



## COURSE HANDOUT

### PART-A

**Name of Course Instructor** : K. Sridevi  
**Course Name & Code** : Communicative English & 23FE01  
**L-T-P Structure** : 2-0-0 **Credits:** 02  
**Program/Sem/Sec** : B. Tech, I Sem – ASE  
**A.Y.** : 2023-24

**PREREQUISITE:** NIL

#### **COURSE EDUCATIONAL OBJECTIVES (CEOs):**

The main objective of introducing this course, *Communicative English*, is to facilitate effective Listening, Reading, Speaking and Writing skills among the students. It enhances the same in their comprehending abilities, oral presentations, reporting useful information and providing knowledge of grammatical structures and vocabulary. This course helps the students to make them effective in speaking and writing skills and to make them industry ready.

**COURSE OUTCOMES (COs):** At the end of the course, student will be able to

<b>CO1</b>	Understand the context, topic, and pieces of specific information from social or Transactional dialogues.	L2
<b>CO2</b>	Apply grammatical structures to formulate sentences and correct word forms.	L3
<b>CO3</b>	Use discourse markers to speak clearly on a specific topic in informal discussions.	L3
<b>CO4</b>	Read / Listen the texts and write summaries based on global comprehension of these texts.	L2
<b>CO5</b>	Prepare a coherent paragraph, essay, and resume.	L3

#### **COURSE ARTICULATION MATRIX (Correlation between COs & POs)**

Course Outcomes	Programme Outcomes												
	PO's →	1	2	3	4	5	6	7	8	9	10	11	12
<b>CO1.</b>	-	-	-	1	-	-	-	-	-	3	3	-	2
<b>CO2.</b>	-	-	-	1	-	-	-	-	-	3	3	-	2
<b>CO3.</b>	-	-	-	1	-	-	-	-	-	3	3	-	2
<b>CO4.</b>	-	-	-	1	-	-	-	-	-	3	3	-	2
<b>CO5.</b>	-	-	-	1	-	-	-	-	-	3	3	-	2
<b>1 = Slight (Low)</b>		<b>2= Moderate (Medium)</b>					<b>3 = Substantial (High)</b>						

### 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	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Bridge Course	3 Weeks	31-08-2023 TO 16-09-2023		TLM1			
2.	Introduction to the course				TLM1			
3.	Course Outcomes, Program Outcomes				TLM2			

**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.	Human Values: Gift of Magi	02	19-09-2023 20-09-2023		TLM1 TLM 6	CO1	T1,T2	
2.	Skimming to get main idea; Scanning for specific pieces of information	01	25-09-2023		TLM2 TLM5	CO1	T1,T2	
3.	Mechanics of Writing: Capitalization, Spelling, Punctuation & Parts of Sentences	01	26-09-2023 27-09-2023		TLM1 TLM6 TLM5	CO1	T1,T2	
4.	Parts of speech	01	03-10-2023 04-10-2023		TLM2 TLM6	CO1	T1,T2	
5.	Basic Sentence Structures, Forming questions	01	09-10-2023 10-10-2023		TLM2 TLM6	CO1	T1,T2	
6.	Synonyms, Antonyms	01	11-10-2023		TLM2 TLM5	CO1	T1,T2	
7.	Affixes, Root Words	01	16-10-2023		TLM2 TLM5	CO1	T1,T2	
<b>No. of classes required to complete UNIT-I: 08</b>						<b>No. of classes taken:</b>		

**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
8.	Nature: The Brook by Alfred Tennyson	02	17-10-2023 18-10-2023		TLM1 TLM 6	CO2	T1,T2	
9.	Identifying Sequence of ideas, Linking ideas into a Paragraph	01	25-10-2023		TLM2 TLM5	CO2	T1,T2	
10.	Structure of Paragraph – Paragraph Writing	01	30-10-2023 31-10-2023		TLM1 TLM6 TLM5	CO2	T1,T2	
11.	Cohesive Devices-linkers	01	01-11-2023		TLM2 TLM6	CO2	T1,T2	
12.	Use of Articles and zero article, Prepositions	02	06-11-2023 07-11-2023		TLM2 TLM6	CO2	T1,T2	
13.	Homophones, Homographs, Homonyms	01	08-11-2023		TLM2 TLM5	CO2	T1,T2	
<b>No. of classes required to complete UNIT-II: 08</b>					<b>No. of classes taken:</b>			

**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
14.	Biography: Elon Musk	02	20-11-2023 21-11-2023		TLM1 TLM 6	CO3	T1,T2	
15.	Reading and making basic inferences – recognizing and interpreting the text clues for comprehension	01	22-11-2023		TLM2 TLM5	CO3	T1,T2	
16.	Summarizing, Note-making, Paraphrasing	01	27-11-2023		TLM1 TLM6 TLM5	CO3	T1,T2	
17.	Verbs- Tenses, Subject-verb agreement	02	28-11-2023 29-11-2023		TLM2 TLM6	CO3	T1,T2	
18.	Compound words, Collocations	01	04-12-2023		TLM2 TLM5	CO3	T1,T2	
<b>No. of classes required to complete UNIT-III: 07</b>							<b>No. of classes taken:</b>	

**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
19.	Inspiration: The Toys of Peace- by Saki	02	05-12-2023 06-12-2023		TLM1 TLM 6	CO4	T1,T2	
20.	Study of graphic elements in text to display complicated data	01	11-12-2023		TLM2 TLM5	CO4	T1,T2	
21.	Letter Writing : Official Letters, Resumes	01	12-12-2023		TLM1 TLM6 TLM5	CO4	T1,T2	
22.	Reporting verbs, Direct & Indirect Speech, Active & Passive voice	02	13-12-2023 18-12-2023		TLM2 TLM6	CO4	T1,T2	
23.	Words often confused, Jargons	01	19-12-2023		TLM2 TLM5	CO4	T1,T2	
<b>No. of classes required to complete UNIT-IV: 07</b>							<b>No. of classes taken:</b>	

