LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
Accredited by NAAC with 'A' Grade & NBA (Under Tier - I), ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada
L.B. REDDY NAGAR, MYLAVARAM, NTR DIST., A.P.-521 230.
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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor	:	**Mr. B. SREENIVASA REDDY**
Course Name & Code	:	PC-I, 20FE01
L-T-P Structure	:	**2-0-0** **Credits:** 02
Program/Sem/Sec	:	CSE-B –I SEM
A.Y.	:	2022-23

PREREQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): To improve English language proficiency of the students on various aspects like vocabulary, grammar, communication skills, listening skills, Reading &Writing skills.

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

CO1	Write sentences and paragraphs using proper grammatical structures and word forms.	L1
CO2	Comprehendthegiventextbyemployingsuitablestrategiesforskimmingand Scanning and draw in ferences	L2
CO3	Write summaries of reading texts using correct tense forms& Appropriate structures.	L1
CO4	Write Formal Letters; Memos & E-Mails	L3
CO5	Edit the sentences/short texts by identifying basic errors of grammar/ vocabulary/syntax	L2

Unit-I

Exploration - 'A Proposal to Girdle the Earth – Nellie Bly'; Reading: Skimming for main idea;Scanning for specific information; Grammar & Vocabulary: Content Words; Function Words;Word Forms: verbs, nouns, adjectives and adverbs; Nouns: Countable and Uncountable, Singularand Plural forms; Wh - Questions; Word Order in Sentences; Writing: Paragraph Analysis; Paragraph Writing; Punctuation and CapitalLetters

Unit–II

On Campus- 'The District School as it Was by One Who Went to it – Warren Burton';
Reading: Identifying Sequence of Ideas;

Grammar&Vocabulary: Cohesive Devices:Linkers/signposts/Transition signals,
Synonyms, MeaningsofWords/Phrasesin thecontext; Writing: Memo Drafting.

Unit–III

WorkingTogether-'The Future of Work'

Reading: Making basic inferences; Strategies to use text clues for comprehension;
Summarizing;Grammar & Vocabulary:Verbs: Tenses; Reporting Verbs for Academic
Purpose; Writing**:** Rephrasing what is read; Avoiding redundancies and repetitions
Abstract Writing/Summarizing.

Unit–IV

'A.P.J.AbdulKalam'; Grammar & Vocabulary: Direct & Indirect Speech; articles and
their Omission; Writing :E-MailDrafting.

Unit–V

'C.V.Raman'; Grammar&Vocabulary: Subject-verb Agreement; Prepositions;
Writing: Formal Letter Writing.

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

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

TEXTBOOKS:

T1 Prabhavati. Y & etal , "English All Round –Communication Skills for Undergraduate
Learners" ,Orient Black Swan, Hyderabad, 2019

T2 "The Great Indian Scientists" published by Cengage Learning India Pvt. Ltd., Delhi,
2017

REFERENCE BOOKS:

R1 Swan, M., "Practical English Usage", Oxford University Press, 2016.

R2 Kumar, Sand Latha, P, "Communication Skills", Oxford University Press, 2018.

R3 Rizvi Ashraf M.,"Effective Technical Communication", Tata Mc Graw Hill, NewDelhi, 2008.

R4 Baradwaj Kumkum, "Professional Communication",I. K. International PublishingHousePvt.Lt.,NewDelhi,2008.

R5 Wood, F. T., "Remedial English Grammar" , Macmillan, 2007.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to syllabus	01	17.10.2022		TLM2	
2.	Proposal to Girdle The Earth by Nellie Bly	04	18.10.2022 22.10.2022 25.10.2022 29.10.2022		TLM2	
3.	Reading: Skimming for main idea ; Scanning for specific information	01	31.10.2022		TLM2	
4.	Content words and Function words	02	01.11.2022 05.11.2022		TLM2	
5.	Word forms – verbs; Adjectives & adverbs	03	07.11.2022 08.11.2022 12.11.2022		TLM2	
6.	Nouns – countable & uncountable, singular and plural nouns Word order in sentences, "Wh" questions	02	14.11.2022 15.11.2022		TLM2	
7.	Writing: Paragraph writing, Paragraph analysis	02	19.11.2022 21.11.2022		TLM2 TLM6	
No. of classes required to complete UNIT-I: 15				**No. of classes taken:**		

UNIT-II:

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

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
8.	The District School As It Way by One Who Went to it - Warren Burton	03	22.11.2022 26.11.2022 28.11.2022		TLM2	
9.	Identifying sequence of ideas	02	29.11.2022 03.12.2022		TLM2	

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
10.	Cohesive devices: linkers /signposts/transition signals	01	05.12.2022		TLM2	
11.	Synonyms meanings of words / Phrases in the context	01	06.12.2022		TLM2	
12.	Essay Writing - Memo drafting	01	10.12.2022		TLM2 TLM6	

No. of classes required to complete UNIT-II: 08		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	HOD Sign Weekly
13.	The Future of Work	03	17.12.2022 19.12.2022 20.12.2022		TLM2 TLM6	
14.	Making basic inferences, Strategies to uses text clues for comprehension	03	24.12.2022 26.12.2022 27.12.2022		TLM2	
15.	Verbs :tenses, reporting verbs for academic purpose	02	31.12.2022 02.01.2023		TLM2	
16.	Summarizing rephrasing what is read	01	03.01.2023		TLM2	
17.	avoiding redundancies and repetitions - Abstract Writing	02	07.01.2023 09.01.2023		TLM2 TLM6	

No. of classes required to complete UNIT-III: 11		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	HOD Sign Weekly
18.	APJ Abdul Kalam	03	10.01.2023 17.01.2023 21.01.2023		TLM2 TLM2	
19.	Direct-Indirect speech	02	23.01.2023 24.01.2023		TLM2	
20.	Articles and their omission	02	28.01.2023		TLM2	

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
			30.01.2023			
21.	E-mail drafting	01	31.01.2023		TLM2 TLM6	
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	HOD Sign Weekly
22.	C.V.Raman	01	04.02.2023		TLM2	
23.	Subject – Verb agreement	01	06.02.2023		TLM2	
24.	Prepositions	01	07.02.2023		TLM2	
25.	Formal Letter Writing	01	11.02.2023		TLM2 TLM6	
No. of classes required to complete UNIT-V: 04				**No. of classes taken:**		

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

PART-C

EVALUATION PROCESS (R17 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), 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

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.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr. B. Sreenivasa Reddy	Dr. B. Samrajya Lakshmi	Dr. B. Samrajya Lakshmi	Dr. A. Ramireddy
Signature				

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT
Part-A

PROGRAM   : I B. Tech., I-Sem., CSE-B
ACADEMIC YEAR   : 2022-23
COURSE NAME & CODE   : Differential Equations
L-T-P STRUCTURE   : 5-0-0
COURSE CREDITS   : 4
COURSE INSTRUCTOR   : G. Vijaya Lakshmi
COURSE COORDINATOR   : Dr. A. Rami Reddy
PRE-REQUISITES   : Differentiation, Integration

COURSE EDUCATIONAL OBJECTIVES (CEOs): The objective of this course is to introduce the first order and higher order differential equations, functions of several variables. The students will also learn solving of first order partial differential equations.

COURSE OUTCOMES (COs)

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

CO1: Apply first order and first degree differential equations to find orthogonal trajectories.

CO2: Distinguish between the structure and methodology of solving higher order differential equations with constant coefficients.

CO3: Apply various Numerical methods to solve initial value problem.

CO4: Generate the infinite series for continuous functions and investigate the functional dependence.

CO5: Solve partial differential equations using Lagrange's method.

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

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

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

BOS APPROVED TEXT BOOKS:
T1   Dr. B.S. Grewal, "Higher Engineering Mathematics", 42ndEdition, Khanna Publishers, New Delhi, 2012.
T2   Dr. B. V. Ramana, "Higher Engineering Mathematics", 1stEdition, TMH, New Delhi, 2010.
BOS APPROVED REFERENCE BOOKS:
R1   M. D. Greenberg, *Advanced Engineering Mathematics*", 2nd Edition, TMH Publications, New Delhi, 2011.

R2   Erwin Kreyszig, *"Advanced Engineering Mathematics"*, 8th Edition, John Wiley & sons, New Delhi, 2011.

R3   W.E. Boyce and R. C. Diprima, " *Elementary Differential Equations"* , 7th Edition, John Wiley & sons, New Delhi,2011.

R4   S. S. Sastry, *" Introductory Methods of Numerical Analysis"* 5th Edition, PHI Learning Private Limited, New Delhi, 2012.

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	8	17/10/2022 To 27/10/2022		TLM2			
2.	Introduction to the course, Course Outcomes	1	29/10/2022		TLM2			

UNIT-I: Differential Equations of First Order and First Degree

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
3.	Introduction to UNIT I	1	31/10/2022		TLM2	CO1	T1,T2	
4.	Formation of Differential Equations	1	01/11/2022		TLM1	CO1	T1,T2	
5.	Exact DE	1	02/11/2022		TLM1	CO1	T1,T2	
6.	Non-exact DE Type I	1	03/11/2022		TLM1	CO1	T1,T2	
7.	Non-exact DE Type II	1	05/11/2022		TLM1	CO1	T1,T2	
8.	Non-exact DE Type III	1	07/11/2022		TLM1	CO1	T1,T2	
9.	Non-exact DE Type IV	1	08/11/2022		TLM1	CO1	T1,T2	
10.	Orthogonal Trajectories (Cartesian)	1	09/11/2022		TLM1	CO1	T1,T2	
11.	Orthogonal Trajectories (Cartesian)	1	10/11/2022		TLM1	CO1	T1,T2	
12.	Orthogonal Trajectories (polar)	1	12/11/2022		TLM1	CO1	T1,T2	
13.	Orthogonal Trajectories (polar)	1	14/11/2022		TLM1	CO1	T1,T2	
14.	Problems	1	15/11/2022		TLM1	CO1	T1,T2	
15.	**TUTORIAL 1**	1	16/11/2022		TLM3	CO1	T1,T2	
No. of classes required to complete UNIT-I		13				No. of classes taken:		

UNIT-II: Higher Order Differential Equations

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
16.	Introduction to UNIT II	1	17/11/2022		TLM2	CO2	T1,T2	
17.	Solving a homogeneous DE	1	19/11/2022		TLM1	CO2	T1,T2	
18.	Finding Particular Integral, P.I for e^{ax+b}	1	21/11/2022		TLM1	CO2	T1,T2	
19.	P.I for Cos bx or sin bx	1	22/11/2022		TLM1	CO2	T1,T2	
20.	P.I for polynomial function	1	23/11/2022		TLM1	CO2	T1,T2	
21.	P.I for $e^{ax+b}V(x)$	1	24/11/2022		TLM1	CO2	T1,T2	
22.	P.I for $e^{ax+b}V(x)$	1	26/11/2022		TLM1	CO2	T1,T2	
23.	P.I for $x^k V(x)$	1	28/11/2022		TLM1	CO2	T1,T2	
24.	P.I for $x^k V(x)$	1	29/11/2022		TLM1	CO2	T1,T2	
25.	Method of Variation of parameters	1	30/11/2022		TLM1	CO2	T1,T2	
26.	Method of Variation of parameters	1	01/12/2022		TLM1	CO2	T1,T2	
27.	**TUTORIAL 2**	1	03/12/2022		TLM3	CO2	T1,T2	
No. of classes required to complete UNIT-II		12			No. of classes taken:			

UNIT-III: Numerical solution of Ordinary Differential Equations

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
28.	Introduction to Unit-III	1	05/12/2022		TLM2	CO3	T1,T2	
29.	Numerical Methods	1	06/12/2022		TLM1	CO3	T1,T2	
30.	Solution by Taylor's series	1	07/12/2022		TLM1	CO3	T1,T2	
31.	Solution by Taylor's series	1	08/12/2022		TLM1	CO3	T1,T2	
32.	Picard's Method	1	10/12/2022		TLM1	CO3	T1,T2	
33.	Picard's Method	1	19/12/2022		TLM1	CO3	T1,T2	
I MID EXAMINATIONS (12-12-2022 TO 17-12-2022)								
34.	Euler's Method	1	20/12/2022		TLM1	CO3	T1,T2	
35.	Modified Euler's Method	1	21/12/2022		TLM1	CO3	T1,T2	
36.	Modified Euler's Method	1	22/12/2022		TLM1	CO3	T1,T2	
37.	Runge- Kutta Method	1	24/12/2022		TLM1	CO3	T1,T2	
38.	Runge- Kutta Method	1	26/12/2022		TLM1	CO3	T1,T2	

39.	**TUTORIAL 3**	1	27/12/2022		TLM3	CO3	T1,T2	
No. of classes required to complete UNIT-III		12			No. of classes taken:			

UNIT-IV: Functions of Several Variables

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
40.	Introduction to UNIT IV	1	28/12/2022		TLM2	CO4	T1,T2	
41.	Generalized Mean Value Theorem, Taylor's series	1	29/12/2022		TLM1	CO4	T1,T2	
42.	Maclaurin's series	1	31/12/2022		TLM1	CO4	T1,T2	
43.	Functions of several variables	1	02/01/2023		TLM1	CO4	T1,T2	
44.	Jacobians(Cartesian coordinates)	1	03/01/2023		TLM1	CO4	T1,T2	
45.	Jacobians (polar, coordinates)	1	04/01/2023		TLM1	CO4	T1,T2	
46.	Jacobians (cylindrical, spherical coordinates)	1	05/01/2023		TLM1	CO4	T1,T2	
47.	Functional dependence	1	07/01/2023		TLM1	CO4	T1,T2	
48.	Maxima and Minima	1	09/01/2023		TLM1	CO4	T1,T2	
49.	Maxima and Minima of functions of two variables	1	10/01/2023		TLM1	CO4	T1,T2	
50.	Maxima and Minima of functions of two variables	1	11/01/2023		TLM1	CO4	T1,T2	
51.	**TUTORIAL 4**	1	12/01/2023		TLM3	CO4	T1,T2	
No. of classes required to complete UNIT-IV		12			No. of classes taken:			

UNIT-V: Partial Differential Equations

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
52.	Introduction to UNIT V	1	18/01/2023		TLM2	CO5	T1,T2	
53.	Partial Differential equations	1	19/01/2023		TLM1	CO5	T1,T2	
54.	Formation of PDE by elimination of arbitrary constants	1	21/01/2023		TLM1	CO5	T1,T2	
55.	Formation of PDE by elimination of arbitrary functions	1	23/01/2023		TLM1	CO5	T1,T2	

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.	Formation of PDE by elimination of arbitrary functions	1	24/01/2023		TLM1	CO5	T1,T2	
57.	Formation of PDE by elimination of arbitrary functions	1	25/01/2023		TLM1	CO5	T1,T2	
58.	Solving of PDE	1	26/01/2023		TLM1	CO5	T1,T2	
59.	Solving of PDE	1	28/01/2023		TLM1	CO5	T1,T2	
60.	Lagrange's Method	1	30/01/2023		TLM1	CO5	T1,T2	
61.	Lagrange's Method	1	31/01/2023		TLM1	CO5	T1,T2	
62.	**TUTORIAL 5**	1	01/02/2023		TLM3	CO5	T1,T2	
No. of classes required to complete UNIT-V		13			No. of classes taken:			

Contents beyond the Syllabus

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
63.	Lagrange's Method Other models	1	02/02/2023		TLM1	CO4	T1,T2	
64.	Solving of PDE other methods	1	04/02/2023		TLM5	CO5	T1,T2	
65.	Unit-1-Class Test	1	06/02/2023		TLM3	CO1	T1,T2	
66.	Unit-2-Class Test	1	07/02/2023		TLM3	CO2	T1,T2	
67.	Unit-3-Class Test	1	08/02/2023		TLM3	CO3	T1,T2	
68.	Unit-4-Class Test	1	09/02/2023		TLM3	CO4	T1,T2	
69.	Unit-5-Class Test	1	11/02/2023		TLM3	CO5	T1,T2	
No. of classes		9			No. of classes taken:			
II MID EXAMINATIONS (13-02-2023 TO 18-02-2023)								

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 (R20 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15

II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), 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

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.

G. Vijaya Lakshmi	**Dr. A. RAMI REDDY**	**Dr. A. RAMI REDDY**	**Dr. A. RAMI REDDY**
Course Instructor	Course Coordinator	Module Coordinator	HOD

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LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

PROGRAM	: B.Tech., I-Sem., CSE-B
ACADEMIC YEAR	: 2022-23
COURSE NAME & CODE	: APPLIED PHYSICS & 20FE07
L-T-P STRUCTURE	: 3-1-0
COURSE CREDITS	: 3
COURSE INSTRUCTOR	: P VIJAYA SIRISHA
PRE-REQUISITE	: Nil

COURSE EDUCATIONAL OBJECTIVES (CEOs): It enables the students to understand the fundamental concepts of optics, quantum mechanics, free electron theory of metals, semiconductors, dielectrics, and their applications.

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

CO 1	**Define** the nature of Interference and Diffraction.
CO 2	**Apply** the Lasers and Optical Fibers in different fields.
CO 3	**Estimate** the electrical conductivity of metals.
CO 4	**Analyze** the properties of Semiconducting materials.
CO5	**Classify** the different types of Magnetic and Dielectric materials.

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

APPLIED PHYSICS												
COURSE DESIGNED BY	**FRESHMAN ENGINEERING DEPARTMENT**											
Course Outcomes	**Programme Outcomes**											
PO's →	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1.	3	3	1	1	1	1	1	-	-	-	-	1
CO2.	3	3	2	1	1	1	1	-	-	-	-	1
CO3.	3	3	1	1	1	1	1	-	-	-	-	1
CO4.	3	3	1	1	1	1	1	-	-	-	-	1
CO5.	3	3	1	1	1	1	1	-	-	-	-	1

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

BOS APPROVED TEXT BOOKS:

T1 : V. Rajendran, "*Engineering Physics*", TMH, New Delhi, 6th Edition, 2014.
T2 :M.N. Avadhanulu, P.G. Kshirsagar, "Engineering *Physics*", S. Chand &Co., 2nd Edition, 2014.

BOS APPROVED REFERENCE BOOKS:

R1: M.N. Avadhanulu, TVS Arun Murthy, "Applied *Physics*", S. Chand & Co., 2nd Edition, 2007.
R2 :P.K. Palani Samy, "*Applied Physics*", Sci. Publ. Chennai, 4th Edition, 2016.
R3 :P. Sreenivasa Rao, K Muralidhar, "*Applied Physics*", Him. Publi. Mumbai,1st Edition, 2016.
R4 :Hitendra K Mallik , AK Singh " *Engineering Physics*", TMH, New Delhi, 1st Edition, 2009.

