



# 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 CIVIL ENGINEERING

### COURSE HANDOUT

#### PART-A

Name of Course Instructor: Mr B.SAGAR

Course Name & Code : PC-II, 20FE02

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

Credits: 02

Program/Sem/Sec : CIVIL -II 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	Produce a coherent paragraph interpreting a figure/graph/chart/table.	L2
CO2	Comprehend the given texts thoroughly by guessing the meanings of the words Contextually.	L2
CO3	Use language appropriately for describing/comparing/contrasting/giving directions & suggestions.	L1
CO4	Write formal/informal dialogues with an understanding of verbal/non-verbal features of communication. Guess meanings of the words from the context.	L2
CO5	Write well structured essays; Reports & Résumé.	L3

#### UNIT-I

**Fabric of Change**-‘H.G. Wells and the Uncertainties of Progress–Peter J. Bowler’; Reading: Studying the use of Graphic elements in texts; Grammar & Vocabulary: Quantifying Expressions; Adjectives and adverbs; Comparing and Contrasting; Degrees of Comparison; Writing: Information Transfer.

#### UNIT-II

**Tools for Life** - ‘Leaves from the Mental Portfolio of a Eurasian – Sui Sin Far’;

Reading: Global Comprehension; Detailed Comprehension; Grammar & Vocabulary: Active & Passive Voice; Idioms & Phrases; Writing: Structured Essays using suitable claims and evidences.

#### UNIT-III

‘**Homi Jahangir Bhabha**’; Grammar & Vocabulary: Words often confused; Common Errors; Writing: Incident & Investigation Reports.

## UNIT-IV

'Jagadish Chandra Bose'; Grammar & Vocabulary: Use of antonyms; Correction of Sentences; Writing: Dialogue Writing.

## UNIT-V

'Prafulla Chandra Ray'; Grammar & Vocabulary: Analogy; Sentence Completion; Writing: Writing a Résumé

### 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		1		1		1			3	3		2			
C02		1		1		1			3	3		2			
C03		1		1		1			3	3		2			
C04		1		1		1			3	3		2			
C05		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	2-5-2022		TLM2	
2.	<b>Fabric of Change</b> -‘H.G. Wells and the Uncertainties of Progress– Peter J. Bowler’	01	9-5-2022		TLM2	
3.	Reading: Studying the use of Graphic elements in texts;	01	10-5-2022		TLM2	
4.	Quantifying Expressions; Comparing and Contrasting	01	16-5-2022		TLM2	
5.	Adjectives and adverbs	01	17-5-2022		TLM2	
6.	Degrees of Comparison	01	23-5-2022		TLM2	
7.	Writing: Information Transfer.	01	24-5-2022		TLM2 TLM6	
<b>No. of classes required to complete UNIT-I: 07</b>				<b>No. of classes taken:</b>		

#### UNIT-II:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
8.	<b>Tools for Life</b> - ‘Leaves from the Mental Portfolio of a Eurasian – Sui Sin Far’;	01	30-5-2022		TLM2	
9.	Reading: Global Comprehension & Detailed Comprehension	01	31-5-2022		TLM2	
10.	Active & Passive Voice	01	6-6-2022		TLM2	
11.	Idioms & Phrases	01	7-6-2022		TLM2	
12.	Essay Writing - Structured Essays using suitable claims and evidences	01	13-6-2022		TLM2 TLM6	
<b>No. of classes required to complete UNIT-II: 05</b>				<b>No. of classes taken:</b>		

#### UNIT-III:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
13.	<b>‘Homi Jahangir Bhabha’</b>	02	14-06-2022		TLM2 TLM6	
14.	Words often confused	01	27-6-2022		TLM2	
15.	Common Errors	01	28-6-2022		TLM2	
16.	Report Writing – Types & Formats	01	4-7-2022		TLM2	
17.	Incident and Investigation Reports	01	5-7-2022		TLM2 TLM6	
<b>No. of classes required to complete UNIT-III: 06</b>				<b>No. of classes taken:</b>		

#### UNIT-IV:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
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18.	<b>Jagadish Chandra Bose</b>	01	11-7-2022		TLM2 TLM2	
19.	Use of antonyms	01	12-7-2022		TLM2	
20.	Correction of Sentences	01	18-7-2022		TLM2	
21.	Formal and Informal dialogues	01	19-7-2022		TLM2	
22.	Dialogue Writing.	01	25-7-2022		TLM2 TLM6	
<b>No. of classes required to complete UNIT-IV: 05</b>				<b>No. of classes taken:</b>		

### UNIT-V:

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
23.	<b>Prafulla Chandra Ray</b>	01	26-7-2022		TLM2	
24.	Analogy	01	1-8-2022		TLM2	
25.	Sentence Completion	01	2-8-2022		TLM2	
26.	Resume - Formats	01	8-8-2022		TLM2	
27.	Writing a Résumé	01	8-8-2022		TLM2 TLM6	
<b>No. of classes required to complete UNIT-V: 05</b>				<b>No. of classes taken:</b>		

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

## PART-C

### EVALUATION PROCESS (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
<b>Mid Marks =80% of Max ((M1+Q1+A1), (M2+Q2+A2)) + 20% of Min ((M1+Q1+A1), (M2+Q2+A2))</b>	<b>M=30</b>
<b>Cumulative Internal Examination (CIE): M</b>	<b>30</b>
<b>Semester End Examination (SEE)</b>	<b>70</b>
<b>Total Marks = CIE + SEE</b>	<b>100</b>

## PART-D

### PROGRAMME OUTCOMES (POs):

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

### PROGRAMME SPECIFIC OUTCOMES (PSOs):

<b>PSO 1</b>	Possesses necessary skill set to analyze and design various systems using analytical and software tools related to civil engineering.
<b>PSO 2</b>	Possesses ability to plan, examine and analyse the various laboratory tests required for the professional demands.
<b>PSO 3</b>	Possesses basic technical skills to pursue higher studies and professional practice in civil engineering domain.

<b>Title</b>	<b>Course Instructor</b>	<b>Course Coordinator</b>	<b>Module Coordinator</b>	<b>Head of the Department</b>
<b>Name of the Faculty</b>	<b>Mr B.SAGAR</b>	<b>Dr. B. Samrajya Lakshmi</b>	<b>Dr. B. Samrajya Lakshmi</b>	<b>Dr. A. Ramireddy</b>
<b>Signature</b>				



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## DEPARTMENT OF CIVIL ENGINEERING

### COURSE HANDOUT

#### PART-A

**Name of Course Instructor** : Dr.J.Venkateswara Rao  
**Course Name & Code** : APPLIED MECHANICS&20CE03  
**L-T-P Structure** : 2-1-0 Credits : 3  
**Program/Sem/Sec** : B.Tech., CE., II-Sem., A.Y : 2021-22  
**PRE-REQUISITE:**Physics

**COURSE EDUCATIONAL OBJECTIVES (CEOs):**This course comprises the basic knowledge on equilibrium of planar force systems, determination of sectional properties of various cross sections / composite sections. It describes motion of bodies under frictional forces. In this course the process of finding the internal forces in members aroused from the applied loads using equilibrium conditions is also expounded.

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

<b>CO 1</b>	Determine the resultant force and moment for a given system of forces.
<b>CO 2</b>	Calculate the unknown forces in members of planar systems by constructing free body diagrams and applying static equilibrium conditions.
<b>CO 3</b>	Examine the motion/ impeding the motion of bodies on horizontal/inclined planes associated with frictional forces.
<b>CO 4</b>	Analyze for the internal forces in the members of a pin jointed perfect frames subjected to horizontal, vertical and inclined loads.
<b>CO5</b>	Determine the centroid and second moment of area of simple and composite areas.

