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: Ms. K. Sridevi
Course Name & Code : Communicative English & 23FE01
L-T-P Structure : **3-0-0** **Credits:** 02
Program/Sem/Sec : B. Tech, I Sem I .ASE
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	Programme Outcomes											
PO's →	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	20-08-2025 21-08-2025		TLM1 TLM 6	CO1	T1,T2	
2.	**Skimming to get main idea; Scanning for specific pieces of information**	01	23-08-2025		TLM2 TLM5	CO1	T1,T2	
3.	**Mechanics of Writing: Capitalization, Spelling, Punctuation & Parts of Sentences**	02	28-08-2025 30-08-2025		TLM1 TLM6 TLM5	CO1	T1,T2	
4.	**Parts of speech**	02	03-09-2025 04-09-2025		TLM2 TLM6	CO1	T1,T2	
5.	**Basic Sentence Structures, Forming questions**	02	06-09-2025 10-09-2025		TLM2 TLM6	CO1	T1,T2	
6.	**Synonyms, Antonyms, Affixes, Root Words**	01	11-09-2025		TLM2 TLM5	CO1	T1,T2	
No. of classes required to complete UNIT-I: 10						**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	17-09-2025 18-09-2025		TLM1 TLM 6	CO2	T1,T2	
2.	**Identifying Sequence of ideas, Linking ideas into a Paragraph**	01	20-09-2025		TLM2 TLM5	CO2	T1,T2	
3.	**Structure of Paragraph – Paragraph Writing**	02	24-09-2025 25-09-2025		TLM1 TLM6 TLM5	CO2	T1,T2	
4.	**Cohesive Devices-linkers**	02	27-09-2025 08-10-2025		TLM2 TLM6	CO2	T1,T2	

5.	**Use of Articles and zero article, Prepositions**	02	09-10-2025 15-10-2025		TLM2 TLM6	CO2	T1,T2	
6.	**Homophones, Homographs, Homonyms**	02	16-10-2025 18-10-2025		TLM2 TLM6	CO2	T1,T2	
No. of classes required to complete UNIT-II: 11						**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	29-10-2025 30-10-2025		TLM1 TLM 6	CO3	T1,T2	
2.	**Reading and making basic inferences – recognizing and interpreting the text clues for comprehension**	02	01-11-2025 05-11-2025		TLM2 TLM5	CO3	T1,T2	
3.	**Summarizing, Note-making, Paraphrasing**	02	06-11-2025 12-11-2025		TLM1 TLM6 TLM5	CO3	T1,T2	
4.	**Verbs- Tenses, Subject-verb agreement**	02	13-11-2025 15-11-2025		TLM2 TLM6	CO3	T1,T2	
5.	**Compound words, Collocations**	01	19-11-2025		TLM2 TLM5	CO3	T1,T2	
No. of classes required to complete UNIT-III: 9						**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	20-11-2025 22-11-2025		TLM1 TLM 6	CO4	T1,T2	
2.	**Study of graphic elements in text to display complicated data**	01	26-11-2025		TLM2 TLM5	CO4	T1,T2	
3.	**Letter Writing : Official Letters, Resumes**	02	27-11-2025 29-11-2025		TLM1 TLM6 TLM5	CO4	T1,T2	
4.	**Reporting verbs, Direct & Indirect Speech, Active & Passive voice**	02	03-12-2025 04-12-2025		TLM2 TLM6	CO4	T1,T2	
5.	**Words often confused, Jargons**	01	06-12-2025		TLM2 TLM5	CO4	T1,T2	
No. of classes required to complete UNIT-IV: 08						**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**	01	10-12-2025 11-12-2025		TLM1 TLM 6	CO5	T1,T2	
2.	**Reading Comprehension**	01	17-12-2025		TLM2 TLM5	CO5	T1,T2	
3.	**Structured Essays on specific topics**	01	18-12-2025		TLM1 TLM6 TLM5	CO5	T1,T2	
4.	**Editing Texts – Correcting Common errors**	01	20-12-2025		TLM2 TLM6	CO5	T1,T2	
5.	**Technical Jargon**	01	24-12-2025		TLM2 TLM5	CO5	T1,T2	
No. of classes required to complete UNIT-V: 06						**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	27-12-2025		TLM2 &5	
2.	**One-word substitutes**		27-12-2025		TLM2 &5	
3.	**Technical vocabulary**		27-12-2025		TLM2 &5	
No. of classes required to complete UNIT-V:				**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)	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	**Ms. K. Sridevi**	**Dr. R. Padma Venkat**	**Dr. R. Padma Venkat**	**Dr. T. Satyanarayana**
Signature				

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L.B. Reddy Nagar, Mylavaram, NTR Dist., Andhra Pradesh-521 230.

Phone: 08659-222933, Fax: 08659-222931

FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Course Instructor	**:** Dr. T. Satyanarayana	
Course Name & Code	**:** Engineering Physics & 23FE04	**Credits:** 3
L-T-P Structure	**: 3-1-0**	**A.Y.:** 2025-26
Program/Sem./Branch	: B.Tech/I/ASE	**Regulations**: R23

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.