WEB REFERENCES AND E-TEXT BOOKS

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

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-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: INTERFERENCE & DIFFRACTION

Course Outcome :- CO 1; Text Book :- 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	17-10-2022				
2.	Bridge Course	1	18-10-2022				

No.	Topic		Date		TLM		
3.	Bridge Course	1	20-10-2022				
4.	Bridge Course	1	21-10-2022				
5.	Bridge Course	1	22-10-2022				
6.	Bridge Course	1	24-10-2022				
7.	Bridge Course	1	25-10-2022		**TLM2**		
8.	Superposition of waves, Coherence, Conditions for Interference	1	27-10-2022		**TLM6**		
9.	Interference from thin films	1	28-10-2022		**TLM1**		
10.	Newton's rings	1	29-10-2022		**TLM4**		
11.	TUTORIAL-1	1	31-10-2022		**TLM3**		
12.	Michelson's interferometer	1	01-11-2022		**TLM2**		
13.	Problems &Assignment/Quiz	1	03-11-2022		**TLM1**		
14.	TUTORIAL-1		04-11-2022				
15.	Introduction – Diffraction, Types	1	05-11-2022		**TLM2**		
16.	Single slit diffraction	1	07-11-2022		**TLM4**		
17.	Diffraction – Circular aperture,	1	08-11-2022				
18.	Diffraction grating	1	10-11-2022		**TLM4**		
19.	TUTORIAL-2	1	11-11-2022		**TLM3**		
20.	Resolving power of Grating	1	12-11-2022		**TLM1**		
No. of classes required to complete UNIT-I: 12				No. of classes taken:			

UNIT-II: LASERS & OPTICAL FIBERS

Course Outcome :- CO 2; Text Book :- 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.	Principle of laser, Absorption, Spontaneous and Stimulated emission	1	14-11-2022		TLM2		
2.	Einstein Coefficients	1	15-11-2022		TLM1		
3.	TUTORIAL-3	1	17-11-2022		TLM3		
4.	Nd-YAG Laser, He-Ne gas Laser	1	18-11-2022		TLM2		
5.	Applications of LASERS	1	19-11-2022		TLM5		
6.	Optical Fiber principle, Structure of optical fiber	1	21-11-2022		TLM2		
7.	Numerical aperture and Acceptance angle	1	22-11-2022		TLM4		
8.	TUTORIAL-4	1	24-11-2022		TLM3		
9.	Types of optical fibers and applications	1	25-11-2022		TLM2		
10.	PROBLEMS	1	26-11-2022				
11.	Assignment	1	28-11-2022				
No. of classes required to complete UNIT-II: 10			No. of classes taken:				

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

Course Outcome :- CO 3; Text Book :- 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 quantum mechanics,De Broglie hypothesis	1	29-11-2022		TLM5		
2.	Davisson and Germer Experiment,	1	01-12-2022		TLM2		

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign	Remarks
3.	Physical significance of wave function	1	02-12-2022		**TLM1**		
4.	Schrodinger time dependent & independent wave equations	1	03-12-2022		**TLM1**		
5.	Particle in a box	1	05-12-2022		**TLM1**		
6.	TUTORIAL-6	**1**	06-12-2022		---		
7.	Problems	1	08-12-2022		---		
8.	Assignment/Quiz	**1**	09-12-2022		---		
9.	MID 1 EXAMS		12-12-2022				
10.	MID 1 EXAMS		13-12-2022				
11.	MID 1 EXAMS		15-12-2022				
12.	MID 1 EXAMS		16-12-2022				
13.	Classical free electron theory-postulates, Success & Failures	1	17-12-2022				
14.	Expression for electrical conductivity and drift velocity	1	19-12-2022				
15.	TUTORIAL-7	1	20-12-2022				
16.	Fermi-Dirac distribution function-Temperature dependence	1	22-12-2022		**TLM2**		
17.	Classification of Solids on the basis of Band theory	1	23-12-2022		**TLM6**		
18.	Problems &Assignment/Quiz	1	24-12-2022		**TLM1**		
No. of classes required to complete UNIT-III: 13			No. of classes taken:				

UNIT-IV :SEMICONDUCTOR PHYSICS

Course Outcome :- CO 4; Text Book :- 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

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 - Classification of semiconductors	1	26-12-2022		**TLM6**		
2.	TUTORIAL-7	1	28-12-2022		**TLM3**		
3.	Conductivity of Intrinsic and	1	29-12-2022		**TLM1**		
4.	Extrinsic semiconductors		30-12-2022		**TLM1**		
5.	Drift and Diffusion Current,	1	31-12-2022		**TLM1**		
6.	Einstein relation	1	02-01-2023		**TLM1**		
7.	Hall Effect and Hall Coefficient	1	03-01-2023		**TLM5**		
8.	Direct band gap and indirect band gap semiconductors	1	05-01-2023		**TLM2**		
9.	TUTORIAL-8	1	06-01-2023		**TLM3**		
10.	Solar Cell, Applications	1	07-01-2023		**TLM4**		
11.	Problems &Assignment/Quiz	1	09-01-2023		**TLM1**		
No. of classes required to complete UNIT-IV: 11			No. of classes taken:				

UNIT-V :MAGNETIC & DIELECTRIC M02/TERIALS

Course Outcome :- CO 5; Text Book :- 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.	Introduction,Magnetic parameters	1	10-01-2023		**TLM2**		
2.	Classification of magnetic materials – Dia, para & Ferro	1	12-01-2023		**TLM6**		
3.	TUTORIAL-9	1	19-01-2023		**TLM3**		
4.	Hysteresis loop, soft and hard magnetic materials	1	20-01-2023		**TLM2**		
5.	Applications of magnetic materials	1	21-01-2023		**TLM2**		
6.	Basic Definitions, Electronic polarization	1	24-01-2023		**TLM1**		
7.	Electronic polarization	1	24-01-2023		**TLM1**		
8.	Ionic & Orientation polarization	1	27-01-2023		**TLM1**		

9.	TUTORIAL-10	1	28-01-2023		**TLM3**		
10.	Local field,	1	30-01-2023		**TLM1**		
11.	Clausius Mosotti equation	1	02-02-2023		**TLM1**		
12	Applications of dielectricmaterials	1	03-02-2023		**TLM2**		
13.	Problems	1	04-02-2023		**TLM1**		
14.	Assignment/Quiz	1	06-02-2023		**TLM1**		
15.	TUTORIAL-10	1	10-02-2023		**TLM1**		
16	Revision	1	09-02-2023		**TLM1**		
17	Hysteresis and ferro and piezo electricity (beyond syllabus)	1	10-02-2023		**TLM1**		
18	Revision	1	11-02-2023				
	MID-2 Exams	---	13-02-2023		---		
	MID-2 Exams	---	14-02-2023		---		
	MID-2 Exams	---	16-02-2023		---		
	MID-2 Exams	---	17-02-2023		---		
No. of classes required to complete UNIT-V: 18				No. of classes taken:			

PART-C
EVALUATION PROCESS (R-20 Regulation):

Evaluation Task	Marks
Assignment-I (Unit-I)	A1=5
Assignment-II (Unit-II)	A2=5
Assignment-III (Unit-III (A))	A3=5
I-Mid Examination (Units-I, II& III (A))	M-1=18
I-Quiz Examination (Units-I, II& III (A))	Q1=07
Assignment-III (Unit-III (B))	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III (B), IV & V)	M-2=18

II-Quiz Examination (Units-III (B), IV & V)	Q2=07
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M-1,M-2)+25% of Min(M-1,M-2)	M=18
Quiz Marks =75% of Max(Q-1,Q-2)+25% of Min(Q-1,Q-2)	Q=07
Cumulative Internal Examination (CIE): A+M+Q	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.
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PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	**Life-long learning**: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Instructor   Course Coordinator   Module Coordinator   HOD

P Vijaya Sirisha   P Vijaya Sirisha   Dr. S. Yusub   Dr. A. Rami Reddy

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT
PART-A

Name of Course Instructor   : Mr. A. Sudhakar
Course Name & Code   : Programming for Problem Solving Using C (20CS01)
L-T-P Structure   : 3-0-0   Credits: 3
Program/Sem/Sec   : B.Tech. / I Sem / CSE - B   A.Y.: 2022-23

PRE-REQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVE (CEO): The Objective of the course is to make learn the basic elements of C programming, control structures, derived data types, Modular programming, user defined structures, basics of files and its I/O operations.

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

CO1:	Familiar with syntax and semantics of the basic programming language constructs	Understand – Level 2
CO2:	Construct derived data types like arrays in solving problem	Apply – Level 3
CO3:	Decompose a problem into modules and reconstruct it using various ways of user-defined functions	Apply – Level 3
CO4:	Use user-defined data types like structures and unions and its applications to solve problems	Apply – Level 3
CO5:	Discuss various file I/O operations and its application	Understand – Level 2

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

1 – Low	**2 –** Medium	**3 –** High

TEXTBOOKS:

T1: ReemaThareja, Programming in C, Oxford University Press, 2nd Edition, 2015

REFERENCE BOOKS:

R1: Jeri R.Hanly, Elliot B.Koffman, Problem Solving and Program Design in C, Pearson Publishers, 7th Edition, 2013

R2: E Balagurusamy, Computer Programming, McGraw Hill Education, 8th Edition

R3: C: The Complete Reference, McGraw Hall Education,4th Edition.

R4: PradeepDey, Manas Ghosh, Programming in C, Oxford University Press, 2nd Edition, 2011.

R5: Stephen G.Kochan, Programming in C, Pearson Education, 3rd Edition, 2005.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT – I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	**Introduction to Problem solving through C Programming:** Problem Specification, Algorithm, Pseudo Code	1	17-10-2022			
2.	Flowchart, Examples on Algorithm and Flowcharts	1	18-10-2022			
3.	**C Programming:** Structure of C Program, Identifiers, Basic Data Types and Sizes	2	19-10-2022 20-10-2022			
4.	Constants, Variables, Input – Output Statements, A sample C Program	2	21-10-2022 25-10-2022			
5.	Operators Part – I	1	26-10-2022			
6.	Operators Part – II	1	27-10-2022			
7.	Expressions, Type Conversions, Conditional Expression	2	28-10-2022 31-10-2022			
8.	Precedence of Operators, Order of Evaluation	2	01-11-2022 02-11-2022			
9.	**Control statements:** if, if else	1	03-11-2022			
10.	else if ladder and nested if	1	04-11-2022			
11.	switch statement	1	07-11-2022			
12.	while loop, do-while loop	2	08-11-2022 09-11-2022			
13.	for loop	2	10-11-2022 11-11-2022			
14.	break, continue, go to and labels	1	14-11-2022			
No. of classes required to complete UNIT – I: 20				**No. of classes taken:**		

UNIT – II:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
15.	**Arrays:** Definition, Types of Arrays	1	15-11-2022			
16.	1D-Array Syntax, Declaration, and Initialization	1	16-11-2022			
17.	Storing and Accessing Elements in 1D-Array	1	17-11-2022			
18.	**Applications of 1D-Array:** Linear Search and Binary Search, Bubble Sort Algorithm	2	18-11-2022 21-11-2022			
19.	Two-Dimensional Array Syntax, Declaration, and Initialization	1	22-11-2022			
20.	Storing and Accessing Elements in 2D-Array	2	23-11-2022 24-11-2022			
21.	Applications of 2D Arrays	1	25-11-2022			
22.	Multi-Dimensional Arrays	1	28-11-2022			
23.	**Character Arrays:** Declaration, Initialization, Reading and Writing Strings	1	29-11-2022			
24.	String Handling Functions Part – I	1	30-11-2022			
25.	String Handling Functions Part – II	1	01-12-2022			

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
26.	Pre-processor Directives Part – I	1	02-12-2022			
27.	Pre-processor Directives Part – II	1	05-12-2022			

No. of classes required to complete UNIT – II: 15	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	HOD Sign Weekly
28.	**Pointers:** Definition, Declaration, Initialization of Pointer Variable	1	06-12-2022			
29.	Pointer Expressions	1	07-12-2022			
30.	Pointer Arithmetic	1	08-12-2022			
31.	Pointers and Arrays	2	09-12-2022 19-12-2022			
32.	Pointers and Character Arrays	1	20-12-2022			
33.	Pointers to Pointers	1	21-12-2022			
34.	**Functions:** Basics, Category of Functions	1	22-12-2022			
35.	Parameter Passing Techniques	1	23-12-2022			
36.	Recursive Functions	1	26-12-2022			
37.	Functions with Arrays	1	27-12-2022			
38.	Standard Library Functions	1	28-12-2022			
39.	Dynamic Memory Management Functions	1	29-12-2022			
40.	Command Line Arguments	1	30-12-2022			
41.	**Storage Classes:** auto, register, static and extern	1	31-12-2022			

No. of classes required to complete UNIT – III: 15	No. of classes taken:

UNIT – IV:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
42.	**Derived Types:** **Structure:** Definition and Declaration	2	02-01-2023 03-01-2023			
43.	Initialization and Accessing Structures	1	04-01-2023			
44.	Nested Structures	1	05-01-2023			
45.	Arrays of Structures	1	06-01-2023			
46.	Structures and Functions	1	09-01-2023			
47.	Pointers to Structures Part – I	1	10-01-2023			
48.	Pointers to Structures Part – II	1	11-01-2023			
49.	Self-Referential Structures	1	12-01-2023			
50.	**Union:** Definition and Declaration	1	18-01-2023			
51.	Initialization and Accessing Union Elements	1	19-01-2023			
52.	Examples on Union	1	20-01-2023			
53.	Structure vs Union	1	23-01-2023			
54.	Typedef	1	24-01-2023			

No. of classes required to complete UNIT – IV: 14	No. of classes taken:

UNIT – V:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
55.	Files: Definition, Types of Files	1	25-01-2023			

56.	Text files and Binary files	1	27-01-2023			
57.	Stream	1	30-01-2023			
58.	Standard I/O and Formatted I/O	1	31-01-2023			
59.	Types of File I/O Operations	1	01-02-2023			
60.	Creation of a new file	1	02-02-2023			
61.	Opening an existing file	1	03-02-2023			
62.	Reading from file	1	06-02-2023			
63.	Writing to a file	1	07-02-2023			
64.	Moving to a specific location in a file and closing a file	1	08-02-2023			
65.	Error Handling Basics	1	09-02-2023			
66.	Error Handling Function Calls	1	10-02-2023			
No. of classes required to complete UNIT – V: 12				**No. of classes taken:**		

Content Beyond the Syllabus:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
67.	Introduction to Linked List	1	12-01-2023			

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 (R20 Regulation):

Evaluation Task	Marks
Assignment – I (Units-I, II & UNIT-III (Half of the Syllabus))	A1 = 5
I – Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1 = 15
I – Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1 = 10
Assignment – II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2 = 5
II – Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2 = 15
II – Quiz Examination (UNIT-III (Remaining Half of the Syllabus), 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

PROGRAMME OUTCOMES (POs):

PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineeringproblems.
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complexengineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data,and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, andmodern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues, and the consequent responsibilitiesrelevant to the professional engineering practice
PO7	**Environment and sustainability**: Understand the impact of the professional engineeringsolutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities andnorms of the engineering practice.
PO9	**Individual and teamwork**: Function effectively as an individual, and as a member orleader in diverse teams, and in multidisciplinary settings.
PO10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long learning**: Recognize the need for and have the preparation and ability to engagein independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1	The ability to apply Software Engineering practices and strategies in software project development using open-source programming environment for the success of organization.
PSO2	The ability to design and develop computer programs in networking, web applications andIoT as per the society needs.
PSO3	To inculcate an ability to analyze, design and implement database applications.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**Mr. A. Sudhakar**	**Dr. S. Nagarjuna Reddy**	**Dr. K. Naga Prasanthi**	**Dr. D. Veeraiah**
Signature				

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Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

PART-A

Name of Course Instructor: Mr.Ch.Rajesh
Course Name & Code : Basic Electrical and Electronics Engineering-20EE02
L-T-P Structure : 3-0-0 **Credits:** 3
Program/Sem/Sec : B.Tech., I-Sem., CSE – B section **A.Y.:**2022-23
PREREQUISITE: None

COURSE EDUCATIONAL OBJECTIVES (CEOs):

This course enables student to illustrate the basics of applied electricity and electronics.

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

CO1	CO1: Apply network reduction techniques to simplify electrical circuits
CO2	CO2: Illustrate the working principle of DC machines and transformers
CO3	CO3: Understand V-I characteristics of semiconductor devices.
CO4	CO4: Illustrate the configuration of Transistors and their applications

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

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

TEXTBOOKS:

T1. A.Sudhakar and Shyammohan S Palli, Electrical Circuits, Tata McGraw-Hill, 3rd Edition.

T2. M.S.Sukhija, T.K.Nagsarkar, "Basic Electrical and Electronics Engineering", Oxford University Press, 2016 Edition.

REFERENCE BOOKS:

R1: Kothari and Nagarath, "Basic Electrical Engineering", TMH Publications, 3rd Edition.2013

R2: G.S.N.Raju, "Electronic Devices and Circuits", I.K.International.2006

PART-B

COURSE DELIVERY PLAN (LESSON PLAN): Section - C

UNIT-I: ELECTRICAL CIRCUIT FUNDAMENTALS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction	1	17-10-22		TLM1	
2.	Basic definitions	1	18-10-22		TLM1	
3.	Types of elements	1	19-10-22		TLM1	
4.	R,L,C parameters	1	20-10-22		TLM1	
5.	Ohm's Law, Kirchhoff's Laws	1	22-10-22		TLM1	
6.	Series & parallel Star to delta, Delta to star	1	24-10-22		TLM1	
7.	Source transformations	1	25-10-22		TLM1	
8.	Mesh Analysis	1	26-10-22		TLM2	
9.	Nodal Analysis	1	27-10-22		TLM2	
10.	Assignment/Quiz-I	1	29-10-22		TLM6	
11.	Problems	1	1-11-22			
12.	Problems	1	2-11-22			
No. of classes required to complete UNIT-I		12				

UNIT-II : DC Network Theorems and AC Fundamentals

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Superposition Theorem	1	3-11-22		TLM1	
2.	Thevenin's Theorem	1	5-11-22		TLM1	
3.	Norton's Theorem	1	7-11-22		TLM1	
4.	Maximum Power Transfer Theorem	1	8-11-22		TLM1	
5.	Peak, R.M.S, average and instantaneous values	1	9-11-22		TLM1	
6.	Form factor and Peak factor for periodic waveforms Phase and Phase difference	1	10-11-22		TLM1	
7.	Reactance,	1	12-11-22		TLM1	

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
	Impedance, Susceptance and Admittance					
8.	Real, Reactive and apparent Powers, Power factor	1	14-11-22		TLM1	
9.	Resonance	1	15-11-22		TLM2	
10.	Band Width & Quality Factor	1	16-11-22		TLM1	
11.	Problems	1	17-11-22		TLM1	
12.	Assignment/Quiz-II	1	19-11-22		TLM6	
No. of classes required to complete UNIT-II		12				

UNIT-III : DC Machine Fundamentals and Single Phase Transformers

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
13.	Introduction to Electrical Machine	1	21-11-22		TLM1	
14.	DC generator principle	1	22-11-22		TLM1	
15.	constructional details	1	23-11-22		TLM1	
16.	EMF equation	1	24-11-22		TLM1	
17.	types of generators	1	28-11-22		TLM1	
18.	DC motor principle, Back emf	1	29-11-22		TLM1	
19.	types of motors motor applications	1	1-12-22		TLM2	
20.	Principle of operation of single phase transformers	1	3-12-22		TLM1	
21.	Construction of single phase transformers	1	5-12-22		TLM2	
22.	EMF equation of Transformer	1	6-12-22		TLM2	
23.	Assignment/Quiz-III	1	7-12-22		TLM6	
24.	Problems	1	8-12-22		TLM1	
25.	Problems	1	10-12-22		TLM1	
No. of classes required to complete UNIT-III		13				

UNIT-IV : P-N Junction Diode and Zener Diode

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
26.	Introduction to Electronic Devices	1	20-12-22		TLM1	
27.	Operation of PN junction diode	1	22-12-22		TLM2	
28.	V-I characteristics of PN junction diode	1	24-12-22		TLM2	

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
29.	Half Wave Rectifier& Full Wave Rectifier-Bridge type	1	26-12-22		TLM1	
30.	Operation of Zener Diode & V-I characteristics of Zener Diode	1	27-12-22		TLM1	
31.	Zener Diode as Voltage Regulator	1	29-12-22		TLM1	
32.	Problems	1	31-12-22		TLM1	
33.	Assignment/Quiz-4	1	2-1-23		TLM6	
No. of classes required to complete UNIT-IV		12				

UNIT-V: Transistors

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
34.	Introduction and symbol of Transistor	1	3-1-23		TLM1	
35.	Introduction and symbol of Transistor	1	5-1-23		TLM1	
36.	Principle, Operation and Construction - Transistor	1	10-1-23		TLM1	
37.	CB configuration	1	19-1-23		TLM1	
38.	CB, CE configuration	1	23-1-23		TLM1	
39.	JFET& MOSFET	1	24-1-23		TLM2	
40.	Application of transistor as an amplifier	1	27-1-23		TLM2	
41.	Assignment/Quiz-4	1	31-1-23		TLM2	
No. of classes required to complete UNIT-V		13				

CONTENT BEYOND SYLLABUS:

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods
1	Applications of DC Machines	1	6-2-23		TLM2

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

PART-C

EVALUATION PROCESS (R17 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), 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

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 ring 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	Specify, design and analyze systems that efficiently generate, transmit and distribute electrical power
PSO 2	Design and analyze electrical machines, modern drive and lighting systems
PSO 3	Specify, design, implement and test analog and embedded signal processing electronic systems
PSO4	Design controllers for electrical and electronic systems to improve their performance.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**Mr.Ch.Rajesh**	Mr.J.V.Pavan Chand	Dr.G.Nageswara Rao	Dr.J.S.Vara Prasad
Signature				

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Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: **Mr. B. SREENIVASA REDDY**
Course Name & Code   :   PCS LAB, 20FE51
L-T-P Structure   :   **0-0-2**   **Credits:** 01
Program/Sem/Sec   :   CSE–B- I SEM
A.Y.   :   2022-23

PREREQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): To improve the proficiency of students in English with an emphasis on better communication in formal and informal situations; Develop speaking skills required for expressing their knowledge and abilities and to face interviews with confidence.

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

CO1	Introduce one-self and others using appropriate language and details.	L2
CO2	Comprehend short talks and speak clearly on a specific topic using	L2
CO3	Report effectively after participating in informal discussions ethically.	L1
CO4	Interpret data aptly, ethically & make oral presentations without	L3

Syllabus: Professional Communication Lab (PCS) shall have two parts:

- **Computer Assisted Language Learning (CALL) Lab** for 60 students with 60 systems, LAN facility and English language software for self-study by learners.
- **Interactive Communication Skills (ICS) Lab.** with movable chairs and audio-visual aids with a P.A System, a T. V., a digital stereo – audio & video system and camcorder etc.

Exercise– I

CALL Lab: Understand- Sentence structure.

ICS Lab: Practice -Listening: Identifying the topic, the context and specific information, Speaking: Introducing oneself and others.

Exercise–II

CALL Lab: Understand- Framing questions.

ICS Lab: Practice- Listening: Answering a series of questionsaboutmainideaandsupportingideasafterlisteningtoaudiotext.