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

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
<b>CO1</b>	3											1	1		2
<b>CO2</b>	3											1	1		2
<b>CO3</b>	3											1	1		2
<b>CO4</b>	3											1	1		2
<b>CO5</b>	3											1	1		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).

#### TEXT BOOKS

- T1** RK Rajput "Engineering. Mechanics" Dhanpat Rai and Sons, NewDelhi  
**T2** Ferdinand L. Singer, "Engineering Mechanics" Published by Harper Collins Publishers, Singapore  
**T3** S.S. Bhavikatti and K.G. Rajashekarappa "Engineering Mechanics", New Age International Publishers, NewDelhi.

#### REFERENCES

- R1** RK Bansal "Engineering. Mechanics" Laxmi Publishers, New Delhi.  
**R2** S. Timoshenko, D.H. Young and J.V. Rao "Engineering Mechanics" TATA McGraw Hill, New Delhi, Revised Fourth Edition.

#### PART-B

**COURSE DELIVERY PLAN (LESSON PLAN):****UNIT-I: RESULTANT OF SYSTEMS OF FORCES**

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.	Interaction	1	02-05-2022		TLM 1	
2.	Introduction to Mechanics	1	04-05-2022		TLM 1	
3.	Force and force systems	1	05-05-2022		TLM 1	
4.	Laws of forces and proofs	1	09-05-2022		TLM 1	
5.	Components and resolution of forces	1	10-05-2022		TLM 1	
6.	Resultant of coplanar and concurrent force systems	1	11-05-2022		TLM 1	
7.	Resultant of Coplanar Concurrent Forces	1	12-05-2022		TLM 1	
8.	Resultant of Coplanar Concurrent Forces	1	16-05-2022		TLM 1	
9.	Resultant of Coplanar Concurrent Forces	1	17-05-2022		TLM 1	
10.	Moment of Force- principle of moments	1	18-05-2022		TLM 1	
11.	Varignons theorem-Application	1	19-05-2022		TLM 1	
12.	Varignons theorem-Application	1	23-05-2022		TLM 1	
13.	Couples and Resultant of Force Systems	1	24-05-2022		TLM 1	
14.	Couples and Resultant of Force Systems	1	25-05-2022		TLM 1	
<b>No. of classes required to complete UNIT-I: 14</b>				<b>No. of classes taken:</b>		

**UNIT-II: EQUILIBRIUM OF SYSTEMS OF FORCES**

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.	Free Body Diagrams and Equations of Equilibrium	1	26-05-2022		TLM 1,2	
2.	Lami's Theorem and equilibrium of planar systems	1	30-05-2022		TLM 1,2	
3.	Application of Lami's theorem	1	31-05-2022		TLM 1,2	
4.	Equilibrium of planar systems	1	01-06-2022		TLM 1,2	
5.	Problems on equilibrium of planar systems	1	02-06-2022		TLM 1	
6.	Problems on equilibrium of planar systems	1	06-06-2022		TLM 1	
7.	Problems on equilibrium of planar systems	1	07-06-2022		TLM 1	
8.	Problems on equilibrium of planar systems	1	08-06-2022		TLM 1	
<b>No. of classes required to complete UNIT-II: 8</b>				<b>No. of classes taken:</b>		

**UNIT-III: FRICTION**

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-Theory of Friction	1	09-06-2022		TLM 1	
2.	Impending motion of connected bodies	1	13-06-2022		TLM 1	
3.	Problems on Impending motion of connected bodies	1	14-06-2022		TLM 1	
4.	Ladder friction and applications	1	15-06-2022		TLM 1	
5.	Ladder friction and applications	1	16-06-2022		TLM 1	
6.	I Mid Examination	1	20-06-2022			

7.	I Mid Examination	1	21-06-2022			
8.	I Mid Examination	1	22-06-2022			
9.	I Mid Examination	1	23-06-2022			
10.	Wedge friction	1	27-06-2022			TLM 1
11.	Problems on Wedge friction	1	28-06-2022			TLM 1
12.	Problems on Wedge friction		29-06-2022			TLM 1
<b>No. of classes required to complete UNIT-III: 12</b>				<b>No. of classes taken:</b>		

#### UNIT-IV: ANALYSIS OF PERFECT FRAMES

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.	Types of frames and perfect frame	1	30-06-2022		TLM 1,2	
2.	Assumptions for forces in members of a perfect frame	1	04-07-2022		TLM 1,2	
3.	Method of joints	1	05-07-2022		TLM 1,2	
4.	Analysis of Cantilever Trusses	1	06-07-2022		TLM 1,2	
5.	Analysis of Cantilever Trusses	1	07-07-2022		TLM 1	
6.	Analysis of Cantilever Trusses	1	11-07-2022		TLM 1	
7.	Analysis of simple trusses	1	12-07-2022		TLM 1	
8.	Analysis of simple trusses	1	13-07-2022		TLM 1	
9.	Analysis of simple trusses	1	14-07-2022		TLM 1	
10.	Method of sections	1	18-07-2022		TLM 1	
11.	Method of sections	1	19-07-2022		TLM 1	
<b>No. of classes required to complete UNIT-V: 11</b>				<b>No. of classes taken:</b>		

#### UNIT-V: CENTROID AND MOMENT OF INERTIA

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.	Centroid introduction	1	20-07-2022		TLM 1,2	
2.	Centroids of plane geometrical figures	1	21-07-2022		TLM 1,2	
3.	Centroids of plane geometrical figures	1	25-07-2022		TLM 1,2	
4.	Centroids of Composite areas	1	26-07-2022		TLM 1	
5.	Centroids of Composite areas	1	27-07-2022		TLM 1	
6.	Centroids of Composite areas	1	28-07-2022		TLM 1	
7.	Centre of gravity of simple bodies	1	01-08-2022		TLM 1	
8.	Centre of gravity of simple	1	02-08-2022		TLM 1	
9.	Moment of Inertia of simple geometrical figures	1	03-08-2022		TLM 1	
10.	Moment of Inertia of simple areas	1	04-08-2022		TLM 1	
11.	Moment of Inertia of composite areas	1	08-08-2022		TLM 1	
12.	Mass moment of Inertia of simple figures	1	10-08-2022		TLM 1	
<b>No. of classes required to complete UNIT-IV: 12</b>				<b>No. of classes taken:</b>		

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



## PART-C

### EVALUATION PROCESS (R20Regulations):

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):

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

**PROGRAMME SPECIFIC OUTCOMES (PSOs):**

<b>PSO 1</b>	Possesses necessary skill set to analyze and design various systems using analytical and software tools related to civil engineering
<b>PSO 2</b>	Possesses ability to plan, examine and analyse the various laboratory tests required for the professional demands
<b>PSO 3</b>	Possesses basic technical skills to pursue higher studies and professional practice in civil engineering domain

<b>Title</b>	<b>Course Instructor</b>	<b>Course Coordinator</b>	<b>Module Coordinator</b>	<b>Head of the Department</b>
<b>Name of the Faculty</b>	<b>Dr. J.Venkateswara Rao</b>	<b>Dr. J.Venkateswara Rao</b>	<b>Mr.B.Rama Krishna</b>	<b>Dr. V.Rama Krishna</b>
<b>Signature</b>				



## FRESHMAN ENGINEERING DEPARTMENT

### COURSE HANDOUT

#### PART-A

<b>PROGRAM</b>	: B.Tech., II-Sem., CIVIL
<b>ACADEMIC YEAR</b>	: 2021-2022
<b>COURSE NAME &amp; CODE</b>	: ENGINEERING PHYSICS & 20FE08
<b>L-T-P STRUCTURE</b>	: 4 – 0 – 0
<b>COURSE CREDITS</b>	: 3
<b>COURSE INSTRUCTOR</b>	: Mr. N.T. Sarma
<b>PRE-REQUISITES</b>	: 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

<b>CO 1</b>	<b>Analyse</b> the different mechanical properties of materials.
<b>CO 2</b>	<b>Apply</b> the Lasers and Optical Fibers in different fields.
<b>CO 3</b>	<b>Summarize</b> the properties of sound waves.
<b>CO 4</b>	<b>Classify</b> the different types of magnetic and dielectric materials.
<b>CO5</b>	<b>Identify</b> the properties of superconducting and nano materials.