**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
24.	Motivation: The Power of Interpersonal Communication	01	20-12-2023 26-12-2023		TLM1 TLM 6	CO5	T1,T2	
25.	Reading Comprehension	01	27-12-2023		TLM2 TLM5	CO5	T1,T2	
26.	Structured Essays on specific topics	01	02-01-2024		TLM1 TLM6 TLM5	CO5	T1,T2	
27.	Editing Texts – Correcting Common errors	01	03-01-2024		TLM2 TLM6	CO5	T1,T2	
28.	Technical Jargon	01	06-01-2024		TLM2	CO5	T1,T2	

					TLM5			
<b>No. of classes required to complete UNIT-V: 05</b>						<b>No. of classes taken:</b>		

### Content beyond the Syllabus

S. No.	Topics to be covered beyond the syllabus	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Word Analogy	01	07-01-2024 08-01-2024		TLM2 &5	
<b>No. of classes required to complete</b>				<b>No. of classes taken:</b>		

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

### PART-C

#### EVALUATION PROCESS (R23 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II)	A1=5
I-Descriptive Examination (Units-I, II)	M1=15
I-Quiz Examination (Units-I, II)	Q1=10
Assignment-II (Unit-III, IV & V)	A2=5
II- Descriptive Examination (UNIT-III, IV & V)	M2=15
II-Quiz Examination (UNIT-III, IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))	<b>M=30</b>
<b>Cumulative Internal Examination (CIE):</b>	<b>30</b>
<b>Semester End Examination (SEE)</b>	<b>70</b>
Total Marks = CIE + SEE	<b>100</b>

### PART-D

#### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.

<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
<b>PO 6</b>	<b>The engineer and society:</b> 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
<b>PO 7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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
<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> 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.

<b>Title</b>	<b>Course Instructor</b>	<b>Course Coordinator</b>	<b>Module Coordinator</b>	<b>Head of the Department</b>
<b>Name of the Faculty</b>	<b>Ms. K. Sridevi</b>	<b>Dr. R. Padma</b>	<b>Dr.A. Ramireddy</b>	<b>Dr. A. Ramireddy</b>
<b>Signature</b>				



**FRESHMAN ENGINEERING DEPARTMENT**

**COURSE HANDOUT**

**Part-A**

<b>PROGRAM</b>	: I B. Tech., I-Sem., ASE
<b>ACADEMIC YEAR</b>	: 2023-24
<b>COURSE NAME &amp; CODE</b>	: Linear Algebra & Calculus
<b>L-T-P STRUCTURE</b>	: 3-0-0
<b>COURSE CREDITS</b>	: 3
<b>COURSE INSTRUCTOR</b>	: K. N. V. Lakshmi
<b>COURSE COORDINATOR</b>	: Dr. A. Rami Reddy
<b>PRE-REQUISITES</b>	: Basics of Matrices, Differentiation, Integration

**COURSE EDUCATIONAL OBJECTIVES (CEOs):** To equip the students with standard concepts and tools at an intermediate to advanced level mathematics, to develop the confidence and ability among the students to handle various real-world problems and their applications.

**COURSE OUTCOMES (COs)**

After completion of the course, the student will be able to

- CO1: Apply matrix algebra techniques to solve engineering problems – **L3**
- CO2: Use Eigen values and Eigen vectors concept to find nature of quadratic form, inverse and powers of matrix – **L3**
- CO3: Expand various functions using Mean value theorems – **L2**
- CO4: Understand the concepts of functions of several variables which are useful in optimization – **L2**
- CO5: Evaluate areas and volumes by using double and triple integrals – **L3**

**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
CO2	3	2	-	-	-	-	-	-	-	-	-	1
CO3	3	1	-	-	-	-	-	-	-	-	-	1
CO4	3	2	-	-	-	-	-	-	-	-	-	1
CO5	3	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).

**BOS APPROVED TEXT BOOKS:**

- T1** Dr. B.S. Grewal, "Higher Engineering Mathematics", 44<sup>nd</sup> Edition, Khanna Publishers, New Delhi, 2017.
- T2** Erwin Kreyszig, "Advanced Engineering Mathematics", 10<sup>th</sup> Edition, John Wiley & sons, New Delhi, 2018.

**BOS APPROVED REFERENCE BOOKS:**

- R1** George B. Thomas, Maurice D. Weir and Joel Hass, "Thomas Calculus", 14<sup>th</sup> Edition, Pearson Publishers, 2018.
- R2** R.K. Jain and S.R.K. Iyengar, "Advanced Engineering Mathematics", 5<sup>th</sup> Edition (9<sup>th</sup> reprint), Alpha Science International Ltd., 2021.
- R3** Glyn James, "Advanced Modern Engineering Mathematics", 5<sup>th</sup> Edition, Pearson Publishers, 2018.
- R4** Michael D.Greenberg, "Advanced Engineering Mathematics", 9<sup>th</sup> Edition, Pearson Publishers.
- R5** H.K. Das, Er. Rajnish Verma, "Higher Engineering Mathematics", 3<sup>rd</sup> Edition (Reprint 2021), S. Chand Publications, 2014.

**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	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Bridge Course	7	08-09-2023 TO 15-09-2023	08-09-2023 TO 15-09-2023	TLM1			
2.	Introduction to the course	1	19-09-2023		TLM1			
3.	Course Outcomes, Program Outcomes	1	20-09-2023		TLM2			

**UNIT-I: Matrices**

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
4.	Introduction to Unit I, Matrices	1	21-09-2023		TLM1	CO1	T1,T2	
5.	Rank of a matrix	1	22-09-2023		TLM1	CO1	T1,T2	
6.	Echelon form	1	25-09-2023		TLM1	CO1	T1,T2	
7.	Normal form	1	26-09-2023		TLM1	CO1	T1,T2	
8.	Cauchy-Binet formulae	1	27-09-2023		TLM1	CO1	T1,T2	
9.	Inverse by Gauss-Jordan method	1	29-09-2023		TLM1	CO1	T1,T2	
10.	System of Linear Equations	1	03-10-2023		TLM1	CO1	T1,T2	
11.	Homogeneous System of Equations	1	04-10-2023		TLM1	CO1	T1,T2	
12.	Homogeneous System of Equations	1	05-10-2023		TLM1	CO1	T1,T2	
13.	Non-Homogeneous System of Equations	1	06-10-2023		TLM1	CO1	T1,T2	
14.	Gauss Elimination Method	1	09-10-2023		TLM1	CO1	T1,T2	
15.	Jacobi Iteration Method	1	10-10-2023		TLM1	CO1	T1,T2	
16.	Gauss-Seidel Method	1	11-10-2023		TLM1	CO1	T1,T2	
17.	<b>TUTORIAL 1</b>	1	13-10-2023		TLM3	CO1	T1,T2	
No. of classes required to complete UNIT-I		14				No. of classes taken:		