Speaking: Discussing in pairs/small groups on specific topics; Delivering short structured talks using suitable cohesive devices (JAM)

Exercise–III

CALL Lab: Understand- Comprehension practice–Strategies for Effective Communication

ICS Lab: Practice - Listening: Listening for global comprehension and Summarizing Speaking: Discussing specific topics in pairs/small groups, reporting what is discussed

Exercise–IV

CALL Lab: Understand- Features of Good Conversation–Strategies for Effective Communication.

ICS Lab: Practice -Listening: making predictions while listening to conversations/transactional dialogues with/without video Speaking: Role – plays – formal & informal – asking for and giving information/directions/instructions/suggestions

Exercise– V

CALL Lab: Understand- Features of Good Presentation, Methodology of Group Discussion

ICS Lab: Practice –Introduction to Group Discussions.

Listening: Answering questions, identifying key terms and understanding concepts.

Speaking: Formal Oral & Poster presentations on topics from academic contexts without the use of PPT.

Lab Manual:

1. Prabhavati .Y & etal, "English All Round–Communication Skills for Undergraduate Learners" , Orient Black Swan, Hyderabad, 2019.

Suggested Software:

1. Digital Mentor: Globarena, Hyderabad,2005
2. Sky Pronunciation Suite: Young India Films, Chennai,2009
3. Mastering English in Vocabulary, Grammar, Spelling, Composition, Dorling Kindersley, USA, 2001
4. Dorling Kindersley Series of Grammar, Punctuation, Composition, USA, 2001
5. Oxford Talking Dictionary, The Learning Company, USA, 2002
6. Learning to Speak English- 4CDs. The Learning Company, USA, 2002
7. Cambridge Advanced Learners English Dictionary (CD).Cambridge University Press, New Delhi, 2008.

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

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

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to syllabus	03	20.10.2022		TLM4	
2.	Self Introduction & Introducing others	06	27.10.2022 03.11.20222		TLM4	
3.	Self Introduction & Introducing others	03	10.11.2022		TLM4	
4.	JAM- I(Short and Structured Talks)	03	17.11.2022		TLM4	
5.	JAM-II(Short and Structured Talks)	03	24.11.2022		TLM4	
6.	Role Play-I(Formal and Informal)	06	01.12.2022 08.12.2022		TLM4	
7.	Role Play-II (Formal and Informal)	06	22.12.2022 29.12.2022		TLM4	
8.	Group Discussion-I (Reporting the discussion)	06	05.01.2023 12.01.2023		TLM4, TLM6	
9.	Group Discussion-II	03	19.01.2023		TLM4, TLM6	
10.	Oral & Poster Presentation	03	02.02.2023		TLM2, TLM4	
11.	Lab Internal Exam	03	090.02.2023			
No. of classes required to complete Syllabus: 42				**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 (R20 Regulation):

Evaluation Task	Marks
Cumulative Internal Examination (CIE): M	15
Semester End Examination (SEE)	35
Total Marks = CIE + SEE	50

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.

	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr. B. Sreenivasa Reddy	Dr. B. Samrajya Lakshmi	Dr. B. Samrajya Lakshmi	Dr. A. Rami Reddy
Signature				

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

Part-A

PROGRAM	:	B.Tech., I-Sem.,(CSE/B)
ACADEMIC YEAR	:	2022-2023
COURSE NAME & CODE	:	APPLIED PHYSICS LAB & 20 FE 54
L-T-P STRUCTURE	:	0-0-3
COURSE CREDITS	:	1
COURSE INSTRUCTOR	:	**P.Vijaya Sirisha/ Dr P V N Kishore**
COURSE COORDINATOR	:	**P.Vijaya Sirisha**

Course Educational Objective:
> The theoretical ideas, Analytical techniques, graphical analysis and concepts covered in the lecture by completing a host of experiments with the procedures and observational skills for appropriate use of simple and complex apparatus.

Course Outcomes: At the end of the course, the student will be able to:
CO1: Analyze the wave characteristics of light.
CO2: Estimate the magnetic field using Stewart's and Gee's apparatus.
CO3: Verify the characteristics of semi conductor diodes.
CO4: Determine the acceptance angle and numerical aperture of optical fiber.
CO5: Improve report writing skills and individual team work with ethical values.

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

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

												1
CO4.	**3**	**3**	**1**	**1**								
CO5.								**2**	2	**2**		

1 = slight (Low)	**2 = Moderate (Medium)**	**3 = Substantial (High)**

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

BOS APPROVED TEXT BOOKS:

1. Lab Manual Prepared by the LBRCE.

Part-B

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

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction	3	22-10-2022		**TLM4**	
2.	Demonstration	3	29-10-2022		**TLM4**	
3.	Experiment 1	3	05-11-2022		**TLM4**	
4.	Experiment 2	3	12-11-2022		**TLM4**	
5.	Experiment 3	3	19-11-2022		**TLM4**	
6.	Experiment 4	3	26-11-2022		**TLM4**	
7.	Experiment 5	3	03-12-2022		**TLM4**	
8.	Experiment 6	3	10-12-2022		**TLM4**	
9.	Demonstration	3	17-12-2022		**TLM4**	
10.	Experiment 7	3	24-12-2022		**TLM4**	
11.	Experiment 8	3	31-12-2022		**TLM4**	
12.	Experiment 9	3	07-01-2023		**TLM4**	
13.	Experiment 10	3	21-01-2023		**TLM4**	
14.	**Revesion**	3	28-01-2023			
15.	**Internal Exam**	3	04-02-2023			
16.	**Internal Exam**	3	11-02-2023			
	No. of classes required to complete Syllabus:		39			

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	Marks
Cumulative Internal Examination (CIE): M	15
Semester End Examination (SEE)	35
Total Marks = CIE + SEE	50

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

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

PROGRAM OUTCOMES:
Engineering Graduates will be able to:
(**1**). **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
(**2**). **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
(**3**). **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
(**4**). **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
(**5**). **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.
(**6**). **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
(**7**).**Environment and sustainability**: Understand the impact of the professional engineering

solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

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

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

(**10**). **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

(**11**). **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

(**12**).**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
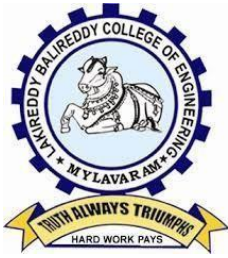
PROGRAM SPECIFIC OUTCOMES (PSOs):

Graduate of the ECE will have the ability to

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

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

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

P VIJAYA SIRISHA / Dr P V N Kishore	**P.Vijaya Sirisha**	Dr. S. YUSUB	Dr A. RAMI REDDY
Course Instructor	Course Coordinator	Module Coordinator	HOD

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT
PART-A

Name of Course Instructor   : Mr. A. Sudhakar

Course Name & Code   : Programming for Problem Solving Using C Lab (20CS51)

L-T-P Structure   : 0-0-3   Credits: 1.5

Program/Sem/Sec   : B.Tech. / I Sem / CSE - B   A.Y. : 2022-23

PRE-REQUISITE: Programming and Problem-Solving Skills

COURSE EDUCATIONAL OBJECTIVE (CEO): The objective of the course is to learn the basic elements of C Programming Structures like Data Types, Expressions, Control Statements, and Various I/O Functions and to solve simple mathematical problems using control structures. Design and implementation of various software components, which solve real world problems.

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

CO1:	Apply control structures of C in solving computational problems.	Apply – Level 3
CO2:	Implement derived data types & use modular programming in problem solving	Apply – Level 3
CO3:	Implement user defined data types and perform file operations.	Apply – Level 3
CO4:	Improve individual / teamwork skills, communication & 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	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	3	-	-
CO3	3	2	-	-	-	-	-	-	-	-	-	-	3	-	-
CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-

1 – Low	**2 – Medium**	**3 – High**

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

S. No.	Programs to be covered	No. of Classes		Date of Completion	Delivery Method
		Required as per the Schedule	Taken		
1.	Module 1: Introduction to Raptor Tool	06		21-10-2022 & 28-10-2022	DM5
2.	Module 2: Problem solving using Raptor Tool				DM5
3.	Module 3: Exercise Programs on Basics of C-Program	03		04-11-2022	DM5
4.	Module 4: Exercise Programs on Control Structures	03		11-11-2022	DM5
5.	Module 5: Exercise Programs on Loops & nesting of Loops	06		18-11-2022 25-11-2022	DM5
6.	Module 6: Exercise Programs on Arrays & Strings	06		02-12-2022 09-12-2022	DM5
7.	Module 7: Exercise Programs on Pointers	06		23-12-2022 30-12-2022	DM5
8.	Module 8: Exercise Programs on Functions	06		06-01-2023 20-01-2023	DM5
9.	Module 9: Exercise Programs on user defined data types	03		27-01-2023	DM5
10.	Module 10: Exercise Programs on Files	03		03-02-2023	DM5
11	Internal Lab Exam	03		10-02-2023	DM4

Delivery 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):

PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineeringproblems.
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complexengineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data,and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues, and the consequent responsibilitiesrelevant to the professional engineering practice
PO7	**Environment and sustainability**: Understand the impact of the professional engineeringsolutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities andnorms of the engineering practice.
PO9	**Individual and teamwork**: Function effectively as an individual, and as a member orleader in diverse teams, and in multidisciplinary settings.
PO10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long learning**: Recognize the need for and have the preparation and ability to engagein independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1	The ability to apply Software Engineering practices and strategies in software project development using open-source programming environment for the success of organization.
PSO2	The ability to design and develop computer programs in networking, web applications andIoT as per the society needs.
PSO3	To inculcate an ability to analyze, design and implement database applications.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**Mr. A. Sudhakar**	**Dr.S.Nagarjuna Reddy**	**Dr.K. Naga Prasanthi**	**Dr. D. Veeraiah**
Signature				

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hodcse@lbrce.ac.in, cseoffice@lbrce.ac.in, Phone: 08659-222 933, Fax: 08659-222931

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT
PART-A

Name of Course Instructor : Mrs. BAJJURI USHA RANI

Course Name & Code : IT WORKSHOP LAB (20IT51)

L-T-P Structure : 0-0-3   Credits: 1.5

Program/Sem/Sec : B.Tech., CSE, I-Sem., Section – B   A.Y: 2022 - 2023

PRE-REQUISITE: NIL

COURSE OBJECTIVE: The objective of the course is to impart knowledge about the components of PC, Assembling PC, Installation of OS, softwares like MS-Office, LaTex and concepts related to Networking, Internet as well as antivirus.

COURSE OUTCOMES (COs)

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

CO1	Identify the basic hardware components, keyboard shortcuts, assembling and disassembling of the system (PC).
CO2	Demonstrate Operating System installation, apply various commands of linux operating system, networking.
CO3	Create web pages using HTML, documents using applications like LaTeX, Google forms and use application software packages: MS-Word, MS-Excel, MS-Power Point to create documents and presentation.
CO4	Improve individual / teamwork skills, communication & 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	-	1	-
CO3	3	-	-	-	3	-	-	-	-	-	-	-	-	1	-
CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-

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

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

S.No.	Programs to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Identifying the peripheral components of a computer. Understanding the Block diagram of the CPU	3	19/10/2022	19/10/2022	TLM2/ TLM4	
2.	Disassembling and assembling the PC back to working condition	3	26/10/2022	26/10/2022	TLM2/ TLM4	
3.	Installation of MS WINDOWS and LINUX on a personal computer. Linux Operating System commands	6	02/11/2022 09/11/2022	02/11/2022 09/11/2022	TLM2/ TLM4	
4.	Working on Networking Commands Working on Internet Services	3	16/11/2022	16/11/2022	TLM2/ TLM4	
5.	Introduction to HTML and its tags. Preparing a simple website/homepage.	6	23/11/2022 30/11/2022	23/11/2022 30/11/2022	TLM2/ TLM4	
6.	Demonstration and Practice of Text Editors Demonstration and practice of Microsoft Word	6	07/12/2022 21/12/2022	07/12/2022 21/12/2022	TLM2/ TLM4	
7.	Demonstration and practice of PowerPoint, Microsoft Excel	6	28/12/2022 04/01/2023	28/12/2022 04/01/2023	TLM2/ TLM4	
8.	Demonstration and practice of LaTeX Creating online documents using Google docs.	6	11/01/2023 18/01/2023	11/01/2023 18/01/2023	TLM2/ TLM4	
9.	Creating and sharing online quiz with marks/Grads Creating and sharing Bio-data form.	3	25/01/2023	25/01/2023	TLM2/ TLM4	
10.	Revision of all modules	3	01/02/2023	01/02/2023	TLM2/ TLM4	
11.	Lab Internal Exam	3	08/02/2023	08/02/2023		

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

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.
PO10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and writeeffective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1	The ability to apply Software Engineering practices and strategies in software project development using open source programming environment for the success of organization.
PSO2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs.
PSO3	To inculcate an ability to analyze, design and implement database applications.

Course Instructor	Course Coordinator	Module Coordinator	HOD
Mrs. B USHA RANI	Mr.B S R KRISHNA	Dr. K Naga Prashanthi	Dr. D.VEERAIAH

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DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Ms. K. SRIDEVI
Course Name & Code   **:** PC-I, 20FE01
L-T-P Structure   **: 2-0-0**   **Credits:** 02
Program/Sem/Sec   : CSE-C –I SEM
A.Y.   **:** 2022-23

PREREQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): To improve English language proficiency of the students on various aspects like vocabulary, grammar, communication skills, listening skills, Reading &Writing skills.

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

CO1	Write sentences and paragraphs using proper grammatical structures and word forms.	L1
CO2	Comprehendthegiventextbyemployingsuitablestrategiesforskimmingand Scanning and draw in ferences	L2
CO3	Write summaries of reading texts using correct tense forms& Appropriate structures.	L1
CO4	Write Formal Letters; Memos & E-Mails	L3
CO5	Edit the sentences/short texts by identifying basic errors of grammar/ vocabulary/syntax	L2

Unit-I

Exploration - 'A Proposal to Girdle the Earth – Nellie Bly'; Reading: Skimming for main idea;Scanning for specific information; Grammar & Vocabulary: Content Words; Function Words;Word Forms: verbs, nouns, adjectives and adverbs; Nouns: Countable and Uncountable, Singularand Plural forms; Wh - Questions; Word Order in Sentences; Writing: Paragraph Analysis; Paragraph Writing; Punctuation and CapitalLetters

Unit–II

On Campus- 'The District School as it Was by One Who Went to it – Warren Burton'; Reading: Identifying Sequence of Ideas;

Grammar&Vocabulary: Cohesive Devices:Linkers/signposts/Transition signals, Synonyms, MeaningsofWords/Phrasesin thecontext; Writing: Memo Drafting.

Unit–III

WorkingTogether-'The Future of Work'

Reading: Making basic inferences; Strategies to use text clues for comprehension; Summarizing;Grammar & Vocabulary:Verbs: Tenses; Reporting Verbs for Academic Purpose; Writing**:** Rephrasing what is read; Avoiding redundancies and repetitions Abstract Writing/Summarizing.

Unit–IV

'A.P.J.AbdulKalam'; Grammar & Vocabulary: Direct & Indirect Speech; articles and their Omission; Writing :E-MailDrafting.

Unit–V

'C.V.Raman'; Grammar&Vocabulary: Subject-verb Agreement; Prepositions; Writing: Formal Letter Writing.

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

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

TEXTBOOKS:

T1   Prabhavati. Y & etal , "English All Round –Communication Skills for Undergraduate Learners" ,Orient Black Swan, Hyderabad, 2019

T2   "The Great Indian Scientists" published by Cengage Learning India Pvt. Ltd., Delhi, 2017

REFERENCE BOOKS:

R1   Swan, M., "Practical English Usage", Oxford University Press, 2016.

R2   Kumar, Sand Latha, P, "Communication Skills", Oxford University Press, 2018.

R3 Rizvi Ashraf M.,"Effective Technical Communication", Tata Mc Graw Hill, NewDelhi, 2008.

R4 Baradwaj Kumkum, "Professional Communication",I. K. International PublishingHousePvt.Lt.,NewDelhi,2008.

R5 Wood, F. T., "Remedial English Grammar" , Macmillan, 2007.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to syllabus	01	17-10-2022		TLM2	
2.	Proposal to Girdle The Earth by Nellie Bly	02	18-10-2022 22-10-2022		TLM2	
3.	Reading: Skimming for main idea ; Scanning for specific information	01	25-10-2022		TLM2	
4.	Content words and Function words	01	29-10-2022		TLM2	
5.	Word forms – verbs; Adjectives & adverbs	01	31-10-2022		TLM2	
6.	Nouns – countable & uncountable, singular and plural nouns Word order in sentences, "Wh" questions	01	01-11-2022		TLM2	
7.	Writing: Paragraph writing, Paragraph analysis	02	05-11-2022 07-11-2022		TLM2 TLM6	
No. of classes required to complete UNIT-I: 09				**No. of classes taken:**		

UNIT-II:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
8.	The District School As It Way by One Who Went to it - Warren Burton	02	08-11-2022 14-11-2022		TLM2	
9.	Identifying sequence of ideas	01	15-11-2022		TLM2	
10.	Cohesive devices: linkers /signposts/transition signals	02	19-11-2022 21-11-2022		TLM2	

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
11.	Synonyms meanings of words / Phrases in the context	02	22-11-2022 26-11-2022		TLM2	
12.	Essay Writing - Memo drafting	02	28-11-2022 29-11-2022		TLM2 TLM6	

No. of classes required to complete UNIT-II: 09 | **No. of classes taken:**

UNIT-III:

S. No.	Topics to be covered	No. of Classes Require D	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
13.	The Future of Work	02	03-12-2022 05-12-2022		TLM2 TLM6	
14.	Making basic inferences, Strategies to uses text clues for comprehension	01	06-12-2022		TLM2	
15.	Verbs :tenses, reporting verbs for academic purpose	02	19-12-2022 20-12-2022		TLM2	
16.	Summarizing rephrasing what is read	01	24-12-2022		TLM2	
17.	avoiding redundancies and repetitions - Abstract Writing	02	26-12-2022 27-12-2022		TLM2 TLM6	

No. of classes required to complete UNIT-III: 08 | **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	HOD Sign Weekly
18.	APJ Abdul Kalam	02	31-12-2022 02-01-2023		TLM2 TLM2	
19.	Direct-Indirect speech	02	03-01-2023 07-01-2023		TLM2	
20.	Articles and their omission	02	16-01-2023 17-01-2023		TLM2	
21.	E-mail drafting	02	21-01-2023 23-01-2023		TLM2 TLM6	

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	HOD Sign Weekly
22.	C.V.Raman	02	24-01-2023 28-01-2023		TLM2	
23.	Subject – Verb agreement	02	30-01-2023 31-01-2023		TLM2	

24.	Prepositions	01	04-02-2023		TLM2	
25.	Formal Letter Writing	02	06-02-2023		TLM2	
			07-02-2023		TLM6	
No. of classes required to complete UNIT-V: 07				**No. of classes taken:**		

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

PART-C

EVALUATION PROCESS (R17 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), 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

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.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	K. Sridevi	Dr. B. Samrajya Lakshmi	Dr. B. Samrajya Lakshmi	Dr. A. Ramireddy
Signature				

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
Accredited by NAAC with B++ Grade, ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada
L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

COURSE HANDOUT
Part-A

PROGRAM	**:** I B. Tech., I-Sem., CSE - C
ACADEMIC YEAR	**:** 2022-23
COURSE NAME & CODE	**:** Differential Equations
L-T-P STRUCTURE	**:** 5-0-0
COURSE CREDITS	**:** 4
COURSE INSTRUCTOR	**:** Dr. A. Rami Reddy
COURSE COORDINATOR	**:** Dr. A. Rami Reddy
PRE-REQUISITES	**:** Differentiation, Integration

COURSE EDUCATIONAL OBJECTIVES (CEOs): The objective of this course is to introduce the first order and higher order differential equations, functions of several variables. The students will also learn solving of first order partial differential equations.

COURSE OUTCOMES (COs)

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

CO1: Apply first order and first degree differential equations to find orthogonal trajectories.

CO2: Distinguish between the structure and methodology of solving higher order differential equations with constant coefficients.

CO3: Apply various Numerical methods to solve initial value problem.

CO4: Generate the infinite series for continuous functions and investigate the functional dependence.

CO5: Solve partial differential equations using Lagrange's method.

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

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

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

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

BOS APPROVED TEXT BOOKS:

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

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

BOS APPROVED REFERENCE BOOKS:

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

R2 Erwin Kreyszig, *"Advanced Engineering Mathematics"*, 8th Edition, John Wiley & sons, New Delhi, 2011.

R3 W.E. Boyce and R. C. Diprima, " *Elementary Differential Equations"* , 7th Edition, John Wiley & sons, New Delhi,2011.

R4 S. S. Sastry, *" Introductory Methods of Numerical Analysis"* 5th Edition, PHI Learning Private Limited, New Delhi, 2012.