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

ENGINEERING PHYSICS												
COURSE DESIGNED BY	FRESHMAN ENGINEERING DEPARTMENT											
Course Outcomes	Programme Outcomes											
PO's →	1	2	3	4	5	6	7	8	9	10	11	12
<b>CO1.</b>	3	3	1	1	1	1	1					1
<b>CO2.</b>	3	3	2	1	1	1	1					1
<b>CO3.</b>	3	3	1	1	1	1						1
<b>CO4.</b>	3	3	1	1	1	1	1					1
<b>CO5.</b>	3	3	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, 6<sup>th</sup> Edition, 2014.**  
**T2 : M.N. Avadhanulu, P.G. Kshirsagar, “Engineering Physics”, S. Chand & Co., 2<sup>nd</sup> Edition, 2014.**

**BOS APPROVED REFERENCE BOOKS:**

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

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

**PART-B**

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

**UNIT-I: ELASTICITY**

**Course Outcome:- CO 1; Text Book :- T1, R4**

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign	Remarks
28	Introduction to the Subject, Course Outcomes	1	02/05/2022		<b>TLM2</b>		
29	Introduction to Elasticity /Plasticity	1	05/05/2022		<b>TLM5</b>		
30	Introduction on Stress, strain and their classification	1	07/05/2022		<b>TLM6</b>		
31	Hooke’s law, Elastic behavior of a material, Factors affecting elasticity	1	09/05/2022		<b>TLM2</b>		
32	Classification of Elastic moduli, Poisson’s Ratio	1	10/05/2022		<b>TLM4</b>		

33	Relation between $Y$ , $K$ , $\eta$ and $\sigma$	1	12/05/2022		<b>TLM1</b>		
34	Bending of beams expression for bending moment	1	14/05/2022		<b>TLM1</b>		
35	Cantilever	1	16/05/2022				
36	Problems & Assignment/Quiz	1	17/05/2022		<b>TLM1</b>		
No. of classes required to complete UNIT-I: 09				No. of classes taken:			

### UNIT-II: LASERS & OPTICAL FIBERS

**Course Outcome: - CO 2; Text Book: - T1, R4**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign	Remarks
9.	Principle of laser, Absorption, Spontaneous and Stimulated emission	1	19/05/2022		<b>TLM2</b>		
10.	Characteristics of Laser light	1	21/05/2022		<b>TLM2</b>		
11.	Einstein Coefficients	1	23/05/2022		<b>TLM1</b>		
12.	Nd-YAG Laser, He-Ne gas Laser	1	24/05/2022		<b>TLM2</b>		
13.	Applications of LASERS	1	26/05/2022		<b>TLM5</b>		
14.	Optical Fiber principle, Structure of optical fiber	1	28/05/2022		<b>TLM2</b>		
15.	Numerical aperture and Acceptance angle	1	30/05/2022		<b>TLM1</b>		
16.	Types of optical fibers	1	31/05/2022		<b>TLM2</b>		
17.	Applications & Advantages of optical fibers	1	02/06/2022		<b>TLM2</b>		
18.	Problems & Assignment/Quiz	1	04/06/2022		<b>TLM6</b>		
No. of classes required to complete UNIT-II: 10				No. of classes taken:			

### UNIT-III: ACOUSTICS & ULTRASONICS

**Course Outcome: - CO 3; Text Book: - T1, R4**

S.No.	Topics to be	No. of	Tentative	Actual	Teaching	HOD	Remarks
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	<b>covered</b>	<b>Classes Required</b>	<b>Date of Completion</b>	<b>Date of Completion</b>	<b>Learning Methods</b>	<b>Sign</b>	
13.	Introduction to Acoustics	1	06/06/2022		<b>TLM5</b>		
14.	Reverberation-reverberation time, Sabine's formula	1	07/06/2022		<b>TLM2</b>		
15.	Sabine's formula	1	09/06/2022		<b>TLM1</b>		
16.	Absorption coefficient and its determination,	1	11/06/2022		<b>TLM1</b>		
17.	Architectural acoustics for a good auditorium	1	13/06/2022		<b>TLM2</b>		
18.	Problems & Assignment /Quiz	1	14/06/2022		<b>TLM1</b>		
19.	Introduction to Ultrasonics, their properties	1	16/06/2022		<b>TLM5</b>		
20.	Tutorial	1	18/06/2022		<b>TLM3</b>		
21.	MID-1 Exam & Preparation	1	20/06/2022		---		
22.	MID-1 Exam & Preparation	1	21/06/2022		---		
23.	MID-1 Exam & Preparation	1	23/06/2022		---		
24.	Production & Detection of Ultrasonics	1	25/06/2022		<b>TLM2</b>		
25.	Acoustic grating	1	27/06/2022		<b>TLM1</b>		
26.	Non-destructive testing through transmission method & pulse-echo method	1	28/06/2022		<b>TLM5</b>		
27.	Discussion on various applications of Ultrasonics	1	30/06/2022		<b>TLM2</b>		
28.	Problems & Assignment/Quiz	1	02/07/2022		<b>TLM6</b>		
No. of classes required to complete UNIT-III: 16				No. of classes taken:			

### **UNIT-V : MAGNETIC & DIELECTRIC MATERIALS**

**Course Outcome:- CO 4; Text Book :- T2, R4**

<b>S.No</b>	<b>Topics to be covered</b>	<b>No. of Classes Required</b>	<b>Tentative Date of Completion</b>	<b>Actual Date of Completion</b>	<b>Teaching Learning Methods</b>	<b>HOD Sign</b>	<b>Remarks</b>
1.	Introduction, Magnetic parameters	1	04/07/2022		<b>TLM2</b>		
2.	Classification of magnetic materials – Dia, para & Ferro	1	05/07/2022		<b>TLM6</b>		

3.	Hysteresis loop, Soft and hard magnetic materials	1	07/07/2022		TLM2		
4.	Applications of magnetic materials	1	09/07/2022		TLM5		
5.	Problems & Assignment/Quiz	1	11/07/2022		TLM1		
6.	Basic Definitions of dielectric materials Electronic polarization	1	12/07/2022		TLM1		
7.	Ionic & Orientation polarization	1	14/07/2022		TLM1		
8.	Local field, Expression for Internal field	1	16/07/2022		TLM1		
9.	Clausius Mosotti equation	1	18/07/2022		TLM1		
10.	Applications of dielectric materials	1	19/07/2022		TLM1		
11.	Problems & Assignment/Quiz	1	21/07/2022		TLM2		
No. of classes required to complete UNIT-IV: 11				No. of classes taken:			

