



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 OF ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr. B. Sreenivasa Reddy

Course Name & Code Professional Communication - I (20FE01)

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

Credits: 2

Program/Sem/Sec : I B.Tech/I sem/A

A.Y.: 2021 - 22

PREREQUISITE: Basics in English Grammar & Vocabulary

Course Educational Objective (CEOs) : Improve the proficiency of students in English with an emphasis on Vocabulary & Grammar for better communication in formal and informal situations; Develop listening skills required for thorough understanding and analysis to face interviews with confidence.

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

CO1: Use English vocabulary & grammar effectively while speaking and writing.

CO2 : Comprehend the given texts and Communicate confidently in formal and informal contexts.

CO3 : Draft E-mails & Memos

CO4 : Understand the written and spoken information thoroughly.

CO5 : Face interviews with confidence.

Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
17FE01	CO1				2					3	3		2			
	CO2		1		2		1			3	3		2			
	CO3				2					3	3		2			
	CO4		1		2		1			3	3		2			
	CO5				2					3	3		2			
		1 = Slight (Low)				2 = Moderate (Medium)				3-Substantial(High)						

BOS APPROVED TEXT BOOKS:

T1	Board of Editors, "Fluency in English – A Course book for Engineering Students", Orient Black Swan, Hyderabad, 2016.
T2	Dhanavel S.P, "English and Soft Skills", Orient Black Swan, Hyderabad, 2010.

BOS APPROVED REFERENCE BOOKS:

R1	Murphy, “English Grammar with CD”, Cambridge University Press, New Delhi, 2004.
R2	Rizvi Ashraf M., “Effective Technical Communication”, Tata Mc Graw Hill, New Delhi, 2008.
R3	Baradwaj Kumkum, “Professional Communication”, I.K.International Publishing House Pvt.Lt., New Delhi, 2008.
R4	Raman, Meenakshi; Sharma, Sangeeta,. “Technical Communication -Principles and Practice” Oxford University Press, New Delhi, Third Edition. 2015.

Part-B**COURSE DELIVERY PLAN (LESSON PLAN): Section-A/B/C****UNIT-I :**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Introduction to UNIT-I	1	13.12.2021		TLM1			
2.	Proposal to Girdle The Earth by Nellie Bly	2	16.12.2021 18.12.2021		TLM1	CO1	T1	
3.	Skimming for main idea ; Scanning for specific information	2	20.12.2021 23.12.2021		TLM1, TLM2, TLM5	CO1	T1,R1,R3	
4.	Content words and Function words	1	27.12.2021		TLM1, TLM2, TLM5	CO1	T1,R1,R3	
5.	Word forms – verbs; Adjectives & adverbs	1	29.12.2021		TLM1, TLM2, TLM5	CO1	T1,R1,R3	
6.	Nouns – countable & uncountable, singular and plural nouns	1	31.12.2021		TLM1, TLM2, TLM5	CO1	T1,R1,R3	

7.	Word order in sentences, “Wh” questions	1	03.01.2022		TLM1	CO1	T1	
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8.	Paragraph writing, Paragraph analysis Punctuation & Capital letters	1	05.01.2022		TLM1, TLM2 TLM5, TLM6	CO1	T1,R2,R4	
No. of classes required to complete UNIT-I : 10					No. of classes taken:			

UNIT-II :

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
9.	The District School As It Way by One Who Went to it - Warren Burton	2	07.01.2022 10.01.2022		TLM1, TLM6	CO2	T2	
10.	Identifying sequence of ideas	1	12.01.2022		TLM1, TLM6	CO2	T2,R2,R4	
11.	Cohesive devices: linkers /signposts/transition signals	1	17.01.2022		TLM1, TLM2, TLM5, TLM6	CO2	T2,R2,R4	
12.	Cohesive devices: linkers /signposts/transition signals	1	19.01.2022		TLM1, TLM6	CO2	T2	
13.	Synonyms meanings of words / Phrases in the context	1	21.01.2022		TLM1, TLM6	CO2	T2,R2,R4	
14.	Synonyms meanings of words / Phrases in the context	1	24.01.2022		TLM1, TLM2, TLM5, TLM6	CO2	T2,R2,R4	
15.	Memo drafting	1	28.01.2022		TLM1, TLM2, TLM5, TLM6	CO2	T2,R2,R4	
16.	Memo drafting	1	31.01.2022		TLM1, TLM2,	CO2	T2,R2,R4	

					TLM5, TLM6			
No. of classes required to complete UNIT-II : 9					No. of classes taken:			

UNIT-III:

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
17.	The Future of Work	1	02.02.2022		TLM1	CO3	T1	
18.	Making basic inferences, Strategies to uses text clues for comprehension	1	04.02.2022		TLM1, TLM2, TLM5, TLM6	CO3	T1,R2, R4	
MID EXAMS: 07.02.2022 to 12.02.2022								
19.	Verbs :tenses, reporting verbs for academic purpose	1	14.02.2022		TLM1, TLM2, TLM5, TLM6	CO3	T1,R1, R3	
20.	reporting verbs for academic purpose	1	16.02.2022		TLM1, TLM2, TLM5, TLM6	CO3	T1,R1, R3	
21.	Summarizing rephrasing what is read	1	18.02.2022		TLM1, TLM2, TLM5, TLM6	CO3	T1,R1, R3	
22.	Avoiding redundancies and repetitions	1	21.02.2022		TLM1, TLM2, TLM5, TLM6	CO3	T1,R1, R3	
No. of classes required to complete UNIT-III : 06					No. of classes taken:			

UNIT-IV:

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
23.	APJ Abdul Kalam	2	23.02.2022 25.02.2022		TLM1, TLM6	CO4	T2	
24.	Direct-Indirect speech	2	28.02.2022 02.03.2022		TLM1, TLM6	CO4	T2,R2,R4	
25.	Articles and	2	04.03.2022 07.03.2022		TLM1, TLM6	CO4	T2,R2,R4	

	their omission							
26.	E-mail drafting	1	09.03.2022		TLM1, TLM6	CO4	T2,R2,R4	
No. of classes required to complete UNIT-IV :7					No. of classes taken:			

UNIT-V:

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
27.	C.V.Raman	3	11.03.2022 14.03.2022 16.03.2022		TLM1, TLM6	CO5	T2	
28.	Subject – Verb agreement	2	18.03.2022 21.03.2022		TLM1, TLM6	CO5	T2,R2,R4	
29.	Prepositions	2	23.03.2022 25.03.2022		TLM1, TLM6	CO5	T2,R2,R4	
30.	Formal Letter Writing	2	28.03.2022 30.03.2022		TLM1, TLM2, TLM5, TLM6	CO5	T2,R2,R4	
No. of classes required to complete UNIT-V : 09					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
31.	Verbal Reasoning	2	01.04.2022		TLM1, TLM2, TLM5, TLM6	CO1 & CO5	Book of Reasoning by Agarwal	

Teaching Learning Methods

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

Part - C

EVALUATION PROCESS:

Evaluation Task	Units	Marks
Assignment– 1	1	A1=5
Assignment– 2	2	A2=5
I-Mid Examination	1,2	B1=20
Online Quiz-1	1,2	C1=10
Assignment– 3	3	A3=5
Assignment– 4	4	A4=5
Assignment– 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Online Quiz-2	3,4,5	C2=10
Evaluation of Assignment: $A = \text{Avg}(\text{Best of Four}(A1, A2, A3, A4, A5))$	1,2,3,4,5	A=5
Evaluation of Mid Marks: $B = 75\% \text{ of Max}(B1, B2) + 25\% \text{ of Min}(B1, B2)$	1,2,3,4,5	B=20
Evaluation of Online Quiz Marks: $C = 75\% \text{ of Max}(C1, C2) + 25\% \text{ of Min}(C1, C2)$	1,2,3,4,5	C=10
Attendance Marks based on Percentage of attendance		D=5
Cumulative Internal Examination : A+B+C+D	1,2,3,4,5	40
Semester End Examinations : E	1,2,3,4,5	60
Total Marks: A+B+C+D+E	1,2,3,4,5	100

PART-D

PROGRAM OUTCOMES

Engineering Graduates will be able to:

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.

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



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DEPARTMENT OF COMPUTER SCIENCE OF ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: D. VIJAYA KUMAR

Course Name & Code : Differential Equations&20FE03

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

Credits: 3

Program/Sem/Sec : I B.Tech/I sem/A

A.Y.: 2021 - 22

PREREQUISITE: Nil

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): At the end of the course, 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	PSO1	PSO2	PSO3
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			
	1 - Low			2 -Medium				3 - High							

TEXTBOOKS:

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

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

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):

UNIT-I: Ordinary 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	HOD Sign Weekly
1.	Introduction to the course, Course Outcomes	1	13/12/2021		TLM1	
2.	Introduction to UNIT I	1	14/12/2021		TLM1	
3.	Formation of Differential Equations	1	16/12/2021		TLM1	
4.	Exact DE	1	17/12/2021		TLM1	
5.	Non-exact DE Type I	1	18/12/2021		TLM1	
6.	Non-exact DE Type II	1	20/12/2021		TLM1	
7.	Non-exact DE Type III	1	21/12/2021		TLM1	
8.	TUTORIAL 1	1	23/12/2021		TLM3	
9.	Non-exact DE Type IV	1	24/12/2021		TLM1	
10.	Orthogonal Trajectories (Cartesian)	1	27/12/2021		TLM1	
11.	Orthogonal Trajectories (polar)	1	28/12/2021		TLM1	
12.	Orthogonal Trajectories (polar)	1	30/12/2021		TLM1	
13.	Problems	1	31/12/2021		TLM1	
14.	TUTORIAL 2	1	03/01/2022		TLM3	
No. of classes required to complete UNIT-I: 14				No. of classes taken:		

UNIT-II: Linear Differential Equations of Higher Order

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.	Introduction to UNIT II	1	04/01/2022		TLM2	
16.	Solving a homogeneous DE	1	06/01/2022		TLM1	
17.	Finding Particular Integral, P.I for e^{ax+b}	1	07/01/2022		TLM1	
18.	P.I for Cos bx, or sin bx	1	08/01/2022		TLM1	
19.	P.I for Cos bx, or sin bx		10/01/2022			
20.	P.I for polynomial function	1	11/01/2022		TLM1	
21.	P.I for $e^{ax+b}v(x)$	1	18/01/2022		TLM1	
22.	P.I for $e^{ax+b}v(x)$	1	20/01/2022		TLM1	
23.	P.I for $x^k v(x)$	1	21/01/2022		TLM1	
24.	P.I for $x^k v(x)$	1	22/01/2022		TLM1	
25.	TUTORIAL 3	1	24/01/2022		TLM3	
26.	Method of Variation of parameters	1	25/01/2022		TLM1	
27.	Method of Variation of parameters	1	27/01/2022		TLM1	
28.	TUTORIAL 4	1	28/01/2022		TLM3	
No. of classes required to complete UNIT-II: 14				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	HOD Sign Weekly
29.	Introduction to Unit-III	1	29/01/2022		TLM1	
30.	Solution by Taylor's series	1	31/01/2022		TLM1	
31.	Solution by Taylor's series	1	01/02/2022		TLM1	
32.	Picard's Method	1	03/02/2022		TLM1	
33.	Picard's Method	1	04/02/2022		TLM1	
34.	TUTORIAL 5	1	05/02/2022		TLM3	
35.	Euler's Method	1	11/02/2022		TLM1	
36.	REVISION	1	12/02/2022		TLM1	
37.	Modified Euler's Method	1	14/02/2022		TLM 1	
38.	Modified Euler's Method	1	15/02/2022		TLM1	
39.	Runge- Kutta Method	1	17/02/2022		TLM1	
40.	Runge- Kutta Method	1	18/02/2022		TLM1	
41.	Problems	1	21/02/2022		TLM1	
42.	TUTORIAL 6	1	22/02/2022		TLM3	
No. of classes required to complete UNIT-III: 14				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	HOD Sign Weekly
43.	Introduction to UNIT IV	1	24/02/2022		TLM1	
44.	Generalized Mean Value Theorem, Taylor's series	1	25/02/2022		TLM1	
45.	Maclaurin's series	1	26/02/2022		TLM1	
46.	Maclaurin's series	1	28/02/2022		TLM1	
47.	Functions of several variables	1	03/03/2022		TLM1	
48.	TUTORIAL 7	1	03/03/2022		TLM3	
49.	Jacobians (polar, cylindrical, spherical coordinates)	1	04/03/2022		TLM1	
50.	Jacobians (polar, cylindrical, spherical coordinates)	1	05/03/2022		TLM1	
51.	Functional dependence	1	07/03/2022		TLM1	
52.	Maxima and Minima of functions of two variables	1	08/03/2022		TLM1	
53.	Maxima and Minima of functions of two variables	1	10/03/2022		TLM1	
54.	Maxima and Minima of functions of two variables	1	11/03/2022		TLM1	
55.	TUTORIAL 8	1	14/03/2022		TLM3	
No. of classes required to complete UNIT-IV:13				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	HOD Sign Weekly
56.	Introduction to UNIT V	1	15/03/2022		TLM1	
57.	Formation of PDE by elimination of arbitrary constants	1	15/03/2022		TLM1	
58.	Formation of PDE by elimination of arbitrary constants	1	17/03/2022		TLM1	
59.	Formation of PDE by elimination	1	19/03/2022		TLM1	

	of arbitrary functions				
60.	Formation of PDE by elimination of arbitrary functions	1	21/03/2022		TLM1
61.	Formation of PDE	1	22/03/2022		TLM1
62.	TUTORIAL 9	1	24/03/2022		TLM3
63.	Solving of PDE	1	25/03/2022		TLM1
64.	Lagrange's Method	1	26/03/2022		TLM1
65.	Lagrange's Method	1	28/03/2022		TLM1
66.	Lagrange's Method	1	29/03/2022		TLM1
67.	TUTORIAL 10	1	31/03/2022		TLM1
68.	Revision	1	01/04/2022		
No. of classes required to complete UNIT-V: 13				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 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.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	D.vijaya kumar	Dr. A. Rami Reddy	Dr. A. Rami Reddy	Dr. A. Rami Reddy
Signature				



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DEPARTMENT OF COMPUTER SCIENCE OF ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Dr. S. YUSUB

Course Name & Code : Applied Physics-20FE07

L-T-P Structure : 3-1 -0

Program/Sem/Sec : I B.Tech/I sem/A

Credits: 3

A.Y.: 2021 - 22

PREREQUISITE: Nil

COURSE EDUCATIONAL OBJECTIVES (CEOs): The basic concepts of Optics such as Interference, Diffraction, Lasers and Optical Fibers. The principle of quantum mechanics, free electron theory of metals, Concept of semi conductors, different types of polarizations in dielectrics and their applications.

C01	Define the nature of interference and diffraction.
C02	Apply the lasers and optical fibers in different fields.
C03	Estimate the electrical conductivity of metals.
C04	Analyze the properties of semiconducting materials.
C05	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)												

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

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

BOS APPROVED TEXT BOOKS:**TEXT BOOKS**

1. V. Rajendran, “*Engineering Physics*”, TMH, New Delhi, 6th Edition, 2014.
2. M.N. Avadhanulu, P.G. Kshirsagar, “*Engineering Physics*”, S. Chand & Co., 2nd Edition, 2014.

REFERENCES

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

Part-B**COURSE DELIVERY PLAN (LESSON PLAN): CSE-A****UNIT-I : Interference and diffraction**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
1.	Course Outcomes Principle of superposition	1	13-12-2021		TLM1	CO1	T1	
2.	Coherence Conditions for interference	1	15-12-2021		TLM1	CO1	T1	
3.	Interference in thin films	1	16-12-2021		TLM1	CO1	T1	
4.	Newton’s rings	1	18-12-2021		TLM1	CO1	T1	
5.	Michelson interferometer	1	20-12-2021		TLM1	CO1	T1	
6.	Fraunhofer diffraction Single slit	1	22-12-2021		TLM1	CO1	T1	
7.	Circular aperture	1	23-12-2021		TLM1	CO1	T1	
8.	Diffraction Grating, Resolving power of Grating	1	27-12-2021		TLM1	CO1	T1	
No. of classes required to complete UNIT-I		8	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	Learning Outcome COs	Text Book followed	HOD Sign Weekly
9.	Principle of laser, Characteristics of Laser.	1	29-12-2021		TLM1	CO2	T1	
10.	Einstein’s coefficients	1	30-12-2021		TLM1	CO2	T1	
11.	NdYAG laser	1	03-01-2022		TLM1	CO2	T1	
12.	He-Ne laser	1	05-01-2022		TLM1	CO2	T1	

13.	Applications of lasers	1	06-01-2022		TLM1	CO2	T1	
14.	Tutorial-1	1	08-01-2022		TLM3	CO1	T1	
15.	Optical Fiber principle	1	10-01-2022		TLM1	CO2	T1	
16.	Structure of optical fiber	1	12-01-2022		TLM1	CO2	T1	
17.	Numerical Aperture and Acceptance angle	1	19-01-2022		TLM1	CO2	T1	
18.	Types of optical fibers, Applications	1	20-01-2022		TLM1	CO2	T1	
19.	Tutorial-2	1	08-01-2022		TLM3	CO2	T1	
No. of classes required to complete UNIT-II		11			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
20.	Introduction to Unit III, de-Broglie hypothesis	1	10-01-2022		TLM1	CO3	T1	
21.	Davisson-Germer Experiment	1	12-01-2022		TLM1	CO3	T1	
22.	Schrodinger wave equation,	1	19-01-2022		TLM1	CO3	T1	
23.	physical significance of the wave function	1	20-01-2022		TLM1	CO3	T1	
24.	Tutorial-3	1	22-01-2022		TLM3	CO3	T1	
25.	particle in a box	1	24-01-2022		TLM1	CO3	T1	
26.	particle in a box	1	27-01-2022		TLM1	CO3	T1	
27.	Tutorial-4	1	29-01-2022		TLM3	CO3	T1	
28.	Revision	1	02-02-2022		TLM1	CO1	T1	
29.	Revision	1	03-02-2022		TLM1	CO2	T1	
30.	Tutorial-5	1	05-02-2022		TLM3	CO3	T1	

31.	I MID		07-02-2022			CO1, CO2, CO3		
32.	I MID		08-02-2022			CO1, CO2, CO3		
33.	I MID		09-02-2022			CO1, CO2, CO3		
34.	I MID		10-02-2022			CO1, CO2, CO3		
35.	I MID		11-02-2022			CO1, CO2, CO3		
36.	I MID		12-02-2022			CO1, CO2, CO3		
37.	Classical free electron theory- Postulates, Expression for electrical conductivity and drift velocity,	1	16-02-2022		TLM1	CO3	T1	
38.	Advantages and Draw backs,	1	17-02-2022		TLM1	CO3	T1	
39.	TUTORIAL-6	1	19-02-2022		TLM3	CO3	T1	
40.	Fermi-Dirac statistics,	1	21-02-2022		TLM1	CO3	T1	
41.	Classification of Solids on the basis of Band theory.	1	23-02-2022		TLM1	CO3	T1	
No. of classes required to complete UNIT-III		10	No. of classes taken: 15					