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	8	17/10/2022 To 27/10/2022		TLM2			
2.	Introduction to the course, Course Outcomes	1	28/10/2022		TLM2			

UNIT-I: Differential Equations of First Order and First Degree

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
3.	Introduction to UNIT I	1	31/10/2022		TLM2	CO1	T1,T2	
4.	Formation of Differential Equations	1	01/11/2022		TLM1	CO1	T1,T2	
5.	Exact DE	1	02/11/2022		TLM1	CO1	T1,T2	
6.	Non-exact DE Type I	1	03/11/2022		TLM1	CO1	T1,T2	
7.	Non-exact DE Type II	1	04/11/2022		TLM1	CO1	T1,T2	
8.	Non-exact DE Type III	1	07/11/2022		TLM1	CO1	T1,T2	
9.	Non-exact DE Type IV	1	08/11/2022		TLM1	CO1	T1,T2	
10.	Orthogonal Trajectories (Cartesian)	1	09/11/2022		TLM1	CO1	T1,T2	
11.	Orthogonal Trajectories (Cartesian)	1	10/11/2022		TLM1	CO1	T1,T2	
12.	Orthogonal Trajectories (polar)	1	11/11/2022		TLM1	CO1	T1,T2	
13.	Orthogonal Trajectories (polar)	1	14/11/2022		TLM1	CO1	T1,T2	
14.	Problems	1	15/11/2022		TLM1	CO1	T1,T2	
15.	**TUTORIAL 1**	1	16/11/2022		TLM3	CO1	T1,T2	

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

UNIT-II: Higher Order Differential Equations

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
16.	Introduction to UNIT II	1	17/11/2022		TLM2	CO2	T1,T2	
17.	Solving a homogeneous DE	1	18/11/2022		TLM1	CO2	T1,T2	
18.	Finding Particular Integral, P.I for e^{ax+b}	1	21/11/2022		TLM1	CO2	T1,T2	
19.	P.I for Cos bx or sin bx	1	22/11/2022		TLM1	CO2	T1,T2	
20.	P.I for polynomial function	1	23/11/2022		TLM1	CO2	T1,T2	
21.	P.I for $e^{ax+b}v(x)$	1	24/11/2022		TLM1	CO2	T1,T2	
22.	P.I for $e^{ax+b}v(x)$	1	25/11/2022		TLM1	CO2	T1,T2	

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
23.	P.I for $x^k V(x)$	1	28/11/2022		TLM1	CO2	T1,T2	
24.	P.I for $x^k V(x)$	1	29/11/2022		TLM1	CO2	T1,T2	
25.	Method of Variation of parameters	1	30/11/2022		TLM1	CO2	T1,T2	
26.	Method of Variation of parameters	1	01/12/2022		TLM1	CO2	T1,T2	
27.	**TUTORIAL 2**	1	02/12/2022		TLM3	CO2	T1,T2	
No. of classes required to complete UNIT-II		12			No. of classes taken:			

UNIT-III: Numerical solution of Ordinary Differential Equations

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
28.	Introduction to Unit-III	1	05/12/2022		TLM2	CO3	T1,T2	
29.	Numerical Methods	1	06/12/2022		TLM1	CO3	T1,T2	
30.	Solution by Taylor's series	1	07/12/2022		TLM1	CO3	T1,T2	
31.	Solution by Taylor's series	1	08/12/2022		TLM1	CO3	T1,T2	
32.	Picard's Method	1	9/12/2022		TLM1	CO3	T1,T2	
33.	Picard's Method	1	19/12/2022		TLM1	CO3	T1,T2	
I MID EXAMINATIONS (12-12-2022 TO 17-12-2022)								
34.	Euler's Method	1	20/12/2022		TLM1	CO3	T1,T2	
35.	Modified Euler's Method	1	21/12/2022		TLM1	CO3	T1,T2	
36.	Modified Euler's Method	1	22/12/2022		TLM1	CO3	T1,T2	
37.	Runge- Kutta Method	1	23/12/2022		TLM1	CO3	T1,T2	
38.	Runge- Kutta Method	1	26/12/2022		TLM1	CO3	T1,T2	
39.	**TUTORIAL 3**	1	27/12/2022		TLM3	CO3	T1,T2	
No. of classes required to complete UNIT-III		12			No. of classes taken:			

UNIT-IV: Functions of Several Variables

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
40.	Introduction to UNIT IV	1	28/12/2022		TLM2	CO4	T1,T2	
41.	Generalized Mean Value Theorem, Taylor's series	1	29/12/2022		TLM1	CO4	T1,T2	
42.	Maclaurin's series	1	30/12/2022		TLM1	CO4	T1,T2	
43.	Functions of several variables	1	02/01/2023		TLM1	CO4	T1,T2	
44.	Jacobians(Cartesian coordinates)	1	03/01/2023		TLM1	CO4	T1,T2	

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
45.	Jacobians (polar, coordinates)	1	04/01/2023		TLM1	CO4	T1,T2	
46.	Jacobians (cylindrical, spherical coordinates)	1	05/01/2023		TLM1	CO4	T1,T2	
47.	Functional dependence	1	06/01/2023		TLM1	CO4	T1,T2	
48.	Maxima and Minima	1	09/01/2023		TLM1	CO4	T1,T2	
49.	Maxima and Minima of functions of two variables	1	10/01/2023		TLM1	CO4	T1,T2	
50.	Maxima and Minima of functions of two variables	1	11/01/2023		TLM1	CO4	T1,T2	
51.	**TUTORIAL 4**	1	12/01/2023		TLM3	CO4	T1,T2	
No. of classes required to complete UNIT-IV		12			No. of classes taken:			

UNIT-V: Partial Differential Equations

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
52.	Introduction to UNIT V	1	13/01/2023		TLM2	CO5	T1,T2	
53.	Partial Differential equations	1	19/01/2023		TLM1	CO5	T1,T2	
54.	Formation of PDE by elimination of arbitrary constants	1	20/01/2023		TLM1	CO5	T1,T2	
55.	Formation of PDE by elimination of arbitrary functions	1	23/01/2023		TLM1	CO5	T1,T2	
56.	Formation of PDE by elimination of arbitrary functions	1	24/01/2023		TLM1	CO5	T1,T2	
57.	Formation of PDE by elimination of arbitrary functions	1	25/01/2023		TLM1	CO5	T1,T2	
58.	Solving of PDE	1	27/01/2023		TLM1	CO5	T1,T2	
59.	Solving of PDE	1	30/01/2023		TLM1	CO5	T1,T2	
60.	Lagrange's Method	1	31/01/2023		TLM1	CO5	T1,T2	
61.	Lagrange's Method	1	01/02/2023		TLM1	CO5	T1,T2	
62.	Lagrange's Method	1	02/02/2023		TLM1	CO5	T1,T2	
63.	Lagrange's Method	1	03/02/2023		TLM1	CO5	T1,T2	
64.	**TUTORIAL 5**	1	06/02/2023		TLM3	CO5	T1,T2	
No. of classes required to complete UNIT-V		13			No. of classes taken:			

Contents beyond the Syllabus

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

65.	Lagrange's Method Other models	1	07/02/2023		TLM1	CO4	T1,T2	
66.	Solving of PDE other methods	1	08/02/2023		TLM5	CO5	T1,T2	
67.	Solving of PDE other methods	1	09/02/2023		TLM3	CO1	T1,T2	
68.	Revision	1	10/02/2023		TLM3	CO2	T1,T2	
No. of classes		4			No. of classes taken:			

II MID EXAMINATIONS (13-02-2023 TO 18-02-2023)

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 (R20 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), 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
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 teamwork**: 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 forand have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Dr. A. Rami Reddy	**Dr. A. RAMI REDDY**	**Dr. A. RAMI REDDY**	**Dr. A. RAMI REDDY**
Course Instructor	Course Coordinator	Module Coordinator	HOD

FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

PROGRAM	: B.Tech., I-Sem., CSE-C
ACADEMIC YEAR	: 2022-23
COURSE NAME & CODE	: APPLIED PHYSICS & 20FE07
L-T-P STRUCTURE	: 4-1-0
COURSE CREDITS	: 3
COURSE INSTRUCTOR	: Dr. P.V.N. Kishore
PRE-REQUISITE	: Nil

COURSE EDUCATIONAL OBJECTIVES (CEOs): It enables the students to understand the fundamental concepts of optics, quantum mechanics, free electron theory of metals, semiconductors, dielectrics, and their applications.

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

CO 1	**Define** the nature of Interference and Diffraction.
CO 2	**Apply** the Lasers and Optical Fibers in different fields.
CO 3	**Estimate** the electrical conductivity of metals.
CO 4	**Analyze** the properties of Semiconducting materials.
CO5	**Classify** the different types of Magnetic and Dielectric materials.

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

APPLIED PHYSICS												
COURSE DESIGNED BY	**FRESHMAN ENGINEERING DEPARTMENT**											
Course Outcomes	**Programme Outcomes**											
PO's →	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
CO1.	3	3	1	1	1	1	1	-	-	-	-	1
CO2.	3	3	2	1	1	1	1	-	-	-	-	1
CO3.	3	3	1	1	1	1	1	-	-	-	-	1
CO4.	3	3	1	1	1	1	1	-	-	-	-	1
CO5.	3	3	1	1	1	1	1	-	-	-	-	1
1 = slight (Low) 2 = Moderate (Medium) 3 = Substantial (High)												

BOS APPROVED TEXT BOOKS:

T1 : V. Rajendran, "*Engineering Physics*", TMH, New Delhi, 6th Edition, 2014.

T2 : M.N. Avadhanulu, P.G. Kshirsagar, "Engineering *Physics*", S. Chand & Co., 2nd Edition, 2014.

BOS APPROVED REFERENCE BOOKS:

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

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

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

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

WEB REFERENCES AND E-TEXT BOOKS

1. http://www.freebookcentre.net/Physics/Solid-State-Physics-Books.html

2. http://physicsdatabase.com/free-physics-books/

3. http://www.e-booksdirectory.com

4. http://www.thphys.physics.ox.ac.uk

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-B

COURSE DELIVERY PLAN (LESSON PLAN): CSE-C
UNIT-I : Interference and diffraction

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to Subject	1	17-10-2022		TLM1	CO1	T1	
2.	Course Outcomes	1	17-10-2022		TLM1	CO1	T1	
3.	Introduction to UNIT-I INTERFERENCE	1	18-10-2022		TLM1	CO1	T1	
4.	Coherence, Conditions	1	19-10-2022		TLM1	CO1	T1	
5.	Thin films, parallel film	1	20-10-2022		TLM1	CO1	T1	
6.	Newton's rings	1	22-10-2022		TLM1	CO1	T1	
7.	Newton's rings	1	25-10-2022		TLM1	CO1	T1	
8.	Michelson interferometer	1	26-10-2022		TLM1	CO1	T1	
9.	Tutorial-1	1	27-10-2022		TLM3		T1	

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
10.	Introduction Diffraction	1	29-10-2022		TLM1	CO1	T1	
11.	Fraunhofer diffraction Single slit	1	31-10-2022		TLM1	CO1	T1	
12.	Circular aperture	1	1-11-2022		TLM1	CO1	T1	
13.	Diffraction due to N-Slits	1	2-11-2022		TLM1	CO1	T1	
14.	Diffraction Grating	1	3-11-2022		TLM1	CO1	T1	
15.	Resolving power of Grating	1	5-11-2022		TLM3	CO1	T1	
16.	Applications of Diffraction	1	7-11-2022		TLM1	CO1	T1	
17.	Assignment/Quiz	1	8-11-2022		TLM6		T1	
18.	Tutorial-2	1	9-11-2022		TLM3		T1	
No. of classes required to complete UNIT-I		18			No. of classes taken:			

UNIT-II : Fiber optics and Lasers

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
19.	Introduction to Optical fiber and concept of total internal reflection	1	10-11-2022		TLM1	CO2	T1	
20.	Types of fibers	1	12-11-2022		TLM1	CO2	T1	
21.	Propagation of light in different fibers	1	14-11-2022		TLM1	CO2	T1	
22.	Derivation for Acceptance angle and Numerical aperture	1	15-11-2022		TLM1	CO2	T1	
23.	Applications of fibers	1	16-11-2022		TLM1	CO2	T1	
24.	Tutorial-3	1	17-11-2022		TLM3		T1	
25.	Characteristics of Laser.	1	19-11-2022		TLM1	CO2	T1	
26.	Einstein's coefficients	1	21-11-2022		TLM1	CO2	T1	
27.	NdYAG laser	1	23-11-2022		TLM1	CO2	T1	
28.	He-Ne laser	1	24-11-2022		TLM1	CO2	T1	
29.	Tutorial-4	1	26-11-2022		TLM3		T1	
30.	Applications of lasers	1	28-11-2022		TLM1	CO2	T1	
31.	Applications of lasers	1	29-11-2022		TLM1	CO2	T1	

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
32.	Applications of lasers	1	30-11-2022		TLM1	CO2	T1	
33.	Assignment/Quiz	1	1-12-2022		TLM6	CO2	T1	
34.	Tutorial-5	1	3-12-2022		TLM3	CO2	T1	
No. of classes required to complete UNIT-II		16			No. of classes taken:			

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

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
35	Introduction to Unit III, de-Broglie hypothesis	1	5-12-2022		TLM1	CO3	T1	
36	Expt. Verification,	1	6-12-2022		TLM1	CO3	T1	
37	Tutorial-6	1	07-12-2022		TLM3	CO3	T1	
38	Schrodinger wave equation, physical , significance of the wave function	1	08-12-2022		TLM1	CO3	T1	
39	particle in a box,	1	10-12-2022		TLM1	CO3	T1	
40	**I MID Exams**		**12-12-2022 to 17-12-2022**					
41	Classification of Solids on the basis of Band theory.	1	19-12-2022		TLM1	CO3	T1	
42	Classification of Solids on the basis of Band theory.	1	20-12-2022		TLM1	CO3	T1	
43	Assignment/Quiz	1	21-12-2022		TLM6	CO3	T1	
44	TUTORIAL-7	1	22-12-2022		TLM3	CO3	T1	
No. of classes required to complete UNIT-III		15			No. of classes taken:			

UNIT-IV : SEMI CONDUCTOR PHYSICS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
45.	Introduction to unit IV,	1	24-12-2022		TLM1	CO4	T1	
46.	TUTORIAL-8	1	26-12-2022		TLM3	CO4	T1	
47.	Carrier concentration in n-type semiconductor	1	27-12-2022		TLM1	CO4	T1	
48.	Carrier concentration in p-type semiconductor	1	28-12-2022			CO4	T1	

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
49.	Conductivity of Intrinsic and Extrinsic semiconductors, Drift and diffusion Einstein relation,	1	29-12-2022		TLM1	CO4	T1	
50.	Drift and diffusion Einstein relation,	1	31-12-2022		TLM1	CO4	T1	
51.	Tutorial-9	1	02-01-2023		TLM3	CO4	T1	
52.	Hall effect, Photo detector, Solar cell,	1	03-01-2023		TLM1	CO4	T1	
53.	Tutorial-10	1	04-01-2023		TLM3	CO4	T1	
54.	Applications of solar cells	1	5-01-2023		TLM1	CO4	T1	
55.	Direct and indirect band gap semiconductors, LED	1	7-01-2023		TLM1	CO4	T1	
56.	Assignment/Quiz	1	9-01-2023		TLM6		T1	
57.	Tutorial-11	1	10-01-2023		TLM3		T1	
No. of classes required to complete UNIT-IV		13			No. of classes taken:			

UNIT-V : DIELECTRIC MATERIALS & MAGNETISM

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
58.	Dielectric polarization Electronic polarization	1	11-01-2023		TLM1	CO5	T1	
59.	Ionic polarization Orientation, Space charge polarizations	1	12-01-2023		TLM1	CO5	T1	
60.	Tutorial-12	1	17-01-2023		TLM1		T1	
61.	Local field, Clausius-Mossitti relation	1	18-01-2023		TLM3		T1	
62.	Applications	1	19-01-2023		TLM3	CO5	T1	
63.	Assignment/Quiz	1	21-01-2023		TLM1	CO5	T1	
64.	Tutorial-13	1	23-01-2023		TLM1	CO5	T1	
65.	Magnetic parameters, Classification of magnetic materials-	1	24-01-2023		TLM6	CO5	T1	
66.	Hysteresis loop, soft and hard magnetic materials,	1	25-01-2023		TLM3	CO5	T1	

	Applications of Ferro magnetic materials							
67.	Assignment/Quiz	1	28-01-2023		TLM1	CO5	T1	
68.	Tutorial-13	1	31-01-2023		TLM1	CO5	T1	
No. of classes required to complete UNIT-V		14			No. of classes taken:			
Revision		01-02-2023 to 11-02-2023						

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign
69.	SEM	1	30-03-2022		TLM1		R1	
70.	Super conductivity	1	30-03-2022		TLM1		R1	
	Mid II		**04-04-2022 to 11-04-2022**					

PART-C

EVALUATION PROCESS (R-20 Regulation):

Evaluation Task	Marks
Assignment-I	A1 = 5
I-Mid Examination (Units-I, II & III (A))	M-1 = 15
I-Quiz Examination (Units-I, II & III (A))	Q1 = 10
Assignment-II	A2 = 5
II-Mid Examination (Units-III (B), IV & V)	M-2 = 15
II-Quiz Examination (Units-III (B), IV & V)	Q2 = 10
Assignment Marks = Best of A1 & A2	A = 5
Mid Marks =80% of Max (M-1, M-2) + 20% of Min (M-1, M-2)	M = 15
Quiz Marks =80% of Max (Q-1, Q-2) + 20% of Min (Q-1, Q-2)	Q = 10
Cumulative Internal Examination (CIE) : A+M+Q	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	**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.

Course Instructor   Course Coordinator   Module Coordinator   HOD

Dr. P.V.N. Kishore   Dr. A. Rami Reddy

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(AUTONOMOUS)

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor : Mr. Shaik Johny Basha
Course Name & Code   : Programming for Problem Solving Using C (20CS01)
L-T-P Structure   : 3-0-0   Credits : 3
Program/Sem/Sec   : B.Tech. – CSE / I Sem / C   A.Y. : 2022-23

PRE-REQUISITE: NI:

COURSE EDUCATIONAL OBJECTIVE (CEO): The Objective of the course is to make learn the basic elements of C programming, control structures, derived data types, Modular programming, user defined structures, basics of files and its I/O operations.

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

CO1:	Familiar with syntax and semantics of the basic programming language constructs	Understand – Level 2
CO2:	Construct derived data types like arrays in solving problem	Apply – Level 3
CO3:	Decompose a problem into modules and reconstruct it using various ways of user-defined functions	Apply – Level 3
CO4:	Use user-defined data types like structures and unions and its applications to solve problems	Apply – Level 3
CO5:	Discuss various file I/O operations and its application	Understand – Level 2

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

TEXTBOOKS:

T1: ReemaThareja, Programming in C, Oxford University Press, 2nd Edition, 2015

REFERENCE BOOKS:

R1: Jeri R.Hanly, Elliot B.Koffman, Problem Solving and Program Design in C, Pearson Publishers, 7th Edition, 2013

R2: E Balagurusamy, Computer Programming, McGraw Hill Education, 8th Edition

R3: C: The Complete Reference, McGraw Hall Education,4th Edition.

R4: PradeepDey, Manas Ghosh, Programming in C, Oxford University Press, 2nd Edition, 2011.