### UNIT-V: SUPERCONDUCTORS & NANO-MATERIALS

**Course Outcome:- CO 5; Text Book :- T2, R4**

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign	Remarks
13.	Introduction - Superconductivity	1	23/07/2022		TLM6		
14.	Properties of superconductors	1	25/07/2022		TLM2		
15.	Meissner effect, Type-I & II conductors	1	26/07/2022		TLM1		
16.	AC & DC Josephson effect	1	28/07/2022		TLM1		
17.	Applications of Superconductors	1	30/07/2022		TLM2		
18.	Problems & Assignment/Quiz	1	01/08/2022		TLM1		
19.	Introduction to Nano-materials	1	02/08/2022		TLM5		
20.	Classification & properties of Nano-materials	1	04/08/2022		TLM1		
21.	Synthesis of nano materials	1	06/08/2022		TLM2		
22.	Applications of Nano materials	1	08/08/2022		TLM2		
No. of classes required to complete UNIT-V: 10				No. of classes taken:			

**Revision Classes / Beyond the Syllabus (Additional Topic)**

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 Sensors, types & Applications	1	11/08/2022		TLM-2		
2.	Revision of Unit-1 & 2	1	13/08/2022		TLM-2		
3.	MID-2 Exam Preparation	1	16/08/2022		---		
4.	MID-2 Exam Preparation	1	18/08/2022				
5.	MID-2 Exam Preparation	1	20/08/2022		---		
No. of classes required for Revision: 05				No. of classes taken:			

**PART-C**

**EVALUATION PROCESS (R-20 Regulation):**

Evaluation Task	Marks
Assignment-I (Unit-I)	A1 = 5
Assignment-II (Unit-II)	A2 = 5
Assignment-III (Unit-III (A))	A3 = 5
I-Mid Examination (Units-I, II & III (A))	M-1 = 18
I-Quiz Examination (Units-I, II & III (A))	Q1 = 07
Assignment-III (Unit-III (B))	A3 = 5
Assignment-IV (Unit-IV)	A4 = 5
Assignment-V (Unit-V)	A5 = 5
II-Mid Examination (Units-III (B), IV & V)	M-2 = 18
II-Quiz Examination (Units-III (B), IV & V)	Q2 = 07
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A = 5
Mid Marks = 75% of Max (M-1, M-2) + 25% of Min (M-1, M-2)	M = 18
Quiz Marks = 75% of Max (Q-1, Q-2) + 25% of Min (Q-1, Q-2)	Q = 07
Cumulative Internal Examination (CIE) : A+M+Q	30
Semester End Examination (SEE)	70
<b>Total Marks = CIE + SEE</b>	<b>100</b>



## PART-D

### PROGRAMME OUTCOMES (POs):

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

Course Instructor

Course Coordinator

Module Coordinator

HOD

Mr. N. T. Sarma

Dr.P. V. N. Kishore

Dr. S. Yusub

Dr. A. Rami Reddy



# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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

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

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

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## DEPARTMENT OF CIVIL ENGINEERING

### COURSE HANDOUT

#### PART-A

Name of Course Instructor	: <b>Eeshwar Ram.J</b>	
Course Name & Code	: CONSTITUTION OF INDIA (20MC01)	
L-T-P Structure	: 2-0-0	Credits : 0
Program/Sem/Sec	: B.Tech., CE., II-Sem.,	A.Y: 2021-22

**PRE-REQUISITE: Understand the Indian Constitution**

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

- To enable the student to understand the importance of constitution
- To understand the structure of Executive ,Legislature and Judiciary.
- To Understand Philosophy of fundamental rights and duties.
- To Understand the autonomous nature of constitution bodies like Supreme Court and High Court Controller and Auditor General of India and Election Commission of India
- To Understand the Central and State relation, financial and administrative.

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

<b>CO 1</b>	Understand history and philosophy of constitution with reference to preamble, Fundamental Rights and Duties.
<b>CO 2</b>	Understand the concept of Unitary and Federal Government along with the role of President, Prime Minister and Judicial System.
<b>CO 3</b>	Understand the structure of the state government, Secretariat, Governor and Chief Minister and their functions.
<b>CO 4</b>	Learn local administration viz. Panchayat, Block, Municipality and Corporation.
<b>CO 5</b>	Learn about Election Commission and the process and about SC,ST,OBC and women.

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

<b>COs</b>	<b>PO 1</b>	<b>PO 2</b>	<b>PO 3</b>	<b>PO 4</b>	<b>PO 5</b>	<b>PO 6</b>	<b>PO 7</b>	<b>PO 8</b>	<b>PO 9</b>	<b>PO1 0</b>	<b>PO1 1</b>	<b>PO1 2</b>	<b>PSO 1</b>	<b>PSO 2</b>	<b>PSO 3</b>
<b>CO1</b>	-	-	-	-	-	3	-	2	-	-	-	-	-	-	-
<b>CO2</b>	-	-	-	-	-	3	-	2	-	-	-	-	-	-	-
<b>CO3</b>	-	-	-	-	-	3	-	2	-	-	-	-	-	-	-
<b>CO4</b>	-	-	-	-	-	3	-	2	-	-	-	-	-	-	-
<b>CO5</b>	-	-	-	-	-	3	-	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).

## TEXT BOOKS:

- T1** Dr.B.R Ambedkar ,The Constitution of India ,General Press First edition 2020., New Delhi  
**T2** Dr.B.R Ambedkar ,The Constitution of India, Government of India

## REFERENCE BOOKS:

- R1** Durga Das Basu, Introduction to the Constitution of India, Prentice – Hall of India Pvt.Ltd., New Delhi.  
**R2** Subash Kashyap, Indian Constitution, National Book Trust.  
**R3** J.A. Siwach, Dynamics of Indian Government and Politics.  
**R4** D.C. Gupta, Indian Government and Politics.  
**R5** H.M.Sreevai. Constitutional Law of India, 4th edition in 3 volumes (Universal Law Publication).  
**R6** J.C. Johari, Indian Government and Politics Hans.  
**R7** J.Raj, Indian Government and Politics.  
**R8** M.V. Pylee, Indian Constitution, Durga Das Basu, Human Rights in Constitutional Law, Prentice – Hall of India Pvt. Ltd., New Delhi.  
**R9**Noorani, A.G. (South Asia Human Rights Documentation Centre), Challenges to Civil Right). Challenges to Civil Rights Guarantees in India, Oxford University Press 2012.

## E RESOURCES

1. [nptel.ac.in/courses/109104074/8](https://www.nptel.ac.in/courses/109104074/8).
2. [nptel.ac.in/courses/109104045](https://www.nptel.ac.in/courses/109104045).
3. [nptel.ac.in/courses/101104065](https://www.nptel.ac.in/courses/101104065).
4. [www.hss.iitb.ac.in/en/lecture-details](http://www.hss.iitb.ac.in/en/lecture-details).
5. [www.iitb.ac.in/en/event/2nd-lecture-institute-lecture-series-indianconstitution](http://www.iitb.ac.in/en/event/2nd-lecture-institute-lecture-series-indianconstitution).