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
42.	Introduction to unit IV, Semiconductors	1	24-02-2022		TLM1	CO4	T1	
43.	TUTORIAL-7	1	26-02-2022		TLM3	CO4	T1	

44.	Carrier concentration in n-type semiconductor	1	28-02-2022		TLM1	CO4	T1
45.	Conductivity of intrinsic semiconductor	1	02-03-2022		TLM1	CO4	T1
46.	Carrier concentration in p-type semiconductor,	1	03-03-2022		TLM1	CO4	T1
47.	TUTORIAL-8	1	05-03-2022		TLM3	CO4	T1
48.	Conductivity of extrinsic semiconductor	1	07-03-2022		TLM1	CO4	T1
49.	Drift and diffusion Einstein relation,	1	09-03-2022		TLM1	CO4	T1
50.	Hall effect,	1	10-03-2022		TLM1	CO4	T1
51.	TUTORIAL-9	1	12-03-2022		TLM3	CO4	T1
52.	Solar cell,	1	14-03-2022		TLM1	CO4	T1
53.	Applications of solar cells,	1	16-03-2022		TLM1	CO4	T1
54.	Direct and indirect band gap semiconductors	1	17-03-2022		TLM1	CO4	T1
55.	TUTORIAL-10	1	19-03-2022		TLM3	CO4	T1
No. of classes required to complete UNIT-IV		14			No. of classes taken: 14		

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	Learning Outcome COs	Text Book followed	HOD Sign Weekly
56.	Magnetic parameters, Classification of magnetic materials Diamagnetic, paramagnetic and ferromagnetic materials	1	21-03-2022		TLM1	CO5	T1	
57.	Hysteresis, soft and hard magnetic materials,	1	23-03-2022		TLM1	CO5	T1	
58.	Applications of Ferro magnetic materials	1	24-03-2022		TLM1	CO5	T1	
59.	TUTORIAL-11	1	26-03-2022		TLM3	CO5	T1	
60.	Electronic polarization Ionic polarization, Orientation polarization	1	28-03-2022		TLM1	CO5	T1	
61.	Local field, Clausius-Mossotti relation	1	30-03-2022		TLM1	CO5	T1	

62.	Applications of dielectric materials,	1	31-03-2022		TLM1	CO5	T1	
No. of classes required to complete UNIT-V		7			No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign
63.	SEM	1	01-04-2022		TLM1		R1	
64.	Nano materials	1	01-04-2022		TLM1		R1	
75	Mid II	1	04-04-2022			CO3, CO4, CO5		
76	Mid II	1	06-04-2022			CO3, CO4, CO5		
77	Mid II	1	07-04-2022			CO3, CO4, CO5		
78	Mid II	1	08-04-2022			CO3, CO4, CO5		
79	Mid II	1	09-04-2022			CO3, CO4, CO5		

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

Part - C

EVALUATION PROCESS:

Evaluation Task	COs	Marks
Assignment/Quiz – 1	1	A1=5
Assignment/Quiz – 2	2	A2=5
I-Mid Examination	1,2	B1=20
Assignment/Quiz – 3	3	A3=5
Assignment/Quiz – 4	4	A4=5
Assignment/Quiz – 5	5	A5=5
II-Mid Examination	3,4,5	B2=20
Evaluation of Assignment/Quiz Marks: $A=(A1+A2+A3+A4+A5)/5$	1,2,3,4,5	A=5
Evaluation of Mid Marks: $B=75\% \text{ of Max}(B1,B2)+25\% \text{ of Min}(B1,B2)$	1,2,3,4,5	B=20
Cumulative Internal Examination : A+B	1,2,3,4,5	A+B=25
Semester End Examinations	1,2,3,4,5	C=75
Total Marks: A+B+C	1,2,3,4,5	100

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

Graduates of Information Technology programme will be:

PEO 1: Pursue a successful career in the area of Information Technology or its allied fields

PEO 2: Exhibit sound knowledge in the fundamentals of Information Technology and apply practical experience with programming techniques to solve real world problems

PEO 3: Able to demonstrate self-learning, life-long learning and work in teams on multidisciplinary projects

PEO 4: Able to understand the professional code of ethics and demonstrate ethical behaviour, effective communication, team work and leadership skills in their job.

PROGRAM OUTCOMES:

Engineering Graduates will be able to:

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

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

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

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

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

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

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

8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

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

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

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

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

PROGRAM SPECIFIC OUTCOMES (PSOs):

Graduate of the Information Technology will have the ability to

1. Organize, Analyze and Interpret the data to extract meaningful conclusions.

2. Design, Implement and evaluate a computer-based system to meet desired needs.

3. Develop IT application services with the help of different current engineering tools.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Dr. S. YUSUB	Dr. S. YUSUB	Dr. S. YUSUB	Dr. A. RAMI REDDY
Signature				



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr. A.V.RAVIKUMAR

Course Name & Code : BASIC ELECTRICAL & ELECTRONICS ENGINEERING – 20EE02

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

Credits: 3

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

A.Y.:2021-22

PREREQUISITE: Physics

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	Apply network reduction techniques to simplify electrical circuits. (Apply - L3)
CO2	Illustrate the working principle of DC machines and transformers. (Understand - L2)
CO3	Understand V-I characteristics of semiconductor devices. (Understand - L2)
CO4	Illustrate the configuration of transistors and their applications. (Understand - L2)

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
C01	3	2										1			
C02	3	2										1			
C03	3	2										1			
C04	3	2										1			
			1 - Low			2 -Medium			3 - High						

TEXTBOOKS:

T1 A.Sudhakar and Shyammohan S Palli, "Electrical Circuits" Tata McGraw-Hill, 3rd Edition.2017

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):

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.	Basic definitions	1	13-12-2021		TLM1	
2.	Types of elements	1	15-12-2021		TLM1	
3.	Ohm's Law	1	17-12-2021		TLM1	
4.	Kirchhoff's Laws	1	18-12-2021		TLM1	
5.	series, parallel Reduction	1	20-12-2021		TLM1	
6.	Star-Delta Reduction	1	22-12-2021		TLM1	
7.	Source Transformation Technique	1	24-12-2021		TLM1	
8.	Mesh analysis	1	27-12-2021		TLM1	
9.	Nodal Analysis	1	29-12-2021		TLM1	
10.	Problems	1	31-12-2021		TLM1	
No. of classes required to complete UNIT-I: 10				No. of classes taken:		

UNIT-II:DC NETWORK THEOREMS & 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
11.	Superposition Theorem	1	03-01-2022		TLM1	
12.	Thevenin's Theorem	1	05-01-2022		TLM1	
13.	Norton's Theorem	1	07-01-2022		TLM1	
14.	Maximum Power Transfer Theorem	1	08-01-2022		TLM1	
15.	Peak, R.M.S, average and instantaneous values, Form factor and Peak factor for periodic waveforms	1	10-01-2022		TLM1	
16.	Phase and Phase difference	1	12-01-2022		TLM1	
17.	Reactance, Impedance, Susceptance and Admittance, Real, Reactive and apparent Powers, Power Factor	1	17-01-2022		TLM1	
18.	Resonance	1	19-01-2022		TLM1	
19.	Problems	1	21-01-2022		TLM1	
No. of classes required to complete UNIT-II: 09				No. of classes taken:		

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
20.	DC generator principle	1	22-01-2022		TLM1	
21.	construction details	1	24-01-2022		TLM1	
22.	emf equation	1	28-01-2022		TLM1	
23.	types of generators	1	29-01-2022		TLM1	
24.	DC motor principle	1	31-01-2022		TLM1	
25.	Back emf	1	02-02-2022		TLM1	
26.	types of motors	1	04-02-2022		TLM1	
27.	Problems	1	05-02-2022		TLM1	
28.	Principle of operation of 1-Phase transformers	1	12-02-2022		TLM1	
29.	Construction	1	14-02-2022		TLM1	

30.	emf equation	1	16-02-2022		TLM1	
31.	Problems	1	18-02-2022		TLM1	
No. of classes required to complete UNIT-III: 12				No. of classes taken:		

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
32.	Introduction	1	19-02-2022		TLM1	
33.	P-N junction diode	1	21-02-2022		TLM1	
34.	Operation	1	23-02-2022		TLM1	
35.	V-I characteristics of PN junction	1	25-02-2022		TLM1	
36.	Rectifiers	1	26-02-2022		TLM1	
37.	Half wave rectifier	1	28-02-2022		TLM1	
38.	Full wave rectifier	1	02-03-2022		TLM1	
39.	Bridge type	1	04-03-2022		TLM1	
40.	Zener diode	1	05-03-2022		TLM1	
41.	Zener diode Characteristics	1	07-03-2022		TLM1	
42.	Voltage regulator	1	09-03-2022		TLM1	
43.	Problems	1	11-03-2022		TLM1	
No. of classes required to complete UNIT-IV: 12				No. of classes taken:		

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
44.	Introduction	1	12-03-2022		TLM1	
45.	Construction	1	14-03-2022		TLM1	
46.	Principle of operation, Symbol	1	16-03-2022		TLM1	
47.	CB configuration	1	19-03-2022		TLM1	
48.	CE configuration	1	21-03-2022		TLM1	
49.	JFET - Operation	1	23-03-2022		TLM1	
50.	JFET - Characteristics	1	25-03-2022		TLM1	
51.	MOSFET - Operation	1	26-03-2022		TLM1	
52.	MOSFET - Characteristics	1	28-03-2022		TLM1	
53.	application of transistor as an amplifier	1	30-03-2022		TLM1	
54.	Problems	1	01-04-2022		TLM1	
No. of classes required to complete UNIT-V: 11				No. of classes taken:		

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

PART-C

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

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
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Name of the Faculty	Mr A.V.RAAVIKUMAR	Mr R.ANJANEYULU NAIK	Dr G.NAGESWARA RAO	Dr J.S.V.PRASAD
Signature				



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

Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr. B. Sreenivasa Reddy

Course Name & Code Professional Communication Skills Lab - I (20FE51)

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

Credits: 1

Program/Sem/Sec : I B.Tech/I sem/A

A.Y.: 2021 - 22

PREREQUISITE: Students should have fundamental knowledge in making sentences and be with readiness to speak

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

- CO1 : Articulate English with good pronunciation.
- CO2 : Manage skillfully through group discussions.
- CO3 : Communicate with the people effectively.
- CO4 : Collect and interpret data aptly.

Course Articulation Matrix:

Course Code	COs	Programme Outcomes												PSOs		
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
17FE60	CO1				3					3	3		2			
	CO2				3					3	3		2			
	CO3				3					3	3		2			
	CO4				3					3	3		2			
	CO5				3					3	3		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 Lab Manual:

- Board of Editors, “ELCS Lab Manual – A Workbook of CALL and ICS Lab Activities”, Orient Black Swan Pvt. Ltd., Hyderabad, 2016.

Part-B

COURSE DELIVERY PLAN (LESSON PLAN): Section-A

S.No.	Activity	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	HOD Sign Weekly
1	Introduction	2	15.12.2021		TLM4		
2	Self Introduction	2	22.12.2021		TLM4	CO3	
3	JAM- I	2	29.12.2021		TLM4	CO3	
4	JAM-II	2	05.01.2022		TLM4	CO3	
5	Role Play-I	2	12.01.2022		TLM4	CO3	
6	Role Play-II	2	19.01.2022		TLM4	CO3	
7	Role Play-III	2	02.02.2022		TLM4	CO3	
I MID EXAMS : 07-02-2022 to 12-02-2022							
8	Data Interpretation-I	2	16.02.2022		TLM2, TLM4	CO4	
9	Data Interpretation-II	2	23.02.2022		TLM2, TLM4	CO4	
10	Data Interpretation-III	2	02.03.2022		TLM2, TLM4	CO4	
11	Group Discussion-I	2	09.03.2022		TLM4, TLM6	CO2	
12	Group Discussion-II	2	16.03.2022		TLM4, TLM6	CO2	
13	Group Discussion-III	2	23.03.2022		TLM4, TLM6	CO2	
14	GD-IV/ Internal Lab Exam	2	30.03.2022		TLM4, TLM6	CO2	
Total Lab Sessions:		2					

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
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Part - C

EVALUATION PROCESS:

According to Academic Regulations of R20 Distribution and Weightage of Marks For Laboratory Courses is as follows.

(a) Continuous Internal Evaluation (CIE):

- ✓ The continuous internal evaluation for laboratory courses (including Computer aided engineering drawing, computer aided engineering graphics, Computer aided machine drawing etc.) is based on the following parameters:

Parameter		Marks
Day – to – Day Work	Observation	10 Marks
	Record	10 Marks
Internal Test		10 Marks
Attendance		05 Marks
Viva – Voce During Regular Lab Sessions		05 Marks
Total		40 Marks
% of Attendance		Marks
≥ 95		05 Marks
90 to < 95		04 Marks
85 to < 90		03 Marks
80 to < 85		02 Marks
75 to < 80		01 Mark

(b) Semester End Examinations (SEE):

- ✓ The performance of the student in laboratory courses shall be evaluated jointly by internal and external examiners for 3 hours duration as per the parameters indicated below:

Parameter	Marks
Phonemes	05 Marks
Short answers on phonetics	05 Marks

Transcription	10 Marks
Dialogue writing	10 Marks
Presentation	10 Marks
Interview	20 Marks
Total	60 Marks

Rubrics For Evaluation of Laboratory Courses								
Day-To-Day Lab (Observation) Performance Evaluation (R-20)				Record Performance Evaluation (R-20)				
S. N	Criteria	Poor	Average	Good	Criteria	Poor	Average	Good
1.	Language suitability (4 Marks)	Wrong usage of words Grammatical errors (2Marks)	Some points are missing from the data written Wrong usage of grammar & vocabulary. (3 Marks)	Well-written & spoken Language is error free (4 Marks)	Language (4Marks)	Language used is not suitable Full of incorrect vocabulary (2 Marks)	Some words are inappropriately used / wrongly spelt (3Marks)	Language used is good No word/spelling errors (4 Marks)
2.	Content (4Marks)	Unable to Deliver all the points Delivering Irrelevant point (2 Marks)	Some points are not given Point analysis is not upto the mark (3 Marks)	All the points are analysed properly More content was delivered. (4 Marks)	Content (4Marks)	Very less points were written Points were not analysed properly (2 Marks)	Some of the points were missing Some points are not properly analysed (3 Marks)	Complete information is provided for the topic Important information is provided with illustrations/examples (4 Marks)
3.	Style of Presentation (2 Marks)	Inappropriate body language Improper presentation (0Marks)	Presentation is not upto the mark (1 Mark)	Presented well with appropriate etiquett All important conclusions have been clearly made, student shows good understanding of the topic. (2 Marks)	Grammar & Neatness (2 Mark)	Frequent grammar and/r spelling errors writing style is rough and immature (1/2Mark)	Some grammatical errors (1 Marks) (1Mark)	No grammar/spelling corrections are found and well-written (2 Marks)

PROGRAMME OUTCOMES (POs):

Engineering Graduates will be able to:

- Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- 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.
- Design/development of solutions:** Design solutions for complex engineering problems and design system

components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

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

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



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

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Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF COMPUTER SCIENCE OF ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Dr. S. YUSUB

Course Name & Code : Applied Physics Lab-20FE54

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

Program/Sem/Sec : I B.Tech/I sem/A

Credits: 1.5

A.Y.: 2021 - 22

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 PO's →	Programme Outcomes											
	1	2	3	4	5	6	7	8	9	10	11	12
CO1.	3	3	1	1								1
CO2.	3	3	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-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.	Introduction	3	16-12-2021		TLM4	1,2,3,4	T1	
2.	Demonstration	3	23-12-2021		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
3.	Experiment 1	3	30-12-2021		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
4.	Experiment 2	3	06-01-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
5.	Experiment 3	3	20-01-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
6.	Experiment 4	3	27-01-2022		TLM4	CO1, CO2, CO3, CO4	T1	
7.	Experiment 5	3	03-02-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
8.	Demonstration	3	17-02-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
9.	Experiment 6	3	24-02-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
10.	Experiment 7	3	03-03-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
11.	Experiment 8	3	10-03-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
12.	Experiment 16	3	17-03-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
13.	Experiment 10	3	24-03-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
14.	Internal Exam	3	31-03-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
No. of classes required to complete UNIT-I		42				No. of classes taken:		

EVALUATION PROCESS:

Evaluation Task	Expt. no's	Marks
Day to Day work = A	1,2,3,4,5,6,7,8	A=5
Internal test = B	1,2,3,4,5,6,7,8	B=5
Evaluation of viva voce = C	1,2,3,4,5,6,7,8	C = 5
Evaluation of attendance Marks = D	1,2,3,4,5,6,7,8	D = 0
Cumulative Internal Examination : A + B + C + D = 15	1,2,3,4,5,6,7,8	15
Semester End Examinations = E	1,2,3,4,5,6,7,8	E = 35
Total Marks: A + B + C + D + E = 50	1,2,3,4,5,6,7,8	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). **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- (9). **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- (10). **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- (11). **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and

in multidisciplinary environments.

