LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING, (AUTONOMOUS)
Accredited by NAAC with 'A' Grade & NBA (Under Tier - I),
ISO 21001 : 2018, 50001 : 2018, 14001: 2015 Certified Institution
Approved by AICTE, New Delhi. and Affiliated to JNTUK, Kakinada
L.B. REDDY NAGAR, MYLAVARAM, NTR DIST., A.P.-521 230.
Phone: 08659-222933, Fax: 08659-222931

FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor: Dr. B. Samrajya Lakshmi
Course Name & Code : Communicative English & 23FE01
L-T-P Structure : **3-0-0** **Credits:** 02
Program/Sem/Sec : B. Tech, I Sem CIVIL
A.Y. : 2025-26

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

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

COURSE ARTICULATION MATRIX (Correlation between COs & POs)

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

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	2 Weeks	04-08-2025 TO 16-08-2025		TLM1	CO1		
2.	Introduction to the course				TLM1	CO1		
3.	Course Outcomes, Program Outcomes				TLM2	CO1		

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	18-08-2025 21-08-2025		TLM1 TLM 6	CO1	T1,T2	
2.	**Skimming to get main idea; Scanning for specific pieces of information**	02	22-08-2025 25-08-2025		TLM2 TLM5	CO1	T1,T2	
3.	**Mechanics of Writing: Capitalization, Spelling, Punctuation & Parts of Sentences**	02	28-08-2025 29-08-2025		TLM1 TLM6 TLM5	CO1	T1,T2	
4.	**Parts of speech**	02	01-09-2025 04-09-2025		TLM2 TLM6	CO1	T1,T2	
5.	**Basic Sentence Structures, Forming questions**	01	08-09-2025		TLM2 TLM6	CO1	T1,T2	
6.	**Synonyms, Antonyms, Affixes, Root Words**	02	11-09-2025 12-09-2025		TLM2 TLM5	CO1	T1,T2	
No. of classes required to complete UNIT-I: 11						**No. of classes taken:**		

UNIT-II:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	**Nature: The Brook by Alfred Tennyson**	02	15-09-2025 18-09-2025		TLM1 TLM 6	CO2	T1,T2	
2.	**Identifying Sequence of ideas, Linking ideas into a Paragraph**	02	19-09-2025 22-09-2025		TLM2 TLM5	CO2	T1,T2	
3.	**Structure of Paragraph – Paragraph Writing**	02	25-09-2025 26-09-2025		TLM1 TLM6 TLM5	CO2	T1,T2	
4.	**Cohesive Devices-linkers**	02	06-10-2025 09-10-2025		TLM2 TLM6	CO2	T1,T2	

5.	**Use of Articles and zero article, Prepositions**	01	10-10-2025		TLM2 TLM6	CO2	T1,T2	
6.	**Homophones, Homographs, Homonyms**	01	13-10-2025		TLM2 TLM6	CO2	T1,T2	
No. of classes required to complete UNIT-II: 10						**No. of classes taken:**		

UNIT-III:

S. No.	**Topics to be covered**	**No. of Classes Required**	**Tentative Date of Completion**	**Actual Date of Completion**	**Teaching Learning Methods**	**Learning Outcome COs**	**Text Book followed**	**HOD Sign Weekly**
1.	**Biography: Elon Musk**	02	16-10-2025 17-10-2025		TLM1 TLM 6	CO3	T1,T2	
2.	**Reading and making basic inferences – recognizing and interpreting the text clues for comprehension**	02	27-10-2025 30-10-2025		TLM2 TLM5	CO3	T1,T2	
3.	**Summarizing, Note-making, Paraphrasing**	02	31-10-2025 03-11-2025		TLM1 TLM6 TLM5	CO3	T1,T2	
4.	**Verbs- Tenses, Subject-verb agreement**	02	06-11-2025 07-11-2025		TLM2 TLM6	CO3	T1,T2	
5.	**Compound words, Collocations**	01	10-11-2025		TLM2 TLM5	CO3	T1,T2	
No. of classes required to complete UNIT-III: 09						**No. of classes taken:**		

UNIT-IV:

S. No.	**Topics to be covered**	**No. of Classes Required**	**Tentative Date of Completion**	**Actual Date of Completion**	**Teaching Learning Methods**	**Learning Outcome COs**	**Text Book followed**	**HOD Sign Weekly**
1.	**Inspiration: The Toys of Peace- by Saki**	02	13-11-2025 14-11-2025		TLM1 TLM 6	CO4	T1,T2	
2.	**Study of graphic elements in text to display complicated data**	02	17-11-2025 20-11-2025		TLM2 TLM5	CO4	T1,T2	
3.	**Letter Writing : Official Letters, Resumes**	02	21-11-2025 24-11-2025		TLM1 TLM6 TLM5	CO4	T1,T2	
4.	**Reporting verbs, Direct & Indirect Speech, Active & Passive voice**	02	27-11-2025 28-11-2025		TLM2 TLM6	CO4	T1,T2	
5.	**Words often**	01	01-12-2025		TLM2	CO4	T1,T2	

	confused, Jargons				TLM5			
No. of classes required to complete UNIT-IV: 09						**No. of classes taken:**		

UNIT-V:

S. No.	**Topics to be covered**	**No. of Classes Required**	**Tentative Date of Completion**	**Actual Date of Completion**	**Teaching Learning Methods**	**Learning Outcome COs**	**Text Book followed**	**HOD Sign Weekly**
1.	**Motivation: The Power of Interpersonal Communication**	02	04-12-2025 05-12-2025		TLM1 TLM 6	CO5	T1,T2	
2.	**Reading Comprehension**	02	08-12-2025 11-12-2025		TLM2 TLM5	CO5	T1,T2	
3.	**Structured Essays on specific topics**	02	12-12-2025 15-12-2025		TLM1 TLM6 TLM5	CO5	T1,T2	
4.	**Editing Texts – Correcting Common errors**	02	18-12-2025 19-12-2025		TLM2 TLM6	CO5	T1,T2	
5.	**Technical Jargon**	01	22-12-2025		TLM2 TLM5	CO5	T1,T2	
No. of classes required to complete UNIT-V: 09						**No. of classes taken:**		

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	26-12-2025		TLM2 &5	
2.	**One-word substitutes**	01	26-12-2025		TLM2 &5	
3.	**Technical vocabulary**	01	26-12-2025		TLM2 &5	

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 (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))	M=30
Cumulative Internal Examination (CIE):	30
Semester End Examination (SEE)	70
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.

Title	**Course Instructor**	**Course Coordinator**	**Module Coordinator**	**Head of the Department**
Name of the Faculty	**Dr. B. Samrajya Lakshmi**	**Dr. R. Padma Venkat**	**Dr. R. Padma Venkat**	**Dr. T. Satyanarayana**
Signature				

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FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

Part-A

PROGRAM	**:** I B. Tech., I-Sem., CIVIL
ACADEMIC YEAR	**:** 2025-26
COURSE NAME & CODE	**:** Linear Algebra & Calculus
L-T-P STRUCTURE	**:** 4-1-0
COURSE CREDITS	**:** 3
COURSE INSTRUCTOR	**:** Dr. D. Vijaya Kumar
COURSE COORDINATOR	**:** Dr. K.Bhanu Lakshmi
PRE-REQUISITES	**:** 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", 44nd Edition, Khanna Publishers, New Delhi, 2017.

T2 Erwin Kreyszig, *"Advanced Engineering Mathematics"*, 10th Edition, John Wiley & sons, New Delhi, 2018.

BOS APPROVED REFERENCE BOOKS:

R1 George B. Thomas, Maurice D. Weir and Joel Hass, "*Thomas Calculus*", 14th Edition, Pearson Publishers, 2018.