## PART-B

### COURSE DELIVERY PLAN (LESSON PLAN): Section C

#### UNIT-I : Introduction to Indian Constitution

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 and Co-Po and Syllabus	1	04-05-2022		TLM2	CO1	T1 / T2	
2.	Constitution meaning and the term	1	06-05-2022		TLM2	CO1	T1 / T2	
3.	Sources and History of Indian Constitution	1	11-05-2022		TLM2	CO1	T1 / T2	
4.	Features-Citizenship, Preamble	1	13-05-2022		TLM2	CO1	T1 / T2	
5.	Fundamental Rights and Duties	1	18-05-2022		TLM2	CO1	T1 / T2	
6.	Directive Principles of State Policy	1	20-05-2022		TLM2	CO1	T1 / T2	
7.	Assignment -I	1	25-05-		TLM7	CO1	T1 / T2	

			2022					
<b>No. of classes required to complete UNIT-I</b>		7			<b>No. of classes taken:</b>			

### UNIT-II: Union Government and its Administration Structure of the Indian Union

S.No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
8	Union Government structure in India	1	27-05-2022		TLM2	CO2	T1 / T2	
9	Federalism Centre	1	01-06-2022		TLM2	CO2	T1 / T2	
10	State Relationships to the Union	1	03-06-2022		TLM2	CO2	T1 / T2	
11	President Role, Power and Position	1	18-06-2022		TLM2	CO2	T1 / T2	
12	Prime Minister (PM) and Council of Ministers ,cabinet and Central Secretariat Powers and duties	1	10-06-2022		TLM2	CO2	T1 / T2	
13	Lok Sabha,Rajya Sabha, Supreme Court and High Court Powers and Functions.	1	15-06-2022		TLM2	CO2	T1 / T2	
14	Assignment II	1	17-06-2022		TLM7	CO2	T1 / T2	
<b>I MID EXAMINATIONS 20-06-2022 to 25-06-2022</b>								
		7			<b>No. of classes taken:</b>			

### UNIT-III: State Government and its administration Governor

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	State Government and its Administration Governor and Role	1	29-06-2022		TLM2 / TLM4	CO3	T1 / T2	
16	Role of Chief Ministers and Council of Ministers	1	01-07-2022		TLM2 / TLM4	CO3	T1 / T2	
17	State Secretariat Functions	1	06-07-2022		TLM2 / TLM4	CO3	T1 / T2	
18	Organisation ,Structure and Functions of State Governments	1	08-07-2022		TLM2 / TLM4	CO3	T1 / T2	
19	Assignment -III	1	13-07-2022		TLM2 / TLM4	CO3	T1 / T2	
<b>No. of classes required to complete UNIT-III</b>		05			<b>No. of classes taken:</b>			

### UNIT-IV: A Local Administration

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	A Local Administration	1	15-07-2022		TLM2 / TLM4	CO4	T1 / T2	
21	Role and importance of local administration	1	20-07-2022		TLM2 / TLM4	CO4	T1 / T2	
22	Municipalities –Mayor and Role of Elected Representative	1	22-07-2022		TLM2 / TLM4	CO4	T1 / T2	
23	Functions of Panchayati Raj Institution,Zilla Panchayats ,Elected Official and their roles	1	27-07-2022		TLM2 / TLM4	CO4	T1 / T2	
24	Village level-Role of Elected and Appointed officials./Assignment-IV	1	29-07-2022		TLM2/ TLM 7	CO4	T1 / T2	
<b>No. of classes required to complete UNIT-IV</b>		<b>05</b>			<b>No. of classes taken:</b>			

### UNIT-V: Election Commission

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	Election Commission :Role of Chief Election Commissioner and Election Commisionerate	1	03-08-2022		TLM2 / TLM4	CO5	T1 / T2	
26	State Election Commission	1	05-08-2022		TLM2 / TLM4	CO5	T1 / T2	
27	Functions and Commissions for the Welfare of SC/ST/OBC and Women.	1	10-08-2022		TLM2 / TLM4	CO5	T1 / T2	
<b>No. of classes required to complete UNIT-V</b>		<b>03</b>			<b>No. of classes taken:</b>			

### Content Beyond the Syllabus

S.No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	Learning Outcome COs	Text Book followed	HOD Sign Weekly
29.	Consumer Rights	1	12.08.2022		TLM2/ TLM5		T2/R3	
	Industrial policies							

Teaching Learning Methods			
<b>TLM1</b>	Chalk and Talk	<b>TLM4</b>	Demonstration (Lab/Field Visit)
<b>TLM2</b>	PPT	<b>TLM5</b>	ICT (NPTEL/Swayam Prabha/MOOCs)
<b>TLM3</b>	Tutorial	<b>TLM6</b>	Group Discussion/Project
<b>TLM 7</b>	Assignment /Quiz		

### **PART-C**

#### **EVALUATION PROCESS (R20 Regulations):**

<b>Evaluation Task</b>	<b>Marks</b>
Assignment-I (Unit-I , Unit-II , Unit-III)	A1=5
Assignment-II (Unit-III , Unit-IV , Unit-V)	A2=5
I-Mid Examination (Units-I & II)	M1=15
I-Quiz Examination (Units-I & II)	Q1=10
Assignment-III (Unit-III)	A3=5
Assignment-IV (Unit-IV)	A4=5
Assignment-V (Unit-V)	A5=5
II-Mid Examination (Units-III, IV & V)	M2=15
II-Quiz Examination (Units-III, IV & V)	Q2=10
Assignment Marks = Best Four Average of A1, A2, A3, A4, A5	A=5
Mid Marks =75% of Max(M1,M2)+25% of Min(M1,M2)	M=15
Quiz Marks =75% of Max(Q1,Q2)+25% of Min(Q1,Q2)	B=10
Cumulative Internal Examination (CIE) : A+B+M	30
Semester End Examination (SEE)	70
Total Marks = CIE + SEE	100

## PART-D

### PROGRAMME OUTCOMES (POs):

<b>PO 1</b>	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO 2</b>	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.
<b>PO 3</b>	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.
<b>PO 4</b>	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.
<b>PO 5</b>	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
<b>PO 6</b>	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.
<b>PO 7</b>	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.
<b>PO 8</b>	Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO 9</b>	Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO 10</b>	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.
<b>PO 11</b>	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.
<b>PO 12</b>	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):

<b>PSO 1</b>	Possesses necessary skill set to analyse and design various systems using analytical and software tools related to civil engineering
<b>PSO 2</b>	Possesses ability to plan, examine and analyse the various laboratory tests required for the professional demands
<b>PSO 3</b>	Possesses basic technical skills to pursue higher studies and professional practice in civil engineering domain

Course Instructor	Course Coordinator	Module Coordinator	HOD
Eeshwar Ram.J	Eeshwar Ram.J		Dr.V.Ramkrishna



# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

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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 CIVIL TECHNOLOGY

### COURSE HANDOUT

#### PART-A

Name of Course Instructor : **Mr. V. V. Krishna Reddy**

Course Name & Code : **Programming for Problem Solving Using C (20CS01)**

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

Credits: **3**

Program/Sem/Sec : **B.Tech. – CIVIL / II Sem**

A.Y. : **2021-22**

**PRE-REQUISITE: NIL**

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

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

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

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

#### TEXTBOOKS:

#### REFERENCE BOOKS:

**R1** Jeri R.Hanly, Elliot B.Koffman, Problem Solving and Program Design in C, Pearson Publishers, 7<sup>th</sup> Edition, 2013