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

PROGRAM SPECIFIC OUTCOMES (PSOs):

Graduate of the ECE will have the ability to

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

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

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

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Dr. S. YUSUB	Dr. S. YUSUB	Dr. S. YUSUB	Dr. A. RAMI REDDY
Signature				



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DEPARTMENT OF COMPUTER SCIENCE OF ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: R.Ashok

Course Name & Code : IT Workshop-20IT51

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

Program/Sem/Sec : I B.Tech/I sem/A

Credits: 1.5

A.Y.: 2021 - 22

PREREQUISITE: 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	14/12/2021		TLM2/ TLM4	
2.	Disassembling and assembling the PC back to working condition	3	21/12/2022		TLM2/ TLM4	
3.	1. Installation of MS WINDOWS and LINUX on personal computer. 2. Linux Operating System commands	6	28/12/2021 04/01/2022		TLM2/ TLM4	
4.	Working on Networking Commands	3	11/01/2022		TLM2/ TLM4	
5.	Working on Internet Services	3	18/01/2022		TLM2/ TLM4	
6.	Introduction to HTML and its tags. Preparing a simple website/homepage.	6	25/01/2022 01/02/2022		TLM2/ TLM4	
7.	Demonstration and Practice of Text Editors	3	08/02/2022		TLM2/ TLM4	
8.	Demonstration and practice of Microsoft Word, Power Point, Microsoft Excel	9	15/02/2022 22/02/2022		TLM2/ TLM4	
9.	Demonstration and practice of LaTeX	3	01/03/2022		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	08/03/2022		TLM2/ TLM4	
11.	Lab Internal Exam	3	15/03/2022			

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.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr.R.Ashok	Mr.B S R KRISHNA	Dr. Y. V Bhaskar Reddy	Dr. D.VEERAI AH
Signature				



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor : Dr. Srinivasa Rao Mekala
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 / A A.Y. : 2021-22

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	13/12/2021			
2.	Flowchart, Examples on Algorithm and Flowcharts	1	14/12/2021			
3.	C Programming: Structure of C Program, Identifiers, Basic Data Types and Sizes	1	15/12/2021			
4.	Constants, Variables, Input – Output Statements, A sample C Program	1	16/12/2021			
5.	Operators Part – I	1	18/12/2021			
6.	Operators Part – II	1	20/12/2021			
7.	Expressions, Type Conversions, Conditional Expression	1	21/12/2021			
8.	Precedence of Operators, Order of Evaluation	1	22/12/2021			
9.	Control statements: if, if else	1	23/12/2021			
10.	else if ladder and nested if	1	27/12/2021			
11.	switch statement	1	28/12/2021			
12.	while loop, do-while loop	1	29/12/2021			
13.	for loop	1	30/12/2021			
14.	break, continue, go to and labels	1	03/01/2022			
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	04/01/2022			
16.	1D-Array Syntax, Declaration, and Initialization	1	05/01/2022			
17.	Storing and Accessing Elements in 1D-Array	1	06/01/2022			
18.	Applications of 1D-Array: Linear Search and Binary Search, Bubble Sort Algorithm	1	08/01/2022			
19.	Two-Dimensional Array Syntax, Declaration, and Initialization	1	10/01/2022			
20.	Storing and Accessing Elements in 2D-Array	1	11/01/2022			
21.	Applications of 2D Arrays	1	12/01/2022			
22.	Multi-Dimensional Arrays	1	17/01/2022			
23.	Character Arrays: Declaration, Initialization, Reading and Writing Strings	1	18/01/2022			
24.	String Handling Functions Part – I	1	19/01/2022			
25.	String Handling Functions Part – II	1	20/01/2022			
26.	Pre-processor Directives Part – I	1	22/01/2022			
27.	Pre-processor Directives Part – II	1	24/01/2022			
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	25/01/2022			
29.	Pointer Expressions	1	27/01/2022			
30.	Pointer Arithmetic	1	29/01/2022			
31.	Pointers and Arrays	1	31/01/2022			
32.	Pointers and Character Arrays	1	01/02/2022			
33.	Pointers to Pointers	1	02/02/2022			
34.	Functions: Basics, Category of Functions	1	03/02/2022			
35.	Parameter Passing Techniques	1	05/02/2022			
36.	Recursive Functions	1	12/02/2022			
37.	Functions with Arrays	1	14/02/2022			
38.	Standard Library Functions	1	15/02/2022			
39.	Dynamic Memory Management Functions	1	16/02/2022			
40.	Command Line Arguments	1	17/02/2022			
41.	Storage Classes: auto, register, static and extern	1	19/02/2022			
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	21/02/2022			
43.	Initialization and Accessing Structures	1	22/02/2022			
44.	Nested Structures	1	23/02/2022			
45.	Arrays of Structures	1	24/02/2022			
46.	Structures and Functions	1	26/02/2022			
47.	Pointers to Structures Part – I	1	28/02/2022			
48.	Pointers to Structures Part – II	1	02/03/2022			
49.	Self-Referential Structures	1	03/03/2022			
50.	Union: Definition and Declaration	1	05/03/2022			
51.	Initialization and Accessing Union Elements	1	07/03/2022			
52.	Examples on Union	1	08/03/2022			
53.	Structure vs Union	1	09/03/2022			
54.	Typedef	1	10/03/2022			
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	12/03/2022			
56.	Text files and Binary files	1	14/03/2022			
57.	Stream	1	15/03/2022			

58.	Standard I/O and Formatted I/O	1	16/03/2022		
59.	Types of File I/O Operations	1	17/03/2022		
60.	Creation of a new file	1	19/03/2022		
61.	Opening an existing file	1	21/03/2022		
62.	Reading from file	1	22/03/2022		
63.	Writing to a file	1	23/03/2022		
64.	Moving to a specific location in a file and closing a file	1	24/03/2022		
65.	Error Handling Basics	1	26/03/2022		
66.	Error Handling Function Calls	1	28/03/2022		
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	29/03/2022			
68.	Types of Linked Lists	1	30/03/2022			
69.	Array vs Linked List	1	31/03/2022			
70.	Introduction to Stack and Queue	1	02/04/2022			

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	Dr. M. Srinivasa Rao	Dr. M. Srinivasa Rao	Dr. Y.V. Bhaskar Reddy	Dr. D. Veeraiah
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.

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor	: Dr. Mekala Srinivasa Rao	
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 / A	A.Y. : 2021-22

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	Dr. M. Srinivasa Rao	Dr. M. Srinivasa Rao	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.
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. M. Srinivasa Rao	Dr. Y.V. Bhaskar Reddy	Dr. D. Veeraiah
Signature				



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

FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

PROGRAM	: B.Tech., I-Sem., CSE-B
ACADEMIC YEAR	: 2021-22
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											
	Programme Outcomes											
Course 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	14/12/2021		TLM2		
2.	General Properties of Light	1	14/12/2021		TLM5		
3.	General Properties of matter	1	16/12/2021		TLM2		
4.	Recapitulation of Basic Concepts of Physics	1	16/12/2021		TLM6		
5.	Superposition of	1	17/12/2021		TLM6		

	waves, Coherence, Conditions for Interference						
6.	Interference from thin films	1	18/12/2021		TLM1		
7.	Newton's rings	1	21/12/2021		TLM4		
8.	TUTORIAL-1	1	23/12/2021		TLM3		
9.	Michelson's interferometer	1	24/12/2021		TLM2		
10.	Problems & Assignment/Quiz	1	25/12/2021		TLM1		
11.	Introduction – Diffraction, Types	1	28/12/2021		TLM2		
12.	Single slit diffraction	1	30/12/2021		TLM4		
13.	Diffraction – Circular aperture, Diffraction grating	1	31/12/2021		TLM4		
14.	TUTORIAL-2	1	04/01/2022		TLM3		
15.	Resolving power of Grating	1	06/01/2022		TLM1		
16.	Problems & Assignment/Quiz	1	06/01/2022		TLM1		
No. of classes required to complete UNIT-I: 16				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	07/01/2022		TLM2		
2.	Einstein Coefficients	1	08/01/2022		TLM1		
3.	TUTORIAL-3	1	08/01/2022		TLM3		
4.	Nd-YAG Laser, He-Ne gas Laser	1	11/01/2022		TLM2		
5.	Applications of LASERS	1	19/01/2022		TLM5		
6.	Optical Fiber principle, Structure of optical fiber	1	19/01/2022		TLM2		

7.	Numerical aperture and Acceptance angle	1	21/01/2022		TLM4		
8.	TUTORIAL-4	1	21/01/2022		TLM3		
9.	Types of optical fibers	1	22/01/2022		TLM2		
10.	Applications	1	22/01/2022		TLM5		
11.	Problems & Assignment/Quiz	1	25/01/2022		TLM1		
No. of classes required to complete UNIT-II: 11				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	25/01/2022		TLM5		
2.	TUTORIAL-5	1	25/01/2022		TLM3		
3.	Davisson and Germer Experiment, Physical significance of wave function	1	27/01/2022		TLM2		
4.	Schrodinger time dependent & independent wave equations	1	27/01/2022		TLM1		
5.	Particle in a box	1	28/01/2022		TLM1		
6.	Problems & Assignment/Quiz	1	29/01/2022		TLM1		
7.	PROBLEMS	1	29/01/2022		TLM3		
8.	TUTORIAL-6	---	01/02/2022		---		
9.	PROBLEMS	---	03/02/2022		---		
10.	Classical free electron theory- postulates, Success & Failures	---	04/02/2022		---		
11.	Expression for electrical conductivity and drift velocity	---	05/02/2022		---		
12.	MID 1 EXAMS	1	08/02/2022		TLM2		
13.	MID 1 EXAMS	1	10/02/2022		TLM3		

14.	MID 1 EXAMS	1	11/02/2022		TLM2		
15.	Fermi-Dirac distribution function- Temperature dependence	1	12/02/2022		TLM6		
16.	Classification of Solids on the basis of Band theory	1	15/02/2022		TLM1		
No. of classes required to complete UNIT-III: 16				Problems & Assignment/Quiz			

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
1.	Introduction - Classification of semiconductors	1	17/02/2022		TLM6		
2.	TUTORIAL-7	1	18/02/2022		TLM3		
3.	Conductivity of Intrinsic and Extrinsic semiconductors	1	19/02/2022		TLM1		
4.	Drift and Diffusion Current, Einstein relation	1	22/02/2022		TLM1		
5.	Hall Effect and Hall Coefficient	1	24/02/2022		TLM5		
6.	Direct band gap and indirect band gap semiconductors	1	25/02/2022		TLM2		
7.	TUTORIAL-8	1	26/02/2022		TLM3		
8.	Solar Cell, Applications	1	03/03/2022		TLM4		
9.	Problems & Assignment/Quiz	1	04/03/2022		TLM1		
No. of classes required to complete UNIT-IV: 09				No. of classes taken:			

UNIT-V :MAGNETIC & DIELECTRIC MATERIALS

Course Outcome :- CO 5; Text Book :- T2, R1

S.No	Topics to be covered	No. of Classes	Tentative Date of	Actual Date of	Teaching Learning	HOD Sign	Remarks
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		Required	Completion	Completion	Methods		
1.	Introduction,Magnetic parameters	1	05/03/2022		TLM2		
2.	Classification of magnetic materials – Dia, para & Ferro	1	08/03/2022		TLM6		
3.	TUTORIAL-9	1	10/03/2022		TLM3		
4.	Hysteresis loop	1	11/03/2022		TLM2		
5.	soft and hard magnetic materials	1	12/03/2022		TLM2		
6.	Applications of magnetic materials	1	15/03/2022		TLM1		
7.	Basic Definitions, Electronic polarization	1	17/03/2022		TLM1		
8.	Ionic & Orientation polarization	1	19/03/2022		TLM3		
9.	TUTORIAL-10	1	22/03/2022		TLM1		
10.	Local field,	1	24/03/2022		TLM2		
11.	Clausius Mosotti equation	1	25/03/2022		TLM1		
12.	Applications of dielectricmaterials	1	26/03/2022				
12.	Problems	1	28/03/2022		---		
13.	TUTORIAL-9	1	29/03/2022		---		
14.	Revision	1	31/03/2022		---		
15.	Assignment/Quiz	1	01/04/2022		---		
16.	Revision	1	02/04/2022		---		
No. of classes required to complete UNIT-V: 16				No. of classes taken:		1	

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.
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

P Vijaya Sirisha

Dr. S. Yusub

Dr. S. Yusub

Dr. A. Rami Reddy

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND ELECTRONICS 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/B)
ACADEMIC YEAR	: 2021-2022
COURSE NAME & CODE	: APPLIED PHYSICS LAB & 20 FE 54
L-T-P STRUCTURE	: 0-0-3
COURSE CREDITS	: 1
COURSE INSTRUCTOR	: P.Vijaya Sirisha/ N T SARMA
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.
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 PO's →	Programme Outcomes											
	1	2	3	4	5	6	7	8	9	10	11	12
CO1.	3	3	1	1								1
CO2.	3	3	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- ECE-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	17-12-2021		TLM4	1,2,3,4	T1	
2.	Demonstration	3	24-12-2021		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
3.	Experiment 1	3	31-12-2021		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
4.	Experiment 2	3	07-01-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
5.	Experiment 3	3	21-01-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
6.	Experiment 4	3	28-01-2022		TLM4	CO1, CO2, CO3, CO4	T1	
7.	Experiment 5	3	04-02-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
8.	Demonstration	3	11-02-2022					
9.	Experiment 6	3	18-03-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
10.	Experiment 7	3	25-03-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
11.	Experiment 8	3	04-03-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
12.	Experiment 9	3	11-03-2022		TLM4	CO1, CO2, CO3, CO4,	T1	

						CO5	
13.	Experiment 10	3	18-03-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1
14.	Internal Exam	3	25-03-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1
15.	Internal Exam	3	01-04-2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1
No. of classes required to complete UNIT-I		45			No. of classes taken:		

EVALUATION PROCESS:

Evaluation Task	Expt. no's	Marks
Day to Day work = A	1,2,3,4,5,6,7,8	A=20
Internal test = B	1,2,3,4,5,6,7,8	B=10
Evaluation of viva voce = C	1,2,3,4,5,6,7,8	C = 5
Evaluation of attendance Marks = D	1,2,3,4,5,6,7,8	D = 5
Cumulative Internal Examination : A + B + C + D = 40	1,2,3,4,5,6,7,8	40
Semester End Examinations = E	1,2,3,4,5,6,7,8	E = 60
Total Marks: A + B + C + D + E = 100	1,2,3,4,5,6,7,8	100

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

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

PROGRAM OUTCOMES:

Engineering Graduates will be able to:

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

methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

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

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

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

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

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

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

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

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

PROGRAM SPECIFIC OUTCOMES (PSOs):

Graduate of the ECE will have the ability to

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

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

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

P VIJAYA SIRISHA / N T SARMA	Dr. S. YUSUB	Dr. S. YUSUB	Dr A. RAMI REDDY
Course Instructor	Course Coordinator	Module Coordinator	HOD



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 ELECTRICAL & ELECTRONICS ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr. A.V.RAVIKUMAR

Course Name & Code : BASIC ELECTRICAL & ELECTRONICS ENGINEERING – 20EE02

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

Credits: 3

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

A.Y.: 2021-22

PREREQUISITE: Physics

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	Apply network reduction techniques to simplify electrical circuits. (Apply - L3)
CO2	Illustrate the working principle of DC machines and transformers. (Understand - L2)
CO3	Understand V-I characteristics of semiconductor devices. (Understand - L2)
CO4	Illustrate the configuration of transistors and their applications. (Understand - L2)

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.2017
- 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):

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.	Basic definitions	1	13-12-2021		TLM1	
2.	Types of elements	1	14-12-2021		TLM1	
3.	Ohm's Law	1	15-12-2021		TLM1	
4.	Kirchhoff's Laws	1	16-12-2021		TLM1	
5.	series, parallel Reduction	1	20-12-2021		TLM1	
6.	Star-Delta Reduction	1	21-12-2021		TLM1	
7.	Source Transformation Technique	1	22-12-2021		TLM1	
8.	Mesh analysis	1	23-12-2021		TLM1	
9.	Nodal Analysis	1	27-12-2021		TLM1	
10.	Problems	1	28-12-2021		TLM1	
11.	Problems	1	29-12-2021		TLM1	
No. of classes required to complete UNIT-I: 11				No. of classes taken:		

UNIT-II: DC NETWORK THEOREMS & 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
12.	Superposition Theorem	1	30-12-2021		TLM1	
13.	Thevenin's Theorem	1	03-01-2022		TLM1	
14.	Norton's Theorem	1	04-01-2022		TLM1	
15.	Maximum Power Transfer Theorem	1	05-01-2022		TLM1	
16.	Problems	1	06-01-2022		TLM1	
17.	Peak, R.M.S, average and instantaneous values, Form factor and Peak factor for periodic waveforms	1	10-01-2022		TLM1	
18.	Phase and Phase difference	1	11-01-2022		TLM1	
19.	Reactance, Impedance, Susceptance and Admittance, Real, Reactive and apparent Powers, Power Factor	1	12-01-2022		TLM1	
20.	Resonance	1	17-01-2022		TLM1	
21.	Problems	1	18-01-2022		TLM1	
22.	Problems	1	19-01-2022		TLM1	
No. of classes required to complete UNIT-II: 11				No. of classes taken:		

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
23.	DC generator principle	1	20-01-2022		TLM1	
24.	construction details	1	24-01-2022		TLM1	
25.	emf equation	1	25-01-2022		TLM1	
26.	types of generators	1	27-01-2022		TLM1	
27.	DC motor principle	1	31-01-2022		TLM1	
28.	Back emf	1	01-02-2022		TLM1	
29.	types of motors	1	02-02-2022		TLM1	
30.	Principle of operation of 1-Phase transformers	1	03-02-2022		TLM1	
31.	Construction	1	14-02-2022		TLM1	
32.	emf equation	1	15-02-2022		TLM1	
33.	Problems	1	16-02-2022		TLM1	
No. of classes required to complete UNIT-III: 11				No. of classes taken:		

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	
34.	Introduction	1	17-02-2022		TLM1		
35.	P-N junction diode	1	21-02-2022		TLM1		
36.	Operation	1	22-02-2022		TLM1		
37.	V-I characteristics of PN junction	1	23-02-2022		TLM1		
38.	Rectifiers	1	24-02-2022		TLM1		
39.	Half wave rectifier	1	28-02-2022		TLM1		
40.	Full wave rectifier	1	02-03-2022		TLM1		
41.	Bridge type	1	03-03-2022		TLM1		
42.	Zener diode	1	07-03-2022		TLM1		
43.	Characteristics of Zener diode	1	08-03-2022		TLM1		
44.	Voltage regulator	1	09-03-2022		TLM1		
45.	Problems	1	10-03-2022		TLM1		
No. of classes required to complete UNIT-IV: 12				No. of classes taken:			

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
46.	Introduction	1	14-03-2022		TLM1	
47.	Construction	1	15-03-2022		TLM1	
48.	Principle of operation, Symbol	1	16-03-2022		TLM1	
49.	CB configuration	1	17-03-2022		TLM1	
50.	CE configuration	1	21-03-2022		TLM1	
51.	JFET - Operation	1	22-03-2022		TLM1	
52.	JFET - Characteristics	1	23-03-2022		TLM1	
53.	MOSFET - Operation	1	24-03-2022		TLM1	
54.	MOSFET - Characteristics	1	28-03-2022		TLM1	
55.	application of transistor as an amplifier	1	29-03-2022		TLM1	
56.	Problems	1	30-03-2022		TLM1	
57.	Problems	1	31-03-2022		TLM1	
No. of classes required to complete UNIT-V: 12				No. of classes taken:		

Teaching Learning Methods

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

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

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr A.V.RAAVIKUMAR	Mr R ANJANEYULU NAIK	Dr G.NAGESWARA RAO	Dr.J.S.V.PRASAD
Signature				



COURSE HANDOUT

Part-A

PROGRAM	: I B. Tech., I-Sem., CSE- B
ACADEMIC YEAR	: 2021-22
COURSE NAME & CODE	: Differential Equations
L-T-P STRUCTURE	: 4-0-0
COURSE CREDITS	: 4
COURSE INSTRUCTOR	: Dr.M. Srinivasa Reddy
COURSE COORDINATOR	: Dr. A. Rami Reddy
PRE-REQUISITES	: None

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", 42nd Edition, Khanna Publishers, New Delhi, 2012.