**UNIT-II: Eigen Values, Eigen Vectors and Orthogonal Transformations**

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
18.	Introduction to Unit II	1	12-10-2023		TLM1	CO2	T1,T2	
19.	Eigen values, Eigen vectors	1	16-10-2023		TLM1	CO2	T1,T2	
20.	Eigen values, Eigen vectors	1	17-10-2023		TLM1	CO2	T1,T2	
21.	Properties	1	18-10-2023		TLM1	CO2	T1,T2	
22.	Properties	1	19-10-2023		TLM1	CO2	T1,T2	
23.	Cayley-Hamilton Theorem	1	25-10-2023		TLM1	CO2	T1,T2	

24.	Finding Inverse and Powers of matrix	1	26-10-2023		TLM1	CO2	T1,T2	
25.	Diagonalization of a matrix	1	27-10-2023		TLM1	CO2	T1,T2	
26.	Quadratic Forms	1	30-10-2023		TLM1	CO2	T1,T2	
27.	Nature of Quadratic Forms	1	31-10-2023		TLM1	CO2	T1,T2	
28.	Reduction of Quadratic form to Canonical form	1	01-11-2023		TLM1	CO2	T1,T2	
29.	Orthogonal Transformation	1	02-11-2023		TLM1	CO2	T1,T2	
30.	Orthogonal Transformation	1	03-11-2023		TLM1	CO2	T1,T2	
31.	<b>TUTORIAL 2</b>	1	06-11-2023		TLM3	CO2	T1,T2	
32.	<b>Revision</b>	1	07-11-2023					
No. of classes required to complete UNIT-II		15			No. of classes taken:			

### I MID EXAMINATIONS (13-11-2023 TO 18-11-2023)

#### UNIT-III: Calculus

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
33.	Introduction to Unit III	1	08-11-2023		TLM1	CO3	T1,T2	
34.	Mean Value theorem	1	09-11-2023		TLM1	CO3	T1,T2	
35.	Rolle's theorem	1	10-11-2023		TLM1	CO3	T1,T2	
36.	Lagrange's mean value theorem	1	20-11-2023		TLM1	CO3	T1,T2	
37.	Lagrange's mean value theorem	1	21-11-2023		TLM1	CO3	T1,T2	
38.	Cauchy's mean value theorem	1	22-11-2023		TLM1	CO3	T1,T2	
39.	Cauchy's mean value theorem	1	23-11-2023		TLM1	CO3	T1,T2	
40.	Taylor's theorem	1	24-11-2023		TLM1	CO3	T1,T2	
41.	Taylor's theorem	1	27-11-2023		TLM1	CO3	T1,T2	
42.	Maclaurin's theorem	1	28-11-2023		TLM1	CO3	T1,T2	
43.	Maclaurin's theorem	1	29-11-2023		TLM1	CO3	T1,T2	
44.	Problems and applications	1	30-11-2023		TLM1	CO3	T1,T2	
45.	<b>TUTORIAL 3</b>	1	01-12-2023		TLM3	CO3	T1,T2	
No. of classes required to complete UNIT-III		13			No. of classes taken:			

#### UNIT-IV: Partial differentiation and Applications (Multi variable Calculus)

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 Unit IV	1	04-12-2023		TLM1	CO4	T1,T2	
47.	Functions of several variables.	1	05-12-2023		TLM1	CO4	T1,T2	



48.	Continuity and Differentiability	1	06-12-2023		TLM1	CO4	T1,T2	
49.	Partial Derivatives	1	07-12-2023		TLM1	CO4	T1,T2	
50.	Total derivatives, Chain rule	1	08-12-2023		TLM1	CO4	T1,T2	
51.	Directional Derivative	1	11-12-2023		TLM1	CO4	T1,T2	
52.	Taylor's Series expansion	1	12-12-2023		TLM1	CO4	T1,T2	
53.	Maclaurin's series expansion	1	13-12-2023		TLM1	CO4	T1,T2	
54.	Jacobian	1	14-12-2023		TLM1	CO4	T1,T2	
55.	Functional Dependence	1	15-12-2023		TLM1	CO4	T1,T2	
56.	Maxima and Minima	1	18-12-2023		TLM1	CO4	T1,T2	
57.	Maxima and Minima	1	19-12-2023		TLM1	CO4	T1,T2	
58.	Lagrange Multiplier Method	1	20-12-2023		TLM1	CO4	T1,T2	
59.	<b>TUTORIAL 4</b>	1	21-12-2023		TLM3	CO4	T1,T2	
No. of classes required to complete UNIT-IV		14			No. of classes taken:			

#### UNIT-V: Multiple Integrals (Multi variable Calculus)

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
60.	Introduction to Unit-V	1	22-12-2023		TLM1	CO5	T1,T2	
61.	Double Integrals - Cartesian coordinates	1	26-12-2023		TLM1	CO5	T1,T2	
62.	Double Integrals- Polar co ordinates	1	27-12-2023		TLM1	CO5	T1,T2	
63.	Triple Integrals - Cartesian coordinates	1	29-12-2023		TLM1	CO5	T1,T2	
64.	Triple Integrals - Spherical coordinates	1	02-01-2024		TLM1	CO5	T1,T2	
65.	Change of order of Integration	1	03-01-2024		TLM1	CO5	T1,T2	
66.	Change of order of Integration	1	04-01-2024		TLM1	CO5	T1,T2	
67.	Change of variables	1	05-01-2024		TLM1	CO5	T1,T2	
68.	Finding area by double Integral	1	08-01-2024		TLM1	CO5	T1,T2	
69.	Finding Volume by double and triple Integral	1	09-01-2024		TLM1	CO5	T1,T2	
70.	<b>TUTORIAL 5</b>	1	10-01-2024		TLM3	CO5	T1,T2	
71.	<b>Revision</b>	1	11-01-2024					
No. of classes required to complete UNIT-V		12			No. of classes taken:			

