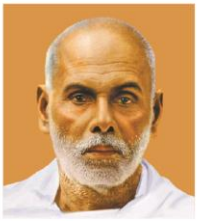
Sree Narayana Guru College
of Engineering & Technology
CHALAKKODE P.O., KOROM, PAYYANUR, KANNUR-670 307



COLLEGE VISION, MISSION, POS, PSOS AND COS IN COURSE FILE, LABORATORY RECORD, LABORATORY MANUAL, UNIVERSITY SYLLABUS, INTERNAL QUESTION PAPERS AND STUDENT HANDBOOK

SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE PLAN SCHEDULE

Name of the faculty	Nimisha M.K
Designation	Assistant Professor
Faculty department name	Computer Science and Engineering
Name of the course with course code	CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA
Department to which this course is offered	Computer Science and Engineering
Semester	THIRD
Academic Year	2022-23

1. COURSE OVERVIEW

This course is to enable learners to solve problems by breaking it down to object level while designing software and to implement it using Java. This course covers Object Oriented Principles, Object Oriented Programming in Java, Inheritance, Exception handling, Event handling, multithreaded programming and working with window-based graphics. This course helps the learners to develop Desktop GUI Applications, Mobile applications, Enterprise Applications, Scientific Applications and Web based Applications.

2. COURSE OBJECTIVE

- To introduce basic concepts of object oriented design and programming in java.
- To give a thorough understanding of java languages
- To provide basic exposure to basic of multithreading, data connectivity etc.
- To impart the techniques of GUI based applications.

3. PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES

I. PROGRAM OUTCOMES

- ENGINEERING KNOWLEDGE
- PROBLEM ANALYSIS
- DESIGN / DEVELOPMENT OF SOLUTION
- CONDUCT INVESTIGATION OF COMPLEX PROBLEMS
- MODERN TOOL USAGE
- THE ENGINEER AND SOCIETY
- ENVIORNMENT AND SUSTAINABILITY
- ETHICS
- INDIVIDUAL AND TEAM WORK

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- COMUNICATION
- PROJECT MANAGEMENT AND FINANCE
- LIFE LONG LEARNING

II. PROGRAM SPECIFIC OUTCOME

- PSO1:-**Computer Science Specific Skills:** The ability to identify, analyze and design solutions for complex engineering problems in multidisciplinary areas by understanding the core principles and concepts of computer science.
- PSO2:-**Programming and Software Development Skills:** The ability to acquire programming efficiency by designing algorithms and applying standard practices in software project development to deliver quality software products.

4. COURSE OUTCOME

CO 1: To introduce basic concepts of object oriented design techniques and to understand the basis of java language.

CO 2: To get thorough knowledge of java languages and to utilize the features of java like datatypes, operators, control statements etc and how to use the object oriented concepts - classes, objects ,constructors, data hiding, inheritance and polymorphism.

CO 3: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism , Input/ Output Streams and Files in Java to develop programs

CO 4: To provide basic exposure for the application of programs in Java using multithreading , String handling mechanism ,collection framework and event handling mechanisms.

CO 5: To impart the techniques of creating GUI based applications and database connectivity.

COURSE MAPPING

	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
CO1	M	L	L	L								L	M	L
CO2	M	M	M	L								L	L	L
CO3	M	M	L	L						L		L	M	L
CO4	M	M	M	L								L	L	L
CO5	L	M	M	L								L		

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5. SYLLABUS

Course No.	Course Name	L-T-P - Credits	Year of Introduction
CST 205	OBJECT ORIENTED PROGRAMMING USING JAVA	3-1-0-4	2019

COURSE PLAN

Module	Contents	Hours
I	Approaches to Software Design - Functional Oriented Design, Object Oriented Design, Case Study of Automated Fire Alarm System. Object Modeling Using Unified Modeling Language (UML) – Basic Object Oriented concepts, UML diagrams, Use case model, Class diagram, Interaction diagram, Activity diagram, State chart diagram. Introduction to Java - Java programming Environment and Runtime Environment, Development Platforms -Standard, Enterprise. Java Virtual Machine (JVM), Java compiler, Bytecode, Java applet, Java Buzzwords, Java program structure, Comments, Garbage Collection, Lexical Issues.	8
II	Primitive Data types - Integers, Floating Point Types, Characters, Boolean. Literals, Type Conversion and Casting, Variables, Arrays, Strings, Vector class. Operators - Arithmetic Operators, Bitwise Operators, Relational Operators, Boolean Logical Operators, Assignment Operator, Conditional (Ternary) Operator, Operator Precedence. Control Statements - Selection Statements, Iteration Statements and Jump Statements. Object Oriented Programming in Java - Class Fundamentals, Declaring Objects, Object Reference, Introduction to Methods, Constructors, ***this*** Keyword, Method Overloading, Using Objects as Parameters, Returning Objects, Recursion, Access Control, Static Members, Final Variables, Inner Classes, Command Line Arguments, Variable Length Arguments. Inheritance - Super Class, Sub Class, The	11

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	Keyword ***super***, protected Members, Calling Order of Constructors, Method Overriding, the Object class, Abstract Classes and Methods, using ***final*** with Inheritance.	
III	Packages and Interfaces - Defining Package, CLASSPATH, Access Protection, Importing Packages, Interfaces. Exception Handling - Checked Exceptions, Unchecked Exceptions, ***try*** Block and ***catch*** Clause, Multiple ***catch*** Clauses, Nested ***try*** Statements, ***thro throws*** and ***finally***. Input/output - I/O Basics, Reading Console Input, Writing Console Output, Print Writer Class, Object Streams and Serialization, Working with Files.	**8**
IV	Java Library - String Handling – String Constructors, String Length, Special String Operations - Character Extraction, String Comparison, Searching Strings, Modifying Strings, using valueOf(), Comparison of String Buffer and String. Collections framework - Collections overview, Collections Interfaces- Collection Interface, List Interface. Collections Class – ArrayList class. Accessing a Collection via an Iterator. Event handling - Event Handling Mechanisms, Delegation Event Model, Event Classes, Sources of Events, Event Listener Interfaces, Using the Delegation Model. Multithreaded Programming - The Java Thread Model, The Main Thread, Creating Thread, Creating Multiple Threads, Synchronization, Suspending, Resuming and Stopping Threads.	**10**
V	Swings fundamentals - Swing Key Features, Model View Controller (MVC), Swing Controls, Components and Containers, Swing Packages, Event Handling in Swings, Swing Layout Managers, Exploring Swings –JFrame, JLabel, The Swing Buttons, JTextField. Java DataBase Connectivity (JDBC) - JDBC overview, Creating and Executing Queries – create table, delete, insert, select.	**8**

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Text Book:

1. Herbert Schildt, Java: The Complete Reference, 8/e, Tata McGraw Hill, 2011.
2. Rajib Mall, Fundamentals of Software Engineering, 4th edition, PHI, 2014.
3. Paul Deitel, Harvey Deitel, Java How to Program, Early Objects 11th Edition, Pearson, 2018.

References:

1. Y. Daniel Liang, Introduction to Java Programming, 7/e, Pearson, 2013.
2. Nageswararao R., Core Java: An Integrated Approach, Dramatic Press, 2008.
3. Flanagan D., Java in A Nutshell, 5/e, O'Reilly, 2005.
4. Barclay K., J. Savage, Object Oriented Design with UML and Java, Elsevier, 2004.
5. Sierra K., Head First Java, 2/e, O'Reilly, 2005.
6. Balagurusamy E., Programming JAVA a Primer, 5/e, McGraw Hill, 2014.

6. TEACHING PLAN

MODULE 1						
Sl No:	Topic	Hours	Mode of Delivery	Planned Date	Actual Date	Course Outcome Number
1.1	Approaches to Software Design- Functional Oriented Design, Object- Oriented Design, Case Study of Automated Fire Alarm System.	1	L	12/9/'22	12/9/'22.	1
1.2	Object Modeling Using UML – Basic object oriented concepts	1	L	13/9/'22	13/9/'22	1
1.3	Basic object oriented concepts	1	L	14/9/'22	13/9/'22	1
1.4	UML diagrams, Use case model	1	T	16/9/'22	14/9/'22	1
1.5	Class diagram, Interaction diagram	1	L	19/9/'22	14/9/'22	1
1.6	Activity diagram, State chart diagram	1	L	20/9/'22	16/9/'22	1
1.7	Java programming Environment and Runtime Environment, Development Platforms - Standard, Enterprise. JVM, Java compiler, Bytecode	1	L	23/9/'22	24/9/'22	1
1.8	Java applet, Java Buzzwords, Java program structure, Comments,	1	L	26/9/'22	26/9/'22	

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	Garbage Collection, Lexical Issues					
MODULE 2						
2.1	Core Java Fundamentals: Primitive Data types, Integers, Floating Point Types, Characters, Boolean	1	L	30/9/'22	27/9/'22	2
2.2	Literals, Type Conversion and Casting, Variables, Arrays, Strings, Vector class.	1	L	3/10/'22	28/9/'22	2
2.3	Operators: Arithmetic Operators, Bitwise Operators, Relational Operators, Boolean Logical Operators, Assignment Operator, Conditional (Ternary) Operator, Operator Precedence.	1	L	18/10/'22	30/9/'22 1/10/'22	2
2.4	Control Statements: Selection Statements, Iteration Statements and Jump Statements.	1	L	10/10/'22	7/10/'22	2
2.5	Object Oriented Programming in Java: Class Fundamentals, Declaring Objects, Object Reference, Introduction to Methods	1	L	11/10/'22	10/10/'22	2
2.6	Constructors, ***this*** Keyword, Method Overloading, Using Objects as Parameters	1	L	12/10/'22	12/10/'22	2
2.7	Returning Objects, Recursion, Access Control, static Members	1	L	14/10/'22	13/10/'22	2
2.8	Final Variables, Inner Classes, Command-Line Arguments, Variable Length Arguments	1	L	17/10/'22	14/10/'22	2
2.9	Inheritance : Super class, Sub class, the keywords ***super***, ***protected*** Members,	1	L	18/10/'22 19/10/'22	17/10/'22	2
2.10	Calling Order of Constructors, Method Overriding, the Object class,	1	L	21/10/'22	18/10/'22	

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2.11	Abstract Classes and Methods, Using ***final*** with Inheritance	1	L	25/10/'22 26/10/'22	19/10/'22	2
	MODULE 3					
3.1	Packages and Interfaces: Defining Package, CLASSPATH, Access Protection, Importing Packages	1	T	28/10/'22	21/10/'22	3
3.2	Interfaces	1	L	31/10/'22	26/10/'22 28/10/'22	3
3.3	Input / Output: I/O Basics, Reading Console Input, Writing Console Output, Print Writer Class	1	L	1/11/'22	2/11/'22	3
3.4	Object Streams and Serialization	1	L	2/11/'22	2/11/'22	3
3.5	Working with Files	1	L	4/11/'22	9/11/'22	3
3.6	Exception Handling: Checked Exceptions, Unchecked Exceptions, ***try*** Block and ***catch*** Clause	1	T	8/11/'22	31/10/'22 1/11/'22	3
3.7	Multiple ***catch*** Clauses, Nested ***try*** Statements	1	L	9/11/'22	26/11/'22	3
3.8	***throw***, ***throws*** and ***finally***	1	L	11/11/'22	28/11/'22	3
	MODULE 4					
4.1	Java Library: String Handling – String Constructors, String Length, Special String Operations	1	L	14/11/'22	29/11/'22	4
4.2	Character Extraction, String Comparison, Searching Strings, Modifying Strings Using valueOf( ), Comparison of String Buffer and String.	1	T	15/11/'22 16/11/'22	30/11/'22	4
4.3	Collections framework – Collections overview, Collections Interfaces- Collection Interface	1	L	18/11/'22	2/12/'22	4
4.4	List Interface, Collections Class – ArrayList Class	1	L	21/11/'22	2/12/'22	4

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4.5	Accessing Collections via an Iterator.	1	L	22/11/22	3/12/'22	4
4.6	Event handling: Event Handling Mechanisms, Delegation Event Model	1	L	23/11/'22	5/12/'22	4
4.7	Delegation Event Model, Event Classes	1	L	25/11/'22	5/12/'22	4
4.8	Sources of Events, Event Listener Interfaces, Using the Delegation Model	1	L	29/11/'22 30/11/'22	6/12/'22	4
4.9	Multithreaded Programming: The Java Thread Model, The Main Thread, Creating Thread	1	T	2/12/'22	6/12/'22	4
4.10	Creating Multiple Threads, Synchronization, Suspending, Resuming and Stopping Threads.	1	L	5/12/'22	6/12/'22	4
	MODULE 5					
5.1	Swings fundamentals, Swing Key Features	1	T	6/12/'22	7/12/'22	5
5.2	MVC, Swing Controls, Components and Containers	1	L	7/12/'22	7/12/'22	5
5.3	Swing Packages, Event Handling in Swings.	1	L	9/12/'22	7/12/'22	5
5.4	Swing Layout Managers	1	L	12/12/'22	14/12/'22	5
5.5	Exploring Swings –JFrame, JLabel, The Swing Buttons, JTextField.	1	L	13/12/'22	14/12/'22	5
5.6	JDBC overview, Creating and Executing Queries create table, delete, insert, select (Basics only, DBMS course is not prerequisite).	1	T	14/12/'22 16/12/'22	15/12/'22	5
5.7	Creating and Executing Queries – create table, delete, insert, select.	1	L	19/12/'22 20/12/'22	15/12/'22	5
5.8	Creating and Executing Queries – create table, delete, insert, select.	1	T	21/12/'22.	16/12/'22 31/1/'23	5

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MODE OF DELIVERY: LECTURE / TUTORIAL / ASSIGNMENT / PRACTICAL

7. GRADING METHODS

Module	Series Test	Assignment	Class Test	Quiz	Tutorial
1	X				X
2	X				X
3	X				X
4	X				X
5	X				X

8. GAPS IN THE SYLLABUS

Sl No	Topic	Remedy	Affected CO	Affected PO	Affected PSO
1	HTML	learning materials	1,2,3,4,5	1,2,3,4,12	1

9. CONTENT BEYOND SYLLABUS

Sl No	Topic	Remedy	Affe cted CO	Affected PO	Affected PSO
1	Eclipse	Self study materials given.	1,5	1,2,3,4,12	1

10. SUBJECT HISTORY

- ✓ Year Of Introduction of the subject – 2019
- ✓ Faculty Handled Just before this time –Ms.NIMISHA M.K
- ✓ Pass Percentage during last three years – 62
- ✓ Target Pass Percentage – 69.6

11. Any other important matter to be brought into consideration:

Nil

Manual Prepared by:

NIMISHA M.K
ASSISTANT PROFESSOR
DEPARTMENT OF CSE

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

Approved by:

VEENA K.K
ASSISTANT PROFESSOR
DEPARTMENT OF CSE

Dated signature of faculty member

31/8/'22.

Dated signature of Module Coordinator

31/8/22

Dated signature of HOD

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SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE PLAN SCHEDULE – LABORATORY COURSE

Name of the faculty	**JACOB THOMAS**
Designation	**ASSISTANT PROFESSOR**
Faculty department name	**MECHANICAL DEPARTMENT**
Name of the course with course code	**MEL 332: COMPUTER AIDED DESIGN AND ANALYSIS LAB.**
Semester	**SIXTH**
Academic Year	**2022-2023**

1. **COURSE OVERVIEW:** - The course is designed to train students to have hand on experience on using various application software for design and analysis of any type of projects in the platform of mechanical engineering. Students will be introduced to a team working environment where they develop the necessary skills for planning, preparing and executing an engineering project.
2. **COURSE OBJECTIVE**

To introduce students to the basics and standards of engineering design and analysis related to machine components.
To make students familiarize with different solid modelling and analysis software.
To convey the principles and requirements of modelling and analysis of machine elements.
To introduce the preparation of part modelling and assembly modelling of machineries.
To introduce standard CAD packages to perform Finite Element Analysis of machine parts.

PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES

I. PROGRAM OUTCOMES

- ENGINEERING KNOWLEDGE
- PROBLEM ANALYSIS
- DESIGN / DEVELOPMENT OF SOLUTION
- CONDUCT INVESTIGATION OF COMPLEX PROBLEMS
- MODERN TOOL USAGE
- THE ENGINEER AND SOCIETY
- ENVIORNMENT AND SUSTAINABILITY
- ETHICS
- INDIVIDUAL AND TEAM WORK
- COMUNICATION
- PROJECT MANAGEMENT AND FINANCE
- LIFE LONG LEARNING

II. PROGRAM SPECIFIC OUTCOME

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PSO1: Develop and implement new ideas on product design and development with the help of CAD/CAM tools while ensuring best manufacturing practices

PSO2: Able to integrate and apply knowledge in the solution of interdisciplinary engineering problems.

3. COURSE OUTCOME

CO1: Gain working knowledge in Computer Aided Design and modelling procedures.

CO2: Gain knowledge in creating solid machinery parts.

CO3: Gain knowledge in assembling machine elements.

CO4: Gain working knowledge in Finite Element Analysis.

CO5: Solve simple structural, heat and fluid flow problems using standard software.

COURSE MAPPING

	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
CO1	H									M				
CO2	H		L							H				
CO3	H	H							M	M				
CO4	H	L	H					L	M	H				
CO5	H	H	M					M	H	H				

4. SYLLABUS

SL.NO	PART - A (Minimum 6 models)	COURSE OUTCOMES	HOURS
1	Creation of high end part models (minimum 2 models, Questions for examinations must not be taken from this portions)	CO1, CO2	6
2	Creating assembly models of Socket and spigot joint, Knuckle Joint, Rigid flange couplings, Bushed Pin flexible coupling, Plummer block, Single plate clutch and Cone friction clutch. Pipe joints, Screw jack, Tail stock etc. (minimum 4 models)	CO1, CO2, CO3	12
	PART – B (Minimum 6 problems)		
3	Structural analysis. (minimum 3 problems)	CO4, CO5	6
4	Thermal analysis. (minimum 2 problems)	CO4, CO5	3
5	Fluid flow analysis. (minimum 1 problem)	CO4, CO5	3

5. TEXT BOOKS:

1. Daryl Logan, A First course in Finite Element Method, Thomson Learning, 2007
2. David V Hutton, Fundamentals of Finite Element Analysis, Tata McGraw Hill,2003
3. Ibrahim Zeid, CAD/ CAM Theory and Practice, McGraw Hill, 2007
4. Mikell P. Groover and Emory W. Zimmer, CAD/ CAM – Computer aided design and manufacturing, Pearson Education,1987
5. T. R. Chandrupatla and A. D. Belagundu, Introduction to Finite Elements in Engineering, Pearson Education, 2012

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TEACHING PLAN

CYCLE 1				
Exp No:	**Planned Date**	**EXPERIMENT NAME**	**COURSE OUTCOME**	**Actual Date**
1	7/2/23	Part modelling	1,2	14/02/23
2	14/2/23	Part modelling	1,2	28/02/23
3	21/2/23	Gib and Cotter joint	1,2,3	07/03/23
4	28/2/23	Rigid flanged coupling	1,2,3	14/03/23
5	7/3/23	Knuckle joint assembly	1,2,3	21/03/23
6	14/3/23	Plummer block assembly	1,2,3	28/03/23
7	21/3/23	Structural analysis	4,5	04/04/23
8	28/3/23	Structural analysis	4,5	11/04/23
9	4/4/23	Structural analysis	4,5	11/03/23
10	11/4/23	Motion study of Screw and Nut	4,5	18/04/23
11	18/4/23	Thermal analysis	4,5	18/06/23
12	25/4/23	Fluid flow analysis	4,5	20/06/23

6. **Subject History**
   - ✓ Year Of Introduction of the lab – 2019
   - ✓ Faculty Handled Just before this time – Jacob Thomas
   - ✓ Pass Percentage during last three years – 100%
   - ✓ Target Pass Percentage – 100%
7. Any other important matter to be brought into consideration:

Manual Prepared by:

<JACOB THOMAS, AP ME>

Approved by: Athul Raj PP

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PRINCIPAL
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<, AP ME>

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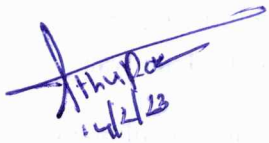
Dated signature of Module Coordinator 

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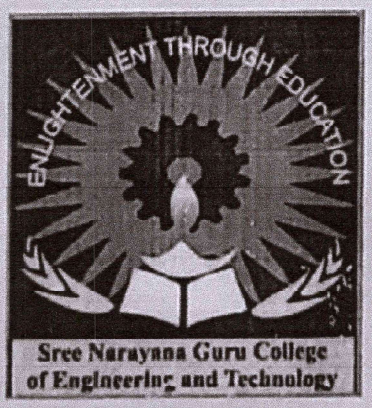
SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY PAYYANUR

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

FOURTH SEMESTER

LAB RECORD

CSL204
OPERATING SYSTEMS LAB



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A P J ABDUL KALAM TECHNOLOGICAL UNIVERSITY, KERALA.

LAB RECORD

CSL204
OPERATING SYSTEMS LAB

Name: ANUDEEP K

Semester: S4

Registration No. SNL21CS012

Certified that this is the bonafide record of the work done in "CSL204 OPERATING SYSTEMS LAB" of Department of Computer Science and Engineering at Sree Narayana Guru College of Engineering and Technology, Payyanur, Kannur by

Mr./Ms. ANUDEEP K

for the award of the Degree of Bachelor of Technology in Computer Science & Engineering of A P J Abdul Kalam Technological University, Kerala.

22/6/23
Staff in-charge

22/6/2023
Head of the Department

Place: PAYYANUR

Date: 22-06-2023

19/8/23
Internal Examiner

19/8/23
External Examiner

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VISION OF THE DEPARTMENT

To be a centre of excellence in Computer Science and Engineering to produce competent professionals and entrepreneurs capable of exploring and assimilating latest technological advancements for the betterment of the society.

MISSION OF THE DEPARTMENT

- To facilitate transformative education in computer science and engineering.
- To build competent professionals and entrepreneurs by introducing new technologies.
- To accomplish higher education, induce ethical values and spirit of social commitment.

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PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To prepare students to excel in Computer Science and Engineering programme through quality education enabling them to succeed in computing industry profession.

PEO2: To provide students with core competencies by strengthening their mathematical, scientific and basic engineering fundamentals.

PEO3: To design & develop novel products and innovative solutions for real life problems in Computer Science & Engineering field and related domains by broad based knowledge.

PEO4: To inculcate professionalism among students by providing technical, entrepreneurial skills and soft skills with ethical standards.

PEO5: To encourage students for higher studies by adapting to new technologies through interactive quality teaching and organizing symposiums, conferences, seminars, workshops and technical discussions.

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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 technological change.

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PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Computer Science Specific Skills: The ability to identify, analyze and design solutions for complex engineering problems in multidisciplinary areas by understanding the core principles and concepts of computer science.

PSO2: Programming and Software Development Skills: The ability to acquire programming efficiency by designing algorithms and applying standard practices in software project development to deliver quality software products.

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PRINCIPAL
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SYLLABUS

CST204	OPERATING SYSTEMS LAB	CATEGORY	L	T	P	CREDIT	YEAR OF INTRODUCTION
		PCC	0	0	3	2	2019

Preamble: The course aims to offer students a hands-on experience on Operating System concepts using a constructivist approach and problem-oriented learning. Operating systems are the fundamental part of every computing device to run any type of software.

Prerequisite: Topics covered in the courses are Data Structures (CST 201) and Programming in C (EST102)

Course Outcomes:

At the end of the course, the students could be able to

CO1	Illustrate the use of systems calls in Operating Systems. **(Cognitive knowledge: Understand)**
CO2	Implement Process Creation and Inter Process Communication in Operating Systems. **(Cognitive knowledge: Apply)**
CO3	Implement Fist Come First Served, Shortest Job First, Round Robin and Priority-based CPU Scheduling Algorithms. **(Cognitive knowledge: Apply)**
CO4	Illustrate the performance of First In First Out, Least Recently Used and Least Frequently Used Page Replacement Algorithms. **(Cognitive knowledge:Apply)**
CO5	Implement modules for Deadlock Detection and Deadlock Avoidance in Operating Systems. **(Cognitive knowledge:Apply)**
CO6	Implement modules for Storage Management and Disk Scheduling in Operating Systems. **(Cognitive knowledge:Apply)**

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PRINCIPAL
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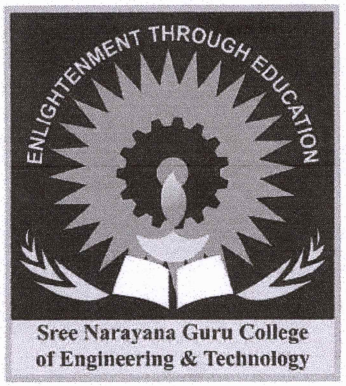

Est. 2003

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

FOURTH SEMESTER

LAB MANUAL

CSL204
OPERATING SYSTEMS LAB

HOD/CSE

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A P J ABDUL KALAM TECHNOLOGICAL UNIVERSITY, KERALA.

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

VISION OF THE DEPARTMENT

To be a centre of excellence in Computer Science & Engineering to produce competent professionals and entrepreneurs capable of exploring and assimilating latest technological advancements for the betterment of the society.

MISSION OF THE DEPARTMENT

- To facilitate transformative education in computer science & engineering.
- To build competent professionals and entrepreneurs by introducing new technologies.
- To accomplish higher education, induce ethical values and spirit of social commitment.

HOD/CSE

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PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO1: To prepare students to excel in Computer Science & Engineering programme through quality education enabling them to succeed in computing industry profession.

PEO2: To provide students with core competencies by strengthening their mathematical, scientific and basic engineering fundamentals.

PEO3: To design & develop novel products and innovative solutions for real life problems in Computer Science & Engineering field and related domains by broad based knowledge.

PEO4: To inculcate professionalism among students by providing technical, entrepreneurial skills and soft skills with ethical standards.

PEO5: To encourage students for higher studies by adapting to new technologies through interactive quality teaching and organizing symposiums, conferences, seminars, workshops and technical discussions.

HOD/CE

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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 technological change.

HOD/ECE

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PRINCIPAL
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PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: Computer Science Specific Skills: The ability to identify, analyze and design solutions for complex engineering problems in multidisciplinary areas by understanding the core principles and concepts of computer science.

PSO2: Programming and Software Development Skills: The ability to acquire programming efficiency by designing algorithms and applying standard practices in software project development to deliver quality software products.

HOD/ISE

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SYLLABUS

CST204	OPERATING SYSTEMS LAB	CATEGORY	L	T	P	CREDIT	YEAR OF INTRODUCTION
		PCC	0	0	3	2	2019

Preamble: The course aims to offer students a hands-on experience on Operating System concepts using a constructivist approach and problem-oriented learning. Operating systems are the fundamental part of every computing device to run any type of software.

Prerequisite: Topics covered in the courses are Data Structures (CST 201) and Programming in C (EST102)

Course Outcomes:

At the end of the course, the students could be able to

CO1	Illustrate the use of systems calls in Operating Systems. **(Cognitive knowledge: Understand)**
CO2	Implement Process Creation and Inter Process Communication in Operating Systems. **(Cognitive knowledge: Apply)**
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HOD/CSE

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CST 205	OBJECT ORIENTED PROGRAMMING USING JAVA	CATEGORY	L	T	P	CREDIT	YEAR OF INTRODUCTION
		PCC	3	1	0	4	2019

Preamble: The purpose of this course is to enable learners to solve problems by breaking it down to object level while designing software and to implement it using Java. This course covers Object Oriented Principles, Object Oriented Programming in Java, Inheritance, Exception handling, Event handling, multithreaded programming and working with window-based graphics. This course helps the learners to develop Desktop GUI Applications, Mobile applications, Enterprise Applications, Scientific Applications and Web based Applications.

Prerequisite: Topics covered under the course PROGRAMMING IN C (EST 102)

Course Outcomes: After the completion of the course the student will be able to

CO1	Write Java programs using the object oriented concepts - classes, objects, constructors, data hiding, inheritance and polymorphism (Cognitive Knowledge Level: **Apply**)
CO2	Utilise datatypes, operators, control statements, built in packages & interfaces, Input/ Output Streams and Files in Java to develop programs (Cognitive Knowledge Level: **Apply**)
CO3	Illustrate how robust programs can be written in Java using exception handling mechanism (Cognitive Knowledge Level: **Understand**)
CO4	Write application programs in Java using multithreading and database connectivity (Cognitive Knowledge Level: **Apply**)
CO5	Write Graphical User Interface based application programs by utilising event handling features and Swing in Java (Cognitive Knowledge Level: **Apply**)

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Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓	✓	✓	✓								✓
CO2	✓	✓	✓	✓								✓
CO3	✓	✓	✓	✓						✓		✓
CO4	✓	✓	✓	✓								✓
CO5	✓	✓	✓	✓								✓

Abstract POs defined by National Board of Accreditation			
PO#	**Broad PO**	**PO#**	**Broad PO**
PO1	Engineering Knowledge	PO7	Environment and Sustainability
PO2	Problem Analysis	PO8	Ethics
PO3	Design/Development of solutions	PO9	Individual and team work
PO4	Conduct investigations of complex problems	PO10	Communication
PO5	Modern tool usage	PO11	Project Management and Finance
PO6	The Engineer and Society	PO12	Life long learning

Assessment Pattern

Bloom's Category	Continuous Assessment Tests		End Semester Examination
	Test1 (Marks %)	Test2 (Marks %)	Marks (%)
Remember	30	30	30
Understand	30	30	30
Apply	40	40	40
Analyse			
Evaluate			
Create			

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Mark Distribution

Total Marks	CIE Marks	ESE Marks	ESE Duration
150	50	100	3 hours

Continuous Internal Evaluation Pattern:

Attendance : 10 marks

Continuous Assessment Tests : 25 marks

Continuous Assessment Assignment : 15 marks

Internal Examination Pattern:

Each of the two internal examinations has to be conducted out of 50 marks

First series test shall be preferably conducted after completing the first half of the syllabus and the second series test shall be preferably conducted after completing remaining part of the syllabus.

There will be two parts: Part A and Part B. Part A contains 5 questions (preferably, 2 questions each from the completed modules and 1 question from the partly covered module), having 3 marks for each question adding up to 15 marks for part A. Students should answer all questions from Part A. Part B contains 7 questions (preferably, 3 questions each from the completed modules and 1 question from the partly covered module), each with 7 marks. Out of the 7 questions in Part B, a student should answer any 5.

End Semester Examination Pattern: There will be two parts; Part A and Part B. Part A contains 10 questions with 2 questions from each module, having 3 marks for each question. Students should answer all questions. Part B contains 2 questions from each module of which a student should answer any one. Each question can have maximum 2 sub-divisions and carry 14 marks.

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SYLLABUS

Object Oriented Programming Using Java

Module 1

Introduction:

Approaches to Software Design - Functional Oriented Design, Object Oriented Design, Case Study of Automated Fire Alarm System.

Object Modeling Using Unified Modeling Language (UML) – Basic Object Oriented concepts, UML diagrams, Use case model, Class diagram, Interaction diagram, Activity diagram, State chart diagram.

Introduction to Java - Java programming Environment and Runtime Environment, Development Platforms -Standard, Enterprise. Java Virtual Machine (JVM), Java compiler, Bytecode, Java applet, Java Buzzwords, Java program structure, Comments, Garbage Collection, Lexical Issues.

Module 2

Core Java Fundamentals:

Primitive Data types - Integers, Floating Point Types, Characters, Boolean. Literals, Type Conversion and Casting, Variables, Arrays, Strings, Vector class.

Operators - Arithmetic Operators, Bitwise Operators, Relational Operators, Boolean Logical Operators, Assignment Operator, Conditional (Ternary) Operator, Operator Precedence.

Control Statements - Selection Statements, Iteration Statements and Jump Statements.

Object Oriented Programming in Java - Class Fundamentals, Declaring Objects, Object Reference, Introduction to Methods, Constructors, ***this*** Keyword, Method Overloading, Using Objects as Parameters, Returning Objects, Recursion, Access Control, Static Members, Final Variables, Inner Classes, Command Line Arguments, Variable Length Arguments.

Inheritance - Super Class, Sub Class, The Keyword ***super***, protected Members, Calling Order of Constructors, Method Overriding, the Object class, Abstract Classes and Methods, using ***final*** with Inheritance.

Module 3

More features of Java:

Packages and Interfaces - Defining Package, CLASSPATH, Access Protection, Importing Packages, Interfaces.

Exception Handling - Checked Exceptions, Unchecked Exceptions, ***try*** Block and ***catch*** Clause, Multiple ***catch*** Clauses, Nested ***try*** Statements, ***throw***, ***throws*** and ***finally***.

Input/Output - I/O Basics, Reading Console Input, Writing Console Output, PrintWriter Class, Object Streams and Serialization, Working with Files.

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Module 4

Advanced features of Java:

Java Library - String Handling – String Constructors, String Length, Special String Operations - Character Extraction, String Comparison, Searching Strings, Modifying Strings, using valueOf(), Comparison of StringBuffer and String.

Collections framework - Collections overview, Collections Interfaces- Collection Interface, List Interface.

Collections Class – ArrayList class. Accessing a Collection via an Iterator.

Event handling - Event Handling Mechanisms, Delegation Event Model, Event Classes, Sources of Events, Event Listener Interfaces, Using the Delegation Model.

Multithreaded Programming - The Java Thread Model, The Main Thread, Creating Thread, Creating Multiple Threads, Synchronization, Suspending, Resuming and Stopping Threads.

Module 5

Graphical User Interface and Database support of Java:

Swings fundamentals - Swing Key Features, Model View Controller (MVC), Swing Controls, Components and Containers, Swing Packages, Event Handling in Swings, Swing Layout Managers, Exploring Swings –JFrame, JLabel, The Swing Buttons, JTextField.

Java DataBase Connectivity (JDBC) - JDBC overview, Creating and Executing Queries – create table, delete, insert, select.

Text Books:

1. Herbert Schildt, Java: The Complete Reference, 8/e, Tata McGraw Hill, 2011.
2. Rajib Mall, Fundamentals of Software Engineering, 4th edition, PHI, 2014.
3. Paul Deitel, Harvey Deitel, Java How to Program, Early Objects 11th Edition, Pearson, 2018.

Reference Books:

1. Y. Daniel Liang, Introduction to Java Programming, 7/e, Pearson, 2013.
2. Nageswararao R., Core Java: An Integrated Approach, Dreamtech Press, 2008.
3. Flanagan D., Java in A Nutshell, 5/e, O'Reilly, 2005.
4. Barclay K., J. Savage, Object Oriented Design with UML and Java, Elsevier, 2004.
5. Sierra K., Head First Java, 2/e, O'Reilly, 2005.
6. Balagurusamy E., Programming JAVA a Primer, 5/e, McGraw Hill, 2014.

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PRINCIPAL
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Sample Course Level Assessment Questions

Course Outcome1(CO1): For the following passage develop UML diagrams and then implement it as a Java program in accordance with your UML design.

Passage: College Office collects semester fee and college bus fee for each student. A clerk at the college office collects the fees from each student. The bus fee is calculated depending on the distance of the corresponding bus stop from the college. The semester fee varies depending upon the semester as well as branch of each student. Students are supposed to pay the fees in full. Economically backward students are eligible for 50% discount in semester fee. The consolidated fees receipt is issued to each student by the clerk, which contains the student name, admission number, semester and branch of student along with details of fees collected. Students can log in and view the details of fees remitted and dues if any. The system allows students and clerk level login to the system. Clerk is able to view reports of each class showing status of fees payment of each student.

Course Outcome 2(CO2): Write a Java program to evaluate a post fix expression containing two operands and a single operator using stack. Stack should be implemented as a separate entity so as to reflect OOP concepts.

Course Outcome 3(CO3): Write a program to demonstrate the start, run, sleep and join methods in Thread class.

Course Outcome 4(CO4): Write a GUI based program with separate buttons to add, delete and display student details i.e. name, student ID, current semester and branch of study based on student ID.

Course Outcome 5(CO5): Using Swing create a JFrame with a JLabel and two JButtons. Set the texts of JButtons as "Yes" and "No" respectively. Set the JLabel's text to the text of the button currently being pressed. Initially the JLabel's text is blank.

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PRINCIPAL
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Model Question Paper

QP CODE:

PAGES:3

Reg No:_____

Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

THIRD SEMESTER B.TECH DEGREE EXAMINATION, MONTH & YEAR

Course Code: CST 205

Course Name: Object Oriented Programming using Java

Max.Marks:100 **Duration: 3 Hours**

PART A

Answer all Questions. Each question carries 3 Marks

1. Briefly explain the portable, secure and robust features of Java.
2. Describe the concepts of object and class with a suitable Java program.
3. Explain the concept of method overriding with an example.
4. What is the use of the keyword ***final*** in Java?
5. Explain the concept of streams.
6. Explain any two applications of Serialization.
7. Distinguish the usage of "==" and ***equals()*** method when comparing String type?
8. What are Collections in Java? Explain any one Collection interface in Java.
9. Explain any two properties of Swing components in Java.
10. Explain JLabel component. With suitable examples explain any two of its constructors.

Part B

Answer any one question completely from each module

11.

(a) Describe in detail any three Object Oriented Programming principles. Illustrate with suitable examples. (9)

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(b) What is Java Runtime Environment? What is the role of Java Virtual Machine in it? (5)

OR

12.

(a) Compare and contrast Java standard edition and Java enterprise edition. (5)

(b) Why is Java considered to be platform independent? What is the role of Bytecode in making Java platform independent? (9)

13.

(a) Explain in detail the primitive data types in Java. (8)

(b) Explain automatic type conversion in Java with an example. What are the two conditions required for it? (6)

OR

14.

(a) Using a suitable Java program explain the difference between ***private*** and ***public*** members in the context of inheritance. (8)

(b) Is it possible to use the keyword ***super*** within a static method? Give justification for your answer. (6)

15.

(a) Explain in detail about byte streams and character streams with suitable code samples. (6)

(b) Describe in detail about exception handling, ***try*** block and ***catch*** clause with the help of a suitable Java program. (8)

OR

16.

(a) Explain object streams in Java. Explain the role of Serializable interface with a suitable code sample. (8)

(b) Explain ***throw***, ***throws*** and ***finally*** constructs with the help of a Java program. (6)

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17. (a) Describe in detail the creation of a thread using the Runnable interface and the Thread class with suitable examples. (10)

(b) Explain List Interface. Mention any two exceptions thrown by its methods. (4)

OR

18. (a) Explain in detail the Delegation Event model for event handling in Java. (7)

(b) Write a simple program by extending appropriate class to demonstrate the working of threads in java. (7)

19. (a) Write a Java program to demonstrate the use of JLabel and JButton by adding them to JFrame. (7)

(b) Explain step-by-step procedure of using Java DataBase Connectivity in Java programs. (7)

OR

20. (a) Explain the class hierarchy of Java Swing components. (7)

(b) Write a Java Program to create a student table and to add student details to it using JDBC. (7)

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Teaching Plan		
Module 1 : Introduction		(8 hours)
1.1	Approaches to Software Design- Functional Oriented Design, Object-Oriented Design, Case Study of Automated Fire Alarm System.	1 hour
1.2	Object Modeling Using UML – Basic object oriented concepts	1 hour
1.3	Basic object oriented concepts	1 hour
1.4	UML diagrams, Use case model	1hour
1.5	Class diagram, Interaction diagram	1hour
1.6	Activity diagram, State chart diagram	1hour
1.7	Java programming Environment and Runtime Environment, Development Platforms -Standard, Enterprise. JVM, Java compiler, Bytecode	1hour
1.8	Java applet, Java Buzzwords, Java program structure, Comments, Garbage Collection, Lexical Issues	1hour
Module 2: Core Java Fundamentals		(11 hours)
2.1	Core Java Fundamentals: Primitive Data types, Integers, Floating Point Types, Characters, Boolean	1 hour
2.2	Literals, Type Conversion and Casting, Variables, Arrays, Strings, Vector class.	1 hour
2.3	Operators: Arithmetic Operators, Bitwise Operators, Relational Operators, Boolean Logical Operators, Assignment Operator, Conditional (Ternary) Operator, Operator Precedence.	1 hour
2.4	Control Statements: Selection Statements, Iteration Statements and Jump Statements.	1 hour
2.5	Object Oriented Programming in Java: Class Fundamentals, Declaring Objects, Object Reference, Introduction to Methods	1 hour
2.6	Constructors, ***this*** Keyword, Method Overloading, Using Objects as Parameters	1 hour
2.7	Returning Objects, Recursion, Access Control, static Members	1 hour

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2.8	Final Variables, Inner Classes, Command-Line Arguments, Variable Length Arguments	1 hour
2.9	Inheritance : Super class, Sub class, the keywords ***super***, ***protected*** Members,	1 hour
2.10	Calling Order of Constructors, Method Overriding, the Object class,	1 hour
2.11	Abstract Classes and Methods, Using ***final*** with Inheritance	1 hour
Module 3: More features of Java		(8 hours)
3.1	Packages and Interfaces: Defining Package, CLASSPATH, Access Protection, Importing Packages	1 hour
3.2	Interfaces	1 hour
3.3	Input / Output: I/O Basics, Reading Console Input, Writing Console Output, PrintWriter Class	1 hour
3.4	Object Streams and Serialization	1 hour
3.5	Working with Files	1 hour
3.6	Exception Handling: Checked Exceptions, Unchecked Exceptions, ***try*** Block and ***catch*** Clause	1 hour
3.7	Multiple ***catch*** Clauses, Nested ***try*** Statements	1 hour
3.8	***throw***, ***throws*** and ***finally***	1 hour
Module 4:Advanced features of Java		(10 hours)
4.1	Java Library: String Handling – String Constructors, String Length, Special String Operations	1hour
4.2	Character Extraction, String Comparison, Searching Strings, Modifying Strings Using valueOf( ), Comparison of String Buffer and String.	1hour
4.3	Collections framework – Collections overview, Collections Interfaces-Collection Interface	1hour
4.4	List Interface, Collections Class – ArrayList Class	1hour
4.5	Accessing Collections via an Iterator.	1hour
4.6	Event handling: Event Handling Mechanisms, Delegation Event Model	1hour
4.7	Delegation Event Model, Event Classes	1hour

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4.8	Sources of Events, Event Listener Interfaces, Using the Delegation Model	1hour
4.9	Multithreaded Programming: The Java Thread Model, The Main Thread, Creating Thread	1hour
4.10	Creating Multiple Threads, Synchronization, Suspending, Resuming and Stopping Threads.	1hour
Module 5: Graphical User Interface and Database support of Java		(8 hours)
5.1	Swings fundamentals, Swing Key Features	1hour
5.2	MVC, Swing Controls, Components and Containers	1hour
5.3	Swing Packages, Event Handling in Swings.	1 hour
5.4	Swing Layout Managers	1hour
5.5	Exploring Swings –JFrame, JLabel, The Swing Buttons, JTextField.	1 hour
5.6	JDBC overview, Creating and Executing Queries – create table, delete, insert, select (Basics only, DBMS course is not a prerequisite).	1hour
5.7	Creating and Executing Queries – create table, delete, insert, select.	1 hour
5.8	Creating and Executing Queries – create table, delete, insert, select.	1 hour

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PRINCIPAL
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MEL332	COMPUTER AIDED DESIGN & ANALYSIS LAB	CATEGORY	L	T	P	CREDITS
		PCC	0	0	3	2

Preamble:

- To introduce students to the basics and standards of engineering design and analysis related to machine components.
- To make students familiarize with different solid modelling and analysis soft wares
- To convey the principles and requirements ofmodelling and analysis of machine elements.
- To introduce the preparation of part modelling and assembly modelling of machineries
- To introduce standard CAD packages to perform Finite Element Analysis of machine parts

Prerequisite:

EST 110 - Engineering Graphics
MEL 201 - Computer Aided Machine Drawing

Course Outcomes - At the end of the course students will be able to

CO1	Gain working knowledge in Computer Aided Design and modelling procedures.
CO2	Gain knowledge in creating solid machinery parts.
CO3	Gain knowledge in assembling machine elements.
CO4	Gain working knowledge in Finite Element Analysis.
CO5	Solve simple structural, heat and fluid flow problems using standard software

Mapping of course outcomes with program outcomes (Minimum requirements)

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

Mark Distribution

Total Marks	CIE Marks	ESE marks	ESE duration
150	75	75	2.5 hours

Continuous Internal Evaluation (CIE) Pattern:

Attendance	15 marks
Regular class work/Modelling and Analysis/Lab Record and Class Performance	30 marks
Continuous Assessment Test (minimum two tests)	30 marks

Dr. LEENA A V
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Continuous Assessment test pattern

Bloom's Taxonomy	Continuous Assessment Tests	
	Test 1 - PART A MODELLING (marks)	Test 2 - PART B ANALYSIS (marks)
Remember	10	10
Understand	10	10
Apply	20	20
Analyse	15	15
Evaluate	20	20
Create	25	25

End semester examination pattern

End semester examination shall be conducted on modelling and analysis and based on complete syllabus. The following general guidelines should be maintained for the award of marks

Part A Assembly Modelling – 35 marks
Part B Analysis – 30 marks
Viva Voce – 10 marks.

Conduct of University Practical Examinations

The Principals of the concerned Engineering Colleges with the help of the Chairmen/Chairperson will conduct the practical examination with the approval from the University and bonafide work / laboratory record, hall ticket, identity card issued by college are mandatory for appearing practical University examinations. No practical examination should be conducted without the presence of an external examiner appointed by the University.

References Books:

1. Daryl Logan, A First course in Finite Element Method, Thomson Learning, 2007
2. David V Hutton, Fundamentals of Finite Element Analysis, Tata McGraw Hill,2003
3. Ibrahim Zeid, CAD/ CAM Theory and Practice, McGraw Hill, 2007
4. Mikell P. Groover and Emory W. Zimmer, CAD/ CAM – Computer aided design and manufacturing, Pearson Education,1987
5. T. R. Chandrupatla and A. D. Belagundu, Introduction to Finite Elements in Engineering, Pearson Education, 2012

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Experiment List (Minimum 12 exercises)

SL.NO	PART - A (Minimum 6 models)	COURSE OUTCOMES	HOURS
1	Creation of high end part models (minimum 2 models, Questions for examinations must not be taken from this portions)	CO1, CO2	6
2	Creating assembly models of Socket and spigot joint, Knuckle Joint, Rigid flange couplings, Bushed Pin flexible coupling, Plummer block, Single plate clutch and Cone friction clutch. Pipe joints, Screw jack, Tail stock etc. (minimum 4 models)	CO1, CO2, CO3	12
	PART – B (Minimum 6 problems)		
3	Structural analysis. (minimum 3 problems)	CO4, CO5	6
4	Thermal analysis. (minimum 2 problems)	CO4, CO5	3
5	Fluid flow analysis. (minimum 1 problem)	CO4, CO5	3

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END SEMSTER EXAMINATION

MODEL QUESTION PAPER

MEL332: COMPUTER AIDED DESIGN AND ANALYSIS LAB

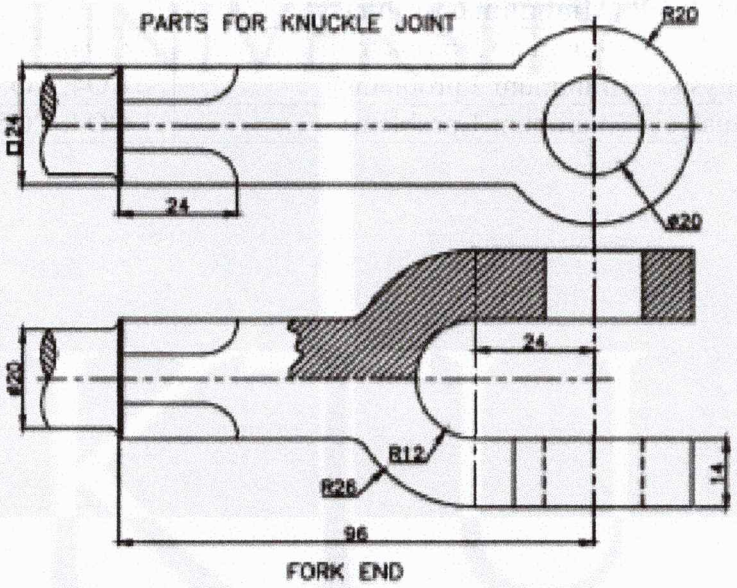
Duration : 2.5 hours Marks : 75

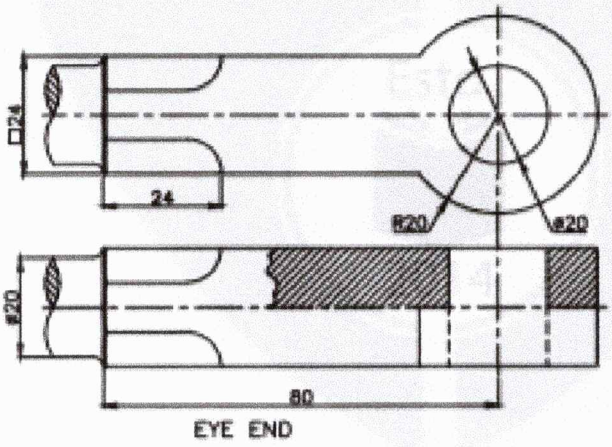
Note :

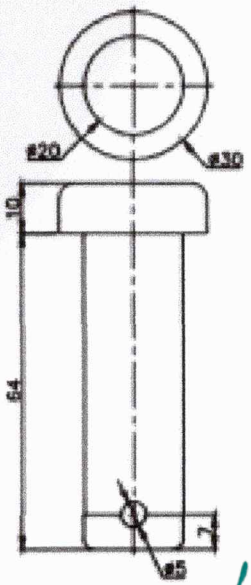
1. All dimensions in mm
2. Assume missing dimensions appropriately
3. A4 size answer booklet shall be supplied
4. Viva Voce shall be conducted for 10 marks

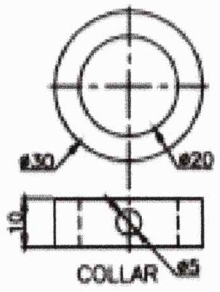
PART A (ASSEMBLY MODELLING) – 35 marks

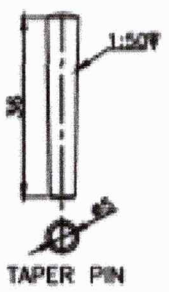
1. Create an assembly model using the part details given below











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PART B (FINITE ELEMENT ANALYSIS) – 30 marks

2. Air flows over a long cylinder of 150mm diameter at a velocity of 3m/sec at a temperature of 105° F. Using this data and applying finite element technique find
    a. Max velocity
    b. Plot flow trajectories
    c. Cut plot of velocity

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PRINCIPAL
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SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY,

Series Test	**1**	*Academic Year / Semester*	**2022-23 / S3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Exam	**08/11/2022**	*Duration*	**120 mins**
Starting time	**9:30AM**	*Max. Marks*	**50**

PART A <MAX MARKS : 15>

Q.No			*Marks*	*CO*	*Level*
1		Why the "main" method in Java is qualifies as public, static, void?	3	I	1
2		What is a class diagram? Sketch an UML class diagram for Online Movie Ticket Booking System.	3	I	1
3		How Array and Vector Class differ from each other in Java? Justify your answer.	3	II	1
4		List out the different datatypes in Java. Give example for each.	3	II	1
5		Define Package and Interface in java.	3	III	1

PART B <MAX MARKS: 35>

6	a	Show an UML Activity diagram for Food Ordering Systems which shows flows between the activity Order, Delivery, Food Item, Category, Payment.	6	I	2
	b	Outline an automated fire alarm system and bring out the difference between function oriented software design approaches and object oriented software design approach.	8	I	2
		OR			
7	a	Summarize the buzzwords of Java that defines the Java programming language.	5	I	2
	b	Demonstrate an interaction diagram for an order management system and differentiate the two types of interaction diagram based on it.	9	I	2
8		Extend the use of Looping statements in Java with examples.	14	II	2
		OR			
9	a	Interpret the role of 'super and 'final' keyword in context with inheritance in Java with appropriate example.	5	II	2

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	b	Explain in detail various operators in java with appropriate examples.	9	II	2
10		Illustrate a Java package named 'even package', with a class Even containing a static method that check whether a number is even or not, and returns that information. Import this package in another class and use to check a number is even or not.	7	III	2
		OR			
11		Elaborate the visibility of all Access Specifiers available in Java with respect to: same class, same package sub-class, same package non sub-class, different package sub-class, different package non sub-class.	7	III	2

CO - Course Outcome [CO]

CO I: To introduce basic concepts of object oriented design techniques and to understand the basis of java language.

CO II: To get thorough knowledge of java languages and to utilize the features of java like datatypes, operators, control statements etc and how to use the object oriented concepts -classes, objects, constructors, data hiding, inheritance and polymorphism.

CO III: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism, Input /Output Streams and Files in Java to develop programs

LEVEL - Bloom's Taxonomy Level

Level 1: REMEMBERING

Level 2: UNDERSTANDING

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PRINCIPAL
SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY, PAYYANUR
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Answer Key /Valuation Scheme

Series Test	**1(Scheme)**	*Academic Year / Semester*	**2022-23 / S3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Exam	8/11/2022	*Duration*	**120 mins**
Starting time	9:30 am	*Max. Marks*	**50**

PART A <MAX MARKS : 15>

Q.No		Marks	CO	Level
1	Why the "main" method in Java is qualifies as public, static, void. **Explanation for public, static, void keywords – 1 mark each**	3	I	1
2	What is a class diagram? Sketch an UML class diagram for Online Movie Ticket Booking System. **Class Diagram-1mark, Class diagram for banking system-2 marks.**	3	I	1
3	How Array and Vector Class differ from each other in Java? Justify your answer. **Any 3 points-3 marks.**	3	II	1
4	List out the different datatypes in Java. Give example for each. **Listing -1 mark, Example for each datatypes-2 marks.**	3	II	1
5	Define Package and Interface in java. **Definition -1.5 marks each**	3	III	1

PART B <MAX MARKS: 35>

6	a	Show an UML Activity diagram for Food Ordering Systems which shows flows between the activity Order, Delivery, Food Item, Category, Payment. **Activities -2.5 marks, Activity Diagram -3.5 marks.**	6	I	2
	b	Outline an automated fire alarm system and bring out the difference between function oriented software design approaches and object oriented software design approach. **Figure- 2 marks, Explanation and Difference-6 marks.**	8	I	2

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		OR			
7	a	Summarize the buzzwords of Java that defines the Java programming language. **Any 5 java buzzwords in detail -5 marks.**	5	I	2
	b	Demonstrate an interaction diagram for an order management system and differentiate the two types of interaction diagram based on it. **Diagram -3 marks, types-1mark, Explanation-5marks.**	9	I	2
8		Extend the use of Looping statements in Java with examples. **3 Loop statements with syntax/flowchart-6 marks, Example for each-8 marks**	14	II	2
		OR			
9	a	Interpret the role of 'super and 'final' keyword in context with inheritance in Java with appropriate example. **Explanation for each keyword -2 marks, Example for each -3 marks.**	5	II	2
	b	Explain in detail various operators in java with appropriate examples. **Listing – 1 mark, Explanation -4 marks ,Example–4marks.**	9	II	2
10		Illustrate a Java package named 'even package', with a class Even containing a static method that check whether a number is even or not, and returns that information. Import this package in another class and use to check a number is even or not. **Package creation- 2 marks, logic –1.5 marks, Program-3.5 marks.**	7	III	2
		OR			
11		Elaborate the visibility of all Access Specifiers available in Java with respect to: same class, same package sub-class, same package non sub-class, different package sub-class, different package non sub-class. **Table of Access Specifiers-7 marks.**	7	III	2

CO - Course Outcome [CO]

CO I: To introduce basic concepts of object oriented design techniques and to understand the basis of java language.

CO II: To get thorough knowledge of java languages and to utilize the features of java like datatypes, operators, control statements etc and how to use the object oriented concepts -classes, objects, constructors, data hiding, inheritance and polymorphism.

CO III: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism, Input /Output Streams and Files in Java to develop programs

LEVEL - Bloom's Taxonomy Level

Level 1: REMEMBERING

Level 2: UNDERSTANDING

Dr. LEENA A. V.
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF
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Series Test	**2**	*Academic Year / Semester*	**2022-23 / S3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Exam	**13/12/2022**	*Duration*	**120 mins**
Starting time	**9:30AM**	*Max. Marks*	**50**

	PART A	**<MAX MARKS : 15>**		
Q.No		*Marks*	*CO*	*Level*
1	Compare byte stream and character stream related classes in Java.	3	III	2
2	Show the life cycle of thread showing the different states and method involved in it.	3	IV	2
3	Contrast the difference between String and String Buffer class in Java with an example.	3	IV	2
4	Name any three Swing Layout Managers in java and point out their uses in GUI.	3	V	1
5	List out the features of Swing API.	3	V	1
	PART B	**<MAX MARKS: 35>**		
6	Explain in detail exceptions and various exceptions handling keyword in Java with examples.	7	III	2
	OR			
7	Extend the features of files in java with appropriate file handling operations.	7	III	2
8	Summarize different string comparison methods of String class with appropriate examples.	14	IV	2
	OR			
9	Demonstrate the event handling mechanism in java using the Delegation Event Model with list of source events and corresponding event listener interfaces.	14	IV	2
10	Illustrate the steps to establish database connectivity in java with a sample code.	14	V	2
	OR			
11	Outline a java program to illustrate the use of JTextField, JFrame and JLabel.	14	V	2

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PRINCIPAL
SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY, PAYYANUR
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CO - Course Outcome [CO]

CO III: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism, Input / Output Streams and Files in Java to develop programs.

CO IV: To provide basic exposure for the application of programs in java using string handling mechanism, multithreading, collection framework and event handling mechanisms.

CO V: To impart the techniques creating GUI based applications and database connectivity.

LEVEL - Bloom's Taxonomy Level

Level 1: REMEMBERING

Level 2: UNDERSTANDING

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PRINCIPAL
SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY, PAYYANUR
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Valuation Scheme/Answer Key

Series Test	**2(Scheme)**	*Academic Year / Semester*	**2022-23 / S3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Exam	**13/12/2022**	*Duration*	**120 mins**
Starting time	**9:30AM**	*Max. Marks*	**50**

	PART A			**<MAX MARKS : 15>**
Q.No		*Marks*	*CO*	*Level*
1	Compare byte stream and character stream related classes in Java. **Comparison 3 key points-3 marks.**	3	III	2
2	Show the life cycle of thread showing the different states and method involved in it. **Diagram-1.5marks, Explanation-1.5 marks**	3	IV	2
3	Contrast the difference between String and String Buffer class in Java with an example. **Comparison 3 key points-3 marks.**	3	IV	2
4	Name any three Swing Layout Managers in java and point out their uses in GUI. **Listing – 1.5 marks, Use-1.5 marks.**	3	V	1
5	List out the features of Swing API. **Any 6 Features – 3 marks.**	3	V	1
	PART B			**<MAX MARKS: 35>**
6	Explain in detail exceptions and various exceptions handling keyword in Java with examples. **Definition-1 mark, Types-1 marks, Keywords & Its examples-5 marks.**	7	III	2
	OR			
7	Extend the features of any two file handling operations in java with appropriate examples for each. **List out – 1 mark , Explanation – 3 marks each.**	7	III	2
8	Summarize different string comparison methods of String class with appropriate examples. **Methods with Syntax-4 marks. Example -10 marks each.**	14	IV	2
	OR			
9	Demonstrate the event handling mechanism in java using the Delegation Event Model with list of source events and corresponding event listener interfaces.	14	IV	2

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	Definition-1.5 marks,Figure-1.5 marks,Explanation-6 marks, Source of events – 2.5 marks , Event Listener Interface-2.5marks.			
10	Illustrate the steps to establish database connectivity in java with a sample code. **Steps – 3 marks, Explanation-5 marks, Sample Code - 6 marks.**	14	V	2
	OR			
11	Outline a java program to illustrate the use of JTextField, JFrame and JLabel. **Syntax- 2 marks , Logic – 5marks ,Program-7 marks**	14	V	2

CO - Course Outcome [CO]

CO III: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism, Input / Output Streams and Files in Java to develop programs.

CO IV: To provide basic exposure for the application of programs in java using string handling mechanism, multithreading, collection framework and event handling mechanisms.

CO V: To impart the techniques creating GUI based applications and database connectivity.

LEVEL - Bloom's Taxonomy Level

Level 1: REMEMBERING

Level 2: UNDERSTANDING

Dr. LEENA A. V.
PRINCIPAL
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Series Test	**RETEST**	*Academic Year/Semester*	**2022-23 / S3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Exam	**05/01/2023**	*Duration*	**120 mins**
Starting time	**9:30 AM**	*Max. Marks*	**50**

PART A		**<MAX MARKS : 15>**		
Q.No		*Marks*	*CO*	*Level*
1	Summarize the buzzwords of Java that defines the Java programming language.	3	I	2
2	Contrast the difference between checked exception and unchecked exception.	3	III	2
3	Define packages and interfaces.	3	II	1
4	Name any three Swing Layout Managers in java and point out their uses in GUI.	3	V	1
5	List out the features of Swing API.	3	V	1
PART B		**<MAX MARKS:35>**		
6	Outline an automated fire alarm system and bring out the difference between function oriented software design approaches and object oriented software design approach.	7	I	2
OR				
7	Show an UML interaction diagram for Food Ordering Systems which shows flows between the activity Order, Delivery, Food Item, Category, Payment.	7	I	2
8	Explain in detail exceptions and various exceptions handling keyword in Java with appropriate java programs.	14	III	2
OR				
9	Elaborate the visibility of all Access Specifiers available in Java with respect to: same class, same package sub-class, same package non sub-class, different package sub-class, different package non sub-class.	14	III	2
10	Illustrate the steps to establish database connectivity in java with a sample code.	14	V	2
OR				

11	Outline a java program to illustrate the use of JTextField, JFrame and JLabel.	14	V	2

CO - Course Outcome [CO]

CO I: To introduce basic concepts of object oriented design techniques and to understand the basis of java language.

CO III: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism, Input/ Output Streams and Files in Java to develop programs.

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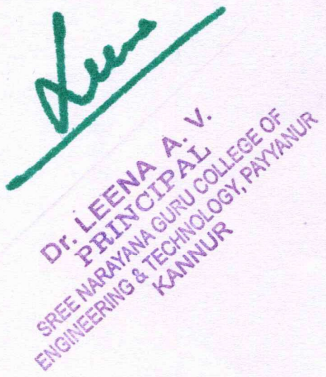
LEVEL - Bