUTORIAL	1	20-02-2020		TLM3		T1	
15.	Logic Gates	1	22-02-2020		TLM1		T1	
16.	Error Detection and Correction.	1	24-02-2020		TLM1		T1	
17.	Review of Unit-1	1	25-02-2020		TLM2		T1	
No. of classes required to complete UNIT-I:		**17**	**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
18.	Introduction to Boolean algebra	1	26-02-2020		TLM1, TLM2	CO2	T1	
19.	TUTORIAL	1	27-02-2020		TLM3		T1	
20.	Basic theorems and Properties of Boolean Algebra	1	29-02-2020		TLM1, TLM2		T1	
21.	Dual and Complement of Boolean Expressions	1	02-03--2020		TLM1, TLM2		T1	
22.	Minimization of Logic Functions using Boolean Theorems	1	03-03-2020		TLM1, TLM2		T1, R2	
23.	Karnaugh Maps	1	04-03-2020		TLM1, TLM2		T1, R2	
24.	TUTORIAL	1	05-03-2020		TLM3		T1, R2	
25.	One Variable, Two variable, Three Variable maps	1	06-03-2020		TLM1, TLM2		T1, R2	
26.	Four Variable Map	1	10-03-2020		TLM1, TLM2		T1, R2	
27.	Four Variable Map Problems on K-Maps	1	11-03-2020		TLM1, TLM2		T1	
28.	TUTORIAL	1	12-03-2020		TLM3		T1	
29.	Five Variable K-Map and Examples	1	14-03-2020		TLM1, TLM2		T1	
30.	Six Variable K-Maps Examples	1	16-03-2020		TLM1, TLM2		T1	
31.	Minimal Expressions for incomplete Boolean functions	1	17-03-2020		TLM1, TLM2		T1	
32.	Quine-McCluskey Method	1	18-03-2020		TLM1, TLM2		T1	
33.	TUTORIAL	1	19-03-2020		TLM3		T1	
34.	Prime implicants	1	21-03-2020		TLM1, TLM2		T1	
No. of classes required to complete UNIT-II:		**17**	**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
35.	Introduction to Combinational Logic, Design Procedure, Analysis Procedure	1	30-03-2020		TLM1, TLM2		T1, R2	
36.	Adders, Sub tractors	1	31-03-2020		TLM1, TLM2		T1, R2	
37.	Code Conversion	1	01-04-2020		TLM1, TLM2		T1	
38.	Multilevel NAND circuits, Multilevel NOR circuits	1	04-04-2020		TLM1, TLM2		T1, R2	
39.	Introduction to Combinational Logic with MSI And LSI	1	06-04-2020		TLM1, TLM2	CO3	T1, R2	
40.	Binary Parallel Adder, Decimal Adder	1	07-04-2020		TLM1, TLM2		T1	
41.	Magnitude Comparator	1	08-04-2020		TLM1, TLM2		T1	
42.	TUTORIAL	1	**09-04-2020**		TLM3		T1	
43.	Decoders and Multiplexers	1	13-04-2020		TLM1, TLM2		T1	
44.	Decoders and Multiplexers	1	14-04-2020		TLM1, TLM2			
45.	Decoders and Multiplexers	1	15-04-2020		TLM1, TLM2			
46.	TUTORIAL	1	**16-04-2020**		TLM3			
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
47.	Introduction to Sequential Logic	1	18-04-2020			CO4	T1	
48.	Flip Flops	1	20-04-2020				T1	
49.	Flip Flops	1	21-04-2020					
50.	Triggering of Flip-Flops	1	22-04-2020					
51.	TUTORIAL	1	**23-04-2020**				T1	
52.	Analysis of Clocked Sequential Circuits	1	25-04-2020		TLM1, TLM2		T1	
53.	State Reduction and Assignment	1	27-04-2020		TLM1, TLM2		T1	
54.	Flip-Flop Excitation tables	1	28-04-2020		TLM1, TLM2		T1	
55.	Design of Counters, Introduction to Registers, Shift registers	1	29-04-2020		TLM1, TLM2		T1	
56.	TUTORIAL	1	**30-04-2020**		TLM3		T1	
57.	Ripple Counters, Synchronous Counters	1	02-05-2020		TLM1, TLM2		T1	
58.	Timing sequences And Memory unit	1	04-05-2020		TLM1, TLM2		T1	
No. of classes required to complete UNIT-IV		**12**	**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
59.	Read – Only Memory (ROM)	1	05-05-2020		TLM1, TLM2	CO5	T1	
60.	Problems On ROM	1	06-05-2020		TLM1, TLM2		T1	
61.	TUTORIAL	1	**07-05-2020**					
62.	Programmable Read Only memory	1	09-05-2020		TLM1, TLM2		T1	
63.	Problems on PROM	1	11-05-2020		TLM1, TLM2		T1	
64.	Programmable Logic Device (PLD)	1	12-05-2020		TLM1, TLM2		T1	
65.	Problems on PLD	1	13-05-2020		TLM1, TLM2		T1	
66.	TUTORIAL	1	**14-05-2020**		TLM3		T1	
67.	Programmable Logic Array	1	16-05-2020		TLM1, TLM2		T1	
68.	Programmable Array Logic (PAL)	1	01-06-2020		TLM1, TLM2		T1	
69.	Problems on PLA and PAL	1	02-06-2020		TLM3		T1	
70.	Programmable Logic Array	1	03-06-2020		TLM1, TLM2		T1	
71.	Revision-Unit 5	1	04-06-2020		TLM1, TLM2		T1	
72.	Revision-Unit 3	1	06-06-2020		TLM1, TLM2		T1	
73.	Revision-Unit 4	1	08-06-2020		TLM1, TLM2		T1	
74.	Revision-Unit 1&2	1	09-06-2020		TLM1, TLM2		T1	
No. of classes required to complete UNIT-V		**16**	**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
75.	PROM related problems	1	10-06-2020		TLM2	CO5		
76.	Ripple Counters	1	11-06-2020		TLM2	CO5		
77.	How magnitude comparators are different from	1	13-06-2020		TLM2	CO5		

	Decoders							

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 +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 + attendance: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=20
Evaluation of Mid Marks: B=75% of Max(B1,B2)+25% of Min(B	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=60**
Total Marks: A+B+C	**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
(AUTONOMOUS)
Accredited by NAAC & NBA (CSE, IT, ECE, EEE & ME)
Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada
L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

COURSE HANDOUT
PART-A

Name of Course Instructor : Mr. A.V.RAVIKUMAR
Course Name & Code : BASIC ELECTRICAL ENGINEERING & 17EE52
L-T-P Structure : 2-2-0 Credits : 3
Program/Sem/Sec : B.Tech., CSE., II-Sem., Sections- C A.Y : 2019-20

Pre-requisites : --NIL
Course Educational 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 (COs): At the end of the course, students are able to

CO 1	Analyze AC and DC circuits
CO 2	Enumerate the working of rotating electrical machines
CO 3	Analyze the performance of electrical machines
CO 4	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 a	PSO b	PSO c	PSO d
CO1	3	2	3	-	2	-	-	-	-	-	-	1	-	-	-	-
CO2	3	2	1	2	-	-	-	-	-	-	-	1	-	-	-	-
CO3	3	1	3	-	3	-	-	-	-	-	-	2	-	-	-	-
CO4	3	2	2	2	-	-	-	-	-	-	-	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).

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.

REFERENCE BOOKS:

R1: Kothari and Nagarath, —Basic Electrical Engineering, TMH Publications, 3rd Edition.
R2: V.K.Mehta, —Principles of Electrical Engineering, S.Chand Publications.

Part - B
COURSE DELIVERY PLAN (LESSON PLAN): Section-C

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	HOD Sign Weekly
1.	Introduction	1	03-02-20		TLM1	
2.	Basic definitions	1	04-02-20		TLM1	
3.	Types of elements	1	05-02-20		TLM1	
4.	R,L,C parameters	1	06-02-20		TLM1	
5.	Energy Sources	1	10-02-20		TLM1	
6.	Ohm‘s Law	1	11-02-20		TLM1	
7.	Kirchhoff‘s Laws	1	12-02-20		TLM1	
8.	**TUTORIAL-I**	1	13-02-20		TLM3	
9.	Series & parallel	1	15-02-20		TLM1	
10.	Star to delta	1	17-02-20		TLM1	
11.	Delta to star	1	18-02-20		TLM1	
12.	Source Transformations	1	19-02-20		TLM2	
13.	**TUTORIAL-II**	1	20-02-20		TLM3	
14.	Numerical Problems	1	22-02-20		TLM1	
15.	Numerical Problems	1	24-02-20		TLM1	
16.	Numerical Problems	1	25-02-20		TLM1	
No. of classes required to complete UNIT-I : 16					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	HOD Sign Weekly
17.	Mesh Analysis	1	26-02-20		TLM1	
18.	Numerical Problems	1	27-02-20		TLM1	
19.	Nodal Analysis	1	29-02-20		TLM1	
20.	Numerical Problems	1	02-03-20		TLM1	
21.	Introduction to Theorems	1	03-03-20		TLM1	
22.	Superposition Theorem	1	04-03-20		TLM1	
23.	Numerical Problems	1	05-03-20		TLM1	
24.	Thevenin’s Theorem	1	07-03-20		TLM1	
25.	Numerical Problems	1	10-03-20		TLM1	
26.	Norton’s Theorem	1	11-03-20		TLM1	
27.	**TUTORIAL-III**	1	12-03-20		TLM3	
28.	Numerical Problems	1	16-03-20		TLM1	
29.	Maximum Power Transfer Theorem	1	17-03-20		TLM2	
30.	Numerical Problems	1	18-03-20		TLM1	
31.	**TUTORIAL-IV**	1	19-03-20		TLM3	
32.	Numerical Problems	1	21-03-20		TLM1	
33.	MID-I		23-03-20			
34.	MID-I		24-03-20			
35.	MID-I		26-03-20			
36.	MID-I		28-03-20			
No. of classes required to complete UNIT-II : 16					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	HOD Sign Weekly
37.	Peak, R.M.S, average and instantaneous values	1	30-03-20		TLM1	
38.	Form factor and Peak factor for periodic waveforms	1	31-03-20		TLM1	
39.	Phase and Phase difference	1	01-04-20		TLM1	
40.	Numerical Problems	1	04-04-20		TLM1	
41.	Reactance, Impedance	1	06-04-20		TLM1	
42.	Susceptance and Admittance	1	07-04-20		TLM1	
43.	Real, Reactive powers	1	08-04-20		TLM1	
44.	**TUTORIAL-V**	1	09-04-20		TLM3	
45.	Apparent Powers, Power factor	1	13-04-20		TLM1	
46.	Resonance	1	15-04-20		TLM2	
47.	Numerical Problems	1	16-04-20		TLM1	
48.	**TUTORIAL-VI**	1	18-04-20		TLM3	
49.	Numerical Problems	1	20-04-20		TLM1	
No. of classes required to complete UNIT-III : 13					No. of classes taken:	

UNIT-IV : GENERALISED 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	HOD Sign Weekly
50.	Introduction	1	21-04-20		TLM1	
51.	Dynamo, Generator and Motor	1	22-04-20		TLM1	
52.	Basic Electro-Magnetic Laws	2	23-04-20 25-04-20		TLM1	
53.	EMF induced, Production of Torque	1	27-04-20		TLM1	
54.	Elementary concept of an electrical machine	2	28-04-20 29-04-20		TLM1	
55.	Features of rotating electrical machines	1	30-04-20		TLM1	
56.	**TUTORIAL-VII**	1	02-05-20		TLM3	
57.	Types of rotating electrical machines	1	04-05-20		TLM2	
58.	Numerical Problems	1	05-05-20		TLM1	
59.	Numerical Problems	1	06-05-20		TLM1	
60.	**TUTORIAL-VIII**	1	07-05-20		TLM3	
No. of classes required to complete UNIT-IV : 13					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	Text Book followed	HOD Sign Weekly
61.	**1-Φ Transformers:** Constructional details	1	11-05-20			
62.	Principle & Operation	1	12-05-20			
63.	Emf equation	1	13-05-20			
64.	Losses, efficiency and regulation	1	14-05-20			
65.	OC & SC Tests	1	16-05-20			
66.	Numerical Problems	1	01-06-20			
67.	**Induction Motor:** Principle and operation, types	1	02-06-20			
68.	Slip, rotor emf and current-torque	1	03-06-20			
69.	**TUTORIAL-IX**	1	04-06-20			
70.	starting torque-Maximum Torque	1	06-06-20			
71.	Slip-Torque characteristics	1	08-06-20			
72.	Measuring Instruments	1	09-06-20			
73.	MI Instruments	1	10-06-20			
74.	**TUTORIAL-X**	1	11-06-20			
75.	MID-II		15-06-20			
76.	MID-II		16-06-20			
77.	MID-II		17-06-20			
78.	MID-II		18-06-20			
79.	MID-II		20-06-20			
No. of classes required to complete UNIT-V : 14					No. of classes taken:	

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 (R17 Regulations):

Evaluation Task	**Marks**
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40
Semester End Examination (SEE)	60
Total Marks = CIE + SEE	100

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

PEO1.	Design and develop innovative products and services in the field of Electrical and Electronics Engineering and allied engineering disciplines.
PEO2.	Apply the knowledge of Electrical and Electronics Engineering to solve problems of social relevance, pursue higher education and research.
PEO3.	Work effectively as individuals and as team members in multidisciplinary projects.
PEO4.	Engage in lifelong learning, career enhancement and adapt to changing professional and societal needs.