R2 R.K. Jain and S.R.K. Iyengar, "*Advanced Engineering Mathematics*", 5th Edition (9th reprint), Alpha Science International Ltd., 2021.

R3 Glyn James, "*Advanced Modern Engineering Mathematics*", 5th Edition, Pearson Publishers, 2018.

R4 Michael D.Greenberg, "*Advanced Engineering Mathematics*", 9th Edition, Pearson Publishers.

R5 H.K. Das, Er. Rajnish Verma, "*Higher Engineering Mathematics*", 3rd 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	04-08-2025 To 16-08-2025	04-08-2025 To 16-08-2025	TLM1			
2.	Introduction to the course	1	18-08-2025		TLM1			
3.	Course Outcomes, Program Outcomes	1	18-08-2025		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	19-08-2025		TLM1	CO1	T1,T2	
5.	Rank of a matrix	1	20-08-2025		TLM1	CO1	T1,T2	
6.	Echelon form	1	21-08-2025		TLM1	CO1	T1,T2	
7.	Normal form	1	25-08-2025		TLM1	CO1	T1,T2	
8.	Cauchy-Binet formulae	1	25-08-2025		TLM3	CO1	T1,T2	
9.	Inverse by Gauss-Jordan method	1	26-08-2025		TLM1	CO1	T1,T2	
10.	System of Linear Equations	1	28-08-2025		TLM1	CO1	T1,T2	
11.	**TUTORIAL I**	1	01-09-2025		TLM3	CO1	T1,T2	
12.	Homogeneous System of Equations	1	01-09-2025		TLM1	CO1	T1,T2	
13.	Homogeneous System of Equations	1	02-09-2025		TLM1	CO1	T1,T2	
14.	Non-Homogeneous System of Equations	1	03-09-2025		TLM1	CO1	T1,T2	
15.	Gauss Elimination Method	1	04-09-2025		TLM1	CO1	T1,T2	
16.	**TUTORIAL II**	1	08-09-2025		TLM3	CO1	T1,T2	
17.	Jacobi Iteration Method	1	08-09-2025		TLM1	CO1	T1,T2	
18.	Jacobi Iteration Method	1	09-09-2025		TLM1	CO1	T1,T2	
19.	Gauss-Seidel Method	1	10-09-2025		TLM1	CO1	T1,T2	
20.	Gauss-Seidel Method	1	11-09-2025		TLM1	CO1	T1,T2	
21.	**TUTORIAL III**	1	15-09-2025		TLM3	CO1	T1,T2	
No. of classes required to complete UNIT-I		21			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
22.	Introduction to Unit II	1	15-09-2025		TLM1	CO2	T1,T2	
23.	Eigen values, Eigen vectors	1	16-09-2025		TLM1	CO2	T1,T2	
24.	Eigen values, Eigen vectors	1	17-09-2025		TLM1	CO2	T1,T2	
25.	Properties	1	18-09-2025		TLM1	CO2	T1,T2	
26.	**TUTORIAL IV**	1	22-09-2025		TLM3	CO2	T1,T2	

27.	Properties	1	22-09-2025		TLM1	CO2	T1,T2	
28.	Cayley-Hamilton Theorem	1	23-09-2025		TLM1	CO2	T1,T2	
29.	Finding Inverse and Powers of matrix	1	24-09-2025		TLM1	CO2	T1,T2	
30.	Finding Inverse and Powers of matrix	1	25-09-2025		TLM1	CO2	T1,T2	
31.	**TUTORIAL V**	1	06-10-2025		TLM3	CO2	T1,T2	
32.	Diagonalization of a matrix	1	06-10-2025		TLM1	CO2	T1,T2	
33.	Diagonalization of a matrix	1	07-10-2025		TLM1	CO2	T1,T2	
34.	Quadratic Forms, Nature of Quadratic Forms	1	08-10-2025		TLM1	CO2	T1,T2	
35.	Quadratic Forms, Nature of Quadratic Forms	1	09-10-2025		TLM1	CO2	T1,T2	
36.	**TUTORIAL VI**	1	13-10-2025		TLM3	CO2	T1,T2	
37.	Reduction of Quadratic form to Canonical form	1	13-10-2025		TLM1	CO2	T1,T2	
38.	Reduction of Quadratic form to Canonical form	1	14-10-2025		TLM1	CO2	T1,T2	
39.	Orthogonal Transformation	1	15-10-2025		TLM1	CO2	T1,T2	
40.	**TUTORIAL VII**	1	16-10-2025		TLM3	CO2	T1,T2	
No. of classes required to complete UNIT-II		20			No. of classes taken:			

I MID EXAMINATIONS (20-10-2025 TO 25-10-2025)

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
41.	Introduction to Unit III	1	27-10-2025		TLM1	CO3	T1,T2	
42.	Mean Value theorem	1	27-10-2025		TLM1	CO3	T1,T2	
43.	Rolle's theorem	1	28-10-2025		TLM3	CO3	T1,T2	
44.	Rolle's theorem	1	29-10-2025 30 -10 - 2025		TLM1	CO3	T1,T2	
45.	**TUTORIAL VIII**	1	03-11-2025		TLM3	CO3	T1,T2	
46.	Lagrange's mean value theorem	1	03-11-2025		TLM1	CO3	T1,T2	
47.	Lagrange's mean value theorem	1	04-11-2025		TLM3	CO3	T1,T2	
48.	Cauchy's mean value theorem	1	05-11-2025		TLM1	CO3	T1,T2	
49.	Cauchy's mean value theorem	1	06-11-2025		TLM1	CO3	T1,T2	
50.	**TUTORIAL IX**	1	10-11-2025		TLM3	CO3	T1,T2	
51.	Taylor's theorem	1	10-11-2025		TLM1	CO3	T1,T2	
52.	Taylor's theorem	1	11-11-2025		TLM1	CO3	T1,T2	
53.	Maclaurin's theorem	1	12-11-2025		TLM3	CO3	T1,T2	
54.	Problems and applications	1	13-11-2025		TLM1	CO3	T1,T2	
55.	**TUTORIAL X**	1	17-11-2025		TLM3	CO3	T1,T2	
No. of classes required to complete UNIT-III		15			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
56.	Introduction to Unit IV	1	17-11-2025		TLM1	CO4	T1,T2	
57.	Functions of several variables, Continuity and Differentiability	1	18-11-2025		TLM1	CO4	T1,T2	
58.	Partial Derivatives	1	19 -11-2025		TLM1	CO4	T1,T2	
59.	Total derivatives, Chain rule, Directional Derivative	1	20-11-2025		TLM1	CO4	T1,T2	
60.	**TUTORIAL XI**	1	24-11-2025		TLM3	CO4	T1,T2	
61.	Taylor's Series expansion	1	24-11-2025		TLM1	CO4	T1,T2	
62.	Maclaurin's series expansion	1	25-11-2025		TLM1	CO4	T1,T2	
63.	Jacobian	1	26-11-2025		TLM1	CO4	T1,T2	
64.	Jacobian	1	27-11-2025		TLM1	CO4	T1,T2	
65.	**TUTORIAL XII**	1	01-12-2025		TLM3	CO4	T1,T2	
66.	Functional Dependence	1	01-12-2025		TLM1	CO4	T1,T2	
67.	Maxima and Minima	1	02-12-2025		TLM1	CO4	T1,T2	
68.	Lagrange Multiplier Method	1	03-12-2025		TLM3	CO4	T1,T2	
69.	Lagrange Multiplier Method	1	04-12-2025		TLM1	CO4	T1,T2	
70.	**TUTORIAL XIII**	1	08-12-2025		TLM3	CO4	T1,T2	
No. of classes required to complete UNIT-IV		15			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
71.	Introduction to Unit-V	1	08-12-2025		TLM1	CO5	T1,T2	
72.	Double Integrals - Cartesian coordinates	1	09-12-2025		TLM1	CO5	T1,T2	
73.	Double Integrals- Polar co ordinates	1	10-12-2025		TLM1	CO5	T1,T2	
74.	Triple Integrals - Cartesian coordinates	1	11-12-2025		TLM1	CO5	T1,T2	
75.	**TUTORIAL XIV**	1	15-12-2025		TLM3	CO5	T1,T2	
76.	Triple Integrals - Spherical coordinates	1	15-12-2025		TLM1	CO5	T1,T2	
77.	Change of order of Integration	1	16-12-2025		TLM1	CO5	T1,T2	
78.	Change of order of Integration	1	17-12-2025		TLM1	CO5	T1,T2	
79.	Change of variables	1	18-12-2025		TLM1	CO5	T1,T2	
80.	Finding area by double Integral	1	22-12-2025		TLM1	CO5	T1,T2	
81.	**TUTORIAL XV**	1	22-12-2025		TLM3	CO5	T1,T2	

82.	Finding Volume by double and triple Integral	1	23-12-2025		TLM1	CO5	T1,T2	
83.	**TUTORIAL XVI**	1	24-12-2025		TLM3	CO5	T1,T2	
No. of classes required to complete UNIT-V		13			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
84.	Other applications of double integral	1	15-12-2025		TLM2	CO5	T1,T2	
No. of classes		1			No. of classes taken:			
II MID EXAMINATIONS (29-12-2025 TO 03-01-2025)								

Teaching Learning Methods			
TLM1	Chalk and Talk	**TLM4**	Demonstration (Lab/Field Visit)
TLM2	PPT	**TLM5**	ICT (NPTEL/SwayamPrabha/MOOCS)
TLM3	Tutorial	**TLM6**	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))	M=30
Cumulative Internal Examination (CIE):	30
Semester End Examination (SEE)	70
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 modeling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**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.

Dr. D. Vijaya Kumar	**Dr. K. Bhanu Lakshmi**	**Dr. A. Rami Reddy**	**Dr. T. Satyanarayana**
Course Instructor	Course Coordinator	Module Coordinator	HOD

FRESHMANENGINEERINGDEPARTMENT

COURSEHANDOUT

PART-A

PROGRAM	**:I B.Tech.,I-Sem.,CIVIL**
ACADEMICYEAR	**:2025-26**
COURSENAME &CODE	**: ENGINEERING PHYSICS**
L-T-PSTRUCTURE	**:4-0-0**
COURSECREDITS	**3**
COURSEINSTRUCTOR	**:Dr. P. Sobhanachalam**
PRE-REQUISITE	**:Basic Knowledge of Physics**

Course Objectives:

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.

COURSEOUTCOMES(COs): At the end of this course, the student will be able to

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

COURSEARTICULATIONMATRIX(Correlation between COs, Pos & PSOs):

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

TEXT BOOKS

1. A Text book of "Engineering Physics" M.N. Avadhanulu, P.G. Kshirsagar, TVS Arun Murthy, S. Chand & Co., 11th 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).

WEBRESOURCES

1. http://www.loc.gov/rr/scitech/selected-internet/physics.html
2. http://www.freebookcentre.net/Physics/Solid-State-Physics-Books.html
3. http://physicsdatabase.com/free-physics-books/
4. http://www.e-booksdirectory.com
5. http://www.thphys.physics.ox.ac.uk

TEACHINGLEARNINGMETHODS			
TLM-1	Chalk and Talk	**TLM-4**	Demonstration(Lab/Field Visit)
TLM-2	PPT/A illustrations	**TLM-5**	ICT(NPTEL/Swayam Prabha /MOOCS)
TLM-3	Tutorial/Quiz/Assignment	**TLM-6**	Group Discussion/Project

PART-B

COURSEDELIVERYPLAN(LESSONPLAN):

UNIT-I:INTERFERENCE,DIFFRACTION& POLARIZATION

Course Outcome :-CO1;TextBook:-T1,R2

S.No.	Topics to be covered	No.of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign	Remarks
1.	Introduction to the Subject, Course Outcomes	1	19.8.25		**TLM-2**		
2.	Principle of superposition, Interference of light	1	20.8.25		**TLM-3**		
3.	Interference in thin films by reflection & applications	1	21.8.25		**TLM-2**		
4.	Colors in thin films, Newton's rings	1	22.8.25		**TLM-1**		
5.	Determination of wavelength and refractive index	1	26.8.25		**TLM-4**		
6.	Problems& Assignment/Quiz	1	28.8.25		**TLM-1**		
7.	Introduction, Fresnel and	1	29.8.25		**TLM-3**		

	Fraunhoffer diffractions						
8.	Fraunhoffer diffraction due to single slit	1	2.9.25		**TLM-2**		
9.	Double slit& N slits(Qualitative)	1	3.9.25		**TLM-4**		
10.	Diffraction Grating, Dispersive power & Resolving power of Grating-Qualitative	1	4.9.25		**TLM-4**		
11.	Problems& Assignment/Quiz	1	5.9.25		**TLM-3**		
12.	Introduction – Types of polarization	1	9.9.25		**TLM-2**		
13.	Polarization by reflection, refraction & double refraction	1	10.9.25		**TLM-2**		
14.	Nicol's prism	1	11.9.25		**TLM-5**		
15.	Half wave and Quarter wave plates	1	12.9.25		**TLM-2**		
16.	Problems& Assignment/Quiz	1	16.9.25		**TLM-3**		
No.of classes required to complete UNIT-I:16				No.of classes taken:			

UNIT-II:CRYSTALLOGRAPHY & X– RAY DIFFRACTION

Course Outcome :-CO2;TextBook:-T1,R2

S.No.	Topics to be covered	No.of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign	Remarks
1.	Space lattice; Basis, Unit cell & Lattice parameters	1	17.9.25		**TLM-3**		
2.	Bravais Lattices	1	18.9.25		**TLM-2**		
3.	Crystal Systems(3D)	1	19.9.25		**TLM-2**		
4.	Coordination number – Packing fraction of –SC, BCC	1	23.9.25		**TLM-1**		
5.	Coordination number – Packing fraction of FCC	1	24.9.25		**TLM-1**		
6.	Miller indices& Properties	1	25.9.25		**TLM-2**		
7.	Separation between successive (hkl) planes	1	26.9.25		**TLM-1**		

8.	Bragg's law; X–ray Diffractometer	1	7.10.25		**TLM-3**		
9.	Crystal Structure determination by Laue's method	1	8.10.25		**TLM-2**		
10.	Crystal Structure determination by Powder method	1	9.10.25		**TLM-5**		
11.	Problems	1	10.10.25		**TLM-3**		
12.	Assignment	1	14.10.25		**TLM-3**		
13.	Quiz	1	15.10.25		**TLM-3**		
14.	Revision	1	16.10.25		**TLM-3**		
15.	Revision	1	17.10.25		**TLM-3**		
16.	MID-1 Examinations	1	21.10.25		**----**		
17.	MID-1 Examinations	1	22.10.25		**----**		
18.	MID-1 Examinations	1	23.10.25		**----**		
19.	MID-1 Examinations	1	24.10.25		**----**		
No.of classes required to complete UNIT-II: 15				No.of classes taken:			

UNIT-III :DIELECTRIC & MAGNETIC MATERIALS

Course Outcome :-CO3;TextBook:-T1,R2

S.No	Topics to be covered	No.of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign	Remarks
1.	Dielectric polarization Dielectric polarizability, Susceptibility	1	28.10.25		**TLM-2**		
2.	Dielectric constant & Displacement Vector, Relation between the electric vectors	1	29.10.25		**TLM-3**		
3.	Types of polarizations-Electronic polarization	1	30.10.25		**TLM-1**		
4.	Types of polarizations- ionic &	1	31.10.25		**TLM-1**		

	orientation polarizations (Qualitative)						
5.	Lorentz internal field	1	4.11.25		**TLM-2**		
6.	Claussius-Mosotti equation, Complex dielectric constant	1	5.11.25		**TLM-1**		
7.	Frequency dependence of polarization dielectric loss	1	6.11.25		**TLM-5**		
8.	Problems& Assignment/Quiz	1	7.11.25		**TLM-3**		
9.	Introduction Magnetic dipole moment, Magnetization Magnetic susceptibility & permeability	1	11.11.25		**TLM-4**		
10.	Atomic origin of magnetism	1	12.11.25		**TLM-1**		
11.	Classification of magnetic materials-Dia, para, Ferro, anti-ferro & Ferri magnetic materials	1	13.11.25		**TLM-2**		
12.	Domain concept for Ferromagnetism & Domain walls	1	14.11.25		**TLM-2**		
13.	Hysteresis	1	18.11.25		**TLM-5**		
14.	soft and hard magnetic materials	1	19.11.25		**TLM-1**		
15.	Problems& Assignment/Quiz	1	20.11.25		**TLM-3**		
No.of classes required to complete UNIT-III:15				No.of classes taken:			

UNIT-IV :QUANTUM MECHANICS&FREEELECTRONTHEORY

Course Outcome :-CO4;TextBook:-T1,R2

S.No.	Topics to be covered	No.of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign	Remarks
1.	Dual nature of matter,De-Broglie's Hypothesis	1	21.11.25		**TLM-2**		
2.	Heisenberg's Uncertainty Principle	1	25.11.25		**TLM-2**		
3.	Significance & properties of wave function	1	26.11.25		**TLM-2**		
4.	Schrodinger's time independent and dependent wave equations	1	27.11.25		**TLM-1**		

5.	Particle in a one – dimensional infinite potential well	1	28.11.25		**TLM-1**		
6.	Problems& Assignment/Quiz	1	2.12.25		**TLM-3**		
7.	Classical free electron theory-merits and demerits, Quantum free electron theory	1	3.12.25		**TLM-2**		
8.	Electrical conductivity based on quantum free electron theory	1	4.12.25		**TLM-1**		
9.	Fermi -Dirac distribution and temperature dependence	1	5.12.25		**TLM-5**		
10.	Density of states, Fermi energy	1	9.12.25		**TLM-1**		
11.	Problems& Assignment/Quiz	1	10.12.25		**TLM-3**		
No.of classes required to complete UNIT-IV:11				No.of classes taken:			

UNIT-V:SEMICONDUCTORPHYSICS

Course Outcome :-CO5;TextBook:-T2,R1

S.No.	Topics to be covered	No.of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign	Remarks
1.	Formation of energy bands, Classification of crystalline solids	1	11.12.25		**TLM-6**		
2.	Intrinsic semiconductors, Density of charge carriers	1	12.12.25		**TLM-1**		
3.	Electrical conductivity, Fermi level	1	16.12.25		**TLM-2**		
4.	Extrinsic semiconductors, Density of charge carriers	1	17.12.25		**TLM-1**		
5.	Dependence of Fermi energy on carrier concentration &temperature	1	18.12.25		**TLM-2**		
6.	Drift and Diffusion Currents, Einstein's equation	1	19.12.25		**TLM-1**		
7.	Hall Effect & its applications	1	23.12.25		**TLM-4**		

8.	Problems& Assignment/Quiz	1	24.12.25		**TLM-3**		
9.	Problems& Assignment/Quiz	1	26.12.25		**TLM-3**		
10.	MID-2 Examinations	1	30.12.25		**----**		
11.	MID-2 Examinations	1	31.12.25		**----**		
12.	MID-2 Examinations	1	1.1.26		**----**		
13.	MID-2 Examinations	1	2.1.26		**----**		
No.of classes required to complete UNIT-V:9				No.of classes taken:			

PART-C

EVALUATION PROCESS(R-23Regulation)

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): M	**30**
Semester End Examination (SEE)	**70**
Total Marks = CIE + SEE	**100**

PART-D

PROGRAMMEOUTCOMES(POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineeringfundamentals,andanengineeringspecializationtothesolutionofcomplex Engineeringproblems.
PO 2	**Problemanalysis**:Identify,formulate,reviewresearchliteratureandanalyze complexengineeringproblemsreachingsubstantiatedconclusionsusingfirstprinciplesofmathematics,naturalsciencesand engineeringsciences.
PO 3	**Design/developmentofsolutions**:Designsolutionsforcomplexengineeringproblems and design system components or processes that meet the specified needswithappropriateconsiderationforthepublichealthandsafetyandthecultural, Societalandenvironmentalconsiderations.

PO 4	**Conductinvestigationsofcomplexproblems**:Useresearch-basedknowledgeand Researchmethodsincludingdesignofexperiments,analysisandinterpretationofdataandsynthesisoftheinformationtoprovidevalidconclusions.
PO 5	**Moderntoolusage**:Create,select,andapplyappropriatetechniques,resources,and modernengineeringandITtoolsincludingpredictionandmodelingtocomplexengineeringactivitieswithanunderstandingofthe limitations
PO 6	**The engineer and society**:Apply reasoninginformedby the contextual knowledgetoassesssocietal,health,safety,legalandculturalissuesandtheconsequent responsibilitiesrelevanttotheprofessionalengineeringpractice
PO 7	**Environmentandsustainability**:Understandtheimpactoftheprofessionalengineeringsolutionsinsocietalandenvironmentalcontexts,anddemonstratetheknowledgeofandneed forsustainabledevelopment.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and Responsibilitiesandnormsoftheengineeringpractice.
PO 9	**Individualandteamwork**:Functioneffectivelyasanindividual,andasamember orleaderindiverseteams,andinmultidisciplinarysettings.
PO 10	**Communication**: Communicate effectively on complex engineering activities withtheengineeringcommunityandwithsocietyatlarge,suchas,beingabletocomprehendandwriteeffectivereportsanddesigndocumentation,makeeffectivepresentations, giveandreceiveclearinstructions.
PO 11	**Projectmanagementandfinance**: Demonstrate knowledge andunderstandingofthe engineering and management principles and apply these to one's own work, as amemberandleaderinateam,tomanageprojectsandinmultidisciplinary environments.
PO 12	**Life-longlearning**:Recognizetheneedforandhavethepreparationandabilityto engageinindependentandlife-longlearninginthebroadestcontextoftechnologicalchange.

CourseInstructor	CourseCoordinator	ModuleCoordinator	HOD
Dr. P. Sobhanachalam	**Dr.S.YUSUF**	**Dr.S.YUSUF**	**Dr.T. Satyanarayana**

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
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DEPARTMENT OF CIVIL ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: J. RANGAIAH

Course Name & Code : Basic Civil and Mechanical Engineering & 23CM01

L-T-P Structure **: 3-0-0** **Credits:** 3

Program/Sem/Sec : B.Tech., I-I-Sem., CIVIL **A.Y.:** 2025-26

PREREQUISITE: Nil

COURSE EDUCATIONAL OBJECTIVES (CEOs):

- Get familiarized with the scope and importance of Civil Engineering sub-divisions.
- Introduce the preliminary concepts of surveying.
- Acquire preliminary knowledge on Transportation and its importance in nation's economy.
- Get familiarized with the importance of quality, conveyance and storage of water.
- Introduction to basic civil engineering materials and construction techniques.

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

CO1:	Describe various sub-divisions of Civil Engineering and to appreciate their role in societal development. **(Understand)**
CO2:	Outline the concepts of surveying and obtain the theoretical measurement of distances, angles and levels through surveying. **(Understand)**
CO3:	Classify the various materials used in construction and highway engineering and identify their appropriate usage as per the needs. **(Understand)**
CO4:	Illustrate the fundamental principles involved in transportation network system, their individual components and their engineering importance. **(Understand)**
CO5:	Explain the quality parameters of various water sources and functions of selected water storage and conveyance structures. **(Understand)**

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	-	-	-	2	-	2	-	-	-	-	-	2	-	2
CO2	-	-	-	-	2	-	2	-	-	-	-	-	-	-	-
CO3	1	-	-	-	2	-	2	-	-	-	-	-	-	-	2
CO4	1	-	-	-	1	-	-	-	-	-	-	3	-	-	-
CO5	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-
1 - Low **2** –Medium **3** - High															

Textbooks:

1. Basic Civil Engineering, M.S.Palanisamy, , Tata Mcgraw Hill publications (India) Pvt. Ltd. Fourth Edition.
2. Introduction to Civil Engineering, S.S. Bhavikatti, New Age International Publishers. 2022. First Edition.
3. Basic Civil Engineering, Satheesh Gopi, Pearson Publications, 2009, First Edition.

Reference Books:

1. Surveying, Vol- I and Vol-II, S.K. Duggal, Tata McGraw Hill Publishers 2019. Fifth Edition.
2. Hydrology and Water Resources Engineering, Santosh Kumar Garg, Khanna Publishers, Delhi. 2016
3. Irrigation Engineering and Hydraulic Structures - Santosh Kumar Garg, Khanna Publishers, Delhi 2023. 38th Edition.
4. Highway Engineering, S.K.Khanna, C.E.G. Justo and Veeraraghavan, Nemchand and Brothers Publications 2019. 10th Edition.
5. Indian Standard DRINKING WATER — SPECIFICATION IS 10500-2012.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: Basics of Civil Engineering

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 CO's & PO's, Subject	1	18-08-2025		**TLM2**	
2.	**Basics of Civil Engineering:** Role of Civil Engineers in Society	1	19-08-2025		**TLM2**	
3.	Various Disciplines of Civil Engineering- Structural Engineering-	1	20-08-2025		**TLM2**	
4.	Geo-technical Engineering-Transportation Engineering	1	23-08-2025		**TLM2**	
5.	Hydraulics and Water Resources Engineering	1	25-08-2025		**TLM2**	
6.	Environmental Engineering-Scope of each discipline - Building Construction and Planning-	1	26-08-2025		**TLM2**	
7.	Construction Materials-Cement -types	1	30-08-2025		**TLM2**	
8.	Aggregate types- Bricks-classifications	1	01-09-2025		**TLM2**	
9.	Steel-properties - types Cement concrete- Applications	1	02-09-2025		**TLM2**	
10.	Introduction to Prefabricated construction Techniques, Over view-Prefabricated construction	1	03-09-2025		**TLM2**	
No. of classes required to complete UNIT-I: 10				**No. of classes taken:**		

UNIT-II: Surveying

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.	Objectives of Surveying, Horizontal Measurements	1	06-09-2025		**TLM2**	
2.	Angular Measurements, Compass survey	1	08-09-2025		**TLM2**	
3.	Introduction to Bearings,	1	09-09-2025		**TLM2**	
4.	Simple problems on bearings	1	10-09-2025		**TLM2**	
5.	Levelling introduction-	1	15-09-2025		**TLM2**	
6.	Practice problems	1	16-09-2025		**TLM2**	
7.	Levelling instruments used for levelling	1	17-09-2025		**TLM1**	
8.	Practice problems	1	20-09-2025		**TLM1**	
9.	Practice problems	1	22-09-2025		**TLM2**	
10.	Contour mapping	1	23-09-2025		**TLM2**	
No. of classes required to complete UNIT-II: 10				**No. of classes taken:**		

UNIT-III: Transportation Engineering & Water Resources and Environmental Engineering

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.	Transportation Engineering Importance of Transportation in Nation's economic development	1	24-09-2025		**TLM2**	
2.	Types of Highway Pavements	1	27-09-2025		**TLM2**	
3.	Basics of Harbour, Tunnel	1	06-10-2025		**TLM2**	
4.	Basics of Airport, Railway Engineering	1	07-10-2025		**TLM2**	
5.	Water Resources and Environmental Engineering Introduction	1	08-10-2025		**TLM2**	
6.	Sources of water, Quality of water-Specifications	1	13-10-2025		**TLM2**	
7.	Introduction to Hydrology	1	14-10-2025		**TLM2**	
8.	Rainwater Harvesting-Water Storage and Conveyance Structures	1	15-10-2025		**TLM2**	
9.	Simple introduction to Dams and Reservoirs	1	18-10-2025		**TLM2**	
No. of classes required to complete UNIT-III: 09				**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 (R23 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III)	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III)	M1=15
I-Quiz Examination (Units-I, II & UNIT-III)	Q1=10
Assignment-II (Unit- IV, V & VI)	A2=5
II- Descriptive Examination (Unit- IV, V & VI)	M2=15
II-Quiz Examination (Unit- IV, V & VI)	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): M	30
Semester End Examination (SEE)	70
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 modeling to complex engineering activities with an understanding of the limitations
PO 6	The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
PO 7	Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable

	development.
PO 8	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	Individual and 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	Possesses necessary skill set to analyse and design various systems using analytical and software tools related to civil engineering
PSO 2	Possesses ability to plan, examine and analyse the various laboratory tests required for the professional demands
PSO 3	Possesses basic technical skills to pursue higher studies and professional practice in civil engineering domain

Title	**Course Instructor**	**Course Coordinator**	**Head of the Department**
Name of the Faculty	**J.Rangaiah**	**B. Ramakrishna**	**Dr. K.V.Ramana**
Signature			

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF CIVIL ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Dr. J. Venkateswara Rao, Professor,
Dr. C. Rajamallu, Sr. Assistant Professor
Mr. B. Narasimha Rao, Sr. Assistant Professor

Course Name & Code : Engineering Graphics–23ME01
L-T-P Structure : **3-0-4** **Credits:** 3
Program/Sem/Sec : B.Tech, I SEM, CE **A.Y.:**2025-26

PREREQUISITE: Engineering Physics, Mathematics

COURSE EDUCATIONAL OBJECTIVES (CEOs):

- 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 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 (COs): At the end of the course, 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 (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	2	3	-	-	-	-	-	-	3	-	1	3
CO2	3	3	1	2	1	-	-	-	-	-	-	3	-	1	3
CO3	3	3	3	2	1	-	-	-	-	-	-	3	-	1	3
CO4	3	2	3	2	3	-	-	-	-	-	-	3	-	1	3
CO5	2	3	3	2	1	-	-	-	-	-	-	3	-	1	3
1 - Low					**2 –**Medium							**3 -** High			

TEXTBOOKS:

T1 N. D. Bhatt, Engineering Drawing, Charotar Publishing House, 2016.

REFERENCE BOOKS:

R1 Engineering Drawing, K.L. Narayana and P. Kannaiah, Tata McGraw Hill, 2013.

R2 Engineering Drawing, M.B.Shah and B.C. Rana, Pearson Education Inc,2009.

R3 Engineering Drawing with an Introduction to AutoCAD, DhananjayJolhe, Tata McGraw Hill, 2017

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: INTRODUCTION TO ENGINEERING GRAPHICS, LETTERING, SCALES, CURVES, ORTHOGRAPHIC PROJECTIONS

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 CO's, PO's & Fundamentals and Role Engineering Graphics	03	19.08.2025		TLM 1,2	
2.	Instruments needed and their use-Conventions in Drawing, – BIS Conventions, Lines, Lettering, and Dimensioning Practice	03	21.08.2025		TLM 1, 2, 3	
3.	Geometrical Constructions and Constructing regular polygons by general methods, Practice. Scales: Plain scales, diagonal scales, and vernier scales	03	26.08.2025		TLM 1,2	
4.	Construction of Ellipse, Parabola and Hyperbola by general method -Practice	03	28.08.2025		TLM 1, 2, 3	
5.	Construction of Cycloids, Involutes, Normal and tangent to Curves, Practice	03	02.09.2025		TLM 1, 2, 3	
6.	Orthographic Projections: Reference plane, importance of reference lines or Plane, Practice	03	04.09.2025		TLM 1, 2, 3	
7.	Projections of a points situated in any one of the four quadrants, Practice	03	09.09.2025		TLM 1, 2, 3	
8.	Review on Unit-1 and Practice	03	11.09.2025		TLM 1, 2, 3	
No. of classes required to complete UNIT-I: 24				**No. of classes taken:**		

UNIT-II: PROJECTIONS OF STRAIGHT LINES & PROJECTIONS OF 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
9.	Projections of straight lines parallel to both reference planes, perpendicular to one reference plane, and parallel to other reference planes, Practice.	03	16.09.2025		TLM 1, 2, 3	
10	Projections of lines inclined to one reference plane and parallel to the other reference plane, Practice	03	18.09.2025		TLM 1, 2, 3	
11	Projections of Straight Line Inclined to both the reference planes, Practice	03	23.09.2025		TLM 1, 2, 3	
12	Projections of Regular planes Perpendicular to both reference planes, parallel to one reference plane, and inclined to the other reference plane, Practice	03	25.09.2025		TLM 1, 2, 3	
13	Projections of planes inclined to both the reference planes, Practice	03	07.10.2025		TLM 1, 2, 3	
14	Review on Unit-II and Practice	03	09.10.2025		TLM 1, 2, 3	
15	Practice on miscellaneous problems	03	14.10.2025		TLM 1, 2, 3	
16	Additional Practice session	03	16.10.2025		TLM 1, 2, 3	
No. of classes required to complete UNIT-II: 24				**No. of classes taken:**		

MID-1 Examination	**20.10.2025-25.10.2025**

UNIT-III: PROJECTIONS 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
17.	Polyhedra and Solids of revolution. Projections of solids in simple positions: Axis perpendicular to HP, Practice	03	28.10.2025		TLM 1, 2, 3	
18.	Projections of solids in simple positions: Axis perpendicular to VP and Axis parallel to both the reference planes	03	30.10.2025		TLM 1, 2, 3	
19.	Practice	03	04.11.2025		TLM 3	
20.	Projection of Solids with axis inclined to one reference plane and parallel to another plane, Practice	03	06.11.2025		TLM 1, 2, 3	
21.	Practice	03	11.11.2025		TLM 3	
22.	Practice on miscellaneous problems	03	13.11.2025		TLM 1, 2, 3	
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
23.	Introduction to Sections of Solids and Development of Surfaces: Perpendicular and inclined section planes	03	18.11.2025		TLM 1, 2, 3	
24.	Sectional views and True shape of section, Practice	03	20.11.2025		TLM 1, 2, 3	
25.	Sections of solids in simple position only, Practice	03	25.11.2025		TLM 1, 2, 3	
26.	Introduction to Methods of Development of Surfaces, Parallel Line Development (Plane Surfaces), Practice	03	27.11.2025		TLM 1, 2, 3	
27.	Radial Line Development, practice	03	02.12.2025		TLM 1, 2, 3	
28.	Practice	03	04.12.2025		TLM3	
No. of classes required to complete UNIT-IV: 18				**No. of classes taken:**		

UNIT-V: CONVERSION OF VIEWS & COMPUTER GRAPHICS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
52.	Introduction to Isometric Views, Conversion of Views: Conversion of isometric views to orthographic views;	03	09.12.2025		TLM 1, 2, 3	
53.	Practice	03	11.12.2025		TLM 1, 2, 3	
54.	Conversion of orthographic views to isometric views-Practice	03	16.12.2025		TLM 1, 2, 3	
55.	**Computer Graphics**: Creating 2D & 3D drawings of objects, including PCB and Transformations using Auto CAD	03	18.12.2025		TLM1,2	
56.	Practice	03	23.12.2025		TLM 1, 3	
No. of classes required to complete UNIT-V: 15				**No. of classes taken:**		
MID – II Examination				**29.12.2025 – 03.01.2026**		
Preparation & Practicals				**05.01.2026 – 10.01.2026**		
Semester End Examinations				**19.01.2026 – 31.01.2026**		

TEACHING -LEARNING METHODS:

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

PART-C

EVALUATION PROCESS (R23 Regulation):

Evaluation Task	Marks
I-Descriptive Examination (Units-I,II)	M1=15
II-Descriptive Examination (UNIT-III,IV&V)	M2=15
Day to Day Evaluation (UNITs - I, II, III, IV & V)	15
Mid Marks(M) =80% of Max(M1,M2)+20%of Min(M1,M2)	M=30
Cumulative Internal Examination(CIE):M+DDE	30
Semester End Examination(SEE)	70
Total Marks=CIE+SEE	100

PART-D

PROGRAM EDUCATIONAL OBJECTIVES (PEOS):

PEO1	To possess knowledge in both fundamental and application aspects of mathematical, scientific, engineering principles to analyze complex engineering problems for meeting the national and international requirements and demonstrating the need for sustainable development
PEO2	To adapt to the modern engineering tools for planning, analysis, design, implementation of analytical data and assess their relevant significance in societal and legal issues necessary in their professional career
PEO3	To exhibit professionalism, ethical attitude, communication, managerial skills, team work and social responsibility in their profession and adapt to current trends by engaging in continuous learning

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 public health and safety, and the cultural, societal, and environmental considerations.

Signature			
Name of the Faculty	**Dr. J. Venkateswara Rao**	**Mr. J. Subba Reddy**	**Dr.K.V.Ramana**
Designation/Title	Prof./Course Instructor	Assoc. Prof./Course	Assoc. Prof. / HOD

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DEPARTMENT OF INFORMATION TECHNOLOGY

COURSEHANDOUT

PART-A

Name of Course Instructor	: Mrs.R. Pavitra, Mr.B. RavindraChantiBabu		
Course Name &Code	: ITWORKSHOP (23IT51)		
L-T-P Structure	: --2	**Credit**	:01
Program/Sem/Sec	: B. TECH / CIVIL	**A. Y**	:2025-26

PRE-REQUISITE: NIL

Course Educational Objectives: In this course, the students will learn

➢ To introduce the internalpartsofacomputer, peripherals, I/O ports, connecting cables.
➢ To demonstrate configuring the systems Dual boot both Windows and other Operating Systems Viz.Linux, BOSS.
➢ To teach basic command lineinterfacecommands on Linux.
➢ To introduce Compression, MultimediaandAntivirustoolsandOfficeToolssuchas Word processors, SpreadsheetsandPresentationtools.
➢ ToteachtheusageofInternetforproductivityandself-pacedlife-longlearning.