**R2** E Balagurusamy, Computer Programming, McGraw Hill Education, 8<sup>th</sup> Edition

**R3** C: The Complete Reference, McGraw Hall Education, 4<sup>th</sup> Edition.

**R4** PradeepDey, Manas Ghosh, Programming in C, Oxford University Press, 2<sup>nd</sup> Edition, 2011.

**R5** Stephen G.Kochan, Programming in C, Pearson Education, 3<sup>rd</sup> 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 the course, Course Outcomes	1	02/05/2022		TLM	
2.	Software Development Method for Problem Solving	1	04-05-2022		TLM	
3.	Algorithm with Examples	1	06-05-2022		TLM	
4.	Flow Chart and Pseudo Code with Examples	1	07-05-2022		TLM	
5.	Introduction to C, History of C, Features of C	1	09-05-2022		TLM	
6.	Structure of a C Program, C Tokens – Keywords, Identifiers, constants	1	11-05-2022		TLM	
7.	Basic Data Types and Sizes	1	13-05-2022		TLM	
8.	Input Output Statements and Sample C Program	1	14-05-2022		TLM	
9.	Operators Part – I	1	16-05-2022		TLM	
10.	Operators Part – II	1	18-05-2022		TLM	
11.	Expressions, Type Conversions	1	20-05-2022		TLM	
12.	Operator precedence and order of evaluation	1	21-05-2022		TLM	
13.	Decision Statements – if, if else, else if ladder, nested if and switch statement	2	23-05-2022 25-05-2022		TLM	
14.	while loop, do-while and for loop	1	27-05-2022		TLM	
15.	break, continue, go to and labels	1	28-05-2022		TLM	
<b>No. of classes required to complete UNIT-I: 16</b>				<b>No. of classes taken:</b>		

#### **UNIT – II: Arrays**

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.	<b>Arrays:</b> Definition, Types of Arrays	1	30-05-2022		TLM	
17.	1D-Array Syntax, Declaration, and Initialization, Storing and Accessing Elements in 1D-Array	1	01-06-2022		TLM	
18.	<b>Applications of 1D-Array:</b> Linear Search and Binary Search, Bubble Sort Algorithm	1	03-06-2022		TLM	
19.	Two-Dimensional Array Syntax, Declaration, and Initialization Storing and Accessing Elements in 2D-Array	1	04-06-2022		TLM	
20.	Applications of 2D Arrays	1	06-06-2022		TLM	
21.	Multi-Dimensional Arrays	1	08-06-2022		TLM	
22.	<b>Character Arrays:</b> Declaration, Initialization, Reading and Writing Strings	1	10-06-2022		TLM	
23.	String Handling Functions Part – I	1	11-06-2022		TLM	
24.	String Handling Functions Part – II	1	13-06-2022		TLM	
25.	Pre-processor Directives Part – I	1	15-06-2022		TLM	
<b>No. of classes required to complete UNIT – II: 10</b>				<b>No. of classes taken:</b>		

**UNIT - III: Pointers and Functions**

S. No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
26.	<b>Pointers:</b> Definition, Declaration, Initialization of Pointer Variable	1	17-06-2022		TLM	
27.	Pointer Expressions, Pointer Arithmetic	1	18-06-2022		TLM	
28.	Pointers and Arrays, Pointers to Pointers	1	27-06-2022		TLM	
29.	<b>Functions:</b> Basics, Category of Functions	1	29-06-2022		TLM	
30.	Parameter Passing Techniques	1	01-07-2022		TLM	
31.	Recursive Functions	1	02-07-2022		TLM	
32.	Functions with Arrays	1	04-07-2022		TLM	
33.	Standard Library Functions	1	06-07-2022		TLM	
34.	Dynamic Memory Management Functions	1	08-07-2022		TLM	
35.	Command Line Arguments	1	09-07-2022		TLM	
36.	<b>Storage Classes:</b> auto, register, static and extern	1	11-07-2022		TLM	
<b>No. of classes required to complete UNIT - III: 11</b>				<b>No. of classes taken:</b>		

**UNIT - IV:**

S. No	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
37.	Derived Types: Structure: Definition and Declaration, Initialization and Accessing	1	13-07-2022		TLM	
38.	Nested Structures	1	15-07-2022		TLM	
39.	Arrays of Structures	1	16-07-2022		TLM	
40.	Structures and Functions	1	18-07-2022		TLM	
41.	Pointers to Structures Part - I	1	20-07-2022		TLM	
42.	Self-Referential Structures	1	22-07-2022		TLM	
43.	<b>Union:</b> Definition and Declaration	1	23-07-2022		TLM	
44.	Initialization and Accessing Union	1	25-07-2022		TLM	
45.	Examples on Union	1	27-07-2022		TLM	
46.	Typedef	1	29-07-2022		TLM	
<b>No. of classes required to complete UNIT - IV: 10</b>				<b>No. of classes taken:</b>		

**UNIT - V:**

S. No.	Topics to be covered	No. of Classes Required	Tentative Date of Completion	Actual Date of Completion	Teaching Learning Methods	HOD Sign Weekly
47.	Files: Definition, Types of Files	1	30-07-2022		TLM	
48.	Standard I/O and Formatted I/O	1	01-08-2022		TLM	
49.	Types of File I/O Operations	1	03-08-2022		TLM	
50.	Creation of a new file	1	05-08-2022		TLM	
51.	Opening an existing file	1	06-08-2022		TLM	
52.	Reading from file and Writing to file	1	08-08-2022		TLM	

53.	Moving to a specific location in a file and closing a file	1	10-08-2022		<b>TLM</b>	
54.	Error Handling Function Calls	1	12-08-2022		<b>TLM</b>	
<b>No. of classes required to complete UNIT-V: 08</b>				<b>No. of classes taken:</b>		

### 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
55.	Introduction to Stack	1	13-08-2022			
56.	Introduction to Queue	1	13-08-2022			

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

### PART-C

### EVALUATION PROCESS (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))	<b>M=30</b>
<b>Cumulative Internal Examination (CIE): M</b>	<b>30</b>
<b>Semester End Examination (SEE)</b>	<b>70</b>
<b>Total Marks = CIE + SEE</b>	<b>100</b>

## PART-D

### PROGRAMME OUTCOMES (POs):

P01	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
P02	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
P03	<b>Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
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P05	<b>Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
P06	<b>The engineer and society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues, and the consequent responsibilities relevant to the professional engineering practice
P07	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
P08	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
P09	<b>Individual and teamwork:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
P010	<b>Communication:</b> Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
P011	<b>Project management and finance:</b> Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
P012	<b>Life-long learning:</b> Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

### PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO1	Possesses necessary skill set to analyze and design various systems using analytical and software tools related to civil engineering.
PSO2	Possesses ability to plan, examine and analyse the various laboratory tests required for the professional demands.
PSO3	Possesses basic technical skills to pursue higher studies and professional practice in civil engineering domain.

Title	Course Instructor	Course Coordinator	Module Coordinator	Head of the Department
Name of the Faculty	Mr.V.V.Krishna Reddy	Dr. J. Nageswara Rao	Dr. Y.V. Bhaskar Reddy	Dr. B. Srinivasa Rao
Signature				



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

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## DEPARTMENT OF CIVIL SCIENCE & ENGINEERING

### COURSE HANDOUT

#### PART-A

Name of Course Instructor	: Mr. V. V. Krishna Reddy
Course Name & Code	: Programming for Problem Solving Using C Lab (20CS51)
L-T-P Structure	: 0-0-3 Credits : 1.5
Program/Sem/Sec	: B.Tech. – CIVIL / II Sem 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:

<b>CO1:</b>	Apply control structures of C in solving computational problems.	Apply – Level 3
<b>CO2:</b>	Implement derived data types & use modular programming in problem solving	Apply – Level 3
<b>CO3:</b>	Implement user defined data types and perform file operations.	Apply – Level 3
<b>CO4:</b>	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	PS 01	PS 02	PS 03
CO1	3	2	-	-	-	-	-	-	-	-	-	-	2	-	-
CO2	3	2	-	-	-	-	-	-	-	-	-	-	3	-	-
CO3	3	2	-	-	-	-	-	-	-	-	-	-	3	-	-

<b>CO4</b>	-	-	-	-	-	-	-	2	2	2	-	-	-	-	-
<b>1 - Low</b>				<b>2 - Medium</b>				<b>3 - High</b>							