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO a	Specify, design and analyze systems that efficiently generate, transmit and distribute electrical power
PSO b	Design and analyze electrical machines, modern drive and lighting systems
PSO c	Specify, design, implement and test analog and embedded signal processing electronic systems
PSO d	Design controllers for electrical and electronic systems to improve their performance.

Mr. A.V.RAVIKUMAR	Mr. J.V.PAVAN CHAND	Dr. G.Nageswara Rao	Dr.M.S.GIRIDHAR
Course Instructor	Course Coordinator	Module Coordinator	HOD

LAKKIREDDY 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, Certified by ISO 9001:2015
L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

Part-A

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

ACADEMIC YEAR : 2019-20

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. Mr.Nazumuddin Shaik, Mr.G.V Suryanarayan

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	8-02-2020			Introduction to Auto CAD(2-D) Basics of AutoCAD Commands-Basic Drawing Commands	CO1
2	22-02-2020			Edit Commands-Copy, Move, Erase, Array Commands-Polar array, rectangular array	CO1
3	29-02-2020		Exp-1	Projection of Points	CO2
4	7-03-2020		Exp-2	Projection of Lines	CO2
5	14-03-2020		Exp-3	Projection of Lines	CO2
6	21-03-2020		Exp-4	Projection of planes	CO2
7	04-04-2020		Exp-5	Projection of solids	CO2
8	11-04-2020		Exp-6	Projection of solids	CO2
9	18-04-2020		Exp-7	Sections of solids	CO3
10	25-04-2020		Exp-8	Development of Surfaces	CO3
11	02-05-2020		Exp-9	Orthographic projections	CO4
12	09-05-2020		Exp-10	Isometric projections	CO4
13	16-05-2020		Exp-11	Orthographic projections to Isometric projections	CO4
14	06-06-2020		Exp-12	Isometric projections to Orthographic projections	CO4
16	13-06-2020			Internal Exam	

Contents beyond the Syllabus:

15	06-06-2020	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)

PEO1: To inculcate the adaptability skills into the students for software design, software development or any other allied fields of computing.

PEO2: To equip the graduates with the ability to analyze, design and synthesize data to create novel products.

PEO3: Ability to understand and analyze engineering issues in a broader perspective with ethical responsibility towards sustainable development.

PEO4: 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.

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.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: To inculcate the investigating and adaptability skills into the students to carryout research on recent trends in Computer Science and Engineering Technology.

PSO2: To inculcate an ability to analyze, design and implement data driven applications into the students.

PSO3: Develop an ability to implement various processes/methodologies/practices employed in design, validation, testing and maintenance of software products.

Ashutosh Shukla	I.Dakshina Murthy	
Course Instructor	Module Coordinator	HOD

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COURSE HANDOUT

Part-A

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

ACADEMIC YEAR : 2019-2020

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): ECE-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	03-02-2020		TLM1	CO1	T1	
2.	Course Outcomes	1	04-02-2020		TLM1	CO1	T1	
3.	Introduction to UNIT-I INTERFERENCE	1	05-022020		TLM1	CO1	T1	
4.	Coherence, Conditions	1	07-02-2020		TLM1	CO1	T1	
5.	Thin films, parallel film	1	10-02-2020		TLM1	CO1	T1	
6.	Newton's rings	1	11-02-2020		TLM1	CO1	T1	
7.	Newton's rings	1	12-02-2020		TLM1	CO1	T1	
8.	Michelson interferometer	1	13-02-2020		TLM1	CO1	T1	
9.	Tutorial-1	1	14-02-2020		TLM3		T1	
10.	Introduction Diffraction	1	17-02-2020		TLM1	CO1	T1	
11.	Fraunhofer diffraction Single slit	1	**18-02-2020**		TLM1	CO1	T1	
12.	Circular aperture	1	19-02-2020		TLM1	CO1	T1	

13.	Diffraction due to N-Slits	1	20-02-2020		TLM1	CO1	T1	
14.	Diffraction Grating	1	24-02-2020		TLM1	CO1	T1	
15.	Resolving power of Grating	1	25-02-2020		TLM3	CO1	T1	
16.	Resolving power of Telescope	1	26-02-2020		TLM1	CO1	T1	
17.	Assignment/Quiz	1	27-02-2020		TLM6		T1	
18.	Tutorial-2	1	28-02-2020		TLM3		T1	
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
19.	Introduction to Unit II Polarization of light	1	29-02-2020		TLM1	CO2	T1	
20.	Brewster's law	1	02-03-2020		TLM1	CO2	T1	
21.	Double refraction	1	03-03-2020		TLM1	CO2	T1	
22.	Quarter, Half wave plates	1	04-03-2020		TLM1	CO2	T1	
23.	Polarimeter	1	05-03-2020		TLM1	CO2	T1	
24.	Tutorial-3	1	06-03-2020		TLM3		T1	
25.	Characteristics of Laser.	1	09-03-2020		TLM1	CO2	T1	
26.	Einstein's coefficients	1	10-03-2020		TLM1	CO2	T1	
27.	NdYAG laser	1	11-03-2020		TLM1	CO2	T1	
28.	He-Ne laser	1	12-03-2020		TLM1	CO2	T1	
29.	Tutorial-4	1	13-03-2020		TLM3		T1	
30.	He-Ne laser	1	16-03-2020		TLM1	CO2	T1	
31.	Applications of lasers	1	17-03-2020		TLM1	CO2	T1	
32.	Applications of lasers	1	18-03-2020		TLM1	CO2	T1	
33.	Assignment/Quiz	1	19-03-2020		TLM6	CO2	T1	