T2 Dr. B. V. Ramana, "Higher Engineering Mathematics", 1st Edition, 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.	Introduction to the course, Course Outcomes	1	13/12/2022		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
2.	Introduction to UNIT I	1	14/12/2021		TLM2	CO1	T1,T2	
3.	Formation of Differential Equations	1	16/12/2021		TLM1	CO1	T1,T2	
4.	Exact DE	1	17/12/2021		TLM1	CO1	T1,T2	
5.	Non-exact DE Type I	1	18/12/2021		TLM1	CO1	T1,T2	
6.	Non-exact DE Type II	1	20/12/2021		TLM1	CO1	T1,T2	
7.	Non-exact DE Type III	1	21/12/2021		TLM1	CO1	T1,T2	
8.	Non-exact DE Type IV	1	23/12/2021		TLM1	CO1	T1,T2	
9.	Orthogonal Trajectories (Cartesian)	1	27/12/2021		TLM1	CO1	T1,T2	
10.	Orthogonal Trajectories (Cartesian)	1	28/12/2021		TLM1	CO1	T1,T2	
11.	Orthogonal Trajectories (polar)	1	30/12/2021		TLM1	CO1	T1,T2	
12.	Orthogonal Trajectories (polar)	1	31/12/2021		TLM1	CO1	T1,T2	
13.	Problems	1	03/01/2022		TLM1	CO1	T1,T2	
14.	TUTORIAL 1	1	10/01/2022		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
15.	Introduction to UNIT II	1	04/01/2022		TLM2	CO2	T1,T2	
16.	Solving a homogeneous DE	1	06/01/2022		TLM1	CO2	T1,T2	
17.	Finding Particular Integral, P.I for e^{ax+b}	1	07/01/2022		TLM1	CO2	T1,T2	
18.	P.I for Cos bx or sin bx	1	08/01/2022		TLM1	CO2	T1,T2	
19.	P.I for polynomial function	1	11/01/2022		TLM1	CO2	T1,T2	
20.	P.I for $e^{ax+b}v(x)$	1	18/01/2022		TLM1	CO2	T1,T2	
21.	P.I for $e^{ax+b}v(x)$	1	20/01/2022		TLM1	CO2	T1,T2	
22.	P.I for $x^k v(x)$	1	21/01/2022		TLM1	CO2	T1,T2	
23.	P.I for $x^k v(x)$	1	22/01/2022		TLM1	CO2	T1,T2	
24.	Method of Variation of parameters	1	24/01/2022		TLM1	CO2	T1,T2	
25.	Method of Variation of	1	25/01/2022		TLM1	CO2	T1,T2	

	parameters							
26.	TUTORIAL 2	1	29/01/2022		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
27.	Introduction to Unit-III	1	27/01/2022		TLM2	CO3	T1,T2	
28.	Numerical Methods	1	28/01/2022		TLM1	CO3	T1,T2	
29.	Solution by Taylor's series	1	31/01/2022		TLM1	CO3	T1,T2	
30.	Solution by Taylor's series	1	01/02/2022		TLM1	CO3	T1,T2	
31.	Picard's Method	1	03/02/2022		TLM1	CO3	T1,T2	
32.	Picard's Method	1	04/02/2022		TLM1	CO3	T1,T2	
33.	Revision	1	05/02/2022					
II MID EXAMINATIONS (07-02-2022 TO 12-02-2022)								
34.	Euler's Method	1	14/02/2022		TLM1	CO3	T1,T2	
35.	Modified Euler's Method	1	15/02/2022		TLM1	CO3	T1,T2	
36.	Modified Euler's Method	1	18/02/2022		TLM1	CO3	T1,T2	
37.	Runge- Kutta Method	1	19/02/2022		TLM1	CO3	T1,T2	
38.	Runge- Kutta Method	1	21/02/2022		TLM1	CO3	T1,T2	
39.	TUTORIAL 3	1	19/02/2022		TLM3	CO3	T1,T2	
No. of classes required to complete UNIT-III		13			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	22/02/2022		TLM1	CO4	T1,T2	
41.	Generalized Mean Value Theorem, Taylor's series	1	24/02/2022		TLM1	CO4	T1,T2	
42.	Maclaurin's series	1	25/02/2022		TLM1	CO4	T1,T2	
43.	Functions of several variables	1	26/02/2022		TLM1	CO4	T1,T2	
44.	Jacobians(Cartesian coordinates)	1	28/02/2022		TLM1	CO4	T1,T2	
45.	Jacobians (polar, coordinates)	1	03/03/2022		TLM1	CO4	T1,T2	
46.	Jacobians (cylindrical, spherical coordinates)	1	04/03/2022		TLM1	CO4	T1,T2	
47.	Functional dependence	1	05/03/2022		TLM1	CO4	T1,T2	
48.	Maxima and Minima	1	07/03/2022		TLM1	CO4	T1,T2	
49.	Maxima and Minima of functions of two	1	08/03/2022		TLM1	CO4	T1,T2	

	variables							
50.	Maxima and Minima of functions of two variables	1	10/03/2022		TLM1	CO4	T1,T2	
51.	TUTORIAL 4	1	19/03/2022		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	11/03/2022		TLM1	CO5	T1,T2	
53.	Partial Differential equations	1	14/03/2022		TLM1	CO5	T1,T2	
54.	Formation of PDE by elimination of arbitrary constants	1	15/03/2022		TLM1	CO5	T1,T2	
55.	Formation of PDE by elimination of arbitrary functions	1	17/03/2022		TLM1	CO5	T1,T2	
56.	Formation of PDE by elimination of arbitrary functions	1	21/03/2022		TLM1	CO5	T1,T2	
57.	Formation of PDE by elimination of arbitrary functions	1	22/03/2022		TLM1	CO5	T1,T2	
58.	General Method of solving PDE	1	24/03/2022		TLM3	CO5	T1,T2	
59.	Solving of PDE	1	25/03/2022		TLM1	CO5	T1,T2	
60.	Solving of PDE	1	26/03/2022		TLM1	CO5	T1,T2	
61.	Lagrange's Method	1	28/03/2022		TLM1	CO5	T1,T2	
62.	Lagrange's Method	1	29/03/2022		TLM1	CO5	T1,T2	
63.	TUTORIAL 5	1	02/04/2022		TLM3	CO5	T1,T2	
64.	Revision	1	01/04/2022					
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	1	12/03/2022		TLM1	CO4	T1,T2	
66.	Solving of PDE other methods	1	31/03/2022		TLM5	CO5	T1,T2	
No. of classes		1			No. of classes taken:			
II MID EXAMINATIONS (03-04-2021 TO 09-04-2021)								

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 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.

Dr.M.Srinivasa Reddy	Dr. A. RAMI REDDY	Dr. A. RAMI REDDY	Dr. A. RAMI REDDY
Course Instructor	Course Coordinator	Module Coordinator	HOD



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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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-B- I SEM

A.Y. : 2021-22

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.

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	18-12-2021		TLM4	
2.	Self Introduction & Introducing others	02	08-01-2022		TLM4	
3.	Self Introduction & Introducing others	02	22-01-2022		TLM4	
4.	JAM- I(Short and Structured Talks)	02	29-01-2022		TLM4	
5.	JAM-II(Short and Structured Talks)	02	05-02-2022		TLM4	
6.	Role Play-I(Formal and Informal)	04	12-02-2022 19-02-2022		TLM4	
7.	Role Play-II (Formal and Informal)	02	26-02-2022		TLM4	
8.	Group Discussion-I (Reporting the discussion)	02	05-03-2022		TLM4, TLM6	
9.	Group Discussion-II	02	12-03-2022		TLM4, TLM6	
10.	Oral & Poster Presentation	02	19-03-2022		TLM2, TLM4	
11.	Lab Internal Exam	02	26-03-2022			
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	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.

	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				



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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-B –I SEM

A.Y. : 2021-22

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 & Writingskills.

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	Comprehend the given text by employing suitable strategies for skimming and 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, 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	13-12-2021		TLM2	
2.	Proposal to Girdle The Earth by Nellie Bly	02	15-12-2021 18-12-2021		TLM2	
3.	Reading: Skimming for main idea ; Scanning for specific information	01	20-12-2021		TLM2	
4.	Content words and Function words	01	22-12-2021		TLM2	
5.	Word forms – verbs; Adjectives & adverbs	01	27-12-2021		TLM2	
6.	Nouns – countable & uncountable, singular and plural nouns Word order in sentences, "Wh" questions	01	29-12-2021		TLM2	
7.	Writing: Paragraph writing, Paragraph analysis	02	03-01-2022 05-01-2022		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	08-01-2022 10-01-2022		TLM2	
9.	Identifying sequence of ideas	01	17-01-2022		TLM2	
10.	Cohesive devices: linkers /signposts/transition signals	01	19-01-2022		TLM2	

11.	Synonyms meanings of words / Phrases in the context	01	22-01-2022 24-01-2022		TLM2	
12.	Essay Writing - Memo drafting	02	29-01-2022 31-01-2022		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	02-02-2022 05-02-2022		TLM2 TLM6	
14.	Making basic inferences, Strategies to uses text clues for comprehension	01	14-02-2022		TLM2	
15.	Verbs :tenses, reporting verbs for academic purpose	02	16-02-2022 19-02-2022		TLM2	
16.	Summarizing rephrasing what is read	01	21-02-2022		TLM2	
17.	avoiding redundancies and repetitions - Abstract Writing	02	23-02-2022 26-02-2022		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	01	28-02-2022		TLM2 TLM2	
19.	APJ Abdul Kalam	01	02-03-2022		TLM2	
20.	Direct-Indirect speech	01	05-03-2022		TLM2	
21.	Articles and their omission	01	07-03-2022		TLM2	
22.	E-mail drafting	02	09-03-2022 12-03-2022 14-03-2022		TLM2 TLM6	
No. of classes required to complete UNIT-IV: 06				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	01	16-03-2022		TLM2	
24.	C.V.Raman	01	19-03-2022		TLM2	

25.	Subject – Verb agreement	02	21-03-2022 23-03-2022		TLM2	
26.	Prepositions	01	26-03-2022		TLM2	
27.	Formal Letter Writing	02	28-03-2022 30-03-2022		TLM2 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

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



COURSE HANDOUT

Part-A

PROGRAM	: I B. Tech., I-Sem., CSE- B
ACADEMIC YEAR	: 2021-22
COURSE NAME & CODE	: Programming for Problem Solving using C
L-T-P STRUCTURE	: 3-0-0
COURSE CREDITS	: 3
COURSE INSTRUCTOR	: Mr. T Udaya Kumar
COURSE COORDINATOR	: Dr. M Srinivasa Rao
PRE-REQUISITES	: None

COURSE OBJECTIVE:

In this course, the student will be able to learn about the basic elements of C Programming structures like Data Types, Expressions, Control Statements, Various I/O Functions and how to solve simple mathematical problems using Control Structures, the Derived Data Types like Arrays, Strings and various operations on them, Modular Programming using Functions and Memory Management using Pointers. User Defined Structures and various operations on it. The basics of files and its I/O Operations.

COURSE OUTCOMES (CO):

- CO1:** Familiar with syntax and semantics of the basic programming language constructs. **(Understand - L2)**
- CO2:** Construct derived data types like arrays in solving problem. **(Apply - L3)**
- CO3:** Decompose a problem into modules and reconstruct it using various ways of user-defined functions. **(Apply - L3)**
- CO4:** Use user-defined data types like structures and unions and its applications to solve problems. **(Apply- L3)**
- CO5:** Discuss various file I/O operations and its application. **(Understand - L2)**

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

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3														
CO2	3														
CO3	3														
CO4	3	2													
CO5	3														

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

BOS APPROVED TEXT BOOKS:**T1** ReemaThareja, Programming in C, Oxford University Press, 2nd Edition, 2015**BOS APPROVED 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):**

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 the course, Course Outcomes	1	13/12/2022		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
2.	Software Development Method for Problem Solving	1	14/12/2021		TLM2	CO1	T1,T2	
3.	Algorithm with Examples	1	16/12/2021		TLM1	CO1	T1,T2	
4.	Pseudo Code with Examples	1	17/12/2021		TLM1	CO1	T1,T2	
5.	Flow Chart with Examples	1	18/12/2021		TLM1	CO1	T1,T2	
6.	Introduction to C, History of C, Features of C	1	20/12/2021		TLM1	CO1	T1,T2	
7.	Structure of a C Program, C Tokens – Keywords, Identifiers, constants	1	21/12/2021		TLM1	CO1	T1,T2	
8.	Basic Data Types and Sizes	1	23/12/2021		TLM1	CO1	T1,T2	
9.	Input Output Statements and Sample C Program	1	24/12/2021		TLM1	CO1	T1,T2	
10.	Formatted & unformatted I/O statements	1	27/12/2021		TLM1	CO1	T1,T2	
11.	Operators – Arithmetic, Relational, Logical, Assignment	1	28/12/2021		TLM1	CO1	T1,T2	
12.	Operators – ternary, Bit Wise, Unary , and Special Operators	1	30/12/2021		TLM1	CO1	T1,T2	
13.	Operator precedence and order of evaluation	1	31/12/2021		TLM1	CO1	T1,T2	
14.	Control Structures: Decision Statements – if, if else, else if ladder	1	03/01/2022		TLM3	CO1	T1,T2	

15.	switch statement with example	1	04/01/2022					
16.	continue, goto, break and labels	1	06/01/2022					
17.	Loop Statements: while loop and do-while loop	1	07/01/2022					
18.	for loop with Examples	1	08/01/2022					
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
19.	Introduction to Arrays and Types of Arrays	1	10/01/2022		TLM2	CO2	T1,T2	
20.	1-D Array: Declaration and Initialization with Examples	1	11/01/2022		TLM1	CO2	T1,T2	
21.	Accessing 1-D Array with Insertion, Deletion and Searching Operations.	1	18/01/2022		TLM1	CO2	T1,T2	
22.	2-D Array: Declaration and Initialization with Examples	1	20/01/2022		TLM1	CO2	T1,T2	
23.	2-D Array: Declaration and Initialization with Examples	1	21/01/2022		TLM1	CO2	T1,T2	
24.	Accessing 2-D Array with Examples.	1	22/01/2022		TLM1	CO2	T1,T2	
25.	2-D Array Examples: Matrix Addition, Subtraction, Multiplication, Transpose	1	24/01/2022		TLM1	CO2	T1,T2	
26.	2-D Array Examples: Matrix Addition, Subtraction, Multiplication, Transpose	1	25/01/2022		TLM1	CO2	T1,T2	
27.	Character Arrays: Introduction, Declaration, Initialization and Accessing	1	27/01/2022		TLM1	CO2	T1,T2	
28.	Arithmetic Operations and String Handling Functions Part – 1 with Examples	1	28/01/2022		TLM1	CO2	T1,T2	
29.	String Handling Functions Part – 2 with Examples	1	29/01/2022		TLM1	CO2	T1,T2	
No. of classes required to complete UNIT-II		11			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
30.	Pointers: Introduction.	1	31/01/2022		TLM1	CO3	T1,T2	

31.	Pointers: Introduction, declaration and Initialization of Pointer Variables	1	01/02/2022		TLM1	CO3	T1,T2		
32.	Pointers Expressions	1	03/02/2022		TLM1	CO3	T1,T2		
33.	Pointers Arithmetic	1	04/02/2022		TLM1	CO3	T1,T2		
34.	Pointers and Arrays	1	05/02/2022		TLM1	CO3	T1,T2		
II MID EXAMINATIONS (07-02-2022 TO 12-02-2022)									
35.	Pointers and Strings	1	14/02/2022		TLM1	CO3	T1,T2		
36.	Pointers to Pointers	1	15/02/2022		TLM1	CO3	T1,T2		
37.	Pre Processor Directives and Macros	1	17/02/2022		TLM1	CO3	T1,T2		
38.	Functions: Introduction	1	18/02/2022		TLM1	CO3	T1,T2		
39.	Function Declaration/Prototype, Function Definition, Function Calling	1	19/02/2022		TLM1	CO3	T1,T2		
40.	Return Type, Parameter Passing, Calling Function, Called Function	1	21/02/2022		TLM3	CO3	T1,T2		
41.	Recursive Functions with Examples	1	22/02/2022						
42.	Functions with Arrays	1	24/02/2022						
43.	Storage Classes	1	25/02/2022						
44.	Dynamic Memory Management Functions	1	26/02/2022						
45.	Dynamic Memory Management Functions	1	28/02/2022						
46.	Command Line Arguments	1	03/03/2022						
No. of classes required to complete UNIT-III		17			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
47.	Structures: Introduction	1	04/03/2022		TLM1	CO4	T1,T2	
48.	Accessing Structures with Examples	1	05/03/2022		TLM1	CO4	T1,T2	
49.	Nested Structures, Array of Structures	1	07/03/2022		TLM1	CO4	T1,T2	
50.	Nested Structures, Array of Structures	1	08/03/2022		TLM1	CO4	T1,T2	
51.	Structures and Functions	1	10/03/2022		TLM1	CO4	T1,T2	
52.	Pointers to Structures, Self Referential Structures	1	11/03/2022		TLM1	CO4	T1,T2	

53.	Pointers to Structures, Self Referential Structures	1	14/03/2022		TLM1	CO4	T1,T2	
54.	Unions: Introduction, Declaration and Initialization	1	15/03/2022		TLM1	CO4	T1,T2	
55.	Structures with Examples	1	17/03/2022		TLM1	CO4	T1,T2	
56.	Typedef and Enum with Examples	1	19/03/2022		TLM1	CO4	T1,T2	
No. of classes required to complete UNIT-IV		10			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
57.	Introduction, Text and Binary Files, Streams	1	21/03/2022		TLM1	CO5	T1,T2	
58.	Standard I/O and Formatted I/O Functions	1	22/03/2022		TLM1	CO5	T1,T2	
59.	Standard I/O and Formatted I/O Functions	1	24/03/2022		TLM1	CO5	T1,T2	
60.	File I/O Operations- fgetc(), fputc(), fgets(), fputs()	1	25/03/2022		TLM1	CO5	T1,T2	
61.	File I/O Operations- fgetc(), fputc(), fgets(), fputs()	1	26/03/2022		TLM1	CO5	T1,T2	
62.	File I/O Operations – fprintf(), fscanf(), fread(), fwrite()	1	28/03/2022		TLM1	CO5	T1,T2	
63.	Error Handling	1	29/03/2022		TLM3	CO5	T1,T2	
No. of classes required to complete UNIT-V		07			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
64.	Some Sorting Techniques	1	31/03/2022		TLM1	CO4	T1,T2	
65.	Accessing data from Excel Files	1	01/04/2022		TLM5	CO5	T1,T2	
No. of classes		2			No. of classes taken:			

II MID EXAMINATIONS (03-04-2021 TO 09-04-2021)

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 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.