COURSEOUTCOMES:

At the end of the course

CO1	Identify the components of a PC and troubleshooting the malfunctioning of PC
CO2	Develop presentation/documentation using Office tools and LaTeX
CO3	Build dialogs and documents using ChatGPT
CO4	Improve individual/ teamwork skills, communication and report writing skills with ethical Values

COURSEARTICULATIONMATRIX (Correlation between CO & POs):

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	1	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	2	-	1
CO3	3	-	-	-	3	-	-	-	-	-	-	-	-	-	2
CO4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Enter Correlation Levels1or2or3. If there is no correlation, put'-'

1-Low **2**–Medium **3** – High

REFERENCEBOOKS:

R1	ComdexInformationTechnologycoursetoolkit, Vikas Gupta, WILEY Dream tech, 2003
R2	The CompleteComputerupgradeandrepairbook, Cheryl Schmidt, WILEYDreamtech,2013,3rd edition.
R3	Introduction to Information Technology, ITL Education Solutions limited, PearsonEducation,2012,2ndedition.
R4	PC Hardware- A Handbook, KateJ.Chase, PHI(Microsoft).
R5	LaTeX Companion, Leslie Lamport, PHI/Pearson.
R6	ITEssentialsPCHardwareandSoftwareCcompanionGuide, DavidAnfinsonandKouame. –CISCO Pre PearsonEducation,3rdedition.
R7	ITEssentialsPCHardwareandSoftwareLabsandStudyGuide, Patrick Regan–CISCOPress, PearsonEducation,3rdedition.

PART-B

S. No.	Topics to becovered	No. of Classes Required	Entative Date of Completion	Actual Date of Completion	TeachingLearningMethods	HOD Sign Weekly
1.	Introduction of Computer	3	20/08/2025		**TLM5 /TLM6**	
2.	Identify the peripherals of a computer, components in a CPU and its functions	6	03/09/2025 10/09/2025		**TLM5 /TLM6**	
3.	Disassemble and Assemble the PC back to working condition	6	17/09/2025 24/09/2025		**TLM5 /TLM6**	
4.	Installation of MS windows on the personal computer	3	01/10/2025		**TLM5 /TLM6**	
5.	Installation of Linux and Windows on the computer using VMware	6	08/10/2025 15/10/2025		**TLM5 /TLM6**	
6.	Installation of BOSS configuredasdualboot (VMWare)with bothWindowsandBOSS	6	22/10/2025 29/10/2025		**TLM5 /TLM6**	
7.	WorkingonInternet&WorldWideWeb	3	05/11/2025		**TLM5 /TLM6**	
8.	Demonstration and Practice of LaTeX and WORD	6	12/11/2025 19/11/2025		**TLM5 /TLM6**	
9.	DemonstrationandPracticeofPower, Micros of Excel	3	26/11/2025		**TLM5 /TLM6**	
10.	Demonstration And Practice AITOOLS–Chat GPT	3	10/12/2025		**TLM5 /TLM6**	

COURSEDELIVERYPLAN(LESSONPLAN): **TeachingLearningMethods (TLM)**			
DM1	Chalkand Talk	**DM4**	Assignment/Test/Quiz
DM2	ICTTools	**DM5**	Laboratory/Field Visit
DM3	Tutorial	**DM6**	Web-based Learning

PART-C

PROGRAMMEOUTCOMES(POs):

PO1	**Engineering knowledge:** Applytheknowledgeofmathematics, science, engineering fundamentals, andanengineeringspecializationtothesolutionofcomplexengineering problems.
PO2	**Problem analysis:** Identify, formulate, reviewresearchliterature, andanalyzecomplex engineeringproblemsreachingsubstantiatedconclusionsusingfirstprinciplesofmathematics , natural sciences, andengineeringsciences.
PO3	**Design/developmentofsolutions:** Designsolutionsforcomplexengineeringproblemsanddesignsystemcomponentsorprocesse sthatmeetthespecifiedneedswith appropriateconsiderationforthepublichealthandsafety, and the cultural, societal, andenvironmentalconsiderations.
PO4	**Conduct investigations of complex problems:** Useresearch-basedknowledgeandresearch methods including design of experiments, analysis and interpretation of data, andsynthesisoftheinformationtoprovidevalidconclusions.
PO5	**Moderntoolusage:** Create, select, andapplyappropriatetechniques, resources, andmodernengineeringandITtoolsincludingpredictionandmodellingtocomplex engineeringactivitieswithanunderstandingofthelimitations
PO6	**Theengineerandsociety: Applyreasoninginformedbythecontextualknowledgeto** assess societal, health, safety, legalandculturalissuesandtheconsequentresponsibilitiesrelevanttotheprofessionalenginee ringpractice
PO7	**Environmentandsustainability:** Understandtheimpact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, andneedforsustainabledevelopment.
PO8	**Ethics:** Applyethicalprinciplesandcommittoprofessionalethicsandresponsibilitiesand normsoftheengineeringpractice.
PO9	**Individual and team work:** Function effectively Asan individual, and as a member orleaderindiverseteams, and in multidisciplinary settings.
PO10	**Communication:** Communicateeffectivelyoncomplexengineeringactivitieswiththeengineering communityandwithsocietyatlarge, suchas,being ableto
PO11	**Projectmanagementandfinance:** Demonstrateknowledgeandunderstandingofthe engineeringandmanagementprinciplesandapplythesetoone'sownwork, asamemberand leader in a team, tomanageprojects andin multidisciplinary environments.
PO12	**Life-long learning:** Recognizetheneedfor, andhavethepreparationandabilitytoengage inindependentandlife-longlearninginthebroadestcontextoftechnologicalchange.

PROGRAMMESPECIFICOUTCOMES(PSOs):

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

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	R PAVITRA			
Signature				

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FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor: Dr.B. Samrajya Lakshmi
Course Name & Code : CE LAB, 23FE51
L-T-P Structure : **0-0-3** **Credits:** 01
Program/Sem/Sec : B. Tech CIVIL **A.Y.:** 2025-26

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 / PO's →	Programme Outcomes											
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
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. Vowels & Consonants
2. Neutralization / Accent rules
3. Communication Skills: JAM
4. Conversational Practice: Roleplay
5. E-mail Writing
6. Resume writing, Cover letter, SOP
7. Group Discussions - methods & Practice
8. Debates – Methods and practice
9. PPT Presentations & Poster Presentations
10. Interview Skills: Mock Interviews

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, (*2nd 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	18-08-2025		TLM4	
2.	Vowels & Consonants	06	25-08-2025 01-09-2025		TLM1 TLM5	
3.	Neutralization	03	08-09-2025		TLM1, TLM5	
4.	Accent rules	03	15-09-2025		TLM1, TLM5	
5.	JAM-I (Short and Structured Talks) Self Introduction & Introducing others	06	22-09-2025 06-10-2025		TLM4	

6.	Role Play-I (Formal and Informal)	06	13-10-2025 27-10-2025		TLM4	
7.	e-mail Writing,	03	03-11-2025		TLM1, TLM5	
8.	Resume writing, Cover letter, SOP	03	10-11-2025		TLM1, TLM5	
9.	Group Discussion: methods & Practice	03	17-11-2025		TLM4, TLM6	
10.	Debate: methods & Practice	03	24-11-2025		TLM4, TLM6	
11.	PPT Presentation	06	01-12-2025 08-12-2025		TLM2, TLM4	
12.	Poster Presentation	03	15-12-2025		TLM2, TLM4	
13.	Mock Interviews	03	22-12-2025		TLM1, TLM6	
14.	Lab Internal Exam	03				
No. of classes required to complete Syllabus:				**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

Laboratory Examination:

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

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	Head of the Department
Name of the Faculty	**Dr. B. Samrajya Lakshmi**	**Dr. R. Padma Venkat**	**Dr. R. Padma Venkat**	**Dr. T. Satyanarayana**
Signature				

FRESHMANENGINEERINGDEPARTMENT

COURSEHANDOUT

Part-A

PROGRAM	**:**	**B.Tech.,I-Sem.,CIVIL**
ACADEMICYEAR	**:**	**2025-26**
COURSENAME &CODE	**:**	**ENGINEERING PHYSICS LAB**
L-T-PSTRUCTURE	**:**	**0 – 0 – 3**
COURSECREDITS	**:**	**1**
COURSEINSTRUCTOR	**:**	**Dr. P. Sobhanachalam / Mrs. P.V. Sirisha**
COURSECOORDINATOR	**:**	

Pre-requisites : Nil

Course Objective: 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 modulii 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)												

List of Experiments

1. Determination of radius of curvature of a given Plano - Convex lens by Newton's rings.
2. Determination of dielectric constant using charging and discharging method.
3. Determination of wavelength of a laser light using diffraction grating.
4. Magnetic field along the axis of a current carrying circular coil by Stewart Gee's Method.
5. Determination of temperature coefficients of a thermistor.
6. Determination of acceleration due to gravity and radius of Gyration by using a compound pendulum.
7. Determination of Frequency of electrically maintained tuning fork by Melde's experiment.
8. Determination of rigidity modulus of the material of the given wire using Torsional pendulum.
9. Sonometer- Verification of laws of a stretched string.
10. Determination of energy band gap of a semiconductor using p-n junction diode.
11. Verification of Brewster's Law.
12. Determination of Hall coefficient and Hall voltage.