34.	Tutorial-5	1	20-03-2020		TLM3	CO2	T1	
35.	**I MID**		23-03-2020			CO1, CO2		
36.	**I MID**		24-03-2020			CO1, CO2		
37.	**I MID**		26-03-2020			CO1, CO2		
38.	**I MID**		27-03-2020			CO1, CO2		
39.	**I MID**		28-03-2020			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
40	Introduction to Unit III, de-Broglie hypothesis	1	**30-03-2020**		TLM1	CO3	T1	
41	Broglie waves,	1	31-03-2020		TLM1	CO3	T1	
42	Expt. Verification,	1	01-04-2020		TLM1	CO3	T1	
43	Tutorial-6	1	03-04-2020		TLM3	CO3	T1	
44	Schrodinger wave equation,	1	**06-04-2020**		TLM1	CO3	T1	
45	physical significance of the wave function	1	07-04-2020		TLM1	CO3	T1	
46	particle in a box,	1	08-04-2020		TLM1	CO3	T1	
47	Classical free electron theory- Postulates	1	09-04-2020		TLM1	CO3	T1	
48	Expression for electrical conductivity and drift velocity,	1	13-04-2020		TLM1	CO3	T1	
49	Advantages and Draw backs,	1	15-04-2020		TLM1	CO3	T1	
50	Fermi-Dirac statistics,	1	16-04-2020		TLM1	CO3	T1	
51	TUTORIAL-7	1	17-04-2020		TLM3	CO3	T1	

52	Classification of Solids on the basis of Band theory.	1	20-04-2020		TLM1	CO3	T1	
53	Classification of Solids on the basis of Band theory.	1	21-04-2020		TLM1	CO3	T1	
54	Assignment/Quiz	1	22-04-2020		TLM6	CO3	T1	
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
55.	Introduction to unit IV,	1	23-04-2020		TLM1	CO4	T1	
56.	TUTORIAL-8	1	24-04-2020		TLM3	CO4	T1	
57.	Carrier concentration in n-type semiconductor	1	27-04-2020		TLM1	CO4	T1	
58.	Carrier concentration in p-type semiconductor	1	28-04-2020			CO4	T1	
59.	Conductivity of Intrinsic and Extrinsic semiconductors	1	29-04-2020		TLM1	CO4	T1	
60.	Drift and diffusion Einstein relation,	1	30-04-2020		TLM1	CO4	T1	
61.	Tutorial-9	1	01-05-2020		TLM3	CO4	T1	
62.	Hall effect,	1	04-05-2020		TLM1	CO4	T1	
63.	Photo detector,	1	05-05-2020		TLM1	CO4	T1	
64.	Solar cell,	1	06-05-2020		TLM1	CO4	T1	
65.	Tutorial-10	1	08-05-2020		TLM3	CO4	T1	
66.	Applications of solar cells	1	11-05-2020		TLM1	CO4	T1	
67.	Direct and indirect band gap semiconductors,	1	12-05-2020		TLM1	CO4	T1	
68.	LED	1	13-05-2020		TLM1		T1	

69.	Assignment/Quiz	1	14-05-2020		TLM6		T1	
70.	Tutorial-11	1	15-05-2020		TLM3		T1	
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
71.	Introduction to unit V Dielectric materials	1	01-06-2020		TLM1	CO5	T1	
72.	Dielectric polarization Electronic polarization	1	02-06-2020		TLM1	CO5	T1	
73.	Ionic polarizationOrientation	1	03-06-2020		TLM1		T1	
74.	and space charge polarizations	1	04-06-2020		TLM1	CO5	T1	
75.	Tutorial-12	1	05-06-2020		TLM3		T1	
76.	Local field, Clausius-Mossitti relation	1	08-06-2020		TLM3	CO5	T1	
77.	Dieelctric loss Ferro electricity and Piezo electricity	1	09-06-2020		TLM1	CO5	T1	
78.	Dielectric breakdown strength , Appications	1	10-06-2020		TLM1	CO5	T1	
79.	Assignment/Quiz	1	11-06-2020		TLM6	CO5	T1	
80.	Tutorial-13	1	12-06-2020		TLM3	CO5	T1	
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
81.	SEM	1	13-05-2020		TLM1		R1	
82.	Nano materials	1	01-06-2020		TLM1		R1	
75	Mid II		15-06-2020			Co3, Co4, Co5		
76	Mid II		16-06-2020			Co3, Co4, Co5		
77	Mid II		17-06-2020			Co3, Co4, Co5		

78	Mid II		18-06-2020			Co3, Co4, Co5		
79	Mid II		19-06-2020			Co3, Co4, Co5		
80	Mid II		20-06-2020			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

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COURSE HANDOUT

Part-A

PROGRAM	**:**	B.Tech., II-Sem., CSE-C
ACADEMIC YEAR	**:**	2019-2020
COURSE NAME & CODE	**:**	APPLIED PHYSICS LAB & 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	06-02-2020		**TLM4**	1,2,3,4	T1	
2.	Demonstration	2	13-02-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
3.	Experiment 1	2	22-02-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
4.	Experiment 2	2	20-02-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
5.	Experiment 3	2	27-02-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
6.	Experiment 4	2	05-03-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
7.	Experiment 5	2	12-03-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
8.	Demonstration	2	19-03-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
9.	Experiment 6	2	26-03-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
10.	Experiment 7	2	09-04-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
11.	Experiment 8	2	16-05-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
12.	**Internal Exam**	2	23-06-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
13.	**Internal Exam**	2	30-06-2020		**TLM4**	CO1, CO2, CO3, CO4	T1	
No. of classes required to complete UNIT-I		22			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 .

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.