***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	0			DM5
2.	Module 2: Problem solving using Raptor Tool	3			DM5
3.	Module 3: Exercise Programs on Basics of C-Program	0 3			DM5
4.	Module 4: Exercise Programs on Control Structures	0 3			DM5
5.	Module 5: Exercise Programs on Loops & nesting of Loops	0 6			DM5
6.	Module 6: Exercise Programs on Arrays & Strings	0 6			DM5
7.	Module 7: Exercise Programs on Pointers	0 6			DM5
8.	Module 8: Exercise Programs on Functions	0 6			DM5
9.	Module 9: Exercise Programs on user defined data types	0 6			DM5
10.	Module 10: Exercise Programs on Files	0 6			DM5

<b>Delivery Methods</b>			
<b>D M1</b>	Chalk and Talk	<b>DM4</b>	Assignment/Test/Quiz
<b>D M2</b>	ICT Tools	<b>DM5</b>	Laboratory/Field Visit
<b>D M3</b>	Tutorial	<b>DM6</b>	Web-based Learning

### ***PART-D***

<b>P01</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>P02</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>P03</b>	<b>Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
<b>P04</b>	<b>Conduct investigations of complex problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
<b>P05</b>	<b>Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
<b>P06</b>	<b>The engineer and society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues, and the consequent responsibilities relevant to the professional engineering practice
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<b>P08</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
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#### **PROGRAMME SPECIFIC OUTCOMES (PSOs):**

<b>PSO1</b>	Possesses necessary skill set to analyze and design various systems using analytical and software tools related to civil engineering.
<b>PSO2</b>	Possesses ability to plan, examine and analyse the various laboratory tests required for the professional demands.
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<b>Title</b>	<b>Course Instructor</b>	<b>Course Coordinator</b>	<b>Module Coordinator</b>	<b>Head of the Department</b>
<b>Name of the Faculty</b>	<b>Mr.V.V.Krishna Reddy</b>	<b>Dr. J. Nageswara Rao</b>	<b>Dr. Y.V. Bhaskar Reddy</b>	<b>Dr. B. Srinivasa Rao</b>
<b>Signature</b>				



**Part-C**  
**PROGRAMME OUTCOMES (POs):**

<b>P01</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>P02</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>P03</b>	<b>Design/development of solutions:</b> Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
<b>P04</b>	<b>Conduct investigations of complex problems:</b> Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
<b>P05</b>	<b>Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
<b>P06</b>	<b>The engineer and society:</b> Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues, and the consequent responsibilities relevant to the professional engineering practice
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<b>P012</b>	<b>Life-long learning:</b> Recognize the need for and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**PROGRAMME SPECIFIC OUTCOMES (PSOs):**

<b>PS01</b>	Possesses necessary skill set to analyze and design various systems using analytical and software tools related to civil engineering.
<b>PS02</b>	Possesses ability to plan, examine and analyse the various laboratory tests required for the professional demands.
<b>PS03</b>	Possesses basic technical skills to pursue higher studies and professional practice in civil engineering domain.

<b>Title</b>	<b>Course Instructor</b>	<b>Course Coordinator</b>	<b>Module Coordinator</b>	<b>Head of the Department</b>
<b>Name of the Faculty</b>	<b>Mr .V.V. Krishna Reddy</b>	<b>Dr. J. Nageswara Rao</b>	<b>Dr. Y.V. Bhaskar Reddy</b>	<b>Dr. B. Srinivasa Rao</b>
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## DEPARTMENT OF CIVIL ENGINEERING

### 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 : CIVIL -II SEM

A.Y. : 2020-21

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

C01	Introduce one-self and others using appropriate language and details.	L2
C02	Comprehend short talks and speak clearly on a specific topic using	L2
C03	Report effectively after participating in informal discussions ethically.	L1
C04	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	PO 1	PO2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO1 0	PO1 1	PO1 2	PSO 1	PSO 2	PSO 3
C01					3					3	3				
C02					3					3	3				
C03					3					3	3				
C04					3					3	3				
			1 - Low			2 -Medium			3 - High						

**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	4-5-2022		TLM4	
2.	Self Introduction & Introducing others	02	11-5-2022		TLM4	
3.	Self Introduction & Introducing others	02	18-5-2022		TLM4	
4.	JAM- I(Short and Structured Talks)	02	25-5-2022		TLM4	
5.	JAM-II(Short and Structured Talks)	02	01-6-2022		TLM4	
6.	Role Play-I(Formal and Informal)	02	08-6-2022		TLM4	
7.	Role Play-II (Formal and Informal)	02	15-6-2022		TLM4	
8.	Group Discussion-I (Reporting the discussion)	02	29-6-2022 6-7-2022		TLM4, TLM6	
9.	Group Discussion-II	02	13-7-2022		TLM4, TLM6	
10.	Oral & Poster Presentation	02	20-7-2022		TLM2, TLM4	
11.	Oral & Poster Presentation	02	27-7-2022		TLM2, TLM4	
12.	Oral & Poster Presentation	02	03-8-2022		TLM2, TLM4	
13.	Lab Internal Exam	02	10-8-2022			
<b>No. of classes required to complete Syllabus: 26</b>				<b>No. of classes taken:</b>		

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

**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):

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

### PROGRAMME SPECIFIC OUTCOMES (PSOs):

<b>PSO 1</b>	Possesses necessary skill set to analyze and design various systems using analytical and software tools related to civil engineering.
<b>PSO 2</b>	Possesses ability to plan, examine and analyse the various laboratory tests required for the professional demands.
<b>PSO 3</b>	Possesses basic technical skills to pursue higher studies and professional practice in civil engineering domain.

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



# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(Autonomous)

Approved by AICTE, New Delhi and Permanently Affiliated to JNTUK, Kakinada  
Accredited by NAAC and NBA (CSE, IT, ECE, EEE & ME) under Tier - I



College Code:

76

## FRESHMAN ENGINEERING DEPARTMENT

### COURSE HANDOUT

#### Part-A

<b>PROGRAM</b>	: B.Tech., II-Sem., CIVIL
<b>ACADEMIC YEAR</b>	: 2021-2022
<b>COURSE NAME &amp; CODE</b>	: ENGINEERING PHYSICS LAB & 20 FE 55
<b>L-T-P STRUCTURE</b>	: 0-0-3
<b>COURSE CREDITS</b>	: 1.5
<b>COURSE INSTRUCTOR</b>	: Mr. N. T. Sarma / Dr. P. V. N. Kishore
<b>COURSE COORDINATOR</b>	: Dr. P. V. N. Kishore

#### 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 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)

**BOS APPROVED TEXT BOOKS:**

1. Lab Manual Prepared by the LBRCE.

**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
37.	Introduction	3	07/05/2022		TLM4	1,2,3,4	T1	
38.	Demonstration	3	14/05/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
39.	Experiment 1	3	21/05/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
40.	Experiment 2	3	28/05/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
41.	Experiment 3	3	04/06/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
42.	Experiment 4	3	11/06/2022		TLM4	CO1, CO2, CO3, CO4	T1	
43.	Experiment 5	3	18/06/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
44.	Demonstration	3	25/06/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
45.	Experiment 6	3	02/07/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
46.	Experiment 7	3	09/07/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
47.	Experiment 8	3	16/07/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
48.	Experiment 9	3	23/07/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
49.	Experiment 10	3	30/07/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
50.	<b>Internal Exam</b>	3	06/08/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
51.	<b>Internal Exam</b>	3	13/08/2022		TLM4	CO1, CO2, CO3, CO4, CO5	T1	
No. of classes required to complete UNIT-I					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
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
<b>Cumulative Internal Examination : A + B + C = 15</b>	1,2,3,4,5,6,7,8,9,10	<b>15</b>
<b>Semester End Examinations = D</b>	1,2,3,4,5,6,7,8,9,10	<b>D = 35</b>
<b>Total Marks: A + B + C + D = 50</b>	1,2,3,4,5,6,7,8,9,10	<b>50</b>



**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.
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- (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. N. T. Sarma/ Dr. P. V. N. Kishore	Dr. P. V. N. Kishore	Dr. S. YUSUB	Dr A. RAMI REDDY
Course Instructor	Course Coordinator	Module Coordinator	HOD



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**College Code:**

**76**

**DEPARTMENT OF CIVIL ENGINEERING**

**COURSE HANDOUT**

<b>PROGRAM</b>	: B.Tech, II-Sem., CIVIL
<b>ACADEMIC YEAR</b>	: 2021-22
<b>COURSE NAME &amp; CODE</b>	: Computer Aided Engineering Graphics (20ME54)
<b>L-T-P STRUCTURE</b>	: 0-0-3
<b>COURSE CREDITS</b>	: 1.5
<b>COURSE INSTRUCTOR</b>	: Dr. V.Ramakrishna / Dr. K.V.Ramana/Ms. P.Keerthi
<b>COURSE COORDINATOR</b>	: Dr. V.Ramakrishna
<b>PRE-REQUISITE</b>	: Engineering Graphics, Mathematics

***COURSE EDUCATIONAL OBJECTIVE:***

The course aims to teach developing and drawing of engineering objects using AutoCAD. The student will be taught the fundamentals of AutoCAD and then asked to develop the projections of objects related to straight lines, planes, solids, orthographic and isometric views, development of surfaces using principles of engineering drawing.

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

- CO1 : Draw simple objects using functional tools in AutoCAD. (**Understand-L2**)
- CO2 : Develop and draw the positions and views of points, lines, planes and solids using AutoCAD. (**Understand-L2**)
- CO3 : Develop and draw the orthographic and isometric projections of simple objects using AutoCAD. (**Understand-L2**)
- CO4 : Develop and draw the projections of the solids by developing the surfaces using AutoCAD. (**Understand-L2**)

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

COs	P O 1	P O 2	P O 3	P O 4	P O 5	P O 6	P O 7	P O 8	P O 9	P O 10	P O 11	P O 12	PS O 1	PS O 2	PS O 3
CO1	3	3	3	1			1			1			3	1	
CO2	3	3	3	1			1			1			3	1	
CO3	3	3	3	1			1			1			3	1	
CO4	3	3	3	1			1			1			3	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).

**COMPUTER AIDED ENGINEERING GRAPHICS (20ME54)**

**LIST OF EXPERIMENTS**

**COURSE: II SEMESTER**

**A.Y: 2021-2022**

**I CYCLE**

1. Basic drawing commands (line, circle, arc, ellipse, polygon, and rectangle).
2. Edit commands (copy, move, erase, zoom).
3. Array commands (polar array, rectangular array, P-edit, divide, pline, offset).
4. Hatching & line commands (hatching with different angles and different types of lines).
5. Mirror and trim commands (mirror an object, trim, extend a line, chamfer & fillet, explode).
6. Dimensioning & text commands (linear, angular, radius, diameter and text).

## **II CYCLE**

1. Projection of points (I, II, III, & IV quadrants).
2. Projection of lines parallel to both reference planes.
3. Projection of lines parallel to one reference plane & inclined to other reference plane.
4. Projection of planes: Single stage projections.
5. Projection of solids in simple position and transfer of points.
6. Projection of solids with axes inclined to one reference plane & parallel to other.

**Lab-In charge**

## COMPUTER AIDED ENGINEERING GRAPHICS (20ME54)

COURSE: II SEMESTER

A.Y: 2021-22

### I CYCLE SCHEDULE (FRIDAY)

Tentative Date of Completion	Actual Date of Completion	I	II	III	IV	V	VI
6/5/2022		Demo	Demo	Demo	Demo	Demo	Demo
13/5/2022		A1	A1	A1	A1	A1	A1
20/5/2022		A2	A2	A2	A2	A2	A2
27/5/2022		A3	A3	A3	A3	A3	A3
3/6/2022		A4	A4	A4	A4	A4	A4
10/6/2022		A5	A5	A5	A5	A5	A5
17/6/2022		A6	A6	A6	A6	A6	A6

### II CYCLE SCHEDULE (FRIDAY)

Tentative Date of Completion	Actual Date of Completion	I	II	III	IV	V	VI	
1/7/2022		B1	B1	B1	B1	B1	B1	
8/7/2022		B2	B2	B2	B2	B2	B2	
15/7/2022		B3	B3	B3	B3	B3	B3	
22/7/2022		B4	B4	B4	B4	B4	B4	
29/7/2022		B5	B5	B5	B5	B5	B5	
5/8/2022		B6	B6	B6	B6	B6	B6	
12/8/2022		<i>INTERNAL TEST</i>						

Lab-In charge

**COMPUTER AIDED ENGINEERING GRAPHICS (20ME54)**

**COURSE: II SEMESTER**

**A.Y: 2021-22**

<b>BATCH:A (Friday)</b>
A1 ---- 21761A0101 to 21761A0145
A2 ---- 21761A0101 to 21761A0145
A3 ---- 21761A0101 to 21761A0145
A4 ---- 21761A0101 to 21761A0145
A5 ---- 21761A0101 to 21761A0145
A6 ---- 21761A0101 to 21761A0145
B1 --- 21761A0101 to 21761A0145
B2 ---- 21761A0101 to 21761A0145
B3 ---- 21761A0101 to 21761A0145
B4 ---- 21761A0101 to 21761A0145
B4 ---- 21761A0101 to 21761A0145
B6 --- 21761A0101 to 21761A0145

**Lab-In charge**

## COMPUTER AIDED ENGINEERING GRAPHICS (20ME54)

COURSE: II SEMESTER

A.Y: 2021-22

### LAB TIMETABLE

Day	FN	AN
Monday		
Tuesday		
Wednesday		
Thursday		
Friday		II Semester CAEG Lab
Saturday		

**Batch:** 20761A0101 to 20761A0158

### ACADEMIC CALENDAR

Description	From	To	Weeks
I Phase of Instructions	02-05-2022	18-06-2022	7 W
I Mid Examinations	20-06-2022	25-06-2022	1 W
II Phase of Instructions	27-06-2022	13-08-2022	7 W
II Mid Examinations	15-08-2022	20-08-2022	1 W
Preparation and Practical	22-08-2022	27-08-2022	1 W
Semester End Examinations	29-08-2022	10-09-2022	2 W

**Lab-In charge**

**PROGRAMME OUTCOMES (POs):**

<b>PO 1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
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**PROGRAMME SPECIFIC OUTCOMES (PSOs):**

<b>PSO 1</b>	Possesses necessary skill set to analyze and design various systems using analytical and software tools related to civil engineering
<b>PSO 2</b>	Possesses ability to plan, examine and analyze the various laboratory tests required for the professional demands
<b>PSO 3</b>	Possesses basic technical skills to pursue higher studies and professional practice in civil engineering domain

Course Instructor  
(Dr. V.  
Ramakrishna)

Course Coordinator  
(Dr. V.  
Ramakrishna)

Module Coordinator  
(B.Ramakrishna)

HOD  
(Dr. V. Ramakrishna)