Mr. T Udaya Kumar	Dr. M Srinivas Rao		Dr. D. Veeraiah
Course Instructor	Course Coordinator	Module Coordinator	HOD

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (A)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

(Autonomous & Affiliated to JNTUK, Kakinada & Approved by AICTE, New Delhi,

NAAC Accredited with 'A' grade, Certified by ISO 9001:2015)

L B Reddy Nagar, Mylavaram-521 230, Krishna District, Andhra Pradesh.

COURSE HANDOUT

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

ACADEMIC YEAR : 2021-22

COURSE NAME & CODE : PPSC Lab – 20CS51,

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

COURSE CREDITS : 3

COURSE INSTRUCTOR : Mr. T UDAYA KUMAR

COURSE COORDINATOR : Dr. D. Jagan Mohan reddy

MODULE COORDINATOR: Dr. D. Jagan Mohan reddy

PRE-REQUISITE: NIL

COURSE OBJECTIVE:

In this course, the student will learn about:

Software Development tools like algorithm, pseudo codes and programming structure. Basic elements of C Programming Structures like Data Types, Expressions, Control Statements, Various I/O Functions and how to solve simple mathematical problems using control structures. Design and Implementation of various software components which solve real world problems.

Course Outcomes (CO): *At the end of this course, the student will be able to:*

CO1: Apply control structures of C in solving computational problems.(**Apply - L3**)

CO2: Implement derived data types & use modular programming in problem solving(**Apply- L3**)

CO3: Implement user defined data types and perform file operations.(**Apply- L3**)

CO 4: Improve individual / teamwork skills, communication & report writing skills with ethical values.

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

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	2													
CO2	3	2													
CO3	3	2													
CO4								3	3	3					

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

COURSE DELIVERY PLAN (LESSON PLAN): Section-C

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	HOD Sign Weekly
1.	Introduction to raptor tool	3	15/12/2021		
2.	Problem solving using raptor tool	3	22/12/2021		
3.	Exercise Programs on Input output statements	3	29/12/2021		
4.	Exercise Programs on Basics of C-Program sequential statements	3	05/01/2022		
5.	Exercise Programs on Basics of C-Program Sequential statements	3	12/01/2022		
6.	Exercise Programs on Control Structures Selection Statements	3	19/01/2022		
7.	Exercise Programs on Loops & nesting of Loops.	3	02/02/2022		
8.	Exercise Programs on Loops & nesting of Loops.	3	16/02/2022		
9.	Exercise Programs on Arrays & Strings	3	23/02/2022		
10.	Exercise Programs on Pointers.	3	09/03/2022		
11.	Exercise Programs on Functions	3	16/03/2022		
12.	Exercise Programs on user defined data types.	3	23/03/2022		
13.	Exercise Programs on Files.	3	30/03/2022		

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr. T Udaya Kumar	Dr. M Srinivasa Rao		Dr. D. Veeraiah
Signature				

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

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

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

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

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

PROGRAMME OUTCOMES (POs):

Engineering Graduates will be able to:

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

PROGRAMME SPECIFIC OUTCOMES (PSOs):

- 1.** An ability to apply softwareengineering practices and strategies in software project development using open source programming environment for the success of organization.
- 2.** An Ability to design and develop computer programs in networking, web applications and IoT as per the society needs.
- 3.** 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. T Udaya Kumar	Dr. M Srinivasa Rao		Dr. D. Veeraiah
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

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor : Mr.AMANATULLA MOHAMMAD

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: 2021 - 2022

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	13/12/2021		TLM2/ TLM4	
2.	Disassembling and assembling the PC back to working condition	3	20/12/2021		TLM2/ TLM4	
3.	1. Installation of MS WINDOWS and LINUX on personal computer. 2. Linux Operating System commands	6	27/12/2021 03/01/2022		TLM2/ TLM4	
4.	Working on Networking Commands	3	10/01/2022		TLM2/ TLM4	
5.	Working on Internet Services	3	17/01/2022		TLM2/ TLM4	
6.	Introduction to HTML and its tags. Preparing a simple website/homepage.	6	24/01/2022 31/01/2022		TLM2/ TLM4	
7.	Demonstration and Practice of Text Editors	3	14/02/2022		TLM2/ TLM4	
8.	Demonstration and practice of Microsoft Word, Power Point, Microsoft Excel	9	21/02/2022 07/03/2022		TLM2/ TLM4	
9.	Demonstration and practice of LaTeX	3	14/03/2022		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	21/03/2022		TLM2/ TLM4	
11.	Lab Internal Exam	3	28/03/2022			

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.
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	The ability to apply Software Engineering practices and strategies in software project development using open source programming environment for the success of organization.
PSO 2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs.
PSO 3	To inculcate an ability to analyze, design and implement database applications.

Course Instructor	Course Coordinator	Module Coordinator	HOD
Mr.MD.AMANATULLA	Mr.B S R KRISHNA	Dr. Y. V Bhaskar Reddy	Dr. D.VEERAAIAH



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

FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

Name of Course Instructor: Dr Pawel Veliventi

Course Name & Code : Professional Communication-I (20FE01)

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

Credits: 2

Program/Sem/Sec : CSE/I/C

A.Y.: 2021-22

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	Produce a coherent paragraph interpreting a figure/graph/chart/table
CO2	Comprehend the given texts thoroughly by guessing the meanings of the words Contextually
CO3	Use language appropriately for describing/comparing/contrasting/giving directions & suggestions
CO4	Write formal/informal dialogues with an understanding of verbal/non-verbal features of communication. Guess meanings of the words from the context
CO5	Write well structured essays, reports & resumé

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

TEXTBOOKS:

- T1** Prabhavati.Y & etal, "English All Round-Communication Skills for Undergraduate Learners", Orient BlackSwan, Hyderabad, 2019
- T2** "The Great Indian Scientists", Cengage Learning India Pvt. Ltd., Delhi, 2017

REFERENCE BOOKS:

- R1** Swan,M., "Practical English Usage", Oxford University Press, 2016
- R2** Kumar,S and Latha, P, "Communication Skills", Oxford University Press, 2018
- R3** Rizvi Ashraf M., "Effective Technical Communication", TataMcGrawHill, NewDelhi, 2008
- R4** Baradwaj Kumkum, "Professional Communication", I.K.International Publishing House Pvt. Lt.d, NewDelhi, 2008
- R5** Wood, F.T., "Remedial English Grammar", Macmillan, 2007

PART-B

COURSE DELIVERY PLAN (LESSON PLAN):

UNIT-I: Exploration

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
1.	A Proposal to Girdle the Earth	2	14-12-21 & 16-12-21		TLM1	
2.	Skimming and Scanning	1	17-12-21		TLM1	
3.	Content & Function Words	1	21-12-21		TLM2	
4.	Verbs, Nouns, Adjectives and Adverbs	1	23-12-21		TLM2	
5.	Countable and Uncountable Nouns	1	28-12-21		TLM3	
6.	Singular and Plural Nouns	1	30-12-21		TLM1	
7.	Wh-Questions, Word Order in Sentences	1	31-12-21		TLM2	
8.	Paragraph Analysis & Writing	1	4-1-22		TLM1	
9.	Punctuation and Capital Letters	1	6-1-22		TLM1	
No. of classes required to complete UNIT-I: 10				No. of classes taken:		

UNIT-II: On Campus

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.	The District School as it was by One Who Went to it	2	7-1-22 & 11-1-22		TLM1	
11.	Identifying Sequence of Ideas	1	18-1-22		TLM1	
12.	Cohesive Devices: Linkers/Signposts/Transition Signals	1	20-1-22		TLM3	
13.	Synonyms	1	21-1-22		TLM2	
14.	Meanings of Words/Phrases in the Context	1	25-1-22		TLM1	
15.	Memo Drafting	1	27-1-22		TLM2	
No. of classes required to complete UNIT-II: 7				No. of classes taken:		

UNIT-III: Working Together

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
16.	The Future of Work	1	28-1-22		TLM1	
17.	Making Basic Inferences	1	8-2-22		TLM1	
18.	Strategies to Use Text Clues for Comprehension	1	10-2-22		TLM2	
19.	Tenses	2	11-2-22 & 15-2-22		TLM2	
20.	Reporting Verbs for Academic Purposes	1	17-2-22		TLM1	
21.	Rephrasing	1	18-2-22		TLM3	
22.	Avoiding Redundancies and Repetitions	1	22-2-22		TLM2	
23.	Summarizing/Abstract Writing	1	24-2-22		TLM1	
No. of classes required to complete UNIT-III: 9				No. of classes taken:		

UNIT-IV: APJ Abdul Kalam

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
24.	APJ Abdul Kalam	2	25-2-22 & 1-3-22		TLM1	
25.	Direct & Indirect Speech	2	3-3-22		TLM1	
26.	Articles	2	4-3-22 & 8-3-22		TLM3	
27.	e-mail Drafting	1	10-3-22		TLM1	
No. of classes required to complete UNIT-IV:7				No. of classes taken:		

UNIT-V: C.V.Raman

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.	C.V.Raman	2	11-3-22 & 15-3-22		TLM1	
29.	Subject-Verb Agreement	1	17-3-22		TLM2	
30.	Prepositions	1	22-3-22		TLM2	
31.	Formal Letter Writing	2	24-3-22 & 25-3-22		TLM3	
No. of classes required to complete UNIT-V: 6				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
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
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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.
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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.
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PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1	The ability to apply Software Engineering practices and strategies in software project development using open source programming environment for the success of organization
PSO 2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs
PSO 3	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 Pawel Veliventi	Dr B Samrajya Lakshmi	Dr B Samrajya Lakshmi	Dr A Ramireddy
Signature				



COURSE HANDOUT

Part-A

PROGRAM	: I B. Tech., I-Sem., CSE C
ACADEMIC YEAR	: 2021-22
COURSE NAME & CODE	: Differential Equations
L-T-P STRUCTURE	: 4-0-0
COURSE CREDITS	: 4
COURSE INSTRUCTOR	: Dr. K.R. Kavitha
COURSE COORDINATOR	: Dr. A. Rami Reddy
PRE-REQUISITES	: None

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", 42nd Edition, Khanna Publishers, New Delhi, 2012.

T2 Dr. B. V. Ramana, "Higher Engineering Mathematics", 1st Edition, 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.	Introduction to the course, Course Outcomes	1	13/12/2022		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
2.	Introduction to UNIT I	1	14/12/2021		TLM2	CO1	T1,T2	
3.	Formation of Differential Equations	1	16/12/2021		TLM1	CO1	T1,T2	
4.	Exact DE	1	17/12/2021		TLM1	CO1	T1,T2	
5.	Non-exact DE Type I	1	18/12/2021		TLM1	CO1	T1,T2	
6.	Non-exact DE Type II	1	20/12/2021		TLM1	CO1	T1,T2	
7.	Non-exact DE Type III	1	21/12/2021		TLM1	CO1	T1,T2	
8.	Non-exact DE Type IV	1	23/12/2021		TLM1	CO1	T1,T2	
9.	Orthogonal Trajectories (Cartesian)	1	27/12/2021		TLM1	CO1	T1,T2	
10.	Orthogonal Trajectories (Cartesian)	1	28/12/2021		TLM1	CO1	T1,T2	
11.	Orthogonal Trajectories (polar)	1	30/12/2021		TLM1	CO1	T1,T2	
12.	Orthogonal Trajectories (polar)	1	31/12/2021		TLM1	CO1	T1,T2	
13.	Problems	1	03/01/2022		TLM1	CO1	T1,T2	
14.	TUTORIAL 1	1	08/01/2022		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
15.	Introduction to UNIT II	1	04/01/2022		TLM2	CO2	T1,T2	
16.	Solving a homogeneous DE	1	06/01/2022		TLM1	CO2	T1,T2	
17.	Finding Particular Integral, P.I for e^{ax+b}	1	07/01/2022		TLM1	CO2	T1,T2	
18.	P.I for Cos bx or sin bx	1	10/01/2022		TLM1	CO2	T1,T2	
19.	P.I for polynomial function	1	11/01/2022		TLM1	CO2	T1,T2	
20.	P.I for $e^{ax+b}v(x)$	1	18/01/2022		TLM1	CO2	T1,T2	
21.	P.I for $e^{ax+b}v(x)$	1	20/01/2022		TLM1	CO2	T1,T2	
22.	P.I for $x^k v(x)$	1	21/01/2022		TLM1	CO2	T1,T2	
23.	P.I for $x^k v(x)$	1	22/01/2022		TLM1	CO2	T1,T2	
24.	Method of Variation of parameters	1	24/01/2022		TLM1	CO2	T1,T2	
25.	Method of Variation of	1	25/01/2022		TLM1	CO2	T1,T2	

	parameters							
26.	TUTORIAL 2	1	29/01/2022		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
27.	Introduction to Unit-III	1	27/01/2022		TLM2	CO3	T1,T2	
28.	Numerical Methods	1	28/01/2022		TLM1	CO3	T1,T2	
29.	Solution by Taylor's series	1	31/01/2022		TLM1	CO3	T1,T2	
30.	Solution by Taylor's series	1	01/02/2022		TLM1	CO3	T1,T2	
31.	Picard's Method	1	03/02/2022		TLM1	CO3	T1,T2	
32.	Picard's Method	1	04/02/2022		TLM1	CO3	T1,T2	
33.	Revision	1	05/02/2022					
II MID EXAMINATIONS (07-02-2022 TO 12-02-2022)								
34.	Euler's Method	1	14/02/2022		TLM1	CO3	T1,T2	
35.	Modified Euler's Method	1	15/02/2022		TLM1	CO3	T1,T2	
36.	Modified Euler's Method	1	17/02/2022		TLM1	CO3	T1,T2	
37.	Runge- Kutta Method	1	18/02/2022		TLM1	CO3	T1,T2	
38.	Runge- Kutta Method	1	21/02/2022		TLM1	CO3	T1,T2	
39.	TUTORIAL 3	1	19/02/2022		TLM3	CO3	T1,T2	
No. of classes required to complete UNIT-III		13			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	22/02/2022		TLM1	CO4	T1,T2	
41.	Generalized Mean Value Theorem, Taylor's series	1	24/02/2022		TLM1	CO4	T1,T2	
42.	Maclaurin's series	1	25/02/2022		TLM1	CO4	T1,T2	
43.	Functions of several variables	1	26/02/2022		TLM1	CO4	T1,T2	
44.	Jacobians(Cartesian coordinates)	1	28/02/2022		TLM1	CO4	T1,T2	
45.	Jacobians (polar, coordinates)	1	03/03/2022		TLM1	CO4	T1,T2	
46.	Jacobians (cylindrical, spherical coordinates)	1	04/03/2022		TLM1	CO4	T1,T2	
47.	Functional dependence	1	05/03/2022		TLM1	CO4	T1,T2	
48.	Maxima and Minima	1	07/03/2022		TLM1	CO4	T1,T2	
49.	Maxima and Minima of functions of two	1	08/03/2022		TLM1	CO4	T1,T2	

	variables							
50.	Maxima and Minima of functions of two variables	1	10/03/2022		TLM1	CO4	T1,T2	
51.	TUTORIAL 4	1	19/03/2022		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	11/03/2022		TLM1	CO5	T1,T2	
53.	Partial Differential equations	1	14/03/2022		TLM1	CO5	T1,T2	
54.	Formation of PDE by elimination of arbitrary constants	1	15/03/2022		TLM1	CO5	T1,T2	
55.	Formation of PDE by elimination of arbitrary functions	1	17/03/2022		TLM1	CO5	T1,T2	
56.	Formation of PDE by elimination of arbitrary functions	1	21/03/2022		TLM1	CO5	T1,T2	
57.	Formation of PDE by elimination of arbitrary functions	1	22/03/2022		TLM1	CO5	T1,T2	
58.	General Method of solving PDE	1	24/03/2022		TLM3	CO5	T1,T2	
59.	Solving of PDE	1	25/03/2022		TLM1	CO5	T1,T2	
60.	Solving of PDE	1	26/03/2022		TLM1	CO5	T1,T2	
61.	Lagrange's Method	1	28/03/2022		TLM1	CO5	T1,T2	
62.	Lagrange's Method	1	29/03/2022		TLM1	CO5	T1,T2	
63.	TUTORIAL 5	1	02/04/2022		TLM3	CO5	T1,T2	
64.	Revision	1	01/04/2022					
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	1	12/03/2022		TLM1	CO4	T1,T2	
66.	Solving of PDE other methods	1	31/03/2022		TLM5	CO5	T1,T2	
No. of classes		1			No. of classes taken:			
II MID EXAMINATIONS (03-04-2021 TO 09-04-2021)								

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 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.