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

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)
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http://www.lbrce.ac.in, cselbreddy@gmail.com, Phone: 08659-222933, Fax: 08659-222931
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

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

ACADEMIC YEAR : 2019-20

COURSE NAME & CODE : Digital Logic design – 17CS60

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

COURSE CREDITS : **1**

COURSE INSTRUCTOR : J. Nageswara Rao

COURSE COORDINATOR : J. Nageswara Rao

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	**PO2**	**PO3**	**PO4**	**PO 5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO 10**	**PO 11**	**PO 12**	**PSO1**	**PSO2**	**PSO3**
COURSE OUTCOMES	CO 1	2	1	3	1	3	-	-	-	-	-	-	-	1	-	-
	Co2	1	2	3	1	3	-	-	-	-	-	-	-	1	-	-
	CO 3	1	2	3	1	3	-	-	-	-	-	-	-	1	-	-
	CO 4	-	-	-	-	-	-	-	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	**Cycle 1**
	b) Universal Gates Functional Verification i. NAND Gate using 7400 IC ii. NOR Gate using 7402 IC	
	c) Special Gates Functional verification i. XOR Gate using 7486 IC ii. XNOR Gate using XOR followed by NOT Gate	
2	Realization of following gates using universal gates and its functional verification. AND, OR, XOR, NOT	
3	a) Design Half-adder and Full-adder circuits and verify its functionality. b) Verify the functionality of four bit ripple carry adder for signed and unsigned integers with the verification of overflow condition.	
4	Design a four bit comparator and verify its functionality (using logic gates or IC's)	
5	Design a BCD to Excess-3 code converter and verify its functionality by using gates.	
6	Design a BCD to Gray code converter and verify its functionality by using gates.	
7	Design and verify the functionality of Decoders and multiplexers of different inputs.	
	CYCLE 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.	

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	07-02-2020		5
	b) Universal Gates Functional Verification iii. NAND Gate using 7400 IC iv. NOR Gate using 7402 IC	07-02-2020		5
	c) Special Gates Functional verification iii. XOR Gate using 7486 IC iv. XNOR Gate using XOR followed by NOT Gate	07-02-2020		5
2	Realization of following gates using universal gates and its functional verification.AND, OR, XOR, NOT	14-02-2020		5
3	c) Design Half-adder and Full-adder circuits and verify its functionality. d) Verify the functionality of four bit ripple carry adder for signed and unsigned integers with the verification of overflow condition.	28-02-2020,06-03-2020		1,5
4	Design a four bit comparator and verify its functionality (using logic gates or IC's)	13-03-2020		5
5	Design a BCD to Excess-3 code converter and verify its functionality by using gates.	20-03-2020		1,5
6	Design a BCD to Gray code converter and verify its functionality by using gates.	27-03-2020		1,5
7	Design and verify the functionality of Decoders and multiplexers of different inputs.	03-04-2020		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	10-04-2020, 17-04-2020		1,5
9	a) Design a UP-Counter using JK/T Flip-Flop. b) Design a MOD-3 Counter.	24-04-2020		5
10	Design a Bi-directional Counter using JK/T Flip-Flop.	01-05-2020		5
11	Design Shift Registers	08-05-2020		1,5
12	Revision-Cycle-1	15-05-2020		
13	Internal Lab	05-06-2020 & 12-06-2020		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				

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http://www.lbrce.ac.in, cselbreddy@gmail.com, Phone: 08659-222933, Fax: 08659-222931
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

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

ACADEMIC YEAR : 2019-20

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	03-02-2020		TLM1	CO1	T1	
2.	Introduction to Digital Systems	1	04-02-2020		TLM1	CO1	T1	
3.	Digital Systems, Binary Numbers	1	05-02-2020		TLM1	CO1	T1	
4.	Number base Conversion, Octal and Hexadecimal Numbers	2	06-02-2020& 10-02-2020		TLM1, TLM2, TLM8	CO1	T1, R1	
5.	Complements	2	11-02-2020& 12-02-2020		TLM1, TLM2, TLM8	CO1	T1, R1	
6.	Binary Codes, Binary Storage and Registers	1	13-02-2020		TLM1, TLM2,	CO1	T1, R1	
7.	Binary Logic	1	15-02-2020		TLM1, TLM2	CO1	T1, R1	
8.	Introduction to Boolean algebra, Basic theorems and Properties of Boolean Algebra	1	17-02-2020		TLM1, TLM2, TLM8	CO1	T1	
9.	Boolean functions, Canonical and Standard Forms, Digital Logic Gates	1	**18-02-2020**		TLM1, TLM2	CO1	T1	
10.	**TUTORIAL – 1**	1	19-02-2020		TLM3	CO1	---	

11.	**Assignment / Quiz – 1**	1	20-02-2020& 22-02-2020		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	24-02-2020		TLM1, TLM2	CO2	T1	
13.	Introduction to Karnaugh Maps	1	25-02-2020		TLM1, TLM2	CO2	T1	
14.	One Variable, Two variable, Three Variable maps	1	26-02-2020		TLM1, TLM2	CO2	T1	
15.	Four Variable Map	1	27-02-2020		TLM1, TLM2	CO2	T1	
16.	Problems on K-Maps	2	29-02-2020& 02-03-2020		TLM1, TLM2	CO2	T1, R2	
17.	Five Variable K-Map and Examples	1	03-03-2020		TLM1, TLM2	CO2	T1, R2	
18.	Six Variable K-Maps Examples	1	04-03-2020		TLM1, TLM2	CO2	T1, R2	
19.	Minimal Expressions for incomplete Boolean functions	1	05-03-2020		TLM1, TLM2	CO2	T1, R2	
20.	Quine-McCluskey Method	1	07-03-2020		TLM1, TLM2	CO2	T1, R2	
21.	Prime implicants and Essential Prime Implicants	1	09-03-2020		TLM9	CO2	T1	

22.	**TUTORIAL – 2**	1	11-03-2020		TLM3	CO2	---	
23.	**Assignment / Quiz – 2**	1	12-03-2020		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	16-03-2020		TLM1, TLM2	CO3	T1, R2	
25.	Adders, Sub tractors	2	17-03-2020& 18-03-2020		TLM1, TLM2, TLM8	CO3	T1, R2	
26.	Code Conversion	1	19-03-2020		TLM9	CO3	T1	
27.	Multilevel NAND circuits, Multilevel NOR circuits	1	21-03-2020		TLM1, TLM2	CO3	T1, R2	
28.	Intoduction to Combinational Logic with MSI And LSI	1	30-03-2020		TLM1, TLM2, TLM8	CO3	T1, R2	
29.	Binary Parallel Adder, Decimal Adder	2	31-03-2020& 01-04-2020		TLM9	CO3	T1	
30.	Magnitude Comparator	1	04-04-2020		TLM9	CO3	T1	
31.	Decoders and Multiplexers	1	06-04-2020		TLM9	CO3	T1	
32.	**TUTORIAL – 3**	1	07-04-2020		TLM3	CO3	---	

33.	**Assignment / Quiz – 3**	1	08-04-2020		TLM6	CO3	---	
No. of classes required to complete UNIT-III:		**12**	**No. of classes taken:**					
			NOTE:23-03-2020 TO 28-03-2020-MID-1EXAM					