#### Content 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
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72.	Other applications of double integral	1	28-12-2023		TLM2	CO5	T1,T2	
No. of classes		1			No. of classes taken:			
<b>II MID EXAMINATIONS (15-01-2024 TO 20-01-2024)</b>								

Teaching Learning Methods			
<b>TLM1</b>	Chalk and Talk	<b>TLM4</b>	Demonstration (Lab/Field Visit)
<b>TLM2</b>	PPT	<b>TLM5</b>	ICT (NPTEL/SwayamPrabha/MOOCs)
<b>TLM3</b>	Tutorial	<b>TLM6</b>	Group Discussion/Project

### PART-C

#### EVALUATION PROCESS (R20 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II)	A1=5
I-Descriptive Examination (Units-I, II)	M1=15
I-Quiz Examination (Units-I, II)	Q1=10
Assignment-II (Unit-III, IV & V)	A2=5
II- Descriptive Examination (UNIT-III, IV & V)	M2=15
II-Quiz Examination (UNIT-III, IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))	<b>M=30</b>
Cumulative Internal Examination (CIE):	<b>30</b>
Semester End Examination (SEE)	<b>70</b>
Total Marks = CIE + SEE	<b>100</b>

### PART-D

#### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.
<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
<b>PO 6</b>	<b>The engineer and society:</b> 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
<b>PO 7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 11</b>	<b>Project management and finance:</b> 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.

<b>PO 12</b>	<b>Life-long learning:</b> Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
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<b>K. N. V. Lakshmi</b>	<b>Dr. A. RAMI REDDY</b>	<b>Dr. A. RAMI REDDY</b>	<b>Dr. A. RAMI REDDY</b>
Course Instructor	Course Coordinator	Module Coordinator	HOD



**FRESHMAN ENGINEERING DEPARTMENT**

**COURSE HANDOUT**

**Part-A**

**PROGRAM** : B. Tech., I-Sem., ASE  
**ACADEMIC YEAR** : 2023-2024  
**COURSE NAME & CODE** : Engineering Physics-23FE04  
**L-T-P STRUCTURE** : 3-0-0  
**COURSE CREDITS** : 3  
**COURSE INSTRUCTOR** : **Dr. S. YUSUB**  
**COURSE COORDINATOR** : **Dr. S. YUSUB**

To bridge the gap between the physics in school at 10+2 level and UG level engineering courses by identifying the importance of the optical phenomenon like interference, diffraction etc, enlightening the periodic arrangement of atoms in crystalline solids and concepts of quantum mechanics, introduce novel concepts of dielectric and magnetic materials, physics of semiconductors.

**Course Outcomes:**

- CO1:** Analyze the intensity variation of light due to interference, diffraction and Polarization (Apply-L3).
- CO2:** Understand the basics of crystals and their structures (Understand-L2).
- CO3:** Summarize various types of polarization of dielectrics and classify the magnetic materials (Understand-L2)
- CO4:** Explain fundamentals of quantum mechanics and free electron theory of metals (Understand-L2).
- CO5:** Identify the type of semiconductor using Hall Effect (Apply-L3).

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

ENGINEERING 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	2	1	1	1	1					1
CO2.	3	3	2	1	1	1	1					1
CO3.	3	3	2	1	1	1						1
CO4.	3	3	2	1	1	1	1					1
CO5.	3	3	2	1	1	1	1					1
1 = slight (Low)			2 = Moderate ( Medium)				3 = Substantial ( High)					

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

**BoS APPROVED TEXT BOOKS:**

**TEXT BOOKS**

1. A Text book of “Engineering Physics” M.N. Avadhanulu, P.G. Kshirsagar, TVS Arun Murthy, S. Chand & Co., 11<sup>th</sup> Edition, 2019.
2. Engineering Physics – *D.K. Bhattacharya & Poonam Tandon, Oxford press (2015)*

**REFERENCES**

1. Engineering Physics - B.K.Pandey & S. Chaturvedi, Cengage Learning 2021.
2. Engineering Physics - Shatendra Sharma, Jyotsna Sharma, Pearson Education, 2018.
3. Engineering Physics - Sanjay D. Jain, D. Sahasrabudhe and Girish, University Press 2010.
4. Engineering Physics - M.R. Srinivasan, New Age international publishers (2009).

Web Resource: [//www.loc.gov/rr/scitech/selected-internet/physics.html](http://www.loc.gov/rr/scitech/selected-internet/physics.html)

**Part-B**

**COURSE DELIVERY PLAN (LESSON PLAN): ASE**

**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.	Course Outcomes INTERFERENCE: Introduction	1	19-09-2023		TLM1	CO1	T1	
2.	Principle of superposition	1	20-09-2023		TLM1	CO1	T1	
3.	Interference of light, Interference in thin films by reflection reflection & applications	1	21-09-2023		TLM2	CO1	T1	
4.	colors in thin films	1	23-09-2023		TLM1	CO1	T1	
5.	Newton’s rings	1	26-09-2023		TLM1	CO1	T1	
6.	Dispersion of wavelength and refractive index.	1	27-09-2023		TLM1	CO1	T1	
7.	DIFFRACTION: Introduction,	1	30-09-2023		TLM1	CO1	T1	
8.	Fresnel and Fraunhofer diffractions	1	03-10-2023		TLM2	CO1	T1	
No. of classes required to complete UNIT-I		8			No. of classes taken:			

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.	Fraunhofer diffraction due to single slit,	1	04-10-2023		TLM1	CO1	T1	
10.	double slit & N slits (Qualitative)	1	05-10-2023		TLM1	CO1	T1	
11.	Diffraction Grating, Dispersive power	1	07-10-2023		TLM2	CO1	T1	
12.	Resolving power of Grating(Qualitative)	1	10-10-2023		TLM1	CO1	T1	
13.	Polarization : Introduction	1	11-10-2023		TLM1	CO1	T1	
14.	Types of polarization	1	12-10-2023		TLM1	CO1	T1	
15.	Polarization by reflection	1	14-10-2023		TLM1	CO1	T1	
16.	refraction & double refraction	1	17-10-2023		TLM2	CO1	T1	
17.	Nicol's prism	1	18-10-2023		TLM1	CO1	T1	
18.	half wave and quarter wave plates	1	19-10-2023		TLM1	CO1	T1	
No. of classes required to complete UNIT-II		10			No. of classes taken:			

## UNIT – II: Crystallography & X– ray 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
19	Crystallography, Space lattice; Basis, Unit cell	1	21-10-2023		TLM1	CO2	T1	
20	Lattice parameters, Bravais Lattices	1	25-10-2023		TLM2	CO2	T1	
21	Crystal Systems (3D)- Coordination number, Packing fraction of -SC	1	26-10-2023		TLM1	CO2	T1	
22	BCC, FCC	1	28-10-2023		TLM1	CO2	T1	
23	Indices, separation between (hkl) planes.	1	31-10-2023		TLM2	CO2	T1	
24	X–ray diffraction: Bragg's law; X–ray Diffractometer,	1	01-11-2023		TLM1	CO2	T1	
25	structure determination by s.	1	02-11-2023		TLM1	CO2	T1	

26	Structure determination by powder methods.	1	04-11-2023		TLM1	CO2	T1	
27	I MID	1.5	06-11-2023			CO1, CO2,		
28	I MID	1.5	07-11-2023			CO1, CO2,		
29	I MID	1.5	08-11-2023			CO1, CO2,		
30	I MID	1.5	09-11-2023			CO1, CO2,		
31	I MID	1.5	10-11-2023			CO1, CO2,		
32	I MID	1.5	11-11-2023			CO1, CO2,		
No. of classes required to complete UNIT-II		16			No. of classes taken: 15			

## UNIT – III : DIELECTRIC & MAGNETIC 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
33.	DIELECTRIC MATERIALS: Introduction	1	14-11-2023		TLM1	CO3	T1	
34.	Dielectric polarization- Dielectric polarizability, Susceptibility, Dielectric constant & Displacement Vector	1	15-11-2023		TLM2	CO3	T1	
35.	Relation between the electric vectors	1	16-11-2023		TLM1	CO3	T1	
36.	Types of polarizations- Electronic (Quantitative), ionic (Quantitative) & orientation polarizations (Qualitative)	1	18-11-2023		TLM2	CO3	T1	

37.	Lorentz internal field	1	21-11-2023		TLM1	CO3	T1	
38.	Claussius-Mosotti equation	1	22-11-2023		TLM2	CO3	T1	
39.	ex dielectric constant – frequency dependence of polarization loss.	1	23-11-2023		TLM1	CO3	T1	
40.	MAGNETIC MATERIALS : Introduction:	1	25-11-2023		TLM2	CO3	T1	
41.	Magnetic dipole moment – Magnetization- Magnetic susceptibility & permeability	1	28-11-2023		TLM2	CO3	T1	
42.	Atomic origin of magnetism	1	29-11-2023		TLM2	CO3	T1	
43.	Classification of magnetic materials- Dia, para, Ferro, anti-ferro & Ferri magnetic materials	1	30-11-2023		TLM1	CO3	T1	
44.	Domain concept for Ferromagnetism & Domain walls	1	02-12-2023		TLM2	CO3	T1	
45.	Hysteresis – soft and hard magnetic materials	1	05-12-2023		TLM2	CO3	T1	
No. of classes required to complete UNIT-IV		14				No. of classes taken: 14		

## UNIT – IV: 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
46.	QUANTUM MECHANICS: Dual nature of matter- Heisenberg's Uncertainty Principle	1	06-12-2023		TLM1	CO4	T1	
47.	significance & properties of wave function	1	07-12-2023		TLM2	CO4	T1	
48.	Schrodinger's time independent and dependent wave equations	1	09-12-2023		TLM2	CO4	T1	
49.	in a one –dimensional i	1	12-12-2023		TLM1	CO4	T1	



	l well.							
50.	FREE ELECTRON THEORY: Classical free electron theory (Qualitative with discussion of merits and demerits)	1	13-12-2023		TLM2	CO4	T1	
51.	Quantum free electron theory	1	14-12-2023		TLM1	CO4	T1	
52.	electrical conductivity based on quantum free electron theory	1	16-12-2023		TLM2	CO4	T1	
53.	Fermi -Dirac distribution	1	19-12-2023		TLM2	CO4	T1	
54.	Density of states – Fermi energy	1	20-12-2023		TLM1	CO4	T1	
<b>V: SEMI CONDUCTORS</b>								
55.	SEMI CONDUCTORS: Formation of energy bands	1	21-12-2023		TLM2	CO5	T1	
56.	classification of crystalline solids- Intrinsic semiconductors	1	23-12-2023		TLM1	CO5	T1	
57.	Density of charge carriers- Electrical conductivity- Fermi level -Extrinsic semiconductors	1	26-12-2023		TLM1	CO5	T1	
58.	Density of charge carriers	1	27-12-2023		TLM1	CO5	T1	
59.	dependence of Fermi energy on carrier concentration and temperature	1	28-12-2023		TLM1	CO5	T1	
60.	Drift and Diffusion Currents	1	30-12-2023		TLM1	CO5	T1	
61.	Einstein's equation	1	02-01-2024		TLM2	CO5	T1	

62.	ect & its applications.	1	03-01-2024	TLM1	CO5	T1	
No. of classes required to complete UNIT-V		7	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	
63.	SEM	1	26-12-2023		TLM1		R1		
64.	Conventional energy sources	1	27-12-2023		TLM1		R1		
75	Mid II	1	01-01-2024			CO3, CO4, CO5			
76	Mid II	1	02-01-2024			CO3, CO4, CO5			
77	Mid II	1	03-01-2024			CO3, CO4, CO5			
78	Mid II	1	04-01-2024			CO3, CO4, CO5			
79	Mid II	1	05-01-2024			CO3, CO4, CO5			
80	Mid II	1	06-01-2024			CO3, CO4, CO5			
81	Preparation and Practicals	08-01-2024 to 20-01-2024							
82	Semester end examinations	22-01-2024 to 03-02-2024							

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	Marks
Assignment-I (Units-I, II)	A1=5
I-Descriptive Examination (Units-I, II)	M1=15
I-Quiz Examination (Units-I, II)	Q1=10
Assignment-II (Unit-III, IV & V)	A2=5
II- Descriptive Examination (UNIT-III, IV & V)	M2=15

II-Quiz Examination (UNIT-III, IV & V)	Q2=10
Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))	M=30
Cumulative Internal Examination (CIE):	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	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.

Course Instructor	Course Coordinator	Module Coordinator	HOD
Dr. S. YUSUB	Mrs. P.V. Sirisha	Dr. S. YUSUB	Dr. A. RAMI REDDY



# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

Accredited by NAAC & NBA (Under Tier - I), ISO 9001:2015 Certified Institution

Approved by AICTE, New Delhi. and Affiliated to JNTUK, Kakinada

L.B. REDDY NAGAR, MYLAVARAM, KRISHNA DIST., A.P.-521 230.

Phone: 08659-222933, Fax: 08659-222931

## DEPARTMENT OF AEROSPACE ENGINEERING

### COURSE HANDOUT

**Name of Course Instructor:** S. Indrasena Reddy

**Course Name & Code** : Engineering Graphics & 23ME01

**L-T-P Structure** : 2-0-4

**Credits:** 4

**Program/Sem/Sec** : B.Tech/I Sem

**A.Y.:** 2023-24

**PRE-REQUISITES:** - Mathematics, Physics

#### **COURSE OBJECTIVES:**

- To enable the students with various concepts like dimensioning, conventions and standards related to Engineering Drawing
- To impart knowledge on the projection of points, lines and plane surfaces
- To improve the visualization skills for better understanding of projection of solids
- To develop the imaginative skills of the students required to understand Section of solids and Developments of surfaces.
- To make the students understand the viewing perception of a solid object in Isometric and Perspective projections.

**COURSE OUTCOMES:** At the end of the course, the student will be able to:

**CO1:** Understand the principles of engineering drawing, including engineering curves, scales, orthographic and isometric projections. (**Understand**)

**CO2:** Draw and interpret orthographic projections of points, lines, planes and solids in front, top and side views. (**Apply**)

**CO3:** Understand and draw projection of solids in various positions in first quadrant. (**Apply**)

**CO4:** Able to draw the development of surfaces of simple objects (**Apply**)

**CO5:** Prepare isometric and orthographic sections of simple solids. (**Apply**)

#### **Course Articulation Matrix:**

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3	1	1	1	-						2	3	2
CO2	3	3	1	2	1	-						2	3	2
CO3	2	3	1	2	1	-						2	3	2
CO4	2	3	1	2	1	-						2	3	2
CO5	3	3	3	3	2	-						2	3	2

#### **TEXT BOOK:**

N. D. Bhatt, Engineering Drawing, Charotar Publishing House, 2016

#### **REFERENCES:**

1. Engineering Drawing, K.L. Narayana and P. Kannaiah, Tata McGraw Hill, 2013.
2. Engineering Drawing, M.B.Shah and B.C. Rana, Pearson Education Inc,2009.
3. Engineering Drawing with an Introduction to AutoCAD, DhananjayJolhe, Tata McGraw Hill, 2017.

**COURSE DELIVERY PLAN (LESSON PLAN):****UNIT-I : Introduction To Engineering Drawing**

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.	Dimensioning – Lettering, polygons, Geometrical Constructions	3	20-09-23		TLM 1	
2.	Conic Sections- Ellipse, General method	4	25-09-23		TLM 1	
3.	Parabola , Hyperbola General method	3	27-09-23		TLM 1 TLM2	
4.	Plain , Diagonal Scales	3	04-10-23		TLM 1	
5.	Vernier Scales, Involutés	4	09-10-23		TLM 1	
6.	Cycloid, Epi Cycloid and Hypo-Cycloid	3	11-10-23		TLM 1 TLM2	
7.	Orthographic Projections introduction - Projection of Points	4	16-10-23		TLM 1	
No. of classes required to complete UNIT-I		24		No. of classes taken:		

**UNIT-II : Projection of Straight Lines & Planes**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
8.	Introduction to Orthographic Projections	3	18-10-23		TLM 1	
9.	Projections of straight lines	3	25-10-23		TLM 1	
10.	Projections of straight lines inclined to one plane	4	30-10-23		TLM 1 TLM2	
11.	Projections of straight lines inclined to both the planes	3	01-11-23		TLM 1	
12.	Introduction to Projection of Planes, Planes parallel to one planes	4	06-11-23		TLM 1 TLM2	
13.	Plane inclined to both the reference planes.	3	08-11-23		TLM 1	
No. of classes required to complete UNIT-II		20		No. of classes taken:		

**UNIT-III : Projection of Solids**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
14.	Types of solids: Polyhedra and Solids of revolution	4	20-11-23		TLM 1	
15.	Projections of solids in simple positions: Axis perpendicular to horizontal plane	3	22-11-23		TLM 1 TLM2	
16.	Axis perpendicular to vertical plane and Axis parallel to both the reference planes,	4	27-11-23		TLM 1	

17.	Axis inclined to one plane	3	29-11-23		TLM 1	
18.	Axis inclined to one of the reference planes and parallel to the other	4	04-12-23		TLM 1 TLM2	
No. of classes required to complete UNIT-III		18		No. of classes taken:		

#### UNIT-IV: Sections of solids & Development of Surfaces

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
19.	Perpendicular and inclined section planes	3	06-12-23		TLM 1	
20.	Sectional views and True shape of section	4	11-12-23		TLM 1	
21.	Sections of solids in simple position	3	13-12-23		TLM 1 TLM2	
22.	Methods of Development: Parallel line development and radial line development.	4	18-12-23		TLM 1 TLM2	
23.	Development of a cube, prism, cylinder, pyramid and cone	3	20-12-23		TLM 1	
No. of classes required to complete UNIT-IV		17		No. of classes taken:		

#### UNIT-V: Conversion of Views

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
24.	Conversion of isometric views to orthographic views	3	27-12-23		TLM 1	
25.	Conversion of orthographic views to isometric views.	3	03-01-24		TLM 1 TLM2	
26.	<b>Computer graphics:</b> Creating 2D&3D drawings of objects including PCB	4	08-01-23		TLM 4	
27.	Transformations using Auto CAD	3	10-01-23		TLM 4	
No. of classes required to complete UNIT-V		13		No. of classes taken:		

#### Teaching Learning Methods

<b>TLM1</b>	Chalk and Talk	<b>TLM4</b>	Demonstration (Lab/Field Visit)
<b>TLM2</b>	PPT	<b>TLM5</b>	ICT (NPTEL/Swayam Prabha/MOOCs)
<b>TLM3</b>	Tutorial	<b>TLM6</b>	Group Discussion/Project

#### EVALUATION PROCESS:

Evaluation Task	COs	Marks
Sheet Marks	1,2,3,4,5	A=15
I-Mid Examination	1,2,3	B1=15
II-Mid Examination	3,4,5	B2=15
Evaluation of Mid Marks: $B=80\% \text{ of Max}(B1,B2)+20\% \text{ of Min}(B1,B2)$	1,2,3,4,5	B=15

<b>Cumulative Internal Examination : A+B</b>	<b>1,2,3,4,5</b>	<b>30</b>
<b>Semester End Examinations</b>	<b>1,2,3,4,5</b>	<b>C=70</b>
<b>Total Marks: A+B+C</b>	<b>1,2,3,4,5</b>	<b>100</b>

## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO 3</b>	<b>Design/development of solutions:</b> 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.
<b>PO 4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO 5</b>	<b>Modern tool usage:</b> 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
<b>PO 6</b>	<b>The engineer and society:</b> 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
<b>PO 7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO 8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	<b>Communication:</b> 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.
<b>PO 11</b>	<b>Project management and finance:</b> 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.
<b>PO 12</b>	<b>Life-long learning:</b> 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):

<b>PSO 1</b>	To apply the knowledge of Aerodynamics, Propulsion, Aircraft structures and Flight Dynamics in the Aerospace vehicle design
<b>PSO 2</b>	To prepare the students to work effectively in Aerospace and Allied Engineering organizations

Mr.S.Indrasena Reddy	Mr.S.Indrasena Reddy	Dr.P.Lovaraju
Course Instructor	Module Coordinator	HOD



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**L.B. REDDY NAGAR, MYLAVARAM, NTR DIST., A.P.-521 230.**  
Phone: 08659-222933, Fax: 08659-222931

**FRESHMAN ENGINEERING DEPARTMENT**

**COURSE HANDOUT**

**Part-A**

<b>PROGRAM</b>	: B. Tech., I-Sem., ASE
<b>ACADEMIC YEAR</b>	: 2023-2024
<b>COURSE NAME &amp; CODE</b>	: <b>ENGINEERING PHYSICS LAB &amp; 23FE53</b>
<b>L-T-P STRUCTURE</b>	: 0-0-2
<b>COURSE CREDITS</b>	: 1
<b>COURSE INSTRUCTOR</b>	: <b>Dr. S. YUSUB</b>
<b>COURSE COORDINATOR</b>	: <b>Dr. S. YUSUB</b>

**Course Objectives:**

To study the concepts of optical phenomenon like interference, diffraction etc., recognize the importance of energy gap in the study of conductivity and Hall effect in semiconductors and study the parameters and applications of dielectric and magnetic materials by conducting experiments.

**Course Outcomes:**

- CO1: Analyze the wave properties of light using optical instruments (Apply-L3).
- CO2: Estimate the elastic moduli of various materials and acceleration due to gravity (Apply-L3).
- CO3: Demonstrate the vibrations in stretched strings (Understand-L2).
- CO4: Evaluate dielectric constant and magnetic field of circular coil carrying current (Apply-L3).
- CO5: Examine the characteristics of semiconductor devices (Apply-L3).

**Course articulation matrix** (Correlation between CO's and PO's):

Engineering Physics Lab												
COURSE DESIGNED BY	FRESHMAN ENGINEERING DEPARTMENT											
Course Outcomes PO's →	Programme Outcomes											
	1	2	3	4	5	6	7	8	9	10	11	12
CO1.	3	3	2	1				1	1			1
CO2.	3	3	2	1				1	1			1
CO3.	3	3	2	1				1	1			1



CO4.	3	3	2	1				1	1			1
CO5.	3	3	2	1				1	1			1
1 = slight (Low)      2 = Moderate ( Medium)      3 = Substantial ( High)												

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

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

**BOS APPROVED TEXT BOOKS:**

1. Lab Manual Prepared by the LBRCE.

**Part-B**

**COURSE DELIVERY PLAN (LESSON PLAN): Section- ASE**

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	3	23-09-2023		TLM4	1,2,3,4	T1	
2.	Demonstration	3	30-09-2023		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
3.	Experiment 1	3	07-10-2023		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
4.	Experiment 2	3	14-10-2023		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
5.	Experiment 3	3	28-10-2023		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
6.	Experiment 4	3	04-11-2023		TLM4	CO1, CO2, CO3, CO4	T1	
7.	Experiment 5	3	18-11-2023		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
8.	Demonstration	3	25-11-2023		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
9.	Experiment 6	3	02-12-2023		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
10.	Experiment 7	3	09-12-2023		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
11.	Experiment 8	3	16-12-2023		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
12.	Experiment 9	3	23-12-2023		TLM4	CO1, CO2, CO3, CO4, CO5	T1	