Dr. K.R. KAVITHA	Dr. A. RAMI REDDY	Dr. A. RAMI REDDY	Dr. A. RAMI REDDY
Course Instructor	Course Coordinator	Module Coordinator	HOD



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

Accredited by NAAC & NBA (CSE, IT, ECE, EEE & ME)

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

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

FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

PROGRAM	: B.Tech., I-Sem., CSE-C
ACADEMIC YEAR	: 2021-22
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	13-12-2021		TLM1	CO1	T1	
2.	Course Outcomes	1	13-12-2021		TLM1	CO1	T1	
3.	Introduction to UNIT-I INTERFERENCE	1	14-12-2021		TLM1	CO1	T1	
4.	Coherence, Conditions	1	16-12-2021		TLM1	CO1	T1	
5.	Thin films, parallel film	1	17-12-2021		TLM1	CO1	T1	
6.	Newton’s rings	1	20-12-2021		TLM1	CO1	T1	
7.	Newton’s rings	1	20-12-2021		TLM1	CO1	T1	
8.	Michelson interferometer	1	21-12-2021		TLM1	CO1	T1	
9.	Tutorial-1	1	23-12-2021		TLM3		T1	

10.	Introduction Diffraction	1	24-12-2021		TLM1	CO1	T1	
11.	Fraunhofer diffraction Single slit	1	24-12-2021		TLM1	CO1	T1	
12.	Circular aperture	1	27-12-2021		TLM1	CO1	T1	
13.	Diffraction due to N-Slits	1	28-12-2021		TLM1	CO1	T1	
14.	Diffraction Grating	1	3-01-2022		TLM1	CO1	T1	
15.	Resolving power of Grating	1	4-01-2022		TLM3	CO1	T1	
16.	Applications of Diffraction	1	4-01-2022		TLM1	CO1	T1	
17.	Assignment/Quiz	1	06-01-2022		TLM6		T1	
18.	Tutorial-2	1	07-01-2022		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	10-01-2022		TLM1	CO2	T1	
20.	Types of fibers	1	11-01-2022		TLM1	CO2	T1	
21.	Propagation of light in different fibers	1	11-01-2022		TLM1	CO2	T1	
22.	Derivation for Acceptance angle and Numerical aperture	1	13-01-2022		TLM1	CO2	T1	
23.	Applications of fibers	1	18-01-2022		TLM1	CO2	T1	
24.	Tutorial-3	1	19-01-2022		TLM3		T1	
25.	Characteristics of Laser.	1	20-01-2022		TLM1	CO2	T1	
26.	Einstein's coefficients	1	21-01-2022		TLM1	CO2	T1	
27.	NdYAG laser	1	10-02-2021		TLM1	CO2	T1	
28.	He-Ne laser	1	24-01-2022		TLM1	CO2	T1	
29.	Tutorial-4	1	25-01-2022		TLM3		T1	
30.	He-Ne laser	1	27-01-2022		TLM1	CO2	T1	
31.	Applications of lasers	1	28-01-2022		TLM1	CO2	T1	

32.	Applications of lasers	1	28-01-2022		TLM1	CO2	T1	
33.	Assignment/Quiz	1	31-01-2022		TLM6	CO2	T1	
34.	Tutorial-5	1	31-01-2022		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	01-02-2022		TLM1	CO3	T1	
36	Expt. Verification,	1	1-02-2022		TLM1	CO3	T1	
37	Tutorial-6	1	2-02-2022		TLM3	CO3	T1	
38	Schrodinger wave equation, physical , significance of the wave function	1	03-02-2022		TLM1	CO3	T1	
39	particle in a box,	1	04-02-2022		TLM1	CO3	T1	
40	I MID Exams		07-02-2022 to 12-02-2022					
41	Classification of Solids on the basis of Band theory.	1	14-02-2022		TLM1	CO3	T1	
42	Classification of Solids on the basis of Band theory.	1	15-02-2022		TLM1	CO3	T1	
43	Assignment/Quiz	1	17-02-2022		TLM6	CO3	T1	
44	TUTORIAL-7	1	18-02-2022		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	21-02-2022		TLM1	CO4	T1	
46.	TUTORIAL-8	1	22-02-2022		TLM3	CO4	T1	
47.	Carrier concentration in n-type semiconductor	1	23-02-2022		TLM1	CO4	T1	
48.	Carrier concentration in p-type semiconductor	1	24-02-2022			CO4	T1	

49.	Conductivity of Intrinsic and Extrinsic semiconductors, Drift and diffusion Einstein relation,	1	25-02-2022		TLM1	CO4	T1	
50.	Drift and diffusion Einstein relation,	1	28-02-2022		TLM1	CO4	T1	
51.	Tutorial-9	1	03-03-2022		TLM3	CO4	T1	
52.	Hall effect, Photo detector, Solar cell,	1	04-03-2022		TLM1	CO4	T1	
53.	Tutorial-10	1	07-03-2022		TLM3	CO4	T1	
54.	Applications of solar cells	1	10-03-2022		TLM1	CO4	T1	
55.	Direct and indirect band gap semiconductors, LED	1	11-03-2022		TLM1	CO4	T1	
56.	Assignment/Quiz	1	14-03-2022		TLM6		T1	
57.	Tutorial-11	1	15-03-2022		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	17-03-2022		TLM1	CO5	T1	
59.	Ionic polarization Orientation, Space charge polarizations	1	21-03-2022		TLM1	CO5	T1	
60.	Tutorial-12	1	22-03-2022		TLM1		T1	
61.	Local field, Clausius-Mossotti relation	1	24-03-2022		TLM3		T1	
62.	Di-electric loss Ferro electricity and Piezo electricity, Dielectric breakdown strength , Applications	1	25-03-2022		TLM3	CO5	T1	
63.	Assignment/Quiz	1	28-03-2022		TLM1	CO5	T1	
64.	Tutorial-13	1	29-03-2022		TLM1	CO5	T1	
65.	Magnetic parameters, Classification of magnetic materials-	1	31-03-2022		TLM6	CO5	T1	
66.	Hysteresis loop, soft and hard magnetic	1	01-04-2022		TLM3	CO5	T1	

	materials, Applications of Ferro magnetic materials							
67.	Assignment/Quiz	1	01-04-2022		TLM1	CO5	T1	
68.	Tutorial-13	1	01-04-2022		TLM1	CO5	T1	
No. of classes required to complete UNIT-V		14			No. of classes taken:			

Contents beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign
69.	SEM	1	30-03-2022		TLM1		R1	
70.	Nano materials	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

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

HOD

Dr. P.V.N. Kishore

Dr. S. Yusub

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. 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. : 2021-22

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	13/12/2021			
2.	Flowchart, Examples on Algorithm and Flowcharts	1	14/12/2021			
3.	C Programming: Structure of C Program, Identifiers, Basic Data Types and Sizes	1	15/12/2021			
4.	Constants, Variables, Input – Output Statements, A sample C Program	1	16/12/2021			
5.	Operators Part – I	1	18/12/2021			
6.	Operators Part – II	1	20/12/2021			
7.	Expressions, Type Conversions, Conditional Expression	1	21/12/2021			
8.	Precedence of Operators, Order of Evaluation	1	22/12/2021			
9.	Control statements: if, if else	1	23/12/2021			
10.	else if ladder and nested if	1	27/12/2021			
11.	switch statement	1	28/12/2021			
12.	while loop, do-while loop	1	29/12/2021			
13.	for loop	1	30/12/2021			
14.	break, continue, go to and labels	1	03/01/2022			
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	04/01/2022			
16.	1D-Array Syntax, Declaration, and Initialization	1	05/01/2022			
17.	Storing and Accessing Elements in 1D-Array	1	06/01/2022			
18.	Applications of 1D-Array: Linear Search and Binary Search, Bubble Sort Algorithm	1	08/01/2022			
19.	Two-Dimensional Array Syntax, Declaration, and Initialization	1	10/01/2022			
20.	Storing and Accessing Elements in 2D-Array	1	11/01/2022			
21.	Applications of 2D Arrays	1	12/01/2022			
22.	Multi-Dimensional Arrays	1	17/01/2022			
23.	Character Arrays: Declaration, Initialization, Reading and Writing Strings	1	18/01/2022			
24.	String Handling Functions Part – I	1	19/01/2022			
25.	String Handling Functions Part – II	1	20/01/2022			
26.	Pre-processor Directives Part – I	1	22/01/2022			
27.	Pre-processor Directives Part – II	1	24/01/2022			
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	25/01/2022			
29.	Pointer Expressions	1	27/01/2022			
30.	Pointer Arithmetic	1	29/01/2022			
31.	Pointers and Arrays	1	31/01/2022			
32.	Pointers and Character Arrays	1	01/02/2022			
33.	Pointers to Pointers	1	02/02/2022			
34.	Functions: Basics, Category of Functions	1	03/02/2022			
35.	Parameter Passing Techniques	1	05/02/2022			
36.	Recursive Functions	1	12/02/2022			
37.	Functions with Arrays	1	14/02/2022			
38.	Standard Library Functions	1	15/02/2022			
39.	Dynamic Memory Management Functions	1	16/02/2022			
40.	Command Line Arguments	1	17/02/2022			
41.	Storage Classes: auto, register, static and extern	1	19/02/2022			
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	21/02/2022			
43.	Initialization and Accessing Structures	1	22/02/2022			
44.	Nested Structures	1	23/02/2022			
45.	Arrays of Structures	1	24/02/2022			
46.	Structures and Functions	1	26/02/2022			
47.	Pointers to Structures Part – I	1	28/02/2022			
48.	Pointers to Structures Part – II	1	02/03/2022			
49.	Self-Referential Structures	1	03/03/2022			
50.	Union: Definition and Declaration	1	05/03/2022			
51.	Initialization and Accessing Union Elements	1	07/03/2022			
52.	Examples on Union	1	08/03/2022			
53.	Structure vs Union	1	09/03/2022			
54.	Typedef	1	10/03/2022			
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	12/03/2022			
56.	Text files and Binary files	1	14/03/2022			
57.	Stream	1	15/03/2022			

58.	Standard I/O and Formatted I/O	1	16/03/2022		
59.	Types of File I/O Operations	1	17/03/2022		
60.	Creation of a new file	1	19/03/2022		
61.	Opening an existing file	1	21/03/2022		
62.	Reading from file	1	22/03/2022		
63.	Writing to a file	1	23/03/2022		
64.	Moving to a specific location in a file and closing a file	1	24/03/2022		
65.	Error Handling Basics	1	26/03/2022		
66.	Error Handling Function Calls	1	28/03/2022		
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	29/03/2022			
68.	Types of Linked Lists	1	30/03/2022			
69.	Array vs Linked List	1	31/03/2022			
70.	Introduction to Stack and Queue	1	02/04/2022			

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. M. Srinivasa Rao	Dr. Y.V. Bhaskar Reddy	Dr. D. Veeraiah
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 ELECTRICAL & ELECTRONICS ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr. Imran Abdul

Course Name & Code : BASIC ELECTRICAL & ELECTRONICS ENGINEERING – 20EE02

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

Credits: 3

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

A.Y.: 2021-22

PREREQUISITE: Physics

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	Apply network reduction techniques to simplify electrical circuits. (Apply - L3)
CO2	Illustrate the working principle of DC machines and transformers. (Understand - L2)
CO3	Understand V-I characteristics of semiconductor devices. (Understand - L2)
CO4	Illustrate the configuration of transistors and their applications. (Understand - L2)

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.2017

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):

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.	Basic definitions	1	14-12-2021		TLM1	
2.	Types of elements	1	15-12-2021		TLM1	
3.	Ohm's Law	1	17-12-2021		TLM1	
4.	Kirchhoff's Laws	1	18-12-2021		TLM1	
5.	series, parallel Reduction	1	21-12-2021		TLM1	
6.	Star-Delta Reduction	1	22-12-2021		TLM1	
7.	Source Transformation Technique	1	24-12-2021		TLM1	
8.	Mesh analysis	1	28-12-2021		TLM1	
9.	Nodal Analysis	1	29-12-2021		TLM1	
10.	Problems	1	31-12-2021		TLM1	
No. of classes required to complete UNIT-I: 10				No. of classes taken:		

UNIT-II: DC NETWORK THEOREMS & 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
11.	Superposition Theorem	1	04-01-2022		TLM1	
12.	Thevenin's Theorem	1	05-01-2022		TLM1	
13.	Norton's Theorem	1	07-01-2022		TLM1	
14.	Maximum Power Transfer Theorem	1	08-01-2022		TLM1	
15.	Peak, R.M.S, average and instantaneous values, Form factor and Peak factor for periodic waveforms	1	11-01-2022		TLM1	
16.	Phase and Phase difference	1	12-01-2022		TLM1	
17.	Reactance, Impedance, Susceptance and Admittance, Real, Reactive and apparent Powers, Power Factor	1	18-01-2022		TLM1	
18.	Resonance	1	19-01-2022		TLM1	
19.	Problems	1	21-01-2022		TLM1	
No. of classes required to complete UNIT-II: 09				No. of classes taken:		

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
20.	DC generator principle	1	22-01-2022		TLM1	
21.	construction details	1	25-01-2022		TLM1	
22.	emf equation	1	28-01-2022		TLM1	
23.	types of generators	1	29-01-2022		TLM1	
24.	DC motor principle	1	01-02-2022		TLM1	
25.	Back emf	1	02-02-2022		TLM1	
26.	types of motors	1	04-02-2022		TLM1	
27.	Introduction to AC machines	1	05-02-2022		TLM1	
28.	Principle of operation of 1-Phase transformers	1	12-02-2022		TLM1	
29.	Construction	1	15-02-2022		TLM1	
30.	emf equation	1	16-02-2022		TLM1	

31.	Problems		18-02-2022			
No. of classes required to complete UNIT-III: 11				No. of classes taken:		

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
32.	Introduction	1	19-02-2022		TLM1	
33.	P-N junction diode	1	22-02-2022		TLM1	
34.	Operation	1	23-02-2022		TLM1	
35.	V-I characteristics of PN junction	1	25-02-2022		TLM1	
36.	Rectifiers	1	26-02-2022		TLM1	
37.	Half wave rectifier	1	02-03-2022		TLM1	
38.	Full wave rectifier	1	04-03-2022		TLM1	
39.	Bridge type	1	08-03-2022		TLM1	
40.	Zener diode	1	09-03-2022		TLM1	
41.	Voltage regulator	1	11-03-2022		TLM1	
42.	Basic problems		12-03-2022			
No. of classes required to complete UNIT-IV: 10				No. of classes taken:		

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
43.	Introduction	1	15-03-2022		TLM1	
44.	Construction	1	16-03-2022		TLM1	
45.	Principle of operation, Symbol	1	18-03-2022		TLM1	
46.	CB configuration	1	19-03-2022		TLM1	
47.	CE configuration	1	23-03-2022		TLM1	
48.	JFET - Operation	1	25-03-2022		TLM1	
49.	JFET - Characteristics	1	26-03-2022		TLM1	
50.	MOSFET - Operation	1	29-03-2022		TLM1	
51.	MOSFET - Characteristics	1	30-03-2022		TLM1	
52.	application of transistor as an amplifier	1	01-04-2022		TLM1	
53.	Revision	1	02-04-2022			
No. of classes required to complete UNIT-V: 10				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
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.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

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

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr A.V.RAAVIKUMAR	Mr R ANJANEYULU NAIK	Dr G.NAGESWARA RAO	Dr.J.S.V.PRASAD
Signature				



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Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF CSE

COURSE HANDOUT

PART-A

Name of Course Instructor: Dr.Pawel Veliventi

Course Name & Code : PCS LAB, 20FE51

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

Credits: 01

Program/Sem/Sec : CSE /I/C

A.Y. : 2021-22

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:ProfessionalCommunicationLab(PCS)shallhavetwoparts:

- **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 camcorderetc.

Exercise– I

CALL Lab: Understand-Sentence structure.

ICSLab:Practice-Listening:Identifyingthetopic,thecontextandspecificinformation,
Speaking: Introducing oneself and others.

Exercise–II

CALL Lab: Understand-Framing questions.

ICSLab: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

CALLab: 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 keyterms and understanding concepts.

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

LabManual:

1. Prabhavati.Y & etal, “English All Round–Communication Skills for Undergraduate Learners”, Orient BlackSwan, Hyderabad, 2019.

SuggestedSoftware:

1. Digital Mentor: Globarena, Hyderabad, 2005
2. SkyPronunciationSuite: YoungIndia Films, Chennai, 2009
3. MasteringEnglishinVocabulary, 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	17-12-2021		TLM4	
2.	Self Introduction & Introducing others	02	24--12-2021		TLM4	
3.	Self Introduction & Introducing others	02	07-01-2022		TLM4	
4.	JAM- I(Short and Structured Talks)	02	21-01-2022		TLM4	
5.	JAM-II(Short and Structured Talks)	02	28-01-2022		TLM4	
6.	Role Play-I(Formal and Informal)	02	04-02-2022		TLM4	
7.	Role Play-II (Formal and Informal)	02	11-02-2022		TLM4	
8.	Group Discussion-I (Reporting the discussion)	02	18-02-2022		TLM4, TLM6	
9.	Group Discussion-II	02	25-02-2022		TLM4, TLM6	
10.	Oral & Poster Presentation	02	04-03-2022		TLM4	
11.	Oral & Poster Presentation	02	11-03-2022		TLM4	
12.	Lab Internal Exam	02	25-03-2022			
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
Day to Day work (Observation)	A11 - 10
Record Writing	A12 - 10
Viva – Voce during Lab Sessions	A2 = 05
Internal Lab Examination	A3 = 05
Cumulative Internal Examination (CIE) : A1+A2+A3+A4	15
Semester End Examinations (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
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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	The ability to apply Software Engineering practices and strategies in software project development using open source programming environment for the success of organization
PSO 2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs
PSO 3	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.Pawel Veliventi	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., II-Sem., Mechanical
ACADEMIC YEAR	: 2021-2022
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	15/12/2021		TLM4	1,2,3,4	T1	
2.	Demonstration	3	22/12/2021		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
3.	Experiment 1	3	29/12/2021		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
4.	Experiment 2	3	05/01/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
5.	Experiment 3	3	19/01/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
6.	Experiment 4	3	2/02/2022		TLM4	CO1, CO2, CO3, CO4	T1	
7.	Experiment 5	3	16/02/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
8.	Demonstration	3	16/02/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
9.	Experiment 6	3	23/02/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
10.	Experiment 7	3	2/03/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	

11.	Experiment 8, 9	3	09/03/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
12.	Experiment-10	3	16/03/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
13.	Internal Exam	3	23/03/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
14.	Internal Exam	3	30/03/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	

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). Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

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

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

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

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

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



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(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 Lab (20CS51)
L-T-P Structure	: 0-0-3 Credits : 1.5
Program/Sem/Sec	: B.Tech. – CSE / I Sem / C A.Y. : 2021-22

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. M. Srinivasa Rao	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.
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. M. Srinivasa Rao	Dr. Y.V. Bhaskar Reddy	Dr. D. Veeraiah
Signature				



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<http://cse.lbrce.ac.in>, cse.lbreddy@gmail.com, Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor : B SIVARAMAKRISHNA
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 – C A.Y : 2021 - 2022

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	18/12/2021		TLM2/ TLM4	
2.	Disassembling and assembling the PC back to working condition	3	08/01/2022		TLM2/ TLM4	
3.	1. Installation of MS WINDOWS and LINUX on personal computer. 2. Linux Operating System commands	3	22/01/2022		TLM2/ TLM4	
4.	Working on Networking Commands	3	05/02/2022		TLM2/ TLM4	
5.	Working on Internet Services	3	12/02/2022		TLM2/ TLM4	
6.	Introduction to HTML and its tags. Preparing a simple website/homepage.	3	19/02/2022		TLM2/ TLM4	
7.	Demonstration and Practice of Text Editors	3	26/02/2022		TLM2/ TLM4	
8.	Demonstration and practice of Microsoft Word, Power Point, Microsoft Excel	3	05/03/2022		TLM2/ TLM4	
9.	Demonstration and practice of LaTeX	3	12/03/2022		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	19/03/2022		TLM2/ TLM4	
11.	Lab Internal Exam	3	26/03/2022			

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.
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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):

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
B S R KRISHNA	B S R KRISHNA	Dr. Y. V Bhaskar Reddy	DR. D.VEERAI AH



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PROGRAM	: B.Tech., I-Sem., CSM
ACADEMIC YEAR	: 2021-22
COURSE NAME & CODE	: Programming for Problem Solving Using C–20CS01
L-T-P STRUCTURE	: 5-0-0
COURSE CREDITS	3
COURSE INSTRUCTOR	: Mr.S. Govindu
COURSE COORDINATOR	: Dr.M.Srinivasa Rao

COURSE OBJECTIVE: In this course student will learn about the basic elements of C programming like data types, expressions, control statements, various I/O functions and to solve simple mathematical problems using control structures. The derived data types like arrays, strings, various operations on them. Modular programming using functions and Memory management using pointers. User defined structures and various operations on it. The 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.
- CO2:** Construct derived data types like arrays in solving problem.
- CO3:** Decompose a problem into modules and reconstruct it using various ways of user defined functions.
- CO4:** Define user-defined data types like structures and unions and its applications to solve problems.
- CO5:** Discuss various file I/O operations and its application.

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

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	2	3											3		1
CO2	2	3											3		1
CO3	2	3	2										3		1
CO4	2	3	2										3		1
CO5	2	3	2										3	1	

BOS APPROVED TEXTBOOKS:

1. Reema Thareja, Programming in C, Oxford University Press, 2nd Edition, 2015.

Reference books:

1. Jeri R.Hanly, Elliot B.Koffman, Problem Solving and Program Design in C, Pearson Publishers, 7th Edition, 2013.
2. E Balagurusamy, Computer Programming, McGraw Hill Education, 8th Edition.
3. C: The Complete Reference, McGraw Hall Education,4th Edition.
4. PradeepDey, Manas Ghosh, Programming in C, Oxford University Press, 2nd Edition, 2011.
5. Stephen G.Kochan, Programming in C, Pearson Education, 3rd Edition, 2005.

COURSE DELIVERY PLAN (LESSON PLAN): CSM**UNIT-I : Introduction to Problem solving through C-Programming, C-Programming Basics**

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.	Fundamentals of Computers	1	13-12-2021		TLM2	CO1	T1	
2.	Problem Solving through C- Programming (Problem Specification)	1	14-12-2021		TLM4	CO1	T1	
3	Algorithm/pseudo code, Flow charts with Examples	1	15-12-2021		TLM4	CO1	T1	
4	Introduction to c language - Structure of C Program	1	16-12-2021		TLM1	CO1	T1	
5	Identifiers, basic data types, Variables and Constants	1	18-12-2021		TLM1	CO1	T1	
6	Input-Output statements	1	20-12-2021		TLM1	CO1	T1	
7	A Simple C Program	1	21-12-2021		TLM1	CO1	T1	
8	Operators and Expressions	1	22-12-2021		TLM1	CO1	T1	
9	Expression Evaluation	1	23-12-2021		TLM1	CO1	T1	
10	Type Conversions - Examples	1	27-12-2021		TLM1	CO1	T1	
11	Conditional Statements: If, If- Else	1	28-12-2021		TLM1	CO1	T1	
12	Conditional Statements: Else- If Ladder, Nestled If	1	29-12-2021		TLM1	CO1	T1	
13	Conditional Statements: Switch statements, Break, Goto	1	30-12-2021		TLM1	CO1	T1	
14	Loops: While statement	1	03-01-2022		TLM1	CO1	T1	
15	Loops: Do-While statement	1	04-01-2022		TLM1	CO1	T1	

16	Loops: For statement, Continue	1	05-01-2022		TLM1	CO1	T1	
17	Example Programs	1	06-01-2022		TLM3	CO1	T1	
No. of classes required to complete UNIT-I		1 7			No. of classes taken:			

UNIT-II : Array and Strings

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.	One-Dimensional Array: Declaration, Initialization, Assignment	1	08-01-2022		TLM2	CO2	T1	
2.	One-Dimensional Array: Accessing Elements	1	10-1-2022		TLM1	CO2	T1	
3.	Two- dimensional arrays, Accessing elements	1	11-01-2022		TLM1	CO2	T1	
4.	Multi-dimensional arrays, applications of arrays.	1	12-01-2022		TLM1	CO2	T1	
5.	Strings: Declaration, Initialization, Accessing	1	17-01-2022		TLM1	CO2	T1	
6.	String Handling Functions	1	18-01-2022		TLM1	CO2	T1	
7.	Linear Search & Binary Search	1	19-01-2022		TLM 1	CO2	T1	
8.	Bubble Sort	1	20-01-2022		TLM 1	CO2	T1	
9.	Pre Processor Dircetives	1	22-01-2022		TLM3	CO2	T1	
No. of classes required to complete UNIT-II		9			No. of classes taken:			

UNIT-III : Functions and Pointers

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.	Pointers: Declaration and initialization of pointer variables	1	24-01-2022		TLM2	CO3	T1	
2.	Pointer Expressions, Address Arithmetic	1	25-01-2022		TLM1	CO3	T1	
3.	Pointers and Arrays	1	27-01-2022		TLM1	CO3	T1	
4.	Pointer and Strings	1	29-01-2022		TLM1	CO3	T1	
5.	Pointer to Pointer, Pre-Processor Directives and Macros	1	31-01-2022		TLM1	CO3	T1	

6.	Tutorial	1	01-02-2022		TLM3	CO3	T1
7.	Functions: Basics, categories of Functions	1	02-02-2022		TLM2	CO3	T1
8.	Parameter Passing Techniques	1	03-02-2022		TLM1	CO3	T1
9.	Arrays as Parameters, Strings as Parameters and Pointers as Parameters	1	05-02-2022		TLM1	CO3	T1
10.	Recursive Functions - Comparison with Iteration	1	14-02-2022		TLM1	CO3	T1
11.	Storage Classes	1	15-02-2022		TLM1	CO3	T1
12.	Dynamic Memory Management Functions	1	16-02-2022		TLM1	CO3	T1
13.	Command Line Arguments	1	17-02-2022		TLM1	CO3	T1
14.	Programs	1	19-02-2022, 21-02-2022		TLM3	CO3	T1
No. of classes required to complete UNIT- III		14			No. of classes taken:		

UNIT-IV : Derived Types

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.	Structures	2	22-02-2022, 23-02-2022		TLM2	CO4	T1	
2.	Arrays of Structures	2	24-02-2022, 26-02-2022		TLM1	CO4	T1	
3.	Structures and Functions	2	28-02-2022, 02-03-2022		TLM1	CO4	T1	
4.	Pointers to structures	2	03-03-2022, 05-03-2022		TLM1	CO4	T1	
5.	Self-referential structures	2	07-03-2022, 08-03-2022		TLM1	CO4	T1	
6.	Unions& Typedef	2	09-03-2022, 10-03-2022		TLM1	CO4	T1	
No. of classes required to complete UNIT-IV		12			No. of classes taken:			

UNIT-V : Files

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.	File Concept, text files, reading & writing	2	12-03-2022, 14-03-2022		TLM2	CO5	T1	

2.	binary files, modes of operation	2	15-03-2022, 16-03-2022		TLM1	CO5	T1
3.	Standard I/O operations	2	17-03-2022, 19-03-2022		TLM1	CO5	T1
4.	Formatted I/O operations	2	21-03-2022, 22-03-2022		TLM1	CO5	T1
5.	File I/O operations	2	23-03-2022, 24-03-2022		TLM1	CO5	T1
6.	Error handling functions	2	26-03-2022, 28-03-2022		TLM2	CO5	T1
No. of classes required to complete UNIT- V		06			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
73.	Enum data type	1	29-03-2022		TLM4		R1	
74.	Types of Recursion	1	30-03-2022		TLM4		R1	

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 and Quiz	TLM9	Case Study

ACADEMIC CALENDAR:

Description	From	To	Weeks
I Phase of Instructions-1	13-12-2021	05-02-2022	8
I Mid Examinations	07-02-2022	12-02-2022	1
II Phase of Instructions	14-02-2022	02-04-2022	7
II Mid Examinations	04-04-2022	09-04-2022	1
Preparation & Practical's	11-04-2022	16-04-2022	1
End Examinations	18-04-2022	30-04-2022	2

EVALUATION PROCESS:

Evaluation Task	Units	Marks
Assignment- 1	1	A1=5
Assignment- 2	2	A2=5

I-Mid Examination	1,2,3,5	B1=18
Objective Questions-1	1,2,3,5	C1=7
Assignment– 3	3	A3=5
Assignment– 4	4	A4=5
Assignment– 5	5	A5=5
II-Mid Examination	3,4,5	B2=18
Online Quiz-2	3,4,5	C2=7
Evaluation of Assignment: $A = \text{Avg}(\text{Best of Four}(A1, A2, A3, A4, A5))$	1,2,3,4,5	A=5
Evaluation of Mid Marks: $B = 75\% \text{ of Max}(B1, B2) + 25\% \text{ of Min}(B1, B2)$	1,2,3,4,5	B=18
Evaluation of Objective Questions Marks: $C = 75\% \text{ of Max}(C1, C2) + 25\% \text{ of Min}(C1, C2)$	1,2,3,4,5	C=7
Cumulative Internal Examination: A+B+C	1,2,3,4,5	30
Semester End Examinations: D	1,2,3,4,5	70
Total Marks: A+B+C+D	1,2,3,4,5	100

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	S.Govindu	Dr. M. Srinivasa Rao	Dr. Y. Vijaya Bhaskar Reddy	Dr. D. Veeraiah
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.

hodcse@lbrce.ac.in, cselbreddy@gmail.com, Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PROGRAM : B.Tech., I-Sem.CSM
ACADEMIC YEAR : 2021-22
COURSE NAME & CODE : Programming for Problem Solving Using C LAB – 20CS51
L-T-P STRUCTURE : 3-0-0
COURSE CREDITS : 1
COURSE INSTRUCTOR : Mr. S. Govindu
COURSE COORDINATOR: Dr. M. Srinivasa Rao
PRE-REQUISITE: NIL

COURSE OBJECTIVE:

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 (CO):

- CO1:** Apply control structures of C in solving computational problems
CO2: Implement derived datatypes & use modular programming in problem solving
CO3: Implement user defined datatypes and perform file operations
CO4: Improve individual / teamwork skills, communication & report writing skills with ethical values.

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

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	2	3	1	-	-	-	-	-	1	1		2	3	1	1
CO2	2	3	1	-	-	-	-	-	1	1		2	3	1	1
CO3	2	3	1	-	-	-	-	-	1	1		2	3	1	1
CO4															

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

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	HOD Sign
1	Introduction to C	3	17-12-2021		
2	Module - I	3	24-12-2021		
3	Module – 2	3	31-12-2021		
4	Module – 3	3	07-01-2022		
5	Module – 4	3	21-01-2022		
6	Module – 5	3	28-01-2022		
7	Module – 6	3	04-02-2022		
8	Module – 7	3	18-02-2022		
9	Module – 7	3	25-02-2022		
10	Module – 8	3	04-03-2022		
11	Module -9	3	11-03-2022		
12	Module 10	3	18-03-2022		
13	<i>LAB INTERNAL EXAM</i>	3	<i>25-03-2022</i>		

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	S.Govindu	Dr. M. Srinivasa Rao	Dr. Y. Vijaya Bhaskar Reddy	Dr. D. Veeraiah
Signature				



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Phone: 08659-222933, Fax: 08659-222931

DEPARTMENT OF ARTIFICIAL INTELLIGENCE & MACHINE LEARNING

COURSE HANDOUT

PART-A

Name of Course Instructor: Mr B Sagar

Course Name & Code : PCS LAB, 20FE51

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

Credits: 01

Program/Sem/Sec : AI&ML - I SEM

A.Y. : 2021-22

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.

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	13-12-2021		TLM4	
2.	Self Introduction & Introducing others	02	20-12-2021		TLM4	
3.	Self Introduction & Introducing others	02	27-12-2021		TLM4	
4.	JAM- I(Short and Structured Talks)	02	03-01-2022		TLM4	
5.	JAM-II(Short and Structured Talks)	02	10-01-2022		TLM4	
6.	Role Play-I(Formal and Informal)	04	24-01-2022 31-01-2022		TLM4	
7.	Role Play-II (Formal and Informal)	02	14-02-2022		TLM4	
8.	Group Discussion-I (Reporting the discussion)	02	21-02-2022		TLM4, TLM6	
9.	Group Discussion-II	02	28-02-2022		TLM4, TLM6	
10.	Oral & Poster Presentation	02	07-03-2022 14-03-2022		TLM2, TLM4	
11.	Lab Internal Exam	02	21-03-2022			
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):

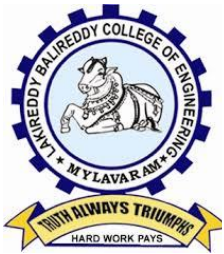
Evaluation Task	Marks
Cumulative Internal Examination (CIE): M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

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.

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



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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

COURSE HANDOUT

PART-A

Name of Course Instructor: MR B SAGAR

Course Name & Code : PC-I, 20FE01

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

Credits: 02

Program/Sem/Sec : AI&ML –I SEM

A.Y. : 2021-22

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	Comprehend the given text by employing suitable strategies for skimming and 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, 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	14-12-2021		TLM2	
2.	Proposal to Girdle The Earth by Nellie Bly	02	15-12-2021 18-12-2021		TLM2	
3.	Reading: Skimming for main idea ; Scanning for specific information	01	21-12-2021		TLM2	
4.	Content words and Function words	01	22-12-2021		TLM2	
5.	Word forms – verbs; Adjectives & adverbs	01	28-12-2021		TLM2	
6.	Nouns – countable & uncountable, singular and plural nouns Word order in sentences, "Wh" questions	01	29-12-2021		TLM2	
7.	Writing: Paragraph writing, Paragraph analysis	02	04-01-2022 05-01-2022		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	08-01-2022 11-01-2022		TLM2	
9.	Identifying sequence of ideas	01	12-01-2022		TLM2	
10.	Cohesive devices: linkers /signposts/transition signals	01	18-01-2022		TLM2	

11.	Synonyms meanings of words / Phrases in the context	01	19-01-2022		TLM2	
12.	Essay Writing - Memo drafting	02	22-01-2021 25-01-2021 29-01-2022		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.		02	01-02-2022		TLM2	
	The Future of Work		02-02-2022		TLM6	
14.	Making basic inferences, Strategies to uses text clues for comprehension	01	05-02-2022		TLM2	
15.	Verbs :tenses, reporting verbs for academic purpose	02	15-02-2022 16-02-2022 19-02-2022		TLM2	
16.	Summarizing rephrasing what is read	01	22-02-2022		TLM2	
17.	avoiding redundancies and repetitions - Abstract Writing	02	23-02-2022		TLM2	
			26-02-2022		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	01	01-03-2022		TLM2 TLM2	
19.	APJ Abdul Kalam	01	02-03-2022 05-03-2022		TLM2	
20.	Direct-Indirect speech	01	08-03-2022		TLM2	
21.	Articles and their omission	01	09-03-2022		TLM2	
22.	E-mail drafting	02	12-03-2022		TLM2	
			15-03-2022		TLM6	
No. of classes required to complete UNIT-IV: 06				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	01	16-03-2022		TLM2	
24.	C.V.Raman	01	19-03-2022		TLM2	
25.	Subject – Verb agreement	01	22-03-2022		TLM2	
26.	Prepositions	01	23-03-2022		TLM2	
27.	Formal Letter Writing	01	26-03-2022		TLM2 TLM6	
No. of classes required to complete UNIT-V: 05				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	B SAGAR	Dr. B. Samrajya Lakshmi	Dr. B. Samrajya Lakshmi	Dr. A. Ramireddy
Signature				



FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

PART-A

PROGRAM	: B.Tech., I-Sem., AI & ML
ACADEMIC YEAR	: 2021-22
COURSE NAME & CODE	: APPLIED PHYSICS & 20FE07
L-T-P STRUCTURE	: 4-0-0
COURSE CREDITS	3
COURSE INSTRUCTOR	: N. T. SARMA
PRE-REQUISITE	: Basic Knowledge of Physics

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											
	Programme Outcomes											
Course 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			
TLM-1	Chalk and Talk	TLM-4	Demonstration (Lab/Field Visit)
TLM-2	PPT/AV illustrations	TLM-5	ICT (NPTEL/Swayam Prabha/MOOCs)
TLM-3	Tutorial/Quiz/Assignment	TLM-6	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			TLM-2		
2.	Superposition of waves, Coherence, Conditions for Interference	1			TLM-3		
3.	Interference from thin films	1			TLM-1		
4.	Newton’s rings	1			TLM-4		

5.	Michelson's interferometer	1			TLM-2		
6.	Introduction – Diffraction, Types	1			TLM-3		
7.	Single slit diffraction	1			TLM-1		
8.	Diffraction – Circular aperture, Diffraction grating	1			TLM-4		
9.	Resolving power of Grating	1			TLM-4		
10.	Problems & Assignment/Quiz	1			TLM-3		
No. of classes required to complete UNIT-I: 10				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			TLM-2		
2.	Einstein Coefficients	1			TLM-1		
3.	Nd-YAG Laser, He-Ne gas Laser	1			TLM-2		
4.	Applications of LASERS	1			TLM-5		
5.	Optical Fiber principle, Structure of optical fiber	1			TLM-2		
6.	Numerical aperture and Acceptance angle	1			TLM-1		
7.	Types of optical fibers	1			TLM-1		
8.	Applications and Advantages of Optical Fibers	1			TLM-5		
9.	Problems & Assignment/Quiz	1			TLM-3		
No. of classes required to complete UNIT-II: 09				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			TLM-5		
2.	Davisson and Germer Experiment, Physical significance of wave function	1			TLM-2		
3.	Schrodinger time dependent & independent wave equations	1			TLM-1		
4.	Particle in a box	1			TLM-1		
5.	Problems & Assignment/Quiz	1			TLM-3		
6.	Classical free electron theory- postulates, Success & Failures	1			TLM-2		
7.	Expression for electrical conductivity and drift velocity	1			TLM-1		
8.	Fermi-Dirac distribution function- Temperature dependence	1			TLM-2		
9.	Classification of Solids on the basis of Band theory	1			TLM-6		
10.	Problems & Assignment/Quiz	1			TLM-3		
No. of classes required to complete UNIT-III: 10				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
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1.	Introduction - Classification of semiconductors	1			TLM-6		
2.	Conductivity of Intrinsic and Extrinsic semiconductors	1			TLM-1		
3.	Drift and Diffusion Current, Einstein relation	1			TLM-2		
4.	Hall Effect and Hall Coefficient	1			TLM-5		
5.	Direct band gap and indirect band gap semiconductors	1			TLM-2		
6.	Solar Cell, Applications	1			TLM-4		
7.	Problems & Assignment/Quiz	1			TLM-3		
No. of classes required to complete UNIT-IV: 07				No. of classes taken:			

UNIT-V : MAGNETIC & DIELECTRIC MATERIALS

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			TLM-3		
2.	Classification of magnetic materials – Dia, para & Ferro	1			TLM-6		
4.	Hysteresis loop, soft and hard magnetic materials	1			TLM-2		
5.	Applications of magnetic materials	1			TLM-2		
6.	Basic Definitions, Electronic polarization	1			TLM-1		
7.	Ionic & Orientation polarization	1			TLM-1		
9.	Local field, Clausius Mosotti equation	1			TLM-1		
10.	Applications of dielectric materials	1			TLM2		
11.	Problems & Assignment/Quiz	1			TLM-3		
No. of classes required to complete UNIT-V: 11				No. of classes taken:			

Revision Classes

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.	Revision of Unit-1	1			TLM-2		
2.	Revision of Unit-2	1			TLM-2		
3.	Revision of Unit-3	1			TLM-2		
4.	Revision of Unit-4	1			TLM-2		
5.	Revision of Unit-5	1			TLM-2		
6.	Revision	1			TLM-2		
No. of classes required for Revision: 06				No. of classes taken:			

PART-C

EVALUATION PROCESS (R-20 Regulation):

Evaluation Task	Marks
Assignment-I (Units-I, II & III (A))	A-1 = 5
I-Mid Examination (Units-I, II & III (A))	M-1 = 15
I-Quiz Examination (Units-I, II & III (A))	Q-1 = 10
Assignment-III (Units-III (B), IV & V)	A-2 = 5
II-Mid Examination (Units-III (B), IV & V)	M-2 = 15
II-Quiz Examination (Units-III (B), IV & V)	Q-2 = 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

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

HOD

N. T. SARMA

DR. S. YUSUB

DR. S. YUSUB

DR. A. RAMI REDDY



FRESHMAN ENGINEERING DEPARTMENT

COURSE HANDOUT

Part-A

PROGRAM	: B.Tech., I-Sem., AI & ML
ACADEMIC YEAR	: 2021-22
COURSE NAME & CODE	: APPLIED PHYSICS LAB & 20FE54
L-T-P STRUCTURE	: 0 – 0 – 3
COURSE CREDITS	: 1.5
COURSE INSTRUCTOR	: N. T. SARMA / Dr. P.V.N.Kishore
COURSE COORDINATOR	: Dr. S. YUSUB

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:

- CO 1:** Analyse the wave characteristics of light.
- CO 2:** Estimate the magnetic field using Stewart’s and Gee’s apparatus.
- CO 3:** Verify the characteristics of semiconductor diodes.
- CO 4:** Determine the acceptance angle and numerical aperture of optical fibre.
- CO 5:** Improve report writing skills and individual teamwork 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		

BOS APPROVED TEXT BOOKS:

1. Lab Manual Prepared by the LBRCE.

Part-B**COURSE DELIVERY PLAN (LESSON PLAN): CSE – B**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign
1.	Introduction & Demonstration	3			TLM4	CO1, CO2, CO3, CO4	T1	
2.	Experiment 1	3			TLM4	CO1, CO2, CO3, CO4	T1	
3.	Experiment 2	3			TLM4	CO1, CO2, CO3, CO4	T1	
4.	Experiment 3	3			TLM4	CO1, CO2, CO3, CO4	T1	
5.	Experiment 4	3			TLM4	CO1, CO2, CO3, CO4	T1	
6.	Experiment 5	3			TLM4	CO1, CO2, CO3, CO4	T1	
7.	Demonstration	3			TLM4	CO1, CO2, CO3, CO4	T1	
8.	Experiment 6	3			TLM4	CO1, CO2, CO3, CO4	T1	
9.	Experiment 7	3			TLM4	CO1, CO2, CO3, CO4	T1	
10.	Experiment 8	3			TLM4	CO1, CO2, CO3, CO4	T1	
11.	Experiment 9	3			TLM4	CO1, CO2, CO3, CO4	T1	
12.	Experiment 10	3			TLM4	CO1, CO2, CO3, CO4	T1	
13.	Internal Exam	3			TLM4	CO1, CO2, CO3, CO4	T1	
14.	Internal Exam	3			TLM4	CO1, CO2, CO3, CO4	T1	
No. of classes required to complete lab					No. of classes taken:			

EVALUATION PROCESS:

Evaluation Task	Expt. no's	Marks
Day to Day work = A	1,2,3,4,5,6,7,8,9,10	A = 05
Internal test = B	1,2,3,4,5,6,7,8,9,10	B = 05
Evaluation of viva voce = 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) **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- (9). **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.
- (10). **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- (11). **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- (12). **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Course Instructor

Course Coordinator

Module Coordinator

H.O.D

N. T. SARMA

Dr. S. YUSUB

Dr. S. YUSUB

Dr. A. RAMIREDDY



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 ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

COURSE HANDOUT

PART-A

Name of Course Instructor: Dr. K. BHANU LAKSHMI

Course Name & Code : Differential Equations&20FE03

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

Program/Sem/Sec : I B.Tech/I sem/A

Credits:4

A.Y.: 2021 - 22

PREREQUISITE: Nil

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): At the end of the course, 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	PSO1	PSO2	PSO3
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			
	1 - Low			2 -Medium					3 - High						

TEXTBOOKS:

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

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

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):

UNIT-I: Ordinary 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	HOD Sign Weekly
1.	Introduction to the course, Course Outcomes	1	13/12/2021		TLM1	
2.	Introduction to UNIT I	1	14/12/2021		TLM1	
3.	Formation of Differential Equations	1	15/12/2021		TLM1	
4.	Exact DE	1	16/12/2021		TLM1	
5.	Non-exact DE Type I	1	17/12/2021		TLM1	
6.	Non-exact DE Type II	1	20/12/2021		TLM1	
7.	Non-exact DE Type III	1	21/12/2021		TLM1	
8.	TUTORIAL 1	1	22/12/2021		TLM3	
9.	Non-exact DE Type IV	1	23/12/2021		TLM1	
10.	Orthogonal Trajectories (Cartesian)	1	24/12/2021		TLM1	
11.	Orthogonal Trajectories (polar)	1	27/12/2021		TLM1	
12.	Orthogonal Trajectories (polar)	1	28/12/2021		TLM1	
13.	Problems	1	30/12/2021		TLM1	
14.	TUTORIAL 2	1	29/12/2021		TLM3	
No. of classes required to complete UNIT-I: 14				No. of classes taken:		

UNIT-II: Linear Differential Equations of Higher Order

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.	Introduction to UNIT II	1	31/12/2021		TLM2	
16.	Solving a homogeneous DE	1	03/01/2022		TLM1	
17.	Finding Particular Integral, P.I for e^{ax+b}	1	04/01/2022		TLM1	
18.	P.I for Cos bx, or sin bx	1	05/01/2022		TLM1	
19.	P.I for Cos bx, or sin bx		06/01/2022			
20.	P.I for polynomial function	1	07/01/2022		TLM1	
21.	P.I for $e^{ax+b} v(x)$	1	10/01/2022		TLM1	
22.	P.I for $e^{ax+b} v(x)$	1	11/01/2022		TLM1	
23.	P.I for $x^k v(x)$	1	12/01/2022		TLM1	
24.	P.I for $x^k v(x)$		18/01/2022		TLM1	
25.	TUTORIAL 3	1	19/01/2022		TLM3	
26.	Method of Variation of parameters	1	20/01/2022		TLM1	
27.	Method of Variation of parameters	1	21/01/2022		TLM1	

28.	TUTORIAL 4	1	24/01/2022		TLM3	
No. of classes required to complete UNIT-II: 14				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	HOD Sign Weekly
29.	Introduction to Unit-III	1	25/01/2022		TLM1	
30.	Solution by Taylor's series	1	27/01/2022		TLM1	
31.	Solution by Taylor's series	1	28/01/2022		TLM1	
32.	Picard's Method	1	31/01/2022		TLM1	
33.	Picard's Method	1	01/02/2022		TLM1	
34.	TUTORIAL 5	1	02/02/2022		TLM3	
35.	Euler's Method	1	03/02/2022		TLM1	
36.	REVISION	1	04/02/2022		TLM1	
37.	Modified Euler's Method	1	14/02/2022		TLM 1	
38.	Modified Euler's Method	1	15/02/2022		TLM1	
39.	Runge- Kutta Method	1	16/02/2022		TLM1	
40.	Runge- Kutta Method	1	17/02/2022		TLM1	
41.	Problems	1	18/02/2022		TLM1	
42.	TUTORIAL 6	1	23/02/2022		TLM3	
No. of classes required to complete UNIT-III: 14				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	HOD Sign Weekly
43.	Introduction to UNIT IV	1	21/02/2022		TLM1	
44.	Generalized Mean Value Theorem, Taylor's series	1	22/02/2022		TLM1	
45.	Maclaurin's series	1	24/02/2022		TLM1	
46.	Maclaurin's series	1	25/02/2022		TLM1	
47.	Functions of several variables	1	28/02/2022		TLM1	
48.	TUTORIAL 7	1	02/03/2022		TLM3	
49.	Jacobians (polar, cylindrical, spherical coordinates)	1	03/03/2022		TLM1	
50.	Jacobians (polar, cylindrical, spherical coordinates)	1	04/03/2022		TLM1	
51.	Functional dependence	1	07/03/2022		TLM1	
52.	Maxima and Minima of functions of two variables	1	08/03/2022		TLM1	
53.	Maxima and Minima of functions of two variables	1	10/03/2022		TLM1	
54.	Maxima and Minima of functions of two variables	1	11/03/2022		TLM1	
55.	TUTORIAL 8	1	09/03/2022		TLM3	
No. of classes required to complete UNIT-IV:13				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	HOD Sign Weekly
56.	Introduction to UNIT V	1	14/03/2022		TLM1	
57.	Formation of PDE by elimination of arbitrary constants	1	15/03/2022		TLM1	

58.	Formation of PDE by elimination of arbitrary constants	1	16/03/2022		TLM1
59.	Formation of PDE by elimination of arbitrary functions	1	17/03/2022		TLM1
60.	Formation of PDE by elimination of arbitrary functions	1	18/03/2022		TLM1
61.	Formation of PDE	1	21/03/2022		TLM1
62.	TUTORIAL 9	1	23/03/2022		TLM3
63.	Solving of PDE	1	22/03/2022		TLM1
64.	Lagrange's Method	1	24/03/2022		TLM1
65.	Lagrange's Method	1	25/03/2022		TLM1
66.	Lagrange's Method	1	28/03/2022		TLM1
67.	TUTORIAL 10	1	30/03/2022		TLM1
68.	Problems	1	29/03/2022		
69.	Revision	1	31/03/2022		
70.	Revision	1	01/04/2022		
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

PART-C

EVALUATION PROCESS (R17 Regulation):

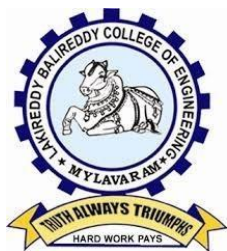
Evaluation Task	Marks
Assignment-I (Units-I, II & UNIT-III (Half of the Syllabus))	A1=5
I-Descriptive Examination (Units-I, II & UNIT-III (Half of the Syllabus))	M1=15
I-Quiz Examination (Units-I, II & UNIT-III (Half of the Syllabus))	Q1=10
Assignment-II (Unit-III (Remaining Half of the Syllabus), IV & 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 engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
PO 12	Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Dr. K. Bhanu Lakshmi	Dr. A. Rami Reddy	Dr. A. Rami Reddy	Dr. A. Rami Reddy
Signature				



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 Kakinada

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

PROGRAM	: B.Tech, I-Sem
ACADEMIC YEAR	: 2021-22
COURSE NAME & CODE	: Digital Logic Design – 20CS02
L-T-P STRUCTURE	: 3-0-0
COURSE CREDITS	: 3
COURSE INSTRUCTOR	: J.NAGESWARA RAO
COURSE COORDINATOR	: 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 and Pos	1	13-12-2021		TLM1	CO1	T1	
2.	Introduction to Digital Systems	1	15-12-2021		TLM1	CO1	T1	
3.	Number Systems	1	17-12-2021		TLM1	CO1	T1	
4.	Number base Conversion,Decimal,Octal and HexadecimalNumbers	1	18-12-2021		TLM1	CO1	T1, R3	
5.	Complements(1’s)	1	20-12-2021		TLM1	CO1	T1, R3	
6.	Complements(2’s)	1	22-12-2021		TLM1	CO1	T1, R3	
7.	Signed and unsigned binary number subtraction	1	24-12-2021		TLM1	CO1	T1, R3	
8.	Binary coded decimal	1	25-12-2021		TLM1	CO1	T1	
9.	Digital Logic Gates	1	27-12-2021		TLM1	CO1	T1	
10.	Error Detection and Correction	1	29-12-2021		TLM1	CO1	T1	
11.	TUTORIAL – 1	1	31-12-2021		TLM3	CO1	---	
12.	Assignment / Quiz – 1	1	01-01-2022		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	03-01-2022		TLM1	CO2	T1	
14.	Introduction to Karnaugh Maps	1	05-01-2022		TLM1	CO2	T1	
15.	One Variable, Two variable, Three Variable maps	1	05-01-2022		TLM1	CO2	T1	
16.	Four Variable Map	1	07-01-2022		TLM1	CO2	T1	
17.	Problems on K-Maps	1	8-01-2022		TLM1	CO2	T1, R3	
18.	Five Variable K-Map and Examples	1	10-01-2022		TLM1	CO2	T1, R3	
19.	Minimal Expressions for incomplete Boolean functions	1	12-01-2022		TLM1	CO2	T1, R3	
20.	Minimal Expressions for incomplete Boolean functions	1	19-01-2022		TLM1	CO2	T1, R3	
21.	Quine-McCluskey Method	1	21-01-2022		TLM1	CO2	T1, R2	
22.	Prime implicants and Essential Prime Implicants	1	22-01-2022		TLM1	CO2	T1	
23.	TUTORIAL – 2	1	24-01-2022		TLM3	CO2	---	
24.	Assignment / Quiz – 2	1	24-01-2022		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	28-01-2022		TLM1	CO3	T1, R3	
26.	Adders, Subtractors	1	28-01-2022		TLM1	CO3	T1, R3	
27.	Code Conversion	1	29-01-2022		TLM1	CO3	T1	
28.	Multilevel NAND circuits, Multilevel NOR circuits	1	31-01-2022		TLM1	CO3	T1, R3	
29.	Introduction to Combinational Logic with MSI And LSI	1	02-02-2022		TLM1	CO3	T1, R3	
30.	Binary Parallel Adder, Decimal Adder	1	04-02-2022		TLM1	CO3	T1	
31.	Magnitude Comparator	1	4-02-2022		TLM1	CO3	T1	
32.	Decoders	1	14-02-2022		TLM1	CO3	T1	
33.	Multiplexers	1	14-02-2022		TLM1	CO3	T1	
34.	TUTORIAL –3	1	16-02-2022		TLM3	CO3	---	
35.	Assignment / Quiz – 3	1	18-02-2022		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	19-02-2022		TLM1	CO4	T1	
37.	Triggering of Flip-Flops,	1	21-02-2022		TLM1	CO4	T1	
38.	Analysis of Clocked Sequential Circuits	1	23-02-2022		TLM1	CO4	T1	
39.	State Reduction and Assignment	1	25-02-2022		TLM1	CO4	T1	
40.	Flip-Flop Excitation tables	1	26-02-2022		TLM1	CO4	T1	
41.	Design of Counters, Introduction to Registers, Shift registers	1	28-02-2022		TLM1	CO4	T1	
42.	Ripple Counters	1	02-03-2022		TLM1	CO4	T1	
43.	Synchronous Counters	1	03-03-2022		TLM1	CO4	T1	
44.	TUTORIAL – 4	1	07-03-2022		TLM3	CO4	---	
45.	Assignment / Quiz– 4	1	10-03-2022		TLM6	CO4	---	
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	11-03-2022		TLM1	CO5	T1,R3	
47.	Problems On ROM	1	12-03-2022		TLM1	CO5	T1,R3	
48.	Programmable Read Only memory	1	14-03-2022		TLM1	CO5	T1,R3	

49.	Problems on PROM	1	16-03-2022		TLM1	CO5	T1,R3	
50.	Programmable Logic Device (PLD),Problems on PLD	1	18-03-2022		TLM1	CO5	T1,R3	
51.	Programmable Logic Array	1	19-03-2022		TLM1	CO5	T1,R3	
52.	Programmable Array Logic (PAL).	1	21-03-2022		TLM1	CO5	T1,R3	
53.	Problems on PLA and PAL	1	23-03-2022		TLM1	CO5	T1,R3	
54.	Programmable Logic Array Examples	1	25-03-2022		TLM1	CO5	T1,R3	
55.	TUTORIAL – 5	1	26-03-2022		TLM3	CO5	T1,R3	
56.	Assignment / Quiz – 5	1	28-03-2022		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	30-04-2022		TLM1	CO5		
58.	How magnitude comparators are different from Decoders	1	01-04-2022		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.VEERAI AH
Signature				



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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

COURSE HANDOUT

PART-A

Name of Course Instructor : T. VINEETHA
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., Section – A A.Y: 2021 - 2022

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	23/12/2021		TLM2/ TLM4	
2.	Disassembling and assembling the PC back to working condition	3	30/12/2022		TLM2/ TLM4	
3.	1. Installation of MS WINDOWS and LINUX on personal computer. 2. Linux Operating System commands	6	06/01/2022 20/01/2022		TLM2/ TLM4	
4.	Working on Networking Commands	3	27/01/2022		TLM2/ TLM4	
5.	Working on Internet Services	3	03/02/2022		TLM2/ TLM4	
6.	Introduction to HTML and its tags. Preparing a simple website/homepage.	6	17/02/2022 24/02/2022		TLM2/ TLM4	
7.	Demonstration and Practice of Text Editors	3	03/02/2022		TLM2/ TLM4	
8.	Demonstration and practice of Microsoft Word, Power Point, Microsoft Excel	3	10/03/2022		TLM2/ TLM4	
9.	Demonstration and practice of LaTeX	3	17/03/2022		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	24/03/2022		TLM2/ TLM4	
11.	Lab Internal Exam	3	31/03/2022			

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.
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	The ability to apply Software Engineering practices and strategies in software project development using open source programming environment for the success of organization.
PSO 2	The ability to design and develop computer programs in networking, web applications and IoT as per the society needs.
PSO 3	To inculcate an ability to analyze, design and implement database applications.

Course Instructor	Course Coordinator	Module Coordinator	HOD
T. VINEETHA	B S R KRISHNA	Dr. Y. V Bhaskar Reddy	DR. D.VEERAI AH