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	09-04-2020 & 11-04-2020		TLM1, TLM2	CO4	T1	
35.	Triggering of Flip-Flops,	1	13-04-2020		TLM1, TLM2	CO4	T1	
36.	Analysis of Clocked Sequential Circuits	1	15-04-2020		TLM1, TLM2, TLM8	CO4	T1	
37.	State Reduction and Assignment	1	16-04-2020		TLM1, TLM2	CO4	T1	
38.	Flip-Flop Excitation tables	1	18-04-2020		TLM1, TLM2, TLM8	CO4	T1	
39.	Design of Counters, Introduction to Registers, Shift registers	1	20-04-2020		TLM1, TLM2	CO4	T1	
40.	Ripple Counters, Synchronous Counters	1	21-04-2020		TLM1, TLM2, TLM8	CO4	T1	
41.	Timing sequences And Memory unit	1	22-04-2020		TLM9	CO4	T1	
42.	**TUTORIAL – 4**	1	23-04-2020		TLM3	CO4	---	
43.	**Assignment / Quiz – 4**	1	25-04-2020		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	27-04-2020		TLM3	CO5		
45.	Problems On ROM	1	28-04-2020		TLM3	CO5		
46.	Programmable Read Only memory	1	29-04-2020		TLM3	CO5		
47.	Problems on PROM	1	30-04-2020		TLM3	CO5		
48.	Programmable Logic Device (PLD),Problems on PLD	1	02-05-2020		TLM3	CO5		
49.	Programmable Logic Array	1	04-05-2020		TLM3	CO5		
50.	Programmable Array Logic (PAL).	1	05-05-2020		TLM3	CO5		
51.	Problems on PLA and PAL	1	06-05-2020		TLM3	CO5		
52.	**TUTORIAL – 5**	1	07-05-2020		TLM3	CO5		
53.	**Assignment / Quiz – 5**	1	09-05-2020		TLM3	CO5		
54.	Programmable Logic Array Examples	1	11-05-2020		TLM3	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	12-05-2020		TLM3	CO5		
56.	Ripple Counters	1	13-05-2020		TLM6	CO5		
57.	How magnitude comparators are different from Decoders	1	14-05-2020		TLM3	CO5		
58.	Revision-unit-1	1	01-06-2020		TLM1	CO1		

59.	Revision-unit-1	1	02-06-2020		TLM1	CO1		
60.	Revision-unit-2	1	03-06-2020		TLM1	CO2		
61.	Revision-unit-2	1	04-06-2020		TLM1	CO2		
62.	Revision-unit-3	1	08-06-2020		TLM1	CO3		
63.	Revision-unit-3	1	09-06-2020		TLM1	CO3		
64.	Revision-unit-4	1	10-06-2020		TLM1	CO4		
65.	Revision-unit-4	1	11-06-2020		TLM1	CO4		
66.	Revision-unit-5	1	13-06-2020		TLM1	CO5		
67.	**NOTE**	**15-06-2020 TO 20-06-2020 MID-2**						

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 +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 + attendance: A=(A1+A2+A3+A4+A5)/5	1,2,3,4,5	A=20
Evaluation of Mid Marks: B=75% of Max(B1,B2)+25% of Min(B	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=60**
Total Marks: A+B+C	**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**

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L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor : Mr. B Sagar
Course Name & Code : ENGLISH COMMUNICATION SKILLS LAB - 17FE60
L-T-P Structure : 2-0-0
Credits : 1
Program/Sem/Sec : B.Tech. II-Sem, CSE-C A.Y : 2019-20

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

COURSE EDUCATIONAL OBJECTIVES (CEOs): 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 (COs): At the end of the course, the student will be able to

CO 1	Articulate English with good pronunciation.
CO 2	Manage skillfully through group discussions.
CO 3	Communicate with the people effectively.
CO 4	Collect and interpret data aptly.

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1					3					3	3				
CO2					3					3	3				
CO3					3					3	3				
CO4					3					3	3				

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

LAB. MANUAL:

T1 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):

UNIT-I:

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction	2	03-02-2020		TLM4	
2.	Self Introduction	2	10-2-2020		TLM4	
3.	JAM- I	2	17-2-2020		TLM4	
4.	JAM-II	2	24-2-2020		TLM4	
5.	JAM-III	2	2-3-2020		TLM4	
6.	Role Play-I	2	9-3-2020		TLM4	
7.	Role Play-II	2	16-3-2020		TLM4	
8.			23-3-2020	**MID-I EXAMS**		
9.	Role Play-III	2	30-3-2020		TLM4	
10.	Data Interpretation-I	2	6-4-2020		TLM2, TLM4	
11.	Data Interpretation-II	2	13-4-2020		TLM2, TLM4	
12.	Group Discussion-I	2	20-4-2020		TLM4, TLM6	
13.	Group Discussion-II	2	27-4-2020		TLM4, TLM6	
14.	Group Discussion-III	2	4-5-2020		TLM4, TLM6	
15.	Introduction to Phonetics	2	11-5-2020		TLM1, TLM2	
16.	Introduction to Phonetics	2	1-6-2020		TLM1, TLM2	
17.	Internal Lab Exam	2	8-6-2020			
18.	Total	34				
No. of classes required to complete the syllabus:34				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	HOD Sign
1.	Public Speech	1	15-6-2020		TLM4	

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)**

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Instructor	Course Coordinator	Module Coordinator	HOD
(Mr B Sagar)	Dr.B.Samrajya Lakshmi	Dr.B.Samrajya Lakshmi	Prof.A Rami Reddy

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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 (C)

ACADEMIC YEAR : 2019-20

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

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

COURSE CREDITS : 3

COURSE INSTRUCTOR : **Mr B Sagar**

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)																

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-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 UNIT-I	1	4-2-2020		TLM1			
2.	Good Manners – J.C.Hill	1	5-2-2020 6-2-2020		TLM1	CO1	T1	
3.	Idioms	1	11-2-2020		TLM1, TLM2, TLM5	CO1	T1,R1,R3	
4.	One-word Substitutes	1	12-2-2020		TLM1, TLM2, TLM5	CO1	T1,R1,R3	
5.	Sequence of tenses	1	13-2-2020		TLM1, TLM2, TLM5	CO1	T1,R1,R3	
6.	Subject – Verb Agreement (Concord)	1	18-2-2020 19-2-2020		TLM1, TLM2, TLM5	CO1	T1,R1,R3	
7.	If- Rudyard Kipling	1	20-2-2020		TLM1	CO1	T1	
8.	Information Transfer	1	25-2-2020		TLM1, TLM2	CO1	T1,R2,R4	
No. of classes required to complete UNIT-I		10			No. of classes taken: 10			

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	26-2-2020 27-2-2020		TLM1, TLM6	CO2	T2	
10.	Assertive skills from the story/ personal level/ workplace	1	3-3-2020 4-3-2020		TLM1, TLM6	CO2	T2	
11.	Expanding proverbs on Assertive skills	1	5-3-2020		TLM1, TLM2, TLM5, TLM6	CO2	T2,R2,R4	
12.	White washing the fence – Mark Twain	1	10-3-2020		TLM1, TLM6	CO2	T2	
13.	Teamwork skills from the story/ work place	1	11-3-2020		TLM1, TLM6	CO2	T2	
14.	Expanding proverbs on Teamwork	1	12-3-2020		TLM1, TLM2, TLM5, TLM6	CO2	T2,R2,R4	
15.	Note-making	1	17-3-2020		TLM1, TLM2, TLM5, TLM6	CO2	T2,R2,R4	
16.	Abstract/Summary writing	1	18-3-2020 19-3-2020		TLM1, TLM2, TLM5, TLM6	CO2	T2,R2,R4	
			24-3-2020 26-3-2020	**MID-I EXAMS**				
No. of classes required to complete UNIT-II		13			No. of classes taken: 13			

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	31-3-2020		TLM1	CO3	T1	
18.	Foreign Languages and their Influence on English	1	1-4-2020		TLM1, TLM2, TLM5, TLM6	CO3	T1,R2, R4	
19.	Conditional Sentences	1	7-4-2020		TLM1, TLM2,	CO3	T1,R1, R3	

20.	Degrees of Comparison	1	8-4-2020		TLM1, TLM2, TLM5, TLM6	CO3	T1,R1, R3	
21.	Question Tags	1	9-4-2020		TLM1, TLM2, TLM5, TLM6	CO3	T1,R1, R3	
22.	Basic Education – M.K. Gandhi	1	15-4-2020		TLM1, TLM6	CO3	T1	
23.	Report Writing	1	16-4-2020		TLM1, TLM2, TLM5, TLM6	CO3	T1,R2, R4	
24.	Report Writing	1	21-4-2020		TLM1, TLM2, TLM5, TLM6	CO3	T1,R2, R4	
No. of classes required to complete UNIT-III		8			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	22-4-2020		TLM1, TLM6	CO4	T2	
26.	Organizational Communication	1	23-4-2020		TLM1, TLM6	CO4	T2,R2,R4	
27.	Adaptability skills from the story	1	28-4-2020		TLM1, TLM6	CO4	T2,R2,R4	
28.	Adaptability skills at work place & Real life	1	29-4-2020		TLM1, TLM6	CO4	T2,R2,R4	
29.	Expanding proverbs on Adaptability skills	1	30-4-2020		TLM1, TLM2, TLM5, TLM6	CO4	T2,R2,R4	
30.	Active & Passive Voice	1	5-4-2020		TLM1, TLM2, TLM5, TLM6	CO4	T2,R1,R3	
31.	Active & Passive Voice	1	6-5-2020		TLM1, TLM2, TLM5, TLM6	CO4	T2,R1,R3	
32.	Direct & Indirect Speech	1	7-5-2020		TLM1, TLM2, TLM5, TLM6	CO4	T2,R1,R3	
33.	Direct & Indirect Speech	1	12-5-2020		TLM1, TLM2, TLM5, TLM6	CO4	T2,R1,R3	
No. of classes required to complete UNIT-IV		9			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	13-5-2020					
35.	Non-Verbal Communication Skills from the story	1	14-5-2020		TLM1, TLM6	CO5	T2	
36.	Non-Verbal Communication skills through real life experiences	1	2-6-2020		TLM1, TLM6	CO5	T2,R2,R4	
37.	Articulation and gestures	1	3-6-2020		TLM1, TLM6	CO5	T2,R2,R4	
38.	'Wh' & 'Yes' or 'No' questions	1	4-6-2020		TLM1, TLM2, TLM5, TLM6	CO5	T2,R2,R4	
39.	Proverbial expansion on Non-Verbal Communication	1	9-6-2020		TLM1, TLM2, TLM5, TLM6	CO5	T2,R1,R3	
40.	Common Errors	1	10-6-2020		TLM1, TLM2, TLM5, TLM6	CO5	T2,R2,R4	
No. of classes required to complete UNIT-V		7			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, Letter of Recommendation	1	11-6-2020		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
Mr B Sagar	Dr.B.Samrajya lakshmi	Dr.B.Samrajya lakshmi	Dr.A RamiReddy

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FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor : D. VIJAY KUMAR
Course Name & Code : Transformation Techniques and Vector Calculus, 17FE06
L-T-P Structure : 4-1-0 Credits : 4
Program/Sem/Sec : B.Tech., CSE, II-Sem., Section- C A.Y : 2019-20

PRE-REQUISITE: Integration and Vectors

COURSE EDUCATIONAL OBJECTIVES (CEOs): In this course the students are introduced to Integral transformations which include Laplace Transforms and Z – Transforms. They will also learn Multiple Integrals in different coordinate systems and Vector Calculus.

COURSE OUTCOMES (Cos): At the end of the course, students are able to

CO 1	Apply the concepts of Laplace Transforms to solve ordinary differential equations.
CO 2	Apply Z - Transforms to solve difference equations
CO 3	Discriminate among Cartesian, Polar and Spherical coordinates in multiple integrals and their respective applications to areas and volumes.
CO 4	Evaluate the directional derivative, divergence and angular velocity of a vector function.
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:

T1 T.K.V. Iyengar, B. Krishna Gandhi and others, Engineering Mathematics, Vol. III, S.Chand & Company, 7th Edition, 2009.

T2 B.S. Grewel, Higher Engineering Mathematics, Khanna Publications, 42nd edition, 2012.

BOS APPROVED REFERENCE BOOKS:

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

R2 Erwin Kreyszig, "Advanced Engineering Mathematics", 8thEdition, John Wiley & Sons, New Delhi, 2011.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: LAPALCE TRANSFORM AND INVERSE LAPLACE TRANSFORMS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to Course and COs.	1	03/02/2020		TLM1	
2.	Introduction to Unit-I	1	04/02/2020		TLM1	
3.	Laplace Transforms of standard functions.	1	05/02/2020		TLM1	
4.	Linear Property, Shifting Theorems.	1	06/02/2020		TLM1	
5.	Change of Scale Property.	1	07/02/2020		TLM1	
6.	Multiplication by 't'	1	10/02/2020		TLM1	
7.	Division by 't'	1	11/02/2020		TLM1	
8.	Unit Step function, Transforms of derivatives.	1	12/02/2020		TLM1	
9.	Transformation of integrals, Dirac's Delta function.	1	13/02/2020		TLM1	
10.	**TUTORIAL - 1**	1	14/02/2020		TLM3	
11.	Inverse Laplace Transforms, Linear Property, Shifting Properties.	1	15/02/2020		TLM1	
12.	Inverse Laplace Transforms using Partial fractions.	1	17/02/2020		TLM1	
13.	Inverse Laplace Transforms using Partial fractions.	1	18/02/2020		TLM1	
14.	Convolution theorem.	1	19/02/2020		TLM1	
15.	Application of L.T. to ordinary differential equation.	1	20/02/2020		TLM1	
16.	Application of L.T. to ordinary differential equation.	1	24/02/2020		TLM1	
17.	**TUTORIAL-2**	1	25/02/2020		TLM3	
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	HOD Sign Weekly
1.	Introduction to UNIT- II.		26/02/2020		TLM1	
2.	Z-transform.		27/02/2020		TLM1	
3.	Z-transform of standard functions.		28/02/2020		TLM1	
4.	Properties		02/03/2020		TLM1	
5.	Damping rule		03/03/2020		TLM1	
6.	Shifting rule from left		04/03/2020		TLM1	
7.	Shifting rule from right		05/03/2020		TLM1	
8.	Initial and final value theorems		06/03/2020		TLM1	
9.	Inverse Z-transform		09/03/2020		TLM1	
10.	Inverse Z-transform using Partial Fractions.		10/03/2020		TLM1	
11.	Inverse Z-transform using Partial Fractions.		11/03/2020		TLM1	
12.	Convolution theorem		12/03/2020		TLM1	
13.	**TUTORIAL-3**		13/03/2020		TLM3	
14.	Solution of difference equation by Z-transform.		16/03/2020		TLM1	
15.	Solution of difference equation by Z-transform.		17/03/2020		TLM1	
16.	Solution of difference equation by Z-transform.		18/03/2020		TLM1	
17.	Revision		19/03/2020		TLM1	
18.	**TUTORIAL-4**		20/03/2020		TLM3	
No. of classes required to complete UNIT-II: 18				No. of classes taken:		

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	HOD Sign Weekly
1.	Introduction to UNIT III	1	30/03/2020		TLM1	
2.	Multiple Integrals.	1	31/03/2020		TLM1	
3.	Change of variables.	1	01/04/2020		TLM1	
4.	Double Integrals- Polar co ordinates.	1	03/04/2020		TLM1	
5.	Triple Integrals.	1	06/04/2020		TLM1	
6.	Triple Integrals - Spherical coordinates.	1	07/04/2020		TLM1	
7.	Triple Integrals - Cylindrical coordinates.	1	08/04/2020		TLM1	
8.	**TUTORIAL-5**	1	09/04/2020		TLM3	
9.	Change of order of Integration.	1	13/04/2020		TLM1	

10.	Change of order of Integration.	1	14/04/2020		TLM1	
11.	Applications to Areas	1	15/04/2020		TLM1	
12.	Applications to Volumes.	1	16/04/2020		TLM1	
13.	**TUTORIAL-6**	1	17/04/2020		TLM3	
No. of classes required to complete UNIT-III: 13				No. of classes taken:		

UNIT-IV : VECTOR DIFFERENTIATION

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to UNIT-IV	1	20/04/2020		TLM1	
2.	Vector Differentiation	1	21/04/2020		TLM1	
3.	Gradient	1	22/04/2020		TLM1	
4.	Directional Derivative	1	23/04/2020		TLM1	
5.	Directional Derivative	1	24/04/2020		TLM1	
6.	Applications of Gradient		27/04/2020		TLM1	
7.	Divergence	1	28/04/2020		TLM1	
8.	Curl and problems	1	29/04/2020		TLM1	
9.	Solenoidal fields, Irrotational fields, potential surfaces	1	30/04/2020		TLM1	
10.	**TUTORIAL-7**	1	01/05/2020		TLM3	
11.	Laplacian second order operators	1	04/05/2020		TLM1	
12.	Properties	1	05/05/2020		TLM1	
13.	Properties	1	06/05/2020		TLM1	
14.	Properties	1	07/05/2020		TLM1	
15.	**TUTORIAL-8**	1	08/05/2020		TLM3	
No. of classes required to complete UNIT-IV: 15				No. of classes taken:		

UNIT-V : VECTOR INTEGRATION

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to UNIT V	1	11/05/2020		TLM1	
2.	Line Integral	1	12/05/2020		TLM1	
3.	Work done and area	1	13/05/2020		TLM1	
4.	Surface Integrals	1	14/05/2020		TLM1	
5.	Volume Integrals	1	15/05/2020		TLM1	
6.	Greens theorem	1	01/06/2020		TLM1	
7.	Related Problems	1	02/06/2020		TLM1	

8.	Stokes theorem	1	03/06/2020		TLM1	
9.	Problems on Stokes theorem	1	04/06/2020		TLM1	
10.	**TUTORIAL-9**	1	05/06/2020		TLM3	
11.	Gauss Divergence theorem	1	08/06/2020		TLM1	
12.	Problems on Gauss Divergence theorem	1	09/06/2020		TLM1	
13.	Revision		10/06/2020		TLM1	
14.	**TUTORIAL-10**		11/06/2020		TLM3	
15.	Further applications in Multiple Integrals **(Content beyond the syllabus)**	1	12/06/2020		TLM1	
No. of classes required to complete UNIT-V: 14				No. of classes taken:		

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 (R17 Regulations):

Evaluation Task	**Marks**
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
I-Mid Examination (Units-I & II)	M1=20
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=20
II-Quiz Examination (Units-III, IV & V)	Q2=10
Attendance	B=5
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=20
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M+Q	40

Semester End Examination (SEE)	60
Total Marks = CIE + SEE	**100**

PART-D

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Instructor	Course Coordinator	Module Coordinator	HOD
D. Vijay Kumar	**Dr. K. Jhansi Rani**	**Dr. A. Rami Reddy**	**Dr. A. Rami Reddy**