Course Outcomes (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 metal **(Understand)**
CO5	Identify the type of semiconductor using Hall Effect **(Apply)**

Course Articulation Matrix (Correlation between COs, Pos & PSOs):

Course Designed by				Division of Physics, Freshman Engineering Department								
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
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)				

Textbooks

1. Engineering Physics, M.N.Avadhanulu, P.G.Kshirsagar, T.V.S. Arun Murthy, *S.Chand &Co., 11th Ed.*, 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 Resources

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

PART-B

Course Delivery Plan (Lesson Plan): ASE

Unit-I: Interference, Diffraction & Polarization **Course Outcome:** CO1; **Textbook:** T1, R2

SI.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to Course & its Outcomes	1	19-08-2025		TLM-2	
2.	**Interference**: Introduction, Principle of Superposition, Interference of light	1	20-08-2025		TLM-1	
3.	Interference in thin films by Reflection & Applications	1	22-08-2025		TLM-1	
4.	Colors in thin films, Newton's rings	1	23-08-2025		TLM-1	
5.	Determination of wavelength and refractive index	1	26-08-2025		TLM-1	
6.	**Diffraction**: Introduction, Fresnel and Fraunhoffer diffractions	1	29-08-2025		TLM-1	
7.	Problems & Assignment/Tutorial	1	30-08-2025		TLM-3	
8.	Fraunhoffer diffraction due to single slit	1	02-09-2025		TLM-2	
9.	Double slit & N slits (Qualitative)	1	03-09-2025		TLM-2	
10.	Diffraction Grating, Dispersive power & Resolving power of Grating-Qualitative	1	05-09-2025		TLM-1	
11.	Tutorial	1	06-09-2025		TLM-3	
12.	**Polarization**: Introduction – Types of polarization	1	09-09-2025		TLM-2	
13.	Polarization by reflection, refraction & double refraction	1	10-09-2025		TLM-2	
14.	Nicol's Prism	1	12-09-2025		TLM-1	
15.	Tutorial	1	13-09-2025		TLM-3	
16.	Half wave and Quarter wave plates	1	16-09-2025		TLM-2	
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

SI.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
17.	**Crystallography:** Space lattice; Basis, Unit cell & Lattice parameters	1	17-09-2025		TLM-2	
18.	Crystal Systems (3D)	1	19-09-2025		TLM-2	
19.	Bravais Lattices	1	20-09-2025		TLM-2	
20.	Coordination number and Packing fraction of SC, BCC	1	23-09-2025		TLM-1	
21.	Coordination number and Packing fraction of FCC	1	24-09-2025		TLM-1	
22.	Miller indices-Properties	1	26-09-2025		TLM-1	
23.	Tutorial	1	27-09-2025		TLM-3	
24.	Miller indices-Sketching planes	1	07-09-2025			
25.	Separation between successive (hkl) planes	1	08-10-2025		TLM-2	
26.	**X-ray diffraction:** Bragg's law	1	10-10-2025		TLM-2	
27.	Tutorial	1	11-10-2025		TLM-1	
28.	X–ray Diffractometer	1	14-10-2025		TLM-2	
29.	Crystal Structure determination by Laue's method	1	15-10-2025		TLM 2	
30.	Crystal Structure determination by Powder method	1	17-10-2025		TLM-1	
31.	Tutorial	1	18-10-2025		TLM-3	
No. of classes required to complete UNIT-II: 15				**No. of classes taken:**		

Unit-III: Dielectric & Magnetic Materials **Course Outcome:** CO3; **Textbook:** T1, R2

SI.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
32.	**Dielectric Materials:** Introduction, Dielectric polarization, Dielectric polarizability, Susceptibility	1	28-10-2025		TLM-2	
33.	Dielectric constant and displacement vector	1	29-10-2025		TLM-2	
34.	Relation between the electric vectors	1	31-10-2025		TLM-1	
35.	Types of polarizations- Electronic polarization (Quantitative)	1	01-11-2025		TLM-1	
36.	Tutorial	1	04-11-2025		TLM-3	
37.	Ionic Polarization (Quantitative) & Orientation polarization (Qualitative)	1	05-11-2025		TLM-2	
38.	Lorentz internal field	1	07-11-2025		TLM-2	
39.	Claussius-Mossotti equation, complex dielectric constant	1	08-11-2025		TLM-1	
40.	Frequency dependence of polarization	1	11-11-2025		TLM-1	
41.	Dielectric loss	1	12-11-2025		TLM-1	
42.	**Magnetic Materials:** Introduction Magnetic dipole moment, Magnetization, Magnetic susceptibility and permeability	1	14-11-2025		TLM-2	
43.	Tutorial	1	15-11-2025		TLM-3	
44.	Atomic origin of magnetism	1	17-11-2025		TLM-1	
45.	Classification of magnetic materials- Dia, Para, Ferro, Anti-Ferro & Ferri magnetic materials	1	18-11-2025		TLM-1	
46.	Domain concept for Ferromagnetism & Domain walls	1	19-11-2025		TLM-1	
47.	Hysteresis, Soft and hard magnetic materials	1	21-11-2025		TLM-1	
No. of classes required to complete UNIT-III: 16				**No. of classes taken:**		

Unit-IV: Quantum Mechanics & Free Electron Theory **Course Outcome:** CO4; **Textbook:** T1, R2

SI.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
48.	**Quantum Mechanics:** Dual nature of matter, De-Broglie's Hypothesis	1	22-11-2025		TLM-2	
49.	Heisenberg's Uncertainty Principle		25-11-2025		TLM-1	
50.	Significance & properties of wave function	1	26-11-2025		TLM-2	
51.	Schrodinger's time independent and dependent wave equations	1	28-11-2025		TLM-1	
52.	Tutorial	1	29-11-2025		TLM-3	
53.	Particle in a one –dimensional infinite potential well	1	02-12-2025		TLM-1	
54.	**Free Electron Theory:** Classical free electron theory (Qualitative with discussion of merits and demerits)	1	03-12-2025		TLM-1	
55.	Quantum free electron theory, Electrical conductivity based on quantum free electron theory	1	05-12-2025		TLM-2	
56.	Tutorial	1	06-12-2025		TLM-3	

Sl.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
57.	Fermi -Dirac distribution and temperature dependence		09-12-2025		TLM-1	
58.	Density of states, Fermi energy	1	10-12-2015		TLM-1	
No. of classes required to complete UNIT-III: 10				**No. of classes taken:**		

Unit-V: Semiconductor Physics **Course Outcome:** CO5; **Textbook:** T2, R1

Sl.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
59.	**Semiconductors**: Formation of energy bands, Classification of crystalline solids	1	12-12-2025		TLM-1	
60.	Intrinsic semiconductors, Density of charge carriers	1	13-12-2025		TLM-1	
61.	Electrical conductivity, Fermi level	1	16-12-2025		TLM-2	
62.	Extrinsic semiconductors (p-type) Density of charge carriers	1	17-12-2025		TLM-2	
63.	Extrinsic semiconductors (n-type) Density of charge carriers	1	19-12-2025		TLM-2	
64.	Tutorial	1	20-12-2025		TLM-3	
65.	Dependence of Fermi energy on carrier concentration &temperature	1	23-12-2025		TLM-1	
66.	Drift and Diffusion Currents, Einstein's equation	1	24-12-2025		TLM-1	
67.	Hall Effect & its applications	1	26-12-2025		TLM-1	
68.	Tutorial		27-12-2025		TLM-3	
No. of classes required to complete UNIT-III: 10				**No. of classes taken:**		

Teaching-Learning Methods			
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-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): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

ACADEMIC CALENDAR

Description	From	To	Weeks
Commencement of Class Work:	**04-08-2025**		
Induction Program (Zero Semester)	04-08-2025	04-08-2025	2
I Phase of Instructions	18-08-2025	27-09-2025	6
Dasara Holidays	29-09-2025	04-10-2025	1
I Phase of Instructions (Continued)	06-10-2025	18-10-2025	2
I Mid Examinations	20-10-2025	25-10-2025	1
II Phase of Instructions	27-10-2025	27-12-2025	9
II Mid Examinations	29-12-2025	03-01-2026	1
Preparation and Practicals	05-01-2026	10-01-2026	1
Sankranthi Holidays	12-01-2026	17-01-2026	1
Semester End Examinations	19-01-2026	31-01-2026	2

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	**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.

Date: 11-08-2025

Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Dr. T. Satyanarayana	Dr. S. Yusuf	Dr. S. Yusuf	Dr. T. Satyanarayana

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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

PROGRAM	**:** I B. Tech., I-Sem., ASE
ACADEMIC YEAR	**:** 2025-26
COURSE NAME & CODE	**:** Linear Algebra & Calculus
L-T-P STRUCTURE	**:** 4-1-0
COURSE CREDITS	**:** 3
COURSE INSTRUCTOR	**:** Mrs. K. Naga Lakshmi
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	19-08-2025		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	20-08-2025		TLM1	CO1	T1,T2	
5.	Rank of a matrix	1	21-08-2025		TLM1	CO1	T1,T2	
6.	Echelon form	1	22-08-2025		TLM1	CO1	T1,T2	
7.	Normal form	1	25-08-2025		TLM1	CO1	T1,T2	
8.	Cauchy-Binet formulae	1	26-08-2025		TLM1	CO1	T1,T2	
9.	Inverse by Gauss-Jordan method	1	28-08-2025		TLM1	CO1	T1,T2	
10.	System of Linear Equations	1	29-08-2025		TLM1	CO1	T1,T2	
11.	Homogeneous System of Equations	1	01-09-2025		TLM1	CO1	T1,T2	
12.	Homogeneous System of Equations	1	02-09-2025		TLM1	CO1	T1,T2	
13.	**TUTORIAL I**	1	03-09-2025		TLM3	CO1	T1,T2	
14.	Non-Homogeneous System of Equations	1	04-09-2025		TLM1	CO1	T1,T2	
15.	Gauss Elimination Method	1	05-09-2025		TLM1	CO1	T1,T2	
16.	Jacobi Iteration Method	1	08-09-2025		TLM1	CO1	T1,T2	
17.	Jacobi Iteration Method	1	09-09-2025		TLM1	CO1	T1,T2	
18.	**TUTORIAL II**	1	10-09-2025		TLM3	CO1	T1,T2	
19.	Gauss-Seidel Method	1	11-09-2025		TLM1	CO1	T1,T2	
20.	Gauss-Seidel Method	1	12-09-2025		TLM1	CO1	T1,T2	
No. of classes required to complete UNIT-I		20			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
21.	Introduction to Unit II	1	15-09-2025		TLM1	CO2	T1,T2	
22.	Eigen values, Eigen vectors	1	16-09-2025		TLM1	CO2	T1,T2	
23.	**TUTORIAL III**	1	17-09-2025		TLM3	CO2	T1,T2	
24.	Eigen values, Eigen vectors	1	18-09-2025		TLM1	CO2	T1,T2	
25.	Properties	1	19-09-2025		TLM1	CO2	T1,T2	
26.	Properties	1	22-09-2025		TLM1	CO2	T1,T2	

27.	Cayley-Hamilton Theorem	1	23-09-2025		TLM1	CO2	T1,T2	
28.	**TUTORIAL IV**	1	24-09-2025		TLM3	CO2	T1,T2	
29.	Finding Inverse and Powers of matrix	1	25-09-2025		TLM1	CO2	T1,T2	
30.	Finding Inverse and Powers of matrix	1	26-09-2025		TLM1	CO2	T1,T2	
31.	Diagonalization of a matrix	1	06-10-2025		TLM1	CO2	T1,T2	
32.	Diagonalization of a matrix	1	07-10-2025		TLM1	CO2	T1,T2	
33.	**TUTORIAL V**	1	08-10-2025		TLM3	CO2	T1,T2	
34.	Quadratic Forms, Nature of Quadratic Forms	1	09-10-2025		TLM1	CO2	T1,T2	
35.	Quadratic Forms, Nature of Quadratic Forms	1	10-10-2025		TLM1	CO2	T1,T2	
36.	Reduction of Quadratic form to Canonical form	1	13-10-2025		TLM1	CO2	T1,T2	
37.	Reduction of Quadratic form to Canonical form	1	14-10-2025		TLM1	CO2	T1,T2	
38.	**TUTORIAL VI**	1	15-10-2025		TLM3	CO2	T1,T2	
39.	Orthogonal Transformation	1	16-10-2025		TLM1	CO2	T1,T2	
40.	Orthogonal Transformation	1	17-10-2025		TLM1	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	28-10-2025		TLM1	CO3	T1,T2	
43.	Rolle's theorem	1	29-10-2025		TLM1	CO3	T1,T2	
44.	Rolle's theorem	1	30-10-2025		TLM1	CO3	T1,T2	
45.	Lagrange's mean value theorem	1	31-10-2025		TLM1	CO3	T1,T2	
46.	Lagrange's mean value theorem	1	03-11-2025		TLM1	CO3	T1,T2	
47.	Cauchy's mean value theorem	1	04-11-2025		TLM1	CO3	T1,T2	
48.	**TUTORIAL VII**	1	05-11-2025		TLM3	CO3	T1,T2	
49.	Cauchy's mean value theorem	1	06-11-2025		TLM1	CO3	T1,T2	
50.	Taylor's theorem	1	07-11-2025		TLM1	CO3	T1,T2	
51.	Taylor's theorem	1	10-11-2025		TLM1	CO3	T1,T2	
52.	Maclaurin's theorem	1	11-11-2025		TLM1	CO3	T1,T2	
53.	**TUTORIAL VIII**	1	12-11-2025		TLM3	CO3	T1,T2	
54.	Maclaurin's theorem	1	13-11-2025		TLM1	CO3	T1,T2	
55.	Problems and applications	1	14-11-2025		TLM1	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.	**TUTORIAL IX**	1	19-11-2025		TLM3	CO4	T1,T2	
59.	Partial Derivatives	1	20-11-2025		TLM1	CO4	T1,T2	
60.	Total derivatives, Chain rule, Directional Derivative	1	21-11-2025		TLM1	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.	**TUTORIAL X**	1	26-11-2025		TLM3	CO4	T1,T2	
64.	Jacobian	1	27-11-2025		TLM1	CO4	T1,T2	
65.	Jacobian	1	28-11-2025		TLM1	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.	**TUTORIAL XI**	1	03-12-2025		TLM3	CO4	T1,T2	
69.	Lagrange Multiplier Method	1	04-12-2025		TLM1	CO4	T1,T2	
70.	Lagrange Multiplier Method	1	05-12-2025		TLM1	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.	**TUTORIAL XII**	1	10-12-2025		TLM3	CO5	T1,T2	
74.	Double Integrals- Polar co ordinates	1	11-12-2025		TLM1	CO5	T1,T2	
75.	Triple Integrals - Cartesian coordinates	1	12-12-2025		TLM1	CO5	T1,T2	
76.	Triple Integrals - Spherical coordinates	1	16-12-2025		TLM1	CO5	T1,T2	
77.	**TUTORIAL XIII**	1	17-12-2025		TLM3	CO5	T1,T2	
78.	Change of order of Integration	1	18-12-2025		TLM1	CO5	T1,T2	
79.	Change of order of Integration	1	19-12-2025		TLM1	CO5	T1,T2	
80.	Change of variables	1	22-12-2025		TLM1	CO5	T1,T2	
81.	Finding area by double Integral	1	23-12-2025		TLM1	CO5	T1,T2	

82.	**TUTORIAL XIV**	1	24-12-2025		TLM3	CO5	T1,T2	
83.	Finding Volume by double and triple Integral	1	26-12-2025		TLM1	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.

Mrs.K.Naga Lakshmi	**Dr. K. Bhanu Lakshmi**	**Dr. A. Rami Reddy**	**Dr. T. Satyanarayana**
Course Instructor	Course Coordinator	Module Coordinator	HOD

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DEPARTMENT OF CIVIL ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Dr C Rajamallu

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. ASE **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	21-08-2025		**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	28-08-2025		**TLM2**	
8.	Aggregate types- Bricks-classifications	1	30-08-2025		**TLM2**	
9.	Steel-properties - types Cement concrete- Applications	1	01-09-2025		**TLM2**	
10.	Introduction to Prefabricated construction Techniques, Over view-Prefabricated construction	1	02-09-2025		**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	04-09-2025		**TLM2**	
2.	Angular Measurements, Compass survey	1	06-09-2025		**TLM2**	
3.	Introduction to Bearings,	1	08-09-2025		**TLM2**	
4.	Simple problems on bearings	1	09-09-2025		**TLM2**	
5.	Levelling introduction-	1	11-09-2025		**TLM2**	
6.	Practice problems	1	13-09-2025		**TLM2**	
7.	Levelling instruments used for levelling	1	15-09-2025		**TLM1**	
8.	Practice problems	1	16-09-2025		**TLM1**	
9.	Practice problems	1	18-09-2025		**TLM2**	
10.	Contour mapping	1	20-09-2025		**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	22-09-2025		**TLM2**	
2.	Types of Highway Pavements	1	23-09-2025		**TLM2**	
3.	Basics of Harbour, Tunnel	1	25-09-2025		**TLM2**	
4.	Basics of Airport, Railway Engineering	1	27-09-2025		**TLM2**	
5.	Water Resources and Environmental Engineering Introduction	1	04-10-2025		**TLM2**	
6.	Sources of water, Quality of water-Specifications	1	06-10-2025		**TLM2**	
7.	Introduction to Hydrology	1	07-10-2025		**TLM2**	
8.	Rainwater Harvesting-Water Storage and Conveyance Structures	1	09-10-2025		**TLM2**	
9.	Simple introduction to Dams and Reservoirs	1	11-10-2025		**TLM2**	
10.	Revision	2	13-10-2025 14/10/2025		**TLM2**	
No. of classes required to complete UNIT-III: 11				**No. of classes taken:**		

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

PART-C

EVALUATION PROCESS (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	**Dr C Rajamallu**	**B. Ramakrishna**	**Dr. K.V.Ramana**
Signature			

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DEPARTMENT OF AEROSPACE ENGINERRING

COURSE HANDOUT

Name of Course Instructor: S. Indrasena Reddy
Course Name & Code **:** Engineering Graphics & 23ME01
L-T-P Structure **:2-0-2** **Credits:** 3
Program/Sem/Sec : B.Tech/I Sem **A.Y.:** 2025-26

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	3	2	2									3	1	2
CO2	3	2	1									3	1	2
CO3	3	2	2									3	1	2
CO4	3	2	2									3	1	2
CO5	2	2	2									3		

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, curves, projection of points

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.	EG introduction-tools ,Dimensioning	3	20-08-25		TLM 1	
2.	Geometrical Constructions	3	22-08-25		TLM 1	
3.	Conic Sections- Ellipse, General	3	29-08-25		TLM2	
4.	Parabola, Hyperbola General method	3	03-09-25		TLM 1	
5.	Plain , Diagonal Scales, Vernier Scales, Involutes	3	05-09-25		TLM 1	
6.	Cycloid, Epi Cycloid and	3	10-09-25		TLM2	
7.	Hypo-Cycloid, points introduction	3	12-09-25		TLM 1	
8.	Orthographic Projections introduction - Projection of Points	3	17-09-25		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
9.	Orthographic Projections	3	19-09-25		TLM 1	
10.	Projections of straight lines	3	24-09-25		TLM 1	
11.	Projection of lines inclined to one plane	3	26-09-25		TLM 1 TLM2	
12.	Projections of straight lines inclined to both the planes	3	08-10-25		TLM 1	
13.	Projection of Planes, Planes parallel to one planes	3	10-10-25		TLM 1 TLM2	
14.	Plane inclined to reference planes.	3	15-10-25		TLM 1	
15.	Plane inclined to one plane	3	17-10-25		TLM 1	
No. of classes required to complete UNIT-II		21		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
16.	Types of solids	3	29-10-25		TLM 1	
17.	Projections of solids in simple positions:	3	31-10-25		TLM 1 TLM2	
18.	Projections Axis parallel to both the reference planes	3	05-11-25		TLM 1	
19.	Axis inclined to one plane	3	07-11-25		TLM 1	
20.	Axis inclined to one of the reference planes	3	12-11-25		TLM 1 TLM2	
No. of classes required to complete UNIT-III		15		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
21.	Sections of Solids section planes	3	14-11-25		TLM 1	
22.	Perpendicular and inclined section planes	3	19-11-25		TLM 1	
23.	Sectional views and True shape of section	3	21-11-25		TLM 1 TLM2	
24.	Sections of solids in simple position	3	26-11-25		TLM 1 TLM2	
25.	Parallel line development	3	28-11-25		TLM 1	
26.	Development of a cube, prism, cylinder	3	03-12-25		TLM 1 TLM2	
27.	Radial line development. pyramid and cone	3	05-12-25		TLM 1 TLM2	
No. of classes required to complete UNIT-IV		21		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
28.	Isometric Projections	3	10-12-25		TLM 1	
29.	Conversion of isometric to orthographic (Simple)	3	12-12-25		TLM 1 TLM2	
30.	Conversion of isometric to orthographic (Complex)	3	17-12-25		TLM 1 TLM2	
31.	Conversion of orthographic views to isometric views.(Simple)	3	19-12-25		TLM 1 TLM2	
32.	Conversion of orthographic views to isometric views.(Complex)	3	24-12-25		TLM 1 TLM2	
33.	**Computer graphics**: Creating 2D&3D drawings -AutoCAD	3	26-12-25		TLM 4	
No. of classes required to complete UNIT-V		18		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

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% of Max(B1,B2)+20% of Min(B1,B2)	1,2,3,4,5	B=15
Cumulative Internal Examination : A+B	**1,2,3,4,5**	**30**
Semester End Examinations	**1,2,3,4,5**	**C=70**
Total Marks: A+B+C	**1,2,3,4,5**	**100**

PART-D

PROGRAMME OUTCOMES (POs):

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

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	To apply the knowledge of Aerodynamics, Propulsion, Aircraft structures and Flight Dynamics in the Aerospace vehicle design
PSO 2	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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DEPARTMENT OF AEROSPACE ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Mrs. P.Padmini
Course Name & Code : IT Workshop Lab &23IT51
L-T-P Structure :0-0-2 **Credits:**1
Program/Sem/Sec : B.Tech - ASE/I/A **A.Y.:**2025-26

PREREQUISITE :NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): In this course the student will learn.

- To introduce the internal parts of a computer ,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 line interface commands on Linux.
- To teach the usage of Internet for productivity and self-paced life-long learning
- To introduce Compression, Multimedia and Antivirus tools and Office Tools such as Word processors, Spread sheets and Presentation tools.

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

CO1	Identify the components of a PC and Assemble & disassemble the same. **(Understand)**
CO2	Experiment with installation of Operating System and Secure a computer from Cyber threats.**(Apply)**
CO3	Develop presentation /documentation using Office tools and LaTeX **(Apply)**
CO4	Build dialogs and documents using ChatGPT. **(Apply)**
CO5	Improve individual / teamwork skills, communication and report writing skills with ethical values

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
CO3	3	-	-	-	2	-	-	-	-	-	-	-	2	-	-
CO4	3	-	-	-	-	-	-	-	-	-	-	-	2	-	-
CO5	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
1 - Low						**2** –Medium						**3** –High			

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

REFERENCE BOOKS:

R1	Comdex Information Technology course tool kit, Vikas Gupta, WILEY Dream tech, 2003
R2	The Complete Computer upgrade and repair book, Cheryl A Schmidt, WILEY Dream tech,2013, 3rd edition.
R3	Introduction to Information Technology, ITL Education Solutions limited, PearsonEducation,2012, 2nd edition.
R4	PC Hardware - A Handbook, Kate J. Chase, PHI (Microsoft).
R5	LaTeX Companion, Leslie Lamport, PHI/Pearson.
R6	IT Essentials PC Hardware and Software Companion Guide, David Anfins on and KenQuamme. –CISCO Press, Pearson Education, 3rd edition.
R7	IT Essentials PC Hardware and Software Labs and Study Guide, Patrick Regan– CISCO Press, Pearson Education, 3rd edition.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
PC Hardware & Software Installation						
1.	Peripherals of a computer	3	23-08-2025		DM5	
2.	Disassemble and Assemble the PC	3	30-08-2025		DM5	
3.	Instal MS WINDOWS Operating System	3	06-09-2025		DM5	
4.	Instal LINUX Operating System	3	13-09-2025		DM5	
5.	Instal BOSS Operating System	3	20-09-2025		DM5	
Internet & World Wide Web						
6.	Orientation & connectivity Boot Camp	3	27-09-2025		DM5	
7.	Web Browsers and Surfing the Web	3	27-09-2025		DM5	
8.	Search Engines	3	11-10-2025		DM5	
9.	Cyber Hygiene	3	18-10-2025		DM5	
LaTeX and WORD						
10.	Word orientation	3	01-11-2025		DM5	
11.	Creating a Certificate	3	01-11-2025		DM5	
12.	Creating project abstract features	3	08-11-2025		DM5	
13.	Creating News Latter	3	15-11-2025		DM5	
EXCEL						

14.	Excel orientation	3	22-11-2025		DM5	
15.	Calculating GPA	3	22-11-2025		DM5	
LOOKUP/VLOOKUP						
16.	H LOOKUP-V LOOKUP	3	29-11-2025		DM5	
POWER POINT						
17.	PPT Basics	3	06-12-2025		DM5	
18.	Interactive Presentations	3	06-12-2025		DM5	
19.	Master Layouts	3	13-12-2025		DM5	
AI TOOLS – ChatGPT						
20.	Prompt Engineering	3	13-12-2025		DM5	
21.	Creative writing	3	20-12-2025		DM5	
22.	Language Translation	3	20-12-2025		DM5	
23.	Internal exam	3	27-12-2025		DM5	

Teaching Learning Methods			
DM1	Chalk and Talk	**DM4**	Assignment/Test/Quiz
DM2	ICT Tools	**DM5**	Laboratory/Field Visit
DM3	Tutorial	**DM6**	Web-based Learning

PART-C

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	**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
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	Design and develop modern communication technologies for building the inter disciplinary skills to meet current and future needs of industry.
PSO 2	Design and Analyse Analog and Digital Electronic Circuits or systems and implement real time applications in the field of VLSI and Embedded Systems using relevant tools.
PSO 3	Apply the Signal processing techniques to synthesize and realize the issues related to real time applications.

Title	**Course Instructor**	**Course Coordinator**	**Module Coordinator**	**Head of the Department**
Name of the Faculty	Mrs. P. Padmini	Mr.N. Srikanth	Dr. D. Venkata Subbaiah	Dr. D. Ratna kishore
Signature				

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FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor: Ms. 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. : 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	19-08-2025		TLM4	
2.	Vowels & Consonants	06	26-08-2025 02-09-2025		TLM1 TLM5	
3.	Neutralization	03	09-09-2025		TLM1, TLM5	
4.	Accent rules	03	16-09-2025		TLM1, TLM5	
5.	JAM-I (Short and Structured Talks) Self Introduction & Introducing others	06	23-09-2025 7-10-2025		TLM4	
6.	Role Play-I (Formal and Informal)	06	14-10-2025		TLM4	

			28-10-2025			
7.	e-mail Writing,	03	04-11-2025		TLM1, TLM5	
8.	Resume writing, Cover letter, SOP	03	11-11-2025		TLM1, TLM5	
9.	Group Discussion: methods & Practice	03	18-11-2025		TLM4, TLM6	
10.	Debate: methods & Practice	03	25-11-2025		TLM4, TLM6	
11.	PPT Presentation	03	02-12-2025		TLM2, TLM4	
12.	Poster Presentation	03	09-12-2025		TLM2, TLM4	
13.	Mock Interviews	03	16-12-2025		TLM1, TLM6	
14.	Lab Internal Exam	03	23-12-2025			
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.
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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
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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	**Ms. K. Sridevi**	**Dr. B. Samrajya Lakshmi**	**Dr. R. Padma Venkat**	**Dr. T.Satyanarayana**
Signature				

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

Accredited by NAAC with "A" Grade & NBA for ME, ASE, CE, CSE, ECE, EEE & IT (Under Tier - I)

An ISO 21001:2018, 14001:2015, 50001:2018 Certified Institution

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

L.B. Reddy Nagar, Mylavaram, NTR Dist., Andhra Pradesh-521 230.

Phone: 08659-222933, **Fax**: 08659-222931

FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT
PART-A

Course Instructor	**:** Dr. T. Satyanarayana/P. Vijaya Sirisha	
Course Name & Code	**:** Engineering Physics Lab & 23FE053	**Credits:** 1
L-T-P Structure	**:** 0-0-**3**	**A.Y.:** 2025-26
Program/Sem./Branch	: B.Tech/I/ASE	**Regulations**: R23

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 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 COs, Pos & PSOs):

Course Designed by				Division of Physics, Freshman Engineering Department								
COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
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
7. pendulum.
8. Determination of Frequency of electrically maintained tuning fork by Melde's experiment.
9. Determination of rigidity modulus of the material of the given wire using Torsional pendulum.
10. Sonometer- Verification of laws of a stretched string.
11. Determination of energy band gap of a semiconductor using p-n junction diode.
12. Verification of Brewster's Law.
13. Determination of Hall coefficient and Hall voltage.

References:

T1: A Textbook of Practical Physics – S. Balasubramanian, M.N. Srinivasan, *S. Chand publishers,* 2017.
T2: BOS Approved Textbook**:** Lab Manual Prepared by LBRCE.

EVALUATION PROCESS

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

ACADEMIC CALENDAR

Description	**From**	**To**	**Weeks**
Commencement of Class Work:	**04-08-2025**		
Induction Program (Zero Semester)	04-08-2025	04-08-2025	2
I Phase of Instructions	18-08-2025	27-09-2025	6
Dasara Holidays	29-09-2025	04-10-2025	1
I Phase of Instructions (Continued)	06-10-2025	18-10-2025	2
I Mid Examinations	20-10-2025	25-10-2025	1
II Phase of Instructions	27-10-2025	27-12-2025	9
II Mid Examinations	29-12-2025	03-01-2026	1
Preparation and Practicals	05-01-2026	10-01-2026	1
Sankranthi Holidays	12-01-2026	17-01-2026	1
Semester End Examinations	19-01-2026	31-01-2026	2

PART-B

Course Delivery Plan (Lesson Plan): ASE

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	T-L Methods	Learning Outcome COs	Textbook followed	HOD Sign
1.	Introduction	3	18-08-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
2.	Demonstration	3	25-08-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
3.	Experiment 1	3	01-09-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
4.	Experiment 2	3	08-09-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
5.	Demonstration	3	15-09-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
6.	Experiment 3	3	22-09-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
7.	Experiment 4	3	07-10-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
8.	Experiment 5	3	13-10-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
9	**MID-1 Exam**	3	20-10-2025		---	---	---	
10.	Experiment 6	3	27-10-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
11.	Experiment 7	3	03-11-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
12.	Experiment 8	3	10-11-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
13.	Repetition	3	17-11-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
14.	Experiment 9 (Virtual Lab)	3	24-11-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
15.	Experiment10 (Virtual Lab)	3	01-12-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
16.	Revision	3	08-12-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
17.	Internal Exam	3	15-12-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	
18.	Internal Exam	3	22-12-2025		TLM-4	CO1, CO2, CO3, CO4 & CO5	T1	

Teaching-Learning Methods			
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

PROGRAM OUT COMES (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
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Date: 11-08-2025

Course Instructor	**Course Coordinator**	**Module Coordinator**	**Head of the Department**
Dr. T. Satyanarayana	Dr. S. Yusuf	Dr. S. Yusuf	Dr. T. Satyanarayana

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DEPARTMENT OF AEROSPACE ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr. G. V. Surya Narayana/ Mr. A. Pratyush

Course Name &	**:** Engineering Workshop & 23ME51	**Regulation**	: R23
L-T-P Structure	**: 0-0-3**	**Credits**	: 1.5
Program/Sem/Sec	**:** B. Tech/I/ASE	**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	Modal various basic prototypes in fitting trade. **(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:** Safety practices and precautions to be observed in workshop.	6	21-08-2025 28-08-2025		TLM8	
2.	**WOODWORK:** Dove Tail Joint	3	04-09-2025		TLM8	
3.	Corner Lap Joint	3	11-09-2025		TLM8	
4.	**FITTING:** L-Fitting	3	18-09-2025		TLM8	
5.	V-Fitting	3	25-09-2025		TLM8	
6.	**ELECTRICAL WIRING:** Two Laps in Series and Parallel Connection with One Way Switch	3	09-10-2025		TLM8	
7.	Florescent Lamp and Calling Bell Circuit	3	16-10-2025		TLM8	
	CYCLE-II					
8.	**PLUMBING:** Preparation of Pipe Layout-Demonstration and practice of Plumbing tools	3	30-10-2025		TLM8	
9.	**Pipe Threading-** Preparation of Pipe joints with coupling for same diameter and with reducer for different diameters.	3	06-11-2025		TLM8	
10.	**SHEET METAL WORKING:** Preparation of Tapered Tray	3	13-11-2025		TLM8	
11.	**FOUNDRY TRADE:**	3	20-11-2025		TLM8	

	Demonstration and practice on Moulding tools and processes, Preparation of Green Sand Moulds for given Patterns.				
12.	**WELDING SHOP:** Demonstration and practice on Arc Welding and Gas welding. Preparation of Lap joint and Butt joint.	3	27-11-2025		TLM8
13.	**BASIC REPAIRS OF TWO-WHEELER VEHICLE**: Demonstration of working of two-wheeler vehicle and its repairs.	3	04-12-2025		TLM8
14.	Repetition	6	11-12-2025 18-12-2025		TLM8
15.	Internal Lab Exam	3	25-12-2025		-----
No. of classes required to complete:				**No. of classes taken:**	

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

PART-C

ACADEMIC CALENDAR

Description	From	To	Weeks
I Phase of Instructions-1	05-08-2024	28-09-2024	8W
I Mid Examinations	30-09-2024	05-10-2024	1W
II Phase of Instructions	07-10-2024	14-12-2024	10W
II Mid Examinations	16-12-2024	21-12-2024	1W
Preparation and Practical's	23-12-2024	28-12-2024	1W
Semester End Examinations	30-12-2024	11-01-2024	2W

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

PROGRAM EDUCATIONAL OBJECTIVES (PEOS):

PEO1	To provide students with sound mathematical, engineering, and multidisciplinary knowledge to solve Aerospace and Allied Engineering problems.
PEO2	To prepare students to excel in higher education programs and to succeed in industry/academia profession.
PEO3	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
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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):

PSO1:	To apply the knowledge of Aerodynamics, Propulsion, Aircraft structures and Flight Dynamics in the Aerospace vehicle design.
PSO2:	To prepare the students to work effectively in Aerospace and Allied Engineering organizations.

	Course Instructor	**Module Coordinator**	**Head of the Department**
Signature			
Name of the Faculty	Mr. G.V. SURYA NARAYANA	Mr. I DAKSHNAMURTHY	Dr. P. LOVARAJU