References:

- A Textbook of Practical Physics – S. Balasubramanian, M.N. Srinivasan, S. Chand publishers-2017.

BOSAPPROVEDTEXTBOOKS:

1. LabManualPreparedbytheLBRCE.

EVALUATIONPROCESS:

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

Part-B

COURSEDELIVERYPLAN (LESSONPLAN): CIVIL

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	LearningOutcomeCOs	Text Book followed	HOD Sign
1.	Introduction & Demonstration	3	23.8.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
2.	Experiment1	3	30.8.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
3.	Experiment2	3	6.9.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
4.	Experiment3	3	13.9.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
5.	Experiment 3	3	20.9.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
6.	Experiment 4	3	27.9.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
7.	Experiment5	3	11.10.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
8.	Experiment 6	3	18.10.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
9.	**MID-1 Exam**	3	25.10.25		**---**	**---**	**---**	
10.	Experiment 7	3	8.11.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
11.	Experiment8	3	15.11.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
12.	Experiment 8	3	22.11.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
13.	Experiment 9	3	29.11.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
14.	Experiment10	3	6.12.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	

15.	**Revision**	3	13.12.25		**TLM-4**	CO1, CO2,CO3,CO4 & CO5	T1	
16.	**Internal Exam**	3	20.12.25					
17.	**Internal Exam**		27.12.25					
18.	**MID-2 Exam**		3.1.26		---	---	---	
No.of classes required to completelab		17			No. of classes taken:			

PROGRAM OUT COMES: 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 ofcomplex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of theinformationto provide valid conclusions.

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

(6). **The engineer and society**: Apply reasoning informed by the contextual knowledge to assesssocietal, 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 teamwork**: Function effectively as an individual, and as a member or leader in diverse teams and in multi disciplinary 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	H.O.D
Dr. P. Sobhanachalam/ Mrs. P.V. Sirisha	**Dr.S.YUSUF**	**Dr.S.YUSUF**	**Dr. T. Satyanarayana**

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
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DEPARTMENT OF CIVIL ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: P. Mohanaganga Raju, Dr. K.V. Ramana

Course Name &	**:** Engineering Workshop & 23ME51	**Regulation**	: R23
L-T-P Structure	**: 0-0-3**	**Credits**	: 1.5
Program/Sem/Sec	**:** B. Tech/I/CE-A	**A.Y.**	: 2025-26

PREREQUISITE: Nil

COURSE EDUCATIONAL OBJECTIVES (CEOs): To familiarize students with wood working, sheet metal operations, fitting, electrical house wiring skills, and basic repairs of two-wheeler vehicles.

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

CO1	Identify workshop tools and their operational capabilities. **(Remember)**
CO2	Practice on manufacturing of components using workshop trades including fitting, carpentry, foundry and welding. **(Understand)**
CO3	Apply fitting operations in various applications. **(Apply)**
CO4	Apply basic electrical engineering knowledge for House Wiring Practice. **(Apply)**

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	2	1	1	-	-	-	-	-	-	-	2	3	2
CO2	3	2	1	1	-	-	-	-	-	-	-	2	3	2
CO3	3	2	1	1	-	-	-	-	-	-	-	2	3	2
CO4	3	2	1	1	-	-	-	-	-	-	-	2	3	2
1 - Low					**2 –**Medium							**3 -** High		

Textbooks:

T1. Basic Workshop Technology: Manufacturing Process, Felix W.; Independently Published,2019. Workshop Processes, Practices and Materials; Bruce J. Black, Routledge publishers, 5th Edn. 2015.

T2. A Course in Workshop Technology Vol I. & II, B.S. Raghuwanshi, Dhanpath Rai & Co., 2015 & 2017.

Reference Books:

R1. LBRCE Workshop Lab Manual.

R2. Elements of Workshop Technology, Vol. I by S. K. Hajra Choudhury & Others, Media Promoters and Publishers, Mumbai. 2007, 14th edition.

R3.Workshop Practice by H. S. Bawa, Tata-McGraw Hill, 2004.

R4. Wiring Estimating, Costing and Contracting; Soni P.M. & Upadhyay P.A.; Atul Prakash an, 2021-22.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

Si.No.	Topics to be covered (Experiment Name)	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
	CYCLE-I					
1.	Introduction to Lab	3	22-08-2025		TLM4	
2.	Dove Tail Joint	3	29-08-2025		TLM4	
3.	Corner Lap Joint	3	05-09-2025		TLM4	
4.	T-Fitting	3	12-09-2025		TLM4	
5.	V-Fitting	3	19-09-2025		TLM4	
6.	Two Laps in Series and Parallel Connection with One Way Switch	3	26-09-2025		TLM4	
7.	Florescent Lamp and Calling Bell Circuit	3	10-10-2025		TLM4	
	CYCLE-II					
8.	Preparation of Pipe Layout	3	17-10-2025		TLM4	
9.	Pipe Threading	3	31-10-2025		TLM4	
10.	Preparation of Rectangular Tray	3	07-11-2025		TLM4	
11.	Preparation of Open Scoop	3	14-11-2025		TLM4	
12.	Preparation Of S-Hook	3	21-11-2025		TLM4	
13.	Preparation of chisel,	3	28-11-2025		TLM4	
14.	Repetition	3	05-11-2025		TLM4	
15.	Repetition	3	12-11-2025		TLM4	
16.	Repetition	3	05-12-2025		TLM4	
17.	Repetition	3	12-12-2025		TLM4	
18.	Repetition	3	19-12-2025		TLM4	
19.	Internal Lab Exam	3	26-12-2025		-----	
No. of classes required to complete				**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 (R23 Regulation):

Evaluation Task	Expt. no's	Marks
Day to Day work = **A**	1,2,3,4,5,6,7,8…	A=10
Record/ Viva = **B**	1,2,3,4,5,6,7,8	B=05
Internal Test = **C**	1,2,3,4,5,6,7,8	C = 15
Cumulative Internal Examination: A+B+C = 30	1,2,3,4,5,6,7,8	**30**
Semester End Examinations = D	1,2,3,4,5,6,7,8	**70**
Total Marks: A+ B + C + D = 100	1,2,3,4,5,6,7,8	**100**

PART-D

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

PEO 1	To provide students with sound mathematical, engineering, and multidisciplinary knowledge to solve Aerospace and Allied Engineering
PEO 2	To prepare students to excel in higher education programs and to succeed in industry/academia profession.
PEO 3	To inculcate ethical attitude, leadership qualities, problem solving abilities and life-long learning for a successful professional career.

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
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
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

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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	**Head of the Department**
Signature		
Name of the Faculty	P. Mohanaganga Raju Dr. K. V. Ramana	Dr. K. V. Ramana