13.	Experiment 10	3	30-12-2023		<b>TLM4</b>	CO1, CO2, CO3, CO4, CO5	T1	
14.	Revision	3	30-12-2024		<b>TLM4</b>	CO1, CO2, CO3, CO4, CO5	T1	
15.	<b>Internal Exam</b>	3	06-01-2024		<b>TLM4</b>	CO1, CO2, CO3, CO4, CO5	T1	
No. of classes required to complete UNIT-I		48			No. of classes taken:			

### EVALUATION PROCESS:

Evaluation Task	Expt. no's	Marks
Day to Day work = <b>A</b>	1,2,3,4,5,6,7,8	A=5
Internal test = <b>B</b>	1,2,3,4,5,6,7,8	B=5
Evaluation of viva voce = <b>C</b>	1,2,3,4,5,6,7,8	C = 5
Evaluation of attendance Marks = <b>D</b>	1,2,3,4,5,6,7,8	D = 0
<b>Cumulative Internal Examination : A + B + C + D = 15</b>	1,2,3,4,5,6,7,8	<b>15</b>
<b>Semester End Examinations = E</b>	1,2,3,4,5,6,7,8	<b>E = 35</b>
<b>Total Marks: A + B + C + D + E = 50</b>	1,2,3,4,5,6,7,8	<b>50</b>

### 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). 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 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.

Course Instructor	Course Coordinator	Module Coordinator	HOD
Dr. S. YUSUB / Mrs. P.V. Shirisha	Mrs. P.V. Sirisha	Dr. S. YUSUB	Dr A. RAMI REDDY



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## COURSE HANDOUT

### PART-A

Name of Course Instructor: K. Sridevi

Course Name & Code : CE LAB, 23FE51

L-T-P Structure : 0-0-2

Credits: 01

Program/Sem/Sec : B. Tech- I SEM- ASE

A.Y. : 2023-24

**PREREQUISITE:** NIL

**COURSE EDUCATIONAL OBJECTIVES (CEOs):** The main objective of introducing this course, Communicative English Laboratory, is to expose the students to a variety of self-instructional, learner friendly modes of language learning. The students will get trained in basic communication skills and also make them ready to face job interviews.

**COURSE OUTCOMES (COs):** At the end of the course, student will be able to

CO1	Understand the different aspect of the English language proficiency with emphasis on LSRW skills.	L2
CO2	Apply Communication Skills through various language learning activities	L3
CO3	Identifying the English speech sounds, stress, rhythm, intonation and syllable division for better listening and speaking, comprehension.	L2
CO4	Exhibit professionalism in participating in debates and group discussions.	L3

## **COURSE ARTICULATION MATRIX (Correlation between COs & POs)**

Course Outcomes	Programme Outcomes											
	1	2	3	4	5	6	7	8	9	10	11	12
PO's →												
CO1.	-	-	-	2	-	-	-	-	3	3	-	2
CO2.	-	-	-	2	-	-	-	-	3	3	-	2
CO3.	-	-	-	2	-	-	-	-	3	3	-	2
CO4.	-	-	-	2	-	-	-	-	3	3	-	2
1 = Slight (Low)                      2= Moderate (Medium)                      3 = Substantial (High)												

**List of Activities:**

1.                   a. Vowels & Consonants  
                      b. Neutralization / Accent rules
2. Communication Skills: JAM
3. Conversational Practice: Roleplay
4. e-mail Writing
5. Resume writing, Cover letter, SOP
6. Group Discussions - methods & Practice
7. Debates – Methods and practice
8. PPT Presentations
9. Poster Presentations
10. Interview Skills: Mock Interviews

Note: Any Eight of the listed activities are to be conducted.

**Suggested Software:**

1.                   Walden Infotech
2.                   Young India Films

**Reference Books:**

- Raman Meenakshi, Sangeeta-Sharma, *Technical Communication*, Oxford Press 2018.  
 Taylor Grant: *English Conversation Practice*, Tata McGraw-Hill Education India, 2016.  
 Hewing's, Martin, Cambridge Academic English (B2), CUP, 2012.  
 J. Sethi & P.V. Dhamija: *A Course in Phonetics and Spoken English*, (2<sup>nd</sup> Ed.,)Kindle, 2013.

**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 syllabus	03	22-09-2023		TLM4	
2.	Self Introduction & Introducing others	03	29-09-2023		TLM4	
3.	Vowels & Consonants	03	6-10-2023		TLM1, TLM5	
4.	Neutralization / Accent rules	03	13-10-2023		TLM1, TLM5	
5.	JAM-I(Short and Structured Talks)	03	27-10-2023		TLM4	
6.	Role Play-I(Formal and Informal)	03	03-11-2023		TLM4	
7.	e-mail Writing, Resume writing, Cover letter, SOP	03	10-11-2023		TLM1, TLM5	
8.	Group Discussion	03	24-11-2023		TLM4, TLM6	

9.	Debate	03	01-12-2023		TLM4, TLM6
10.	PPT & Poster Presentation	03	08-12-2023 15-12-2023		TLM2, TLM4
11.	Mock Interviews	03	22-12-2023 29-12-2023 05-01-2024		TLM1, TLM6
12.	Lab Internal Exam	03	12-01-2024		
<b>No. of classes required to complete Syllabus: 24</b>			<b>No. of classes taken:</b>		

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

### Laboratory Examination:

<b>Evaluation Task</b>	<b>Marks</b>
Day-to-Day Work	A1 = 10
Record & Observation	B1 = 5
Internal Exam	C1 = 15
<b>Cumulative Internal Examination (CIE): (A1+B1+C1)</b>	<b>30</b>
<b>Semester End Examination (SEE)</b>	<b>70</b>
<b>Total Marks = CIE + SEE</b>	<b>100</b>

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
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<b>PO 12</b>	<b>Life-long learning:</b> 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.

	<b>Course Instructor</b>	<b>Course Coordinator</b>	<b>Module Coordinator</b>	<b>Head of the Department</b>
<b>Name of the Faculty</b>	<b>Ms. K. Sridevi</b>	<b>Dr. R. Padma</b>	<b>Dr. A. Ramireddy</b>	<b>Dr. A. Ramireddy</b>
<b>Signature</b>				