R5: Stephen G.Kochan, Programming in C, Pearson Education, 3rd Edition, 2005.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT – I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	**Introduction to Problem solving through C Programming:** Problem Specification, Algorithm, Pseudo Code	1	17/10/2022			
2.	Flowchart, Examples on Algorithm and Flowcharts	1	19/10/2022			
3.	**C Programming:** Structure of C Program, Identifiers, Basic Data Types and Sizes	1	20/10/2022			
4.	Constants, Variables, Input – Output Statements, A sample C Program	1	21/10/2022			
5.	Operators Part – I	1	22/10/2022			
6.	Operators Part – II	1	26/10/2022			
7.	Expressions, Type Conversions, Conditional Expression	1	27/10/2022			
8.	Precedence of Operators, Order of Evaluation	1	28/10/2022			
9.	**Control statements:** if, if else	1	29/10/2022			
10.	else if ladder and nested if	1	31/10/2022			
11.	switch statement	1	02/11/2022			
12.	while loop, do-while loop	1	03/11/2022			
13.	for loop	1	04/11/2022			
14.	break, continue, go to and labels	1	05/11/2022			
No. of classes required to complete UNIT – I: 14				**No. of classes taken:**		

UNIT – II:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
15.	**Arrays:** Definition, Types of Arrays	1	07/11/2022			
16.	1D-Array Syntax, Declaration, and Initialization	1	09/11/2022			
17.	Storing and Accessing Elements in 1D-Array	1	10/11/2022			
18.	**Applications of 1D-Array:** Linear Search and Binary Search, Bubble Sort Algorithm	1	11/11/2022			
19.	Two-Dimensional Array Syntax, Declaration, and Initialization	1	12/11/2022			
20.	Storing and Accessing Elements in 2D-Array	2	14/11/2022 16/11/2022			
21.	Applications of 2D Arrays	2	17/11/2022 18/11/2022			
22.	Multi-Dimensional Arrays	1	19/11/2022			
23.	**Character Arrays:** Declaration, Initialization, Reading and Writing Strings	1	21/11/2022			
24.	String Handling Functions Part – I	1	23/11/2022			
25.	String Handling Functions Part – II	1	24/11/2022			
26.	Pre-processor Directives Part – I	1	25/11/2022			
27.	Pre-processor Directives Part – II	1	26/11/2022			
No. of classes required to complete UNIT – II: 15				**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	HOD Sign Weekly
28.	**Pointers:** Definition, Declaration, Initialization of Pointer Variable	1	28/11/2022			
29.	Pointer Expressions	1	30/11/2022			
30.	Pointer Arithmetic	1	01/12/2022			
31.	Pointers and Arrays	2	02/12/2022 03/12/2022			
32.	Pointers and Character Arrays	1	05/12/2022			
33.	Pointers to Pointers	1	07/12/2022			
34.	**Functions:** Basics, Category of Functions	1	08/12/2022			
35.	Parameter Passing Techniques	1	09/12/2022			
36.	Recursive Functions	1	10/12/2022			
37.	Functions with Arrays	1	19/12/2022			
38.	Standard Library Functions	1	21/12/2022			
39.	Dynamic Memory Management Functions	1	22/12/2022			
40.	Command Line Arguments	1	23/12/2022			
41.	**Storage Classes:** auto, register, static and extern	1	24/12/2022			

No. of classes required to complete UNIT – III: 15 **No. of classes taken:**

UNIT – IV:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
42.	**Derived Types:** **Structure:** Definition and Declaration	1	26/12/2022			
43.	Initialization and Accessing Structures	1	28/12/2022			
44.	Nested Structures	1	29/12/2022			
45.	Arrays of Structures	1	30/12/2022			
46.	Structures and Functions	2	31/12/2022 02/01/2023			
47.	Pointers to Structures Part – I	1	04/01/2023			
48.	Pointers to Structures Part – II	1	05/01/2023			
49.	Self-Referential Structures	1	06/01/2023			
50.	**Union:** Definition and Declaration	1	07/01/2023			
51.	Initialization and Accessing Union Elements	1	09/01/2023			
52.	Examples on Union	1	11/01/2023			
53.	Structure vs Union	1	12/01/2023			
54.	Typedef	1	18/01/2023			

No. of classes required to complete UNIT – IV: 14 **No. of classes taken:**

UNIT – V:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
55.	Files: Definition, Types of Files	1	19/01/2023			
56.	Text files and Binary files	1	20/01/2023			

57.	Stream	1	21/01/2023			
58.	Standard I/O and Formatted I/O	1	23/01/2023			
59.	Types of File I/O Operations	1	25/01/2023			
60.	Creation of a new file	1	27/01/2023			
61.	Opening an existing file	1	28/01/2023			
62.	Reading from file	1	30/01/2023			
63.	Writing to a file	1	01/02/2023			
64.	Moving to a specific location in a file and closing a file	1	02/02/2023			
65.	Error Handling Basics	1	03/02/2023			
66.	Error Handling Function Calls	1	04/02/2023			
67.	Programs on File Handling	1	06/02/2023			

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	HOD Sign Weekly
68.	Introduction to Linked List	1	08/02/2023			
69.	Types of Linked Lists	1	09/02/2023			
70.	Array vs Linked List	1	10/02/2023			
71.	Introduction to Stack and Queue	1	11/02/2023			

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 (R20 Regulation):

Evaluation Task	Marks
Assignment – I (Units-I, II & UNIT-III (Half of the Syllabus))	A1 = 5
I – Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1 = 15
I – Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1 = 10
Assignment – II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2 = 5
II – Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2 = 15
II – Quiz Examination (UNIT-III (Remaining Half of the Syllabus), 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

PROGRAMME OUTCOMES (POs):

PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
PO5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
PO6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues, and the consequent responsibilities relevant to the professional engineering practice
PO7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
PO8	**Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
PO9	**Individual and teamwork**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long learning**: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1	The ability to apply Software Engineering practices and strategies in software project development using open-source programming environment for the success of organization.
PSO2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs.
PSO3	To inculcate an ability to analyze, design and implement database applications.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**Mr. Shaik Johny Basha**	**Dr. S. Nagarjuna Reddy**	**Dr. Y.V. Bhaskar Reddy**	**Dr. D. Veeraiah**
Signature				

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

PART-A

Name of Course Instructor: T.Nagadurga
Course Name & Code : Basic Electrical and Electronics Engineering-20EE02
L-T-P Structure : 3-0-0 **Credits:** 3
Program/Sem/Sec : B.Tech., I-Sem., CSE – C section
A.Y.: 2022-23

PREREQUISITE: None

COURSE EDUCATIONAL OBJECTIVES (CEOs):

This course enables student to illustrate the basics of applied electricity and electronics.

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

CO1	CO1: Apply network reduction techniques to simplify electrical circuits
CO2	CO2: Illustrate the working principle of DC machines and transformers
CO3	CO3: Understand V-I characteristics of semiconductor devices.
CO4	CO4: Illustrate the configuration of Transistors and their applications

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

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

TEXTBOOKS:

T1. A.Sudhakar and Shyammohan S Palli, Electrical Circuits, Tata McGraw-Hill, 3rd Edition.

T2. M.S.Sukhija, T.K.Nagsarkar, "Basic Electrical and Electronics Engineering", Oxford University Press, 2016 Edition.

REFERENCE BOOKS:

R1: Kothari and Nagarath, "Basic Electrical Engineering", TMH Publications, 3rd Edition.2013

R2: G.S.N.Raju, "Electronic Devices and Circuits", I.K.International.2006

PART-B

COURSE DELIVERY PLAN (LESSON PLAN): Section - C

UNIT-I: ELECTRICAL CIRCUIT FUNDAMENTALS

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction	1	17-10-22		TLM1	
2.	Basic definitions	1	18-10-22		TLM1	
3.	Types of elements	1	18-10-22		TLM1	
4.	R,L,C parameters	1	20-10-22		TLM1	
5.	Ohm's Law, Kirchhoff's Laws	1	21-10-22		TLM1	
6.	Series & parallel Star to delta, Delta to star	1	24-10-22		TLM1	
7.	Source transformations	1	25-10-22		TLM1	
8.	Mesh Analysis	1	25-10-22		TLM2	
9.	Nodal Analysis	1	27-10-22		TLM2	
10.	Assignment/Quiz-I	1	28-10-22		TLM6	
11.	Problems	1	1-11-22			
12.	Problems	1	1-11-22			
No. of classes required to complete UNIT-I		12				

UNIT-II : DC Network Theorems and AC Fundamentals

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Superposition Theorem	1	3-11-22		TLM1	
2.	Thevenin's Theorem	1	4-11-22		TLM1	
3.	Norton's Theorem	1	7-11-22		TLM1	
4.	Maximum Power Transfer Theorem	1	8-11-22		TLM1	
5.	Peak, R.M.S,	1	8-11-22		TLM1	

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
	average and instantaneous values					
6.	Form factor and Peak factor for periodic waveforms Phase and Phase difference	1	10-11-22		TLM1	
7.	Reactance, Impedance, Susceptance and Admittance	1	11-11-22		TLM1	
8.	Real, Reactive and apparent Powers, Power factor	1	14-11-22		TLM1	
9.	Resonance	1	15-11-22		TLM2	
10.	Band Width & Quality Factor	1	15-11-22		TLM1	
11.	Problems	1	17-11-22		TLM1	
12.	Assignment/Quiz-II	1	18-11-22		TLM6	
No. of classes required to complete UNIT-II		12				

UNIT-III : DC Machine Fundamentals and Single Phase Transformers

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
13.	Introduction to Electrical Machine	1	21-11-22		TLM1	
14.	DC generator principle	1	22-11-22		TLM1	
15.	constructional details	1	22-11-22		TLM1	
16.	EMF equation	1	24-11-22		TLM1	
17.	types of generators	1	28-11-22		TLM1	
18.	DC motor principle, Back emf	1	29-11-22		TLM1	
19.	types of motors motor applications	1	1-12-22		TLM2	
20.	Principle of operation of single phase transformers	1	2-12-22		TLM1	
21.	Construction of single phase transformers	1	5-12-22		TLM2	
22.	EMF equation of Transformer	1	6-12-22		TLM2	
23.	Assignment/Quiz-III	1	6-12-22		TLM6	
24.	Problems	1	8-12-22		TLM1	
25.	Problems	1	9-12-22		TLM1	
No. of classes required to complete UNIT-III		13				

UNIT-IV : P-N Junction Diode and Zener Diode

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
26.	Introduction to Electronic Devices	1	20-12-22		TLM1	
27.	Operation of PN junction diode	1	22-12-22		TLM2	
28.	V-I characteristics of PN junction diode	1	23-12-22		TLM2	
29.	Half Wave Rectifier& Full Wave Rectifier-Bridge type	1	26-12-22		TLM1	
30.	Operation of Zener Diode & V-I characteristics of Zener Diode	1	27-12-22		TLM1	
31.	Zener Diode as Voltage Regulator	1	29-12-22		TLM1	
32.	Problems	1	30-12-22		TLM1	
33.	Assignment/Quiz-4	1	2-1-23		TLM6	
No. of classes required to complete UNIT-IV		12				

UNIT-V: Transistors

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
34.	Introduction and symbol of Transistor	1	3-1-23		TLM1	
35.	Introduction and symbol of Transistor	1	5-1-23		TLM1	
36.	Principle, Operation and Construction - Transistor	1	10-1-23		TLM1	
37.	CB configuration	1	19-1-23		TLM1	
38.	CB, CE configuration	1	23-1-23		TLM1	
39.	JFET& MOSFET	1	24-1-23		TLM2	
40.	Application of transistor as an amplifier	1	27-1-23		TLM2	
41.	Assignment/Quiz-4	1	31-1-23		TLM2	
No. of classes required to complete UNIT-V		13				

CONTENT BEYOND SYLLABUS:

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods
1	Applications of DC Machines	1	6-2-23		TLM2

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

PART-C

EVALUATION PROCESS (R17 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), 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

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 ring 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	Specify, design and analyze systems that efficiently generate, transmit and distribute electrical power
PSO 2	Design and analyze electrical machines, modern drive and lighting systems
PSO 3	Specify, design, implement and test analog and embedded signal processing electronic systems
PSO4	Design controllers for electrical and electronic systems to improve their performance.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	T.Nagadurga	Mr.J.V.Pavan Chand	Dr.G.Nageswara Rao	Dr.J.S.Vara Prasad
Signature				

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)
Accredited by NAAC & NBA (Under Tier - I), ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi. and Affiliated to JNTUK, Kakinada
L.B. REDDY NAGAR, MYLAVARAM, KRISHNA DIST., A.P.-521 230.
Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Ms. K. SRIDEVI
Course Name & Code : PCS LAB, 20FE51
L-T-P Structure : 0-0-2   **Credits:** 01
Program/Sem/Sec : CSE–C- I SEM
A.Y. : 2022-23

PREREQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): To improve the proficiency of students in English with an emphasis on better communication in formal and informal situations; Develop speaking skills required for expressing their knowledge and abilities and to face interviews with confidence.

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

CO1	Introduce one-self and others using appropriate language and details.	L2
CO2	Comprehend short talks and speak clearly on a specific topic using	L2
CO3	Report effectively after participating in informal discussions ethically.	L1
CO4	Interpret data aptly, ethically & make oral presentations without	L3

Syllabus: Professional Communication Lab (PCS) shall have two parts:

- **Computer Assisted Language Learning (CALL) Lab** for 60 students with 60 systems, LAN facility and English language software for self-study by learners.
- **Interactive Communication Skills (ICS) Lab.** with movable chairs and audio-visual aids with a P.A System, a T. V., a digital stereo – audio & video system and camcorder etc.

Exercise– I

CALL Lab: Understand- Sentence structure.

ICS Lab: Practice -Listening: Identifying the topic, the context and specific information, Speaking: Introducing oneself and others.

Exercise–II

CALL Lab: Understand- Framing questions.

ICS Lab: Practice- Listening: Answering a series of questionsaboutmainideaandsupportingideasafterlisteningtoaudiotext.

Speaking: Discussing in pairs/small groups on specific topics; Delivering short structured talks using suitable cohesive devices (JAM)

Exercise–III

CALL Lab: Understand- Comprehension practice–Strategies for Effective Communication

ICS Lab: Practice - Listening: Listening for global comprehension and Summarizing
Speaking: Discussing specific topics in pairs/small groups, reporting what is discussed

Exercise–IV

CALL Lab: Understand- Features of Good Conversation–Strategies for Effective Communication.

ICS Lab: Practice -Listening: making predictions while listening to conversations/transactional dialogues with/without video Speaking: Role – plays – formal & informal – asking for and giving information/directions/instructions/suggestions

Exercise– V

CALL Lab: Understand- Features of Good Presentation, Methodology of Group Discussion

ICS Lab: Practice –Introduction to Group Discussions.

Listening: Answering questions, identifying key terms and understanding concepts.

Speaking: Formal Oral & Poster presentations on topics from academic contexts without the use of PPT.

Lab Manual:

1. Prabhavati .Y & etal, "English All Round–Communication Skills for Undergraduate Learners" , Orient Black Swan, Hyderabad, 2019.

Suggested Software:

1. Digital Mentor: Globarena, Hyderabad,2005
2. Sky Pronunciation Suite: Young India Films, Chennai,2009
3. Mastering English in Vocabulary, Grammar, Spelling, Composition, Dorling Kindersley, USA, 2001
4. Dorling Kindersley Series of Grammar, Punctuation, Composition, USA, 2001
5. Oxford Talking Dictionary, The Learning Company, USA, 2002
6. Learning to Speak English- 4CDs. The Learning Company, USA, 2002
7. Cambridge Advanced Learners English Dictionary (CD).Cambridge University Press, New Delhi, 2008.

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

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

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to syllabus	02	22-10-2022		TLM4	
2.	Self Introduction & Introducing others	02	29-10-2022		TLM4	
3.	Self Introduction & Introducing others	02	05-11-2022		TLM4	
4.	JAM- I(Short and Structured Talks)	02	19-11-2022		TLM4	
5.	JAM-II(Short and Structured Talks)	02	26-11-2022 03-12-2022		TLM4	
6.	Role Play-I(Formal and Informal)	04	24-12-2022		TLM4	
7.	Role Play-II (Formal and Informal)	02	31-12-2022		TLM4	
8.	Group Discussion-I (Reporting the discussion)	02	07-01-2023 21-01-2023		TLM4, TLM6	
9.	Group Discussion-II	02	28-01-2023		TLM4, TLM6	
10.	Oral & Poster Presentation	02	04-02-2023		TLM2, TLM4	
11.	Lab Internal Exam	02	11-02-2023			
No. of classes required to complete Syllabus: 24				**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 (R20 Regulation):

Evaluation Task	Marks
Cumulative Internal Examination (CIE): M	15
Semester End Examination (SEE)	35
Total Marks = CIE + SEE	50

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
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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	Ms. K. Sridevi	Dr. B. Samrajya Lakshmi	Dr. B. Samrajya Lakshmi	Dr. A. Ramireddy
Signature				

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

COURSE HANDOUT

Part-A

PROGRAM	:	B.Tech., I-Sem., CSE-C
ACADEMIC YEAR	:	2022-2023
COURSE NAME & CODE	:	APPLIED PHYSICS LAB & 20 FE 54
L-T-P STRUCTURE	:	0-0-3
COURSE CREDITS	:	1.5
COURSE INSTRUCTOR	:	**Dr. P.V.N.Kishore**
COURSE COORDINATOR	:	**Dr. S. Yusub**

Course Educational Objective:
The theoretical ideas, Analytical techniques, graphical analysis and concepts covered in the lecture by completing a host of experiments with the procedures and observational skills for appropriate use of simple and complex apparatus.

Course Outcomes: At the end of the course, the student will be able to,
CO1: Analyze the wave characteristics of light(Understand – L2).
CO2: Determine the wavelength of laser source and width of slit(Apply - L3).
CO3: Estimate the magnetic field using Stewart's and Gee's apparatus and the rigidity modulus of material using Torsional Pendulum(Understand - L2).
CO4: Identify the phenomena of resonance in strings(Understand – L2).
CO5: Improve report writing skills and individual team work with ethical values(Understand – L2)

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

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

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

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

BOS APPROVED TEXT BOOKS:
1. Lab Manual Prepared by the LBRCE.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): Section- CSE-C

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction	3	20/10/2022		**TLM4**	1,2,3,4	T1	
2.	Demonstration	3	27/10/2021		**TLM4**	CO1, CO2, CO3, CO4, CO5	T1	
3.	Experiment 1	3	03/11/2021		**TLM4**	CO1, CO2, CO3, CO4, CO5	T1	
4.	Experiment 2	3	10/11/2022		**TLM4**	CO1, CO2, CO3, CO4, CO5	T1	
5.	Experiment 3	3	17/11/2022		**TLM4**	CO1, CO2, CO3, CO4, CO5	T1	
6.	Demonstration	3	24/11/2022					
7.	Experiment 4	3	01/12/2022		**TLM4**	CO1, CO2, CO3, CO4	T1	
8.	Experiment 5	3	08/12/2022		**TLM4**	CO1, CO2, CO3, CO4, CO5	T1	
9.	Demonstration	3	15/12/2022		**TLM4**	CO1, CO2, CO3, CO4, CO5	T1	
10.	Experiment 6	3	22/12/2022		**TLM4**	CO1, CO2, CO3, CO4, CO5	T1	
11.	Experiment 7	3	29/12/2022		**TLM4**	CO1, CO2, CO3, CO4, CO5	T1	

12.	Demonstration	3	06/01/2023				
13.	Experiment 8, 9	3	20/01/2023		**TLM4**	CO1, CO2, CO3, CO4, CO5	T1
14.	Experiment-10		27/01/2023				
15.	**Revision**	3	03/02/2023		**TLM4**	CO1, CO2, CO3, CO4, CO5	T1
16.	**Internal Exam**	3	10/02/2023		**TLM4**	CO1, CO2, CO3, CO4, CO5	T1
17.							

EVALUATION PROCESS:

Evaluation Task	Expt. no's	Marks
Day to Day work = **A**	1,2,3,4,5,6,7,8,9,10	A=05
Record = **B**	1,2,3,4,5,6,7,8,9,10	B=05
Internal Test = **C**	1,2,3,4,5,6,7,8,9,10	C = 05
Cumulative Internal Examination : A + B + C = 15	1,2,3,4,5,6,7,8,9,10	**15**
Semester End Examinations = D	1,2,3,4,5,6,7,8,9,10	**D = 35**
Total Marks: A + B + C + D = 50	1,2,3,4,5,6,7,8,9,10	**50**

PROGRAM OUTCOMES:

Engineering Graduates will be able to:

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

(2). **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

(3). **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

(4). **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

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

(6). **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

(7).**Environment and sustainability**: Understand the impact of the professional engineering

solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

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

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

(10). **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

(11). **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

(12).**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Dr. P.V.N. Kishore/ Dr. N. Aruna		Dr. S. YUSUB	Dr A. RAMI REDDY
Course Instructor	Course Coordinator	Module Coordinator	HOD

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT
PART-A

Name of Course Instructor	: Mr. Shaik Johny Basha
Course Name & Code	: Programming for Problem Solving Using C Lab (20CS51)
L-T-P Structure	: 0-0-3 Credits : 1.5
Program/Sem/Sec	: B.Tech. – CSE / I Sem / C A.Y. : 2022-23

PRE-REQUISITE: Programming and Problem-Solving Skills

COURSE EDUCATIONAL OBJECTIVE (CEO): The objective of the course is to learn the basic elements of C Programming Structures like Data Types, Expressions, Control Statements, and Various I/O Functions and to solve simple mathematical problems using control structures. Design and implementation of various software components, which solve real world problems.

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

CO1:	Apply control structures of C in solving computational problems.	Apply – Level 3
CO2:	Implement derived data types & use modular programming in problem solving	Apply – Level 3
CO3:	Implement user defined data types and perform file operations.	Apply – Level 3
CO4:	Improve individual / teamwork skills, communication & 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	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	3	-	-
CO3	3	2	-	-	-	-	-	-	-	-	-	-	3	-	-
CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-

1 – Low	**2 –** Medium	**3 –** High

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

S. No.	Programs to be covered	No. of Classes		Date of Completion	Delivery Method
		Required as per the Schedule	Taken		
1.	Module 1: Introduction to Raptor Tool	03			DM5
2.	Module 2: Problem solving using Raptor Tool				DM5
3.	Module 3: Exercise Programs on Basics of C-Program	03			DM5
4.	Module 4: Exercise Programs on Control Structures	03			DM5
5.	Module 5: Exercise Programs on Loops & nesting of Loops	06			DM5
6.	Module 6: Exercise Programs on Arrays & Strings	06			DM5
7.	Module 7: Exercise Programs on Pointers	06			DM5
8.	Module 8: Exercise Programs on Functions	06			DM5
9.	Module 9: Exercise Programs on user defined data types	06			DM5
10.	Module 10: Exercise Programs on Files	06			DM5

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

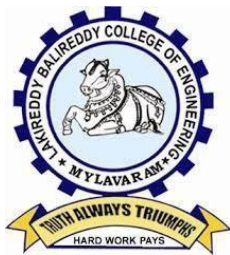| Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**Mr. Shaik Johny Basha**	**Dr. S. Nagarjuna Reddy**	**Dr. Y.V. Bhaskar Reddy**	**Dr. D. Veeraiah**
Signature				

PART-C

PROGRAMME OUTCOMES (POs):

PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
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PO11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long learning**: Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1	The ability to apply Software Engineering practices and strategies in software project development using open-source programming environment for the success of organization.
PSO2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs.
PSO3	To inculcate an ability to analyze, design and implement database applications.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**Mr. Shaik Johny Basha**	**Dr. S. Nagarjuna Reddy**	**Dr. Y.V. Bhaskar Reddy**	**Dr. D. Veeraiah**
Signature				

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hodcse@lbrce.ac.in,cseoffice@lbrce.ac.in,Phone:08659-222933,Fax:08659-222931

DEPARTMENTOFCOMPUTERSCIENCE&ENGINEERING

COURSEHANDOUT
PART-A

Name of Course Instructor: T.VINEETHA
CourseName &Code : ITWORKSHOPLAB(20IT51)
L-T-PStructure : 0-0-3   Credits:1.5
Program/Sem/Sec : B.Tech., CSE, I-Sem/C Sec   A.Y:2022-2023

PRE-REQUISITE:NIL

COURSEOBJECTIVE: Theobjectiveofthecourseistoimpartknowledgeaboutthecomponents of PC, Assembling PC, Installation of OS, softwares like MS-Office, LaTex andconcepts relatedtoNetworking,Internetaswellasantivirus.

COURSEOUTCOMES(COs)
Attheend ofthecourse,thestudentwillbeableto:

CO1	Identifythebasichardwarecomponents,keyboardshortcuts,assemblinganddisassembling ofthesystem(PC).
CO2	Demonstrate Operating System installation, apply various commands of linux operating system, networking.
CO3	Create web pages using HTML, documents using applications like LaTeX, Google forms and use application software packages: MS-Word, MS-Excel, MS-Power Pointtocreatedocumentsandpresentation.
CO4	Improveindividual/teamworkskills, communication&reportwritingskillswith Ethical values.

COURSEARTICULATIONMATRIX(Correlation betweenCOs,POs&PSOs):

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

Note: EnterCorrelationLevels**1**or**2**or**3**.Ifthereisnocorrelation,**put'-'**
        1-Slight (Low),   **2 –**Moderate(Medium),   **3-**Substantial(High).

PART-B

COURSEDELIVERYPLAN(LESSONPLAN):

S.No.	Programstobecovered	No. of ClassesRequired	Tentative DateofCompletion	Actual DateofCompletion	Teaching Learning Methods	HOD Sign Weekly
1.	Identifying the peripheralcomponentsofacomputer. UnderstandingtheBlock diagramof theCPU	6	20/10/2022 27/10/2022		TLM2/ TLM4	
2.	DisassemblingandassemblingtheP Cbacktoworkingcondition	3	3/11/2022		TLM2/ TLM4	
3.	1. InstallationofMSWINDOWSandLI NUX onpersonalcomputer. 2. Linux OperatingSystem commands	6	10/11/2022 17/11/2022		TLM2/ TLM4	
4.	WorkingonNetworkingCommands	3	24/11/2022		TLM2/ TLM4	
5.	WorkingonInternet Services	3	01/12/2022		TLM2/ TLM4	
6.	IntroductiontoHTMLanditstags.Pr eparingasimplewebsite/homepage.	6	08/12/2022 22/12/2022		TLM2/ TLM4	
7.	DemonstrationandPracticeofTextE ditors	3	29/12/2022		TLM2/ TLM4	
8.	Demonstrationandpracticeof MicrosoftWord,PowerPoint, MicrosoftExcel	6	05/01/2023 12/01/2023		TLM2/ TLM4	
9.	Demonstration and practice of LaTeX	3	19/01/2023		TLM2/ TLM4	
10.	Creating online documents usingGoogledocs. Creatingandsharingonlinequizex amwithmarks/Grads CreatingandsharingBio-dataform.	3	02/02/2023		TLM2/ TLM4	
11.	LabInternal Exam	3	09/02/2023			

TeachingLearningMethods			
TLM1	ChalkandTalk	**TLM4**	Demonstration(Lab/FieldVisit)
TLM2	PPT	**TLM5**	ICT (NPTEL/SwayamPrab ha/MOOCS)
TLM3	Tutorial	**TLM6**	GroupDiscussion/Project

PROGRAMMEOUTCOMES(POs):

PO1	**Engineeringknowledge**:Applytheknowledgeofmathematics, science, engineering fundamentals,and an engineering specialization to the solution ofcomplexengineeringproblems.
PO2	**Problemanalysis**:Identify,formulate,reviewresearchliterature,andanalyzecomplex engineeringproblemsreachingsubstantiatedconclusionsusingfirstprinciplesofmathematics,naturalsciences,andengineeringsciences.
PO3	**Design/developmentofsolutions**:Designsolutionsforcomplexengineeringproblemsanddesignsystemcomponentsorprocessesthatmeetthespecifiedneedswithappropriate considerationforthepublichealthandsafety,andthecultural,societal,andenvironmentalconsiderations.
PO4	**Conductinvestigationsofcomplexproblems**:Useresearch-basedknowledgeandresearch methodsincludingdesignofexperiments,analysisandinterpretationofdata,andsynthesisoftheinformationtoprovidevalidconclusions.
PO5	**Moderntoolusage**:Create,select,andapplyappropriatetechniques,resources,andmodern engineeringandITtoolsincludingpredictionandmodellingtocomplexengineeringactivitieswithanunderstandingofthelimitations
PO6	**Theengineerandsociety**:Applyreasoninginformedbythecontextualknowledgetoassess societal,health,safety,legalandculturalissuesandtheconsequentresponsibilitiesrelevanttotheprofessional engineeringpractice
PO7	**Environmentandsustainability**:Understandtheimpactoftheprofessionalengineering solutionsinsocietalandenvironmentalcontexts,anddemonstratetheknowledgeof,andneedforsustainabledevelopment.
PO8	**Ethic**s:Applyethicalprinciplesandcommittoprofessionalethicsandresponsibilitiesandnorms oftheengineeringpractice.
PO9	**Individual and team work**: Function effectively as an individual, and as a member or leader indiverseteams,andinmultidisciplinarysettings.
PO10	**Communication**:Communicateeffectivelyoncomplexengineeringactivitieswiththeengineeringcommunityandwithsocietyatlarge,suchas,beingabletocomprehendandwrite effectivereportsanddesigndocumentation,makeeffective presentations,andgiveandreceiveclear instructions.
PO11	**Projectmanagementandfinance**:Demonstrateknowledgeandunderstandingoftheengineeringandmanagementprinciplesandapplythesetoone'sownwork,asamemberand leaderinateam,tomanageprojects andinmultidisciplinaryenvironments.
PO12	**Life-longlearning**:Recognizetheneedfor,andhavethepreparationandabilitytoengagein independent andlife-longlearninginthebroadestcontextoftechnologicalchange.

PROGRAMMESPECIFICOUTCOMES(PSOs):

PSO1	The ability to apply Software Engineering practices and strategies in software project development using open source programming environment for the success of organization.
PSO2	The ability to design and develop computer programs in networking, web applications and IOT as per the society needs.
PSO3	To inculcateanability to analyze, design and implement database applications.

CourseInstructor	CourseCoordinator	ModuleCoordinator	HOD
Ms.T. VINEETHA	Mr.B.SRKRISHNA	Dr. K.NAGA PRASANTHI	Dr.D.VEERAIAH

FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor   : Mrs.N.Aruna
Course Name & Code   : Applied Physics, 20FE07
L-T-P Structure   : 2-1-0   Credits : 4
Program/Sem/Sec   : B.Tech., CSM, I-Sem., Section- A   A.Y   : 2022-23

COURSE EDUCATIONAL OBJECTIVES (CEOs): It enables the students to understand the fundamental concepts of Optics , quantum mechanics, free electron theory of metals, semi conductors,dielectrics and their applications.

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

CO 1	Define the nature of interference and diffraction (Remember - L1)
CO 2	Apply the lasers and optical fibers in different fields (Apply - L3)
CO 3	Estimate the electrical conductivity of metals (Understand - L2)
CO 4	Analyze the properties of semiconducting materials (Understand – L2)
CO5	Classify the different types of magnetic and dielectric materials (Understand - L2)

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

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

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

BOS APPROVED TEXT BOOKS:
T1   : V. Rajendran, "*Engineering Physics*", TMH, New Delhi, 6th Edition, 2014.

T2   : M.N. Avadhanulu, TVS Arun Murthy, "Applied *Physics*", S. Chand & Co., 2nd
                Edition, 2014.

BOS APPROVED REFERENCE BOOKS:
R1   : M.N. Avadhanulu, TVS Arun Murthy, "Applied *Physics*", S. Chand & Co., 2nd

Edition, 2007.

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

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

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

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: Interference and Diffraction

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to Course and COs Introduction to Unit-I	1	17-10-2022		TLM2	
2.	Superposition of waves, Conditions for Interference	1	18-10-2022		TLM1	
3.	Coherence,		21-10-2022		TLM1	
4.	Interference from thin films	1	22-10-2022		TLM1,2	
5.	Newton's rings	1	22-10-2022		TLM1,2	
6.	Newton's rings		25-10-2022		TLM1	
7.	Michelson's interferometer	1	28-10-2022		TLM3	
8.	Diffraction-Introduction	1	29-10-2022		TLM1,2	
9.	Single slit diffraction	1	29-10-2022		TLM2	
10.	Single slit diffraction	1	31-10-2022		TLM2	
11.	Circular aperture	1	01-11-2022		TLM1,2	
12.	Diffraction –N parallel slits	1	04-11-2022		TLM3	
13.	grating-Characteristics		05-11-2022		TLM2	
14.	Resolving power of Grating	1	05-11-2022		TLM1.2	
15.	Problems/ Assignment	1	07-11-2022		TLM1	
No. of classes required to complete UNIT-I: 15				No. of classes taken:		

UNIT-II: Lasers and Optical fibers

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to UNIT- II		08-11-2022		TLM1	
2.	Characteristics of Lasers,	2	11-11-2022		TLM2	
3.	Principle of laser	1	12-11-2022		TLM1	
4.	Population inversion, Meta	1	14-11-2022		TLM2	

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
	stable state,pumping					
5.	Einstein's coefficients	1	15-11-2022		TLM1	
6.	Laser Components	1	18-11-2022		TLM3	
7.	,Nd-YAG Laser	1	19-11-2022		TLM2	
8.	He-Ne gas laser,	1	19-11-2022		TLM2	
9.	Applications of lasers	1	21-11-2022		TLM2	
10.	Principle and Structure of optical fibre	1	22-11-2022		TLM2	
11.	Acceptance angle &Numerical Aperture	1	25-11-2022		TLM1	
12.	Single mode and multimode fibers	1	26-11-2022		TLM2	
13.	Step index and Graded index fibers	1	26-11-2022		TLM2	
14.	Applications	1	28-11-2022		TLM1,2	
11	Problems/ Assignment	1	29-11-2022		TLM2	
No. of classes required to complete UNIT-II: 11				No. of classes taken:		

UNIT-III: Principles of Quantum Mechanics and Classical Free Electron theory of Mmetals

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-Unit III De Broglie hypothesis,	1	02-12-2022		TLM1	
2.	Properties of matter waves	1	03-12-2022		TLM2	
3.	Davisson and Germer Experiment	1	03-12-2022		TLM2	
4.	Schrodinger wave equation-Time independent	1	05-12-2022		TLM2	
5.	Time dependent wave equation		06-12-2022		TLM1	
6.	Physical significance of wave function,	1	09-12-2022		TLM1	
7.	Particle in a box	1	10-12-2022		TLM1	
8.	Particle in a box	1	10-12-2022		TLM1	
9.	Classical free electron theory- postulates	1	19-12-2022		TLM1	
10.	drift velocity, Expression for electrical conductivity	1	20-12-2022		TLM1	
11.	Advantageous and drawbacks	1	23-12-2022		TLM1	

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
12.	Fermi –Dirac statistics	1	24-12-2022		TLM1	
13.	Classification of solids -band theory	1	24-12-2022		TLM2	
14.	Problems	1	26-12-2022		TLM2	
15.	Assignment	1	27-12-2022			
No. of classes required to complete UNIT-III: 15				No. of classes taken:		

UNIT-IV : Semiconductor Physics

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to UNIT-IV	1	30-12-2022		TLM1	
2.	Carrier concentration - Intrinsic semiconductor	1	31-12-2022		TLM1	
3.	Carrier concentration - Intrinsic semiconductor	1	31-12-2022		TLM1	
4.	Carrier concentration - Extrinsic semiconductor	1	02-01-2023		TLM1	
5.	Carrier concentration - Extrinsic semiconductor	1	03-01-2023		TLM1	
6.	Energy band gap of a Semiconductor	1	06-01-2023		TLM1.2	
7.	Drift and diffusion current	1	07-01-2023		TLM3	
8.	Einstein relations	1	07-01-2023		TLM1,2	
9.	Hall effect	1	09-01-2023		TLM1,2	
10.	Direct band gap and indirect band gap semiconductors	1	10-01-2023		TLM1,2	
11.	Solar cell, Applications	1	20-01-2023		TLM2	
12.	Problems	1	21-01-2023		TLM5	
13.	Assignment	1	21-01-2023		TLM3	
No. of classes required to complete UNIT-IV: 13				No. of classes taken:		

UNIT-V :Magnetic and Dielectric materials

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

		1	23-01-2023		TLM1	
1.	Introduction to UNIT-V					
2.	Magnetic parameters	1	24-01-2023		TLM1	
3.	Classification of magnetic materials	1	27-01-2023		**TLM3**	
4.	Hysteresis loop	1	28-01-2023		**TLM2**	
5.	Soft &Hard magnetic materials	1	28-01-2023		TLM2	
6.	Types of polarization- Electronic polarization	1	30-01-2023		**TLM1,2**	
7.	Ionic and Orientation Polarization	1	31-01-2023		**TLM2**	
8.	Local field	1	03-02-2023		**TLM1**	
9.	Classius mosotti equation	1	04-02-2023		**TLM1**	
10.	Applications	1	04-02-2023		TLM2	
11.	Problems	1	03-02-2023		**TLM3**	
12.	Assignment	1	07-02-2023		**TLM3**	
13.	Revision	1	10-02-2023		**TLM3**	
14.	Revision	1	11-02-2023		**TLM3**	
15.	Revision	1	11-02-2023		**TLM3**	
No. of classes required to complete UNIT-V: 15				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

PROGRAMME OUTCOMES (POs):

PO 1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
PO 2	**Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO 3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
PO 4	**Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of

		the information to provide valid conclusions.
PO 5	**Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations	
PO 6	**The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice	
PO 7	**Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.	
PO 8	**Ethic**s: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.	
PO 9	**Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.	
PO 10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	
PO 11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.	
PO 12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.	

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	**Communication:** Design and develop modern communication technologies for building the inter disciplinary skills to meet current and future needs of industry.
PSO 2	**VLSI and Embedded Systems:** Design and Analyze Analog and Digital Electronic Circuits or systems and Implement real time applications in the field of VLSI and Embedded Systems using relevant tools
PSO 3	**Signal Processing:** Apply the Signal processing techniques to synthesize and realize the issues related to real time applications

Course Instructor	Course Coordinator	Module Coordinator	HOD
Mrs.N.Aruna	**Mrs.p.Vijaya Sirisha**	**Dr. S.Yusub**	**Dr. A. Rami Reddy**

COURSE HANDOUT

Part-A

PROGRAM	:	B.Tech., I-Sem.,CSM -A
ACADEMIC YEAR	:	2022-23
COURSE NAME & CODE	:	APPLIED PHYSICS LAB -20 FE54
L-T-P STRUCTURE	:	0-0 -3
COURSE CREDITS	:	1.5
COURSE INSTRUCTOR	:	**Mrs.N.Aruna**
COURSE COORDINATOR	:	**Mrs.P.Vijaya Sirisha**

Pre-requisites : NIL

Course Educational Objective : This course enables the students to acquire theoretical ideas, Analytical techniques and graphical analysis by completing a host of experiments with the procedures and observational skills for appropriate use of simple and complex apparatus.

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

Co1.	Analyze the wave characteristics of Light.
Co2.	Estimate the magnetic field using Stewart's and Gee's apparatus
Co3.	Verify the characteristics of Semiconductor Diodes.
Co4.	Determine the acceptance angle and numerical aperture of optical fibre.
Co 5.	Improve report writing skills, Individual and team work with Ethical values

COURSE ARTICULATION MATRIX (Correlation between Cos & POs, PSOs

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

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

BOS APPROVED TEXT BOOKS:

1. Lab Manual Prepared by the LBRCE

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): Section- A

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.	CEO'S &CO'S Introduction	3	20-10-2022		**TLM4**	1,2,3,4	T1	
2.	Demonstration	3	27-10-2022		**TLM4**	CO1, CO2, CO3, CO4	T1	
3.	Experiment 1	3	03-11-2022		**TLM4**	CO1, CO2, CO3, CO4	T1	
4.	Experiment 2	3	10-11-2022		**TLM4**	CO1, CO2, CO3, CO4	T1	
5.	Experiment 3	3	17-11-2022		**TLM4**	CO1, CO2, CO3, CO4	T1	
6.	Experiment 4	3	24-11-2022		**TLM4**	CO1, CO2, CO3, CO4	T1	
7.	Experiment 5	3	01-12-2022		**TLM4**	CO1, CO2, CO3, CO4	T1	
8.	Demonstration	3	08-12-2022		**TLM4**	CO1, CO2, CO3, CO4	T1	
9.	Experiment 6	3	15-12-2022		**TLM4**	CO1, CO2, CO3, CO4	T1	
10.	Experiment 7	3	22-12-2022		**TLM4**	CO1, CO2, CO3, CO4	T1	
11.	Experiment 8	3	29-12-2022		**TLM4**	CO1, CO2, CO3, CO4	T1	
12.	Experiment 9	3	05-01-2023		**TLM4**	CO1, CO2, CO3, CO4	T1	
13.	Experiment 10	3	12-01-2023		**TLM4**	CO1, CO2, CO3, CO4	T1	
14.	Revision	3	19-01-2023		**TLM4**	CO1, CO2, CO3, CO4	T1	
15.	Internal Exam	3	02-02-2023		**TLM4**	CO1, CO2, CO3, CO4	T1	
16.	Internal Exam	3	09-02-2023		**TLM4**	CO1, CO2, CO3, CO4	T1	
No. of classes required to complete lab	48				No. of classes taken: 48			

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

Graduates of Information Technology programme will be:

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

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

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

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

PROGRAM OUTCOMES:

Engineering Graduates will be able to:

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

(2). **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

(3). **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

(4). **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

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

(6). **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

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

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

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

(10). **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

(11). **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

(12).**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs):

Graduate of the ECE will have the ability to

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

(2) Design and Analyze Analog and Digital Electronic Circuits or systems and Implement real time

applications in the field of VLSI and Embedded Systems using relevant tools

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

N.Aruna/T.S.Sarma	Mrs.P.Vijaya Sirisha	Dr S.Yusub	Dr A. Ramireddy
Course Instructor	Course Coordinator	Module Coordinator	HOD

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
(AUTONOMOUS)
Accredited by NAAC with B++ Grade, ISO 9001:2015 Certified Institution
Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada
L.B.Reddy Nagar, Mylavaram-521230, Krishna Dist, Andhra Pradesh, India

COURSE HANDOUT
Part-A

PROGRAM   : I B. Tech., I-Sem., AI&ML
ACADEMIC YEAR   : 2022-23
COURSE NAME & CODE   : Differential Equations
L-T-P STRUCTURE   : 4-1-0
COURSE CREDITS   : 4
COURSE INSTRUCTOR   : Dr. K. Jhansi Rani
COURSE COORDINATOR   : Dr. A. Rami Reddy
PRE-REQUISITES   : Differentiation, Integration

COURSE EDUCATIONAL OBJECTIVES (CEOs): The objective of this course is to introduce the first order and higher order differential equations, functions of several variables. The students will also learn solving of first order partial differential equations.

COURSE OUTCOMES (COs)

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

CO1: Apply first order and first degree differential equations to find orthogonal trajectories.

CO2: Distinguish between the structure and methodology of solving higher order differential equations with constant coefficients.

CO3: Apply various Numerical methods to solve initial value problem.

CO4: Generate the infinite series for continuous functions and investigate the functional dependence.

CO5: Solve partial differential equations using Lagrange's method.

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

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

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

BOS APPROVED TEXT BOOKS:
T1 Dr. B.S. Grewal, "Higher Engineering Mathematics", 42ndEdition, Khanna Publishers, New Delhi, 2012.
T2 Dr. B. V. Ramana, "Higher Engineering Mathematics", 1stEdition, TMH, New Delhi, 2010.
BOS APPROVED REFERENCE BOOKS:
R1 M. D. Greenberg, *"Advanced Engineering Mathematics"*, 2nd Edition, TMH Publications, New Delhi, 2011.
R2 Erwin Kreyszig, *"Advanced Engineering Mathematics"*, 8th Edition, John Wiley & sons, New Delhi, 2011.
R3 W.E. Boyce and R. C. Diprima, " *Elementary Differential Equations"* , 7th Edition, John Wiley & sons, New Delhi,2011.
R4 S. S. Sastry, *" Introductory Methods of Numerical Analysis"* 5th Edition, PHI Learning Private Limited, New Delhi, 2012.

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	5	17/10/2022 to 22/10/2022					
2.	Introduction to the course	1	24/10/2022		TLM2			
3.	Course Outcomes	1	26/10/2022		TLM2			

UNIT-I: Differential Equations of First Order and First Degree

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	1	27/10/2022		TLM2	CO1	T1,T2	
5.	Formation of Differential Equations	1	28/10/2022		TLM1	CO1	T1,T2	
6.	Exact DE	1	29/10/2022		TLM1	CO1	T1,T2	
7.	Non-exact DE Type I	1	31/10/2022		TLM1	CO1	T1,T2	
8.	Non-exact DE Type II	1	02/11/2022		TLM1	CO1	T1,T2	
9.	Non-exact DE Type III	1	03/11/2022		TLM1	CO1	T1,T2	
10.	Non-exact DE Type IV	1	04/11/2022		TLM1	CO1	T1,T2	
11.	Orthogonal Trajectories (Cartesian)	1	05/11/2022		TLM1	CO1	T1,T2	
12.	Orthogonal Trajectories (Cartesian)	1	7/11/2022		TLM1	CO1	T1,T2	
13.	Orthogonal Trajectories (polar)	1	09/11/2022		TLM1	CO1	T1,T2	
14.	Orthogonal Trajectories (polar)	1	10/11/2022		TLM1	CO1	T1,T2	
15.	**TUTORIAL 1**	1	11/11/2022		TLM3	CO1	T1,T2	
No. of classes required to complete UNIT-I		12				No. of classes taken:		

UNIT-II: Higher Order Differential Equations

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
16.	Introduction to UNIT II	1	12/11/2022		TLM2	CO2	T1,T2	
17.	Solving a homogeneous DE	1	14/11/2022		TLM1	CO2	T1,T2	
18.	Finding Particular Integral, P.I for e^{ax+b}	1	16/11/2022		TLM1	CO2	T1,T2	
19.	P.I for Cos bx or sin bx	1	17/11/2022		TLM1	CO2	T1,T2	
20.	P.I for polynomial function	1	18/11/2022		TLM1	CO2	T1,T2	
21.	P.I for polynomial function	1	19/11/2022		TLM1	CO2	T1,T2	
22.	P.I for $e^{ax+b}v(x)$	1	21/11/2022		TLM1	CO2	T1,T2	
23.	P.I for $e^{ax+b}v(x)$	1	23/11/2022		TLM1	CO2	T1,T2	

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
24.	P.I for $x^k v(x)$	1	24/11/2022		TLM1	CO2	T1,T2	
25.	P.I for $x^k v(x)$	1	25/11/2022		TLM1	CO2	T1,T2	
26.	Method of Variation of parameters	1	26/11/2022		TLM1	CO2	T1,T2	
27.	Method of Variation of parameters	1	28/11/2022		TLM1	CO2	T1,T2	
28.	**TUTORIAL 2**	1	30/11/2022		TLM3	CO2	T1,T2	
No. of classes required to complete UNIT-II		13				No. of classes taken:		

UNIT-III: Numerical solution of Ordinary Differential Equations

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
29.	Introduction to Unit-III	1	01/12/2022		TLM2	CO3	T1,T2	
30.	Numerical Methods	1	02/12/2022		TLM1	CO3	T1,T2	
31.	Solution by Taylor's series	1	03/12/2022		TLM1	CO3	T1,T2	
32.	Solution by Taylor's series	1	05/12/2022		TLM1	CO3	T1,T2	
33.	Picard's Method	1	07/12/2022		TLM1	CO3	T1,T2	
34.	Picard's Method	1	08/12/2022		TLM1	CO3	T1,T2	
35.	**Assignment**	1	09/12/2022				T1,T2	
I MID EXAMINATIONS (12-12-2022 TO 17-12-2022)								
36.	Euler's Method	1	10/12/2022		TLM1	CO3	T1,T2	
37.	Modified Euler's Method	1	19/12/2022		TLM1	CO3	T1,T2	
38.	Modified Euler's Method	1	21/12/2022		TLM1	CO3	T1,T2	
39.	Runge- Kutta Method	1	22/12/2022		TLM1	CO3	T1,T2	
40.	Runge- Kutta Method	1	23/12/2022		TLM1	CO3	T1,T2	
41.	**TUTORIAL 3**	1	24/12/2022		TLM3	CO3	T1,T2	
No. of classes required to complete UNIT-III		12				No. of classes taken:		

UNIT-IV: Functions of Several Variables

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
42.	Introduction to UNIT IV	1	26/12/2022		TLM2	CO4	T1,T2	
43.	Generalized Mean Value Theorem, Taylor's series	1	28/12/2022		TLM1	CO4	T1,T2	
44.	Maclaurin's series	1	29/12/2022		TLM1	CO4	T1,T2	
45.	Functions of several variables	1	30/12/2022		TLM1	CO4	T1,T2	
46.	Functions of several variables	1	31/12/2022		TLM1	CO4	T1,T2	
47.	Jacobians(Cartesian coordinates)	1	02/01/2023		TLM1	CO4	T1,T2	

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
48.	Jacobians (polar, coordinates)	1	04/01/2023		TLM1	CO4	T1,T2	
49.	Jacobians (cylindrical, spherical coordinates)	1	05/01/2023		TLM1	CO4	T1,T2	
50.	Functional dependence	1	06/01/2023		TLM1	CO4	T1,T2	
51.	Functional dependence	1	07/01/2023		TLM1	CO4	T1,T2	
52.	Maxima and Minima	1	09/01/2023		TLM1	CO4	T1,T2	
53.	Maxima and Minima of functions of two variables	1	16/01/2023		TLM1	CO4	T1,T2	
54.	Maxima and Minima of functions of two variables	1	18/01/2023		TLM1	CO4	T1,T2	
55.	**TUTORIAL 4**	1	19/01/2023		TLM3	CO4	T1,T2	
No. of classes required to complete UNIT-IV		14			No. of classes taken:			

UNIT-V: Partial Differential Equations

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 V	1	20/01/2023		TLM2	CO5	T1,T2	
57.	Partial Differential equations	1	21/01/2023		TLM1	CO5	T1,T2	
58.	Formation of PDE by elimination of arbitrary constants	1	23/01/2023		TLM1	CO5	T1,T2	
59.	Formation of PDE by elimination of arbitrary functions	1	25/01/2023		TLM1	CO5	T1,T2	
60.	Formation of PDE by elimination of arbitrary functions	1	27/01/2023		TLM1	CO5	T1,T2	
61.	Formation of PDE by elimination of arbitrary functions	1	28/01/2023		TLM1	CO5	T1,T2	
62.	Solving of PDE	1	30/01/2023		TLM1	CO5	T1,T2	
63.	Solving of PDE	1	31/01/2023		TLM1	CO5	T1,T2	
64.	Lagrange's Method	1	01/02/2023		TLM1	CO5	T1,T2	
65.	Lagrange's Method	1	03/02/2023		TLM1	CO5	T1,T2	
66.	Lagrange's Method	1	04/02/2023		TLM1	CO5	T1,T2	
67.	**TUTORIAL 5**	1	06/02/2023		TLM3	CO5	T1,T2	
68.	**Assignment**	1	08/02/2023			CO3, CO4, CO5	T1,T2	
69.	**Revision**	1	09/02/2023			CO3, CO4, CO5	T1,T2	
70.	**Revision**	1	11/02/2023			CO1, CO2	T1,T2	
No. of classes required to complete UNIT-V		12			No. of classes taken:			

Contents beyond the Syllabus

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
71.	Lagrange's Method Other models	1	12/01/2023		TLM1	CO4	T1,T2	
72.	Solving of PDE other methods	1	07/02/2023		TLM5	CO5	T1,T2	
No. of classes		2			No. of classes taken:			
II MID EXAMINATIONS (13-02-2023 TO 18-02-2023)								

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

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.

Dr.K.JHANSI RANI	**Dr. A. RAMI REDDY**	**Dr. A. RAMI REDDY**	**Dr. A. RAMI REDDY**
Course Instructor	Course Coordinator	Module Coordinator	HOD

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Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF ARTIFICIAL INTELLEGENCE & MACHINE LEARNING

COURSE HANDOUT
PART-A

Name of Course Instructor: Mrs. M Anuradha
Course Name & Code : PCS LAB, 20FE51
L-T-P Structure : 0-0-2   **Credits:** 01
Program/Sem/Sec : AI&ML I SEM
A.Y. : 2022-23

PREREQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): To improve the proficiency of students in English with an emphasis on better communication in formal and informal situations; Develop speaking skills required for expressing their knowledge and abilities and to face interviews with confidence.

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

CO1	Introduce one-self and others using appropriate language and details	L2
CO2	Comprehend short talks and speak clearly on a specific topic using	L2
CO3	Report effectively after participating in informal discussions ethically.	L1
CO4	Interpret data aptly, ethically & make oral presentations without	L3

Syllabus: Professional Communication Lab (PCS) shall have two parts:

- **Computer Assisted Language Learning (CALL) Lab** for 60 students with 60 systems, LAN facility and English language software for self-study by learners.
- **Interactive Communication Skills (ICS) Lab.** with movable chairs and audio-visual aids with a P.A System, a T. V., a digital stereo – audio & video system and camcorder etc.

Exercise– I

CALL Lab: Understand- Sentence structure.

ICS Lab: Practice -Listening: Identifying the topic, the context and specific information. Speaking: Introducing oneself and others.

Exercise–II

CALL Lab: Understand- Framing questions.

ICS Lab: Practice- Listening: Answering a series of questions about main idea and supporting ideas after listening to audio text.

Speaking: Discussing in pairs/small groups on specific topics; Delivering short structured talks using suitable cohesive devices (JAM)

Exercise–III

CALL Lab: Understand- Comprehension practice–Strategies for Effective Communication

ICS Lab: Practice - Listening: Listening for global comprehension and Summarizing Speaking: Discussing specific topics in pairs/small groups, reporting what is discussed

Exercise–IV

CALL Lab: Understand- Features of Good Conversation–Strategies for Effective Communication.

ICS Lab: Practice -Listening: making predictions while listening to conversations/transactional dialogues with/without video Speaking: Role – plays – formal & informal – asking for and giving information/directions/instructions/suggestions

Exercise– V

CALL Lab: Understand- Features of Good Presentation, Methodology of Group Discussion

ICS Lab: Practice –Introduction to Group Discussions.

Listening: Answering questions, identifying key terms and understanding concepts.

Speaking: Formal Oral & Poster presentations on topics from academic contexts without the use of PPT.

Lab Manual:

1. Prabhavati.Y & etal, "English All Round–Communication Skills for Undergraduate Learners" , Orient Black Swan, Hyderabad, 2019.

Suggested Software:

1. Digital Mentor: Globarena, Hyderabad,2005
2. Sky Pronunciation Suite: Young India Films, Chennai,2009
3. Mastering English in Vocabulary, Grammar, Spelling, Composition, Dorling Kindersley, USA, 2001
4. Dorling Kindersley Series of Grammar, Punctuation, Composition, USA, 2001
5. Oxford Talking Dictionary, The Learning Company, USA, 2002
6. Learning to Speak English- 4CDs. The Learning Company, USA, 2002
7. Cambridge Advanced Learners English Dictionary (CD). Cambridge University Press, New Delhi, 2008.
8.

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

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

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Introduction to syllabus	02	19-10-2022		TLM4	
2.	Self Introduction & Introducing others	02	26-10-2022		TLM4	
3.	Self Introduction & Introducing others	02	02-11-2022		TLM4	
4.	JAM- I(Short and Structured Talks)	02	09-11-2022		TLM4	
5.	JAM-II(Short and Structured Talks)	02	16-11-2022		TLM4	
6.	JAM-II(Short and Structured Talks)	02	23-11-2022		TLM4	
7.	Role Play-I(Formal and Informal)	02	30-11-2022		TLM4	
8.	Role Play-II (Formal and Informal)	02	07-12-2022		TLM4	
9.	Role Play-II (Formal and Informal)	02	21-12-2022		TLM4	
10.	Group Discussion-I (Reporting the discussion)	02	28-12-2022		TLM4, TLM6	
11.	Group Discussion-II	02	04-01-2023		TLM4, TLM6	
12.	Group Discussion-II	02	11-01-2023		TLM4, TLM6	
13.	Group Discussion-II	02	18-01-2023		TLM4, TLM6	
14.	Oral & Poster Presentation	02	25-01-2023		TLM2, TLM4	
15.	Oral & Poster Presentation	02	01-02-2023		TLM2, TLM4	
16.	Lab Internal Exam	02	08-02-2023			
No. of classes required to complete Syllabus: 30				**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 (R20 Regulation):

Evaluation Task	Marks
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 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.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	Possesses necessary skill set to analyze 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	Module Coordinator	Head of the Department
Name of the Faculty	M. Anuradha	Dr. B. Samrajya Lakshmi	Dr. B. Samrajya Lakshmi	Dr. A. Ramireddy
Signature				

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Phone: 08659-222933, Fax: 08659-222931
DEPARTMENT OF AEROSPACE ENGINEERING

COURSE HANDOUT
PART-A

Name of Course Instructor   : Ms. M. ANURADHA
Course Name & Code   : PC-I, 20FE01
L-T-P Structure   : 2-0-0   **Credits:** 02
Program/Sem/Sec   :ASE– I SEM
A.Y.   **:** 2022-23
PREREQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVES (CEOs): To improve English language proficiency of the students on various aspects like vocabulary, grammar, communication skills, listening skills, Reading &Writing skills.

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

CO1	Write sentences and paragraphs using proper grammatical structures and word forms.	L1
CO2	Comprehendthegiventextbyemployingsuitablestrategiesforskimmingand Scanning and draw inferences	L2
CO3	Write summaries of reading texts using correct tense forms& Appropriate structures.	L1
CO4	Write Formal Letters; Memos & E-Mails	L3
CO5	Edit the sentences/short texts by identifying basic errors of grammar/ vocabulary/syntax	L2

Unit-I
  Exploration - 'A Proposal to Girdle the Earth – Nellie Bly'; Reading: Skimming for main idea; Scanning for specific information; Grammar & Vocabulary: Content Words; Function Words; Word Forms: verbs, nouns, adjectives and adverbs; Nouns: Countable and Uncountable, Singular and Plural forms; Wh - Questions; Word Order in Sentences; Writing: Paragraph Analysis; Paragraph Writing; Punctuation and Capital Letters

Unit–II
  On Campus- 'The District School as it Was by One Who Went to it – Warren Burton'; Reading: Identifying Sequence of Ideas;
  Grammar &Vocabulary: Cohesive Devices: Linkers/signposts/Transition signals, Synonyms, Meanings of Words/ Phrases in the context; Writing: Memo Drafting.

Unit–III
  Working Together- 'The Future of Work'
  Reading: Making basic inferences; Strategies to use text clues for comprehension; Summarizing; Grammar & Vocabulary: Verbs: Tenses; Reporting Verbs for Academic Purpose; Writing**:** Rephrasing what is read; Avoiding redundancies and repetitions Abstract Writing/Summarizing.

Unit–IV
  'A.P.J. Abdul Kalam'; Grammar & Vocabulary: Direct & Indirect Speech; articles and their Omission; Writing: E-Mail Drafting.

Unit–V
  'C.V.Raman'; Grammar &Vocabulary: Subject-verb Agreement; Prepositions; Writing: Formal Letter Writing.

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

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

TEXTBOOKS:

T1 Prabhavati. Y & etal , "English All Round –Communication Skills for Undergraduate Learners" ,Orient Black Swan, Hyderabad, 2019

T2 "The Great Indian Scientists" published by Cengage Learning India Pvt. Ltd., Delhi, 2017

REFERENCE BOOKS:

R1 Swan, M., "Practical English Usage", Oxford University Press, 2016.

R2 Kumar, Sand Latha, P, "Communication Skills", Oxford University Press, 2018.

R3 Rizvi Ashraf M, "Effective Technical Communication", Tata Mc Graw Hill, New Delhi, 2008.

R4 Baradwaj Kumkum, "Professional Communication", I. K. International Publishing HousePvt.Lt.,NewDelhi,2008.

R5 Wood, F. T., "Remedial English Grammar" , Macmillan, 2007.

<u>PART-B</u>

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	01	17-10-2022		TLM2	
2.	Proposal to Girdle The Earth by Nellie Bly	02	20-10-2022 22-10-2022		TLM2	
3.	Reading: Skimming for main idea ; Scanning for specific information	01	25-12-2022		TLM2	
4.	Content words and Function words	01	27-10-2022		TLM2	
5.	Word forms – verbs; Adjectives & adverbs	01	29-10-2022		TLM2	
6.	Nouns – countable & uncountable, singular and plural nouns Word order in sentences, "Wh" questions	01	31-10-2022		TLM2	
7.	Writing: Paragraph writing, Paragraph analysis	02	03-11-2022 05-11-2022		TLM2 TLM6	
No. of classes required to complete UNIT-I: 09				**No. of classes taken:**		

UNIT-II:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
8.	The District School As It Way by One Who Went to it - Warren Burton	02	07-11-2022 10-11-2022		TLM2	

9.	Identifying sequence of ideas	01	12-11-2022		TLM2	
10.	Cohesive devices: linkers signposts/transition signals	01	14-11-2022		TLM2	
11.	Synonyms meanings of words / Phrases in the context	01	17-11-2022		TLM2	
12.	Essay Writing - Memo drafting	02	19-11-2022 21-11-2022		TLM2 TLM6	

| **No. of classes required to complete UNIT-II: 07** | | | | **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	HOD Sign Weekly
13.	The Future of Work	02	24-11-2022 26-11-2022		TLM2 TLM6	
14.	Making basic inferences, Strategies to uses text clues for comprehension	02	28-11-2022 01-12-2022		TLM2	
15.	Verbs :tenses, reporting verbs for academic purpose	02	03 & 05 -12-2022		TLM2	
16.	Summarizing rephrasing what is read	01	08-12-2022		TLM2	
17.	Avoiding redundancies and repetitions - Abstract Writing	01	10-12-2022		TLM2 TLM6	

| **No. of classes required to complete   UNIT-III: 08** | | | | **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	HOD Sign Weekly
18.	APJ Abdul Kalam	03	19& 22& 26-12-2022		TLM2 TLM2	
19.	APJ Abdul Kalam Textual Exercises	02	29&31-12-2022		TLM2	
20.	Direct-Indirect speech	02	02&05-01-2023		TLM2	
21.	Articles and their omission	01	07-01-2023		TLM2	
22.	E-mail drafting	02	09&12-01-2023		TLM2 TLM6	

| **No. of classes required to complete UNIT-IV: 10** | | | | **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	HOD Sign Weekly
23.	C.V.Raman	03	19&21&23 01-2023		TLM2	
24.	C.V.Raman	01	28-01-2023		TLM2	
25.	Subject – Verb agreement	02	30-01-2023& 04-02-2023		TLM2	
26.	Prepositions	01	06 -02-2023		TLM2	
27.	Formal Letter Writing	02	09&11-02-2023		TLM2 TLM6	

| **No. of classes required to complete UNIT-V: 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	

EVALUATION PROCESS (R17 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), 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

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	M. Anuradha	Dr. B. Samrajya Lakshmi	Dr. B. Samrajya Lakshmi	Dr. A. Ramireddy
Signature				

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

PROGRAM	**: B.Tech**, I-Sem
ACADEMIC YEAR	: 2022-23
COURSE NAME & CODE	: Digital Logic Design – 20CS02L-
T-P STRUCTURE	: 3-0-0
COURSE CREDITS	3
COURSE INSTRUCTOR	: Dr.J.NAGESWARA RAO
COURSE COORDINATOR	: Dr.J.NAGESWARA RAO

PRE-REQUISITE: Basic Mathematics

COURSE OBJECTIVE:

The objective of the course is to learn the basic building blocks of the logic circuits of the computer system

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

CO1	Explain the digital number systems, Boolean algebra theorems, properties, and canonical forms for digital logic circuit design.**(Understand-L2)**
CO2	Apply Boolean algebra concepts and K-Maps for minimization of Boolean expressions.**(Apply -L3)**
CO3	Construct the combinational circuits using Adders, Sub tractors, Decoders, Multiplexers and Magnitude Comparators. **(Apply-L3)**
CO4	Demonstrate the sequential circuits using Flip-flops, Shift registers, and Counters & Memory unit.**(Understand-L2)**
CO5	Construct programmable logic devices (PROM, PAL, and PLA). **(Apply-L3)**

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

		PROGRAM OUTCOMES												PROGRAM SPECIFIC OUTCOMES		
		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O2	PS O3
COURSE OUTCOMES	CO1	3	3	1	-	-	-	-	-	-	-	-	1	2	-	1
	CO2	3	3	3	1	-	-	-	-	-	-	-	-	2	-	-
	CO3	3	3	3	1	-	-	-	-	-	-	-	-	2	-	-
	CO4	3	3	3	1	-	-	-	-	-	-	-	-	2	-	-
	CO5	2	3	3	1	-	-	-	-	-	-	-	-	2	-	1

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

BOS APPROVED TEXT BOOKS:

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

BOS APPROVED REFERENCE BOOKS:

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

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

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

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

PART– B

COURSE DELIVERY PLAN (LESSON PLAN):
UNIT – 1: NUMBER SYSTEMS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Discussion of Cos andPos	1	17-10-2022 19-10-2022		TLM1	CO1	T1	
2.	Introduction to Digital Systems	1	20-10-2022		TLM1	CO1	T1	
3.	Number Systems	1	21-10-2022		TLM1	CO1	T1	
4.	Number base Conversion,Decimal,Octaland HexadecimalNumbers	1	22-10-2022 26-10-2022		TLM1	CO1	T1, R3	
5.	Complements(1's)	1	27-10-2022		TLM1	CO1	T1, R3	
6.	Complements(2's)	1			TLM1	CO1	T1, R3	
7.	Signed and unsigned binary number subtraction	1	28-10-2022		TLM1	CO1	T1, R3	
8.	Binary coded decimal	1	29-10-2022 31-10-2022		TLM1	CO1	T1	
9.	Digital Logic Gates	1	02-11-2022		TLM1	CO1	T1	
10.	Error Detection and Correction	1	07-11-2022		TLM1	CO1	T1	
11.	**TUTORIAL – 1**	1	09-11-2022		TLM3	CO1	---	
12.	**Assignment / Quiz – 1**	1	10-11-2022		TLM6	CO1	---	
No. of classes required to complete UNIT-I:		**13**	**No. of classes taken:**					

UNIT – 2: BOOLEAN ALGEBRA

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
13.	Simplification Of Boolean Expressions	1	11-11-2022		TLM1	CO2	T1	
14.	Introduction to Karnaugh Maps	1	12-11-2022		TLM1	CO2	T1	
15.	One Variable, Two variable, Three Variable maps	1	14-11-2022 16-11-2022 17-11-2022 18-11-2022		TLM1	CO2	T1	
16.	Four Variable Map	1	19-11-2022 21-11-2022		TLM1	CO2	T1	
17.	Problems on K-Maps	1	23-11-2022 24-11-2022		TLM1	CO2	T1, R3	
18.	Five Variable K-Map and Examples	1	25-11-2022 26-11-2022		TLM1	CO2	T1, R3	
19.	Minimal Expressions for incomplete Boolean functions	1	28-11-2022 30-11-2022 01-12-2022 11-11-2022		TLM1	CO2	T1, R3	
20.	Minimal Expressions for incomplete Boolean functions	1	12-11-2022 14-11-2022 16-11-2022 17-11-2022		TLM1	CO2	T1, R3	
21.	Quine-McCluskey Method	1	18-11-2022 19-11-2022 21-11-2022		TLM1	CO2	T1, R2	
22.	Prime implicants and Essential Prime Implicants	1	23-11-2022 24-11-2022		TLM1	CO2	T1	
23.	**TUTORIAL – 2**	1	25-11-2022		TLM3	CO2	---	
24.	**Assignment / Quiz – 2**	1	26-11-2022		TLM6	CO2	---	

UNIT – 3: ARITHMETIC CIRCUITS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
25.	Introduction to Combinational Logic, Design Procedure, Analysis Procedure	1	03-12-2022		TLM1	CO3	T1, R3	
26.	Adders, Sub tractors	1	05-12-2022		TLM1	CO3	T1, R3	
27.	Code Conversion	1	07-12-2022 08-12-2022		TLM1	CO3	T1	
28.	Multilevel NAND circuits, Multilevel NOR circuits	1	09-12-2022		TLM1	CO3	T1, R3	
29.	Intoduction to Combinational Logic with MSI And LSI	1	10-12-2022		TLM1	CO3	T1, R3	
30.	Binary Parallel Adder, Decimal Adder	1	19-12-2022		TLM1	CO3	T1	
31.	Magnitude Comparator	1	21-12-2022		TLM1	CO3	T1	
32.	Decoders	1	22-12-2022		TLM1	CO3	T1	
33.	Multiplexers	1	23-12-2022		TLM1	CO3	T1	
34.	**TUTORIAL –3**	1	24-12-2022		TLM3	CO3	---	
35.	**Assignment / Quiz – 3**	1	26-12-2022		TLM6	CO3	---	
No. of classes required to complete UNIT-III:		**11**	**No. of classes taken:**					

UNIT – 4: SEQUENTIAL LOGIC CIRCUITS

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
36.	Introduction to Sequential Logic, Flip Flops	1	30-12-2022		TLM1	CO4	T1	
37.	Triggering of Flip-Flops,	1	31-12-2022					
38.	Analysis of Clocked Sequential Circuits	1	02-01-2023					
39.	State Reduction and Assignment	1	04-01-2023					
40.	Flip-Flop Excitation tables	1	05-01-2023					
41.	Design of Counters, Introduction to Registers, Shift registers	1	06-01-2023					
42.	Ripple Counters	1	07-01-2023					
43.	Synchronous Counters	1	09-01-2023					
44.	**TUTORIAL – 4**	1	11-01-2023					
45.	**Assignment / Quiz– 4**	1	18-01-2023					
No. of classes required to complete UNIT-IV		**11**	**No. of classes taken:**					

UNIT – 5: MEMORY UNIT

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
46.	Read – Only Memory (ROM)	1	23-01-2023		TLM1	CO5	T1,R3	
47.	Problems On ROM	1	25-01-2023		TLM1	CO5	T1,R3	
48.	Programmable Read Only memory	1	27-01-2023		TLM1	CO5	T1,R3	

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
49.	Problems on PROM	1	28-01-2023		TLM1	CO5	T1,R3	
50.	Programmable Logic Device (PLD),Problems on PLD	1	30-01-2023		TLM1	CO5	T1,R3	
51.	Programmable Logic Array	1	30-01-2023		TLM1	CO5	T1,R3	
52.	Programmable Array Logic (PAL).	1	01-02-2023		TLM1	CO5	T1,R3	
53.	Problems on PLA and PAL	1	02-02-2023		TLM1	CO5	T1,R3	
54.	Programmable Logic Array Examples	1	03-02-2023		TLM1	CO5	T1,R3	
55.	**TUTORIAL – 5**	1	04-02-2023		TLM3	CO5	T1,R3	
56.	**Assignment / Quiz – 5**	1	06-02-2023		TLM6	CO5	T1,R3	
No. of classes required to complete UNIT-V		**11**	**No. of classes taken:**					

Contents beyond the Syllabus:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome Cos	Text Book followed	HOD Sign Weekly
57.	PROM related problems	1	08-02-2023		TLM1	CO5		
58.	How magnitude comparators are different from Decoders	1	09-02-2023		TLM1	CO3		

PART-C

EVALUATION PROCESS (R20 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15

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

I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2=5
II- Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2=15
II-Quiz Examination (UNIT-III (Remaining Half of the Syllabus), 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

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.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**J.NAGESWARA RAO**	**J.NAGESWARA RAO**	**CH.V.N.R**	**DR.D.VEERAIAH**
Signature				

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT
PART-A

Name of Course Instructor : M.SWATHI
Course Name & Code   : IT WORKSHOP LAB (20IT51)
L-T-P Structure   **:** 0-0-3   Credits: 1.5
Program/Sem/Sec   : B.Tech., CSM, I-Sem.   A.Y: 2022 - 2023

PRE-REQUISITE: NIL

COURSE OBJECTIVE: The objective of the course is to impart knowledge about the components of PC, Assembling PC, Installation of OS, softwares like MS-Office, LaTex and concepts related to Networking, Internet as well as antivirus.

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

CO1	Identify the basic hardware components, keyboard shortcuts, assembling and disassembling of the system (PC).
CO2	Demonstrate Operating System installation, apply various commands of linux operating system, networking.
CO3	Create web pages using HTML, documents using applications like LaTeX, Google forms and use application software packages: MS-Word, MS-Excel, MS-Power Point to create documents and presentation.
CO4	Improve individual / teamwork skills, communication & 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	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	-	1	-
CO3	3	-	-	-	3	-	-	-	-	-	-	-	-	1	-
CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-

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

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

S.No.	Programs to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	Identifying the peripheral components of a computer. Understanding the Block diagram of the CPU	3	21/10/2022		TLM2/ TLM4	
2.	Disassembling and assembling the PC back to working condition	3	28/10/2022		TLM2/ TLM4	
3.	1. Installation of MS WINDOWS and LINUX on personal computer. 2. Linux Operating System commands	6	04/11/2022 11/11/2022		TLM2/ TLM4	
4.	Working on Networking Commands	3	18/11/2022		TLM2/ TLM4	
5.	Working on Internet Services	3	25/11/2022		TLM2/ TLM4	
6.	Introduction to HTML and its tags. Preparing a simple website/homepage.	6	02/12/2022 09/12/2022		TLM2/ TLM4	
7.	Demonstration and Practice of Text Editors	3	23/12/2022		TLM2/ TLM4	
8.	Demonstration and practice of Microsoft Word, Power Point, Microsoft Excel	9	30/12/2022 06/01/2023 20/01/2023		TLM2/ TLM4	
9.	Demonstration and practice of LaTeX	3	27/01/2023		TLM2/ TLM4	
10.	Creating online documents using Google docs. Creating and sharing online quiz exam with marks/Grads Creating and sharing Bio-data form.	3	02/02/2023		TLM2/ TLM4	
11.	Lab Internal Exam	3	10/02/2023			

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

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.
PO10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
PO11	**Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO12	**Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1	The ability to apply Software Engineering practices and strategies in software project development using open source programming environment for the success of organization.
PSO2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs.
PSO3	To inculcate an ability to analyze, design and implement database applications.

Course Instructor	Course Coordinator	Module Coordinator	HOD
Ms.M.SWATHI	Mr.B.S R KRISHNA	Dr. K.NAGA PRASANTHI	Dr. D.VEERAIAH

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor	: Dr. S. Nagarjuna Reddy
Course Name & Code	: Programming for Problem Solving Using C (20CS01)
L-T-P Structure	: 3-0-0 Credits : 3
Program/Sem/Sec	: B.Tech. – CSE(AI&ML) / I Sem A.Y. : 2022-23

PRE-REQUISITE: NIL

COURSE EDUCATIONAL OBJECTIVE (CEO): The Objective of the course is to make learn the basic elements of C programming, control structures, derived data types, Modular programming, user defined structures, basics of files and its I/O operations.

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

CO1:	Familiar with syntax and semantics of the basic programming language constructs	Understand – Level 2
CO2:	Construct derived data types like arrays in solving problem	Apply – Level 3
CO3:	Decompose a problem into modules and reconstruct it using various ways of user-defined functions	Apply – Level 3
CO4:	Use user-defined data types like structures and unions and its applications to solve problems	Apply – Level 3
CO5:	Discuss various file I/O operations and its application	Understand – Level 2

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

TEXTBOOKS:

T1: ReemaThareja, Programming in C, Oxford University Press, 2nd Edition, 2015

REFERENCE BOOKS:

R1: Jeri R.Hanly, Elliot B.Koffman, Problem Solving and Program Design in C, Pearson Publishers, 7th Edition, 2013

R2: E Balagurusamy, Computer Programming, McGraw Hill Education, 8th Edition

R3: C: The Complete Reference, McGraw Hall Education,4th Edition.

R4: PradeepDey, Manas Ghosh, Programming in C, Oxford University Press, 2nd Edition, 2011.

R5: Stephen G.Kochan, Programming in C, Pearson Education, 3rd Edition, 2005.

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT – I:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	**Introduction to Problem solving through C Programming:** Problem Specification, Algorithm, Pseudo Code	1	17-10-2022			
2.	Flowchart, Examples on Algorithm and Flowcharts	1	19-10-2022			
3.	**C Programming:** Structure of C Program, Identifiers, Basic Data Types and Sizes	2	20-10-2022 21-10-2022			
4.	Constants, Variables, Input – Output Statements, A sample C Program	1	22-10-2022 26-10-2022			
5.	Operators Part – I	1	27-10-2022			
6.	Operators Part – II	1				
7.	Expressions, Type Conversions, Conditional Expression	1	28-10-2022			
8.	Precedence of Operators, Order of Evaluation	1	29-10-2022 31-10-2022			
9.	**Control statements:** if, if else	1	02-11-2022			
10.	else if ladder and nested if	1	03-11-2022			
11.	switch statement	1	04-11-2022			
12.	while loop, do-while loop	1	05-11-2022			
13.	for loop	2	07-11-2022 09-11-2022			
14.	break, continue, go to and labels	1	10-11-2022			
No. of classes required to complete UNIT – I: 14				**No. of classes taken:**		

UNIT – II:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
15.	**Arrays:** Definition, Types of Arrays	1	11-11-2022			
16.	1D-Array Syntax, Declaration, and Initialization	1	12-11-2022			
17.	Storing and Accessing Elements in 1D-Array	1	14-11-2022			
18.	**Applications of 1D-Array:** Linear Search and Binary Search, Bubble Sort Algorithm	2	16-11-2022 17-11-2022			
19.	Two-Dimensional Array Syntax, Declaration, and Initialization	1	18-11-2022			
20.	Storing and Accessing Elements in 2D-Array	2	19-11-2022 21-11-2022			
21.	Applications of 2D Arrays	1	23-11-2022			
22.	Multi-Dimensional Arrays	1	24-11-2022			
23.	**Character Arrays:** Declaration, Initialization, Reading and Writing Strings	1	25-11-2022			
24.	String Handling Functions Part – I	1	26-11-2022			
25.	String Handling Functions Part – II	1	28-11-2022			
26.	Pre-processor Directives Part – I	1	30-11-2022			
27.	Pre-processor Directives Part – II	1	01-12-2022			

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

UNIT – III:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
28.	**Pointers:** Definition, Declaration, Initialization of Pointer Variable	1	02-12-2022			
29.	Pointer Expressions	1	03-12-2022			
30.	Pointer Arithmetic	1	05-12-2022			
31.	Pointers and Arrays	2	07-12-2022 08-12-2022			
32.	Pointers and Character Arrays	1	09-12-2022			
33.	Pointers to Pointers	1	10-12-2022			
34.	**Functions:** Basics, Category of Functions	1	19-12-2022			
35.	Parameter Passing Techniques	1	21-12-2022			
36.	Recursive Functions	1	22-12-2022			
37.	Functions with Arrays	1	23-12-2022			
38.	Standard Library Functions	1	24-12-2022			
39.	Dynamic Memory Management Functions	1	26-12-2022			
40.	Command Line Arguments	1	28-12-2022			
41.	**Storage Classes:** auto, register, static and extern	1	29-12-2022			

No. of classes required to complete UNIT – III: 14	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	HOD Sign Weekly
42.	**Derived Types:** **Structure:** Definition and Declaration	1	30-12-2022			
43.	Initialization and Accessing Structures	1	31-12-2022			
44.	Nested Structures	1	02-01-2023			
45.	Arrays of Structures	1	04-01-2023			
46.	Structures and Functions	1	05-01-2023			
47.	Pointers to Structures Part – I	1	06-01-2023			
48.	Pointers to Structures Part – II	1	07-01-2023			
49.	Self-Referential Structures	1	09-01-2023			
50.	**Union:** Definition and Declaration	1	11-01-2023			
51.	Initialization and Accessing Union Elements	1	18-01-2023			
52.	Examples on Union	1	19-01-2023			
53.	Structure vs Union	1	20-01-2023			
54.	Typedef	1	21-01-2023			

No. of classes required to complete UNIT – IV: 13	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	HOD Sign Weekly
55.	Files: Definition, Types of Files	1	23-01-2023			
56.	Text files and Binary files	1	25-01-2023			

S. No.	Topics	Classes	Date			
57.	Stream	1	27-01-2023			
58.	Standard I/O and Formatted I/O	1	28-01-2023			
59.	Types of File I/O Operations	1	30-01-2023			
60.	Creation of a new file	1	01-02-2023			
61.	Opening an existing file	1	02-02-2023			
62.	Reading from file	1	03-02-2023			
63.	Writing to a file	1	04-02-2023			
64.	Moving to a specific location in a file and closing a file	1	06-02-2023			
65.	Error Handling Basics	1	08-02-2023			
66.	Error Handling Function Calls	1	09-02-2023			
No. of classes required to complete UNIT – V: 12				**No. of classes taken:**		

Content Beyond the Syllabus:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
67.	Introduction to Linked List	1	09-01-2023			

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 (R20 Regulation):

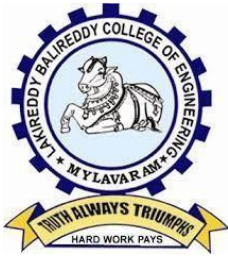| Evaluation Task	Marks
Assignment – I (Units-I, II & UNIT-III (Half of the Syllabus))	A1 = 5
I – Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1 = 15
I – Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1 = 10
Assignment – II (Unit-III (Remaining Half of the Syllabus), IV & V)	A2 = 5
II – Descriptive Examination (UNIT-III (Remaining Half of the Syllabus), IV & V)	M2 = 15
II – Quiz Examination (UNIT-III (Remaining Half of the Syllabus), 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

PROGRAMME OUTCOMES (POs):

PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineeringproblems.
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complexengineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
PO3	**Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
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PO7	**Environment and sustainability**: Understand the impact of the professional engineeringsolutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
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PO10	**Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
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PO12	**Life-long learning**: Recognize the need for and have the preparation and ability to engagein independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1	The ability to apply Software Engineering practices and strategies in software project development using open-source programming environment for the success of organization.
PSO2	The ability to design and develop computer programs in networking, web applications andIoT as per the society needs.
PSO3	To inculcate an ability to analyze, design and implement database applications.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**Dr.S.Nagarjuna Reddy**	**Dr. S. Nagarjuna Reddy**	**Dr. K.Naga Prasanthi**	**Dr. D. Veeraiah**
Signature				

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hodcse@lbrce.ac.in, cseoffice@lbrce.a.cin, Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor	: Dr. S.Nagarjuna Reddy
Course Name & Code	: Programming for Problem Solving Using C Lab (20CS51)
L-T-P Structure	: 0-0-3 Credits : 1.5
Program/Sem/Sec	: B.Tech. – CSE(AI&ML) / I Sem A.Y. : 2022-23

PRE-REQUISITE: Programming and Problem-Solving Skills

COURSE EDUCATIONAL OBJECTIVE (CEO): The objective of the course is to learn the basic elements of C Programming Structures like Data Types, Expressions, Control Statements, and Various I/O Functions and to solve simple mathematical problems using control structures. Design and implementation of various software components, which solve real world problems.

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

CO1:	Apply control structures of C in solving computational problems.	Apply – Level 3
CO2:	Implement derived data types & use modular programming in problem solving	Apply – Level 3
CO3:	Implement user defined data types and perform file operations.	Apply – Level 3
CO4:	Improve individual / teamwork skills, communication & 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	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	3	-	-
CO3	3	2	-	-	-	-	-	-	-	-	-	-	3	-	-
CO4	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-

1 – Low	**2 – Medium**	**3 – High**

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

S. No.	Programs to be covered	No. of Classes		Date of Completion	Delivery Method
		Required as per the Schedule	Taken		
1.	Module 1: Introduction to Raptor Tool	06		18-10-2022 & 25-10-2022	DM5
2.	Module 2: Problem solving using Raptor Tool				DM5
3.	Module 3: Exercise Programs on Basics of C-Program	03		01-11-2022	DM5
4.	Module 4: Exercise Programs on Control Structures	03		08-11-2022	DM5
5.	Module 5: Exercise Programs on Loops & nesting of Loops	06		15-11-2022 22-11-2022	DM5
6.	Module 6: Exercise Programs on Arrays & Strings	06		29-11-2022 06-12-2022	DM5
7.	Module 7: Exercise Programs on Pointers	06		20-12-2022 27-12-2022	DM5
8.	Module 8: Exercise Programs on Functions	06		03-01-2023 10-01-2023	DM5
9.	Module 9: Exercise Programs on user defined data types	06		24-01-2023 31-01-2023	DM5
10.	Module 10: Exercise Programs on Files	03		07-01-2023	DM5

Delivery 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):

PO1	**Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineeringproblems.
PO2	**Problem analysis**: Identify, formulate, review research literature, and analyze complexengineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
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Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	**Dr. S.Nagarjuna Reddy**	**Dr.S.Nagarjuna Reddy**	**Dr.K. Naga Prasanthi**	**Dr. D. Veeraiah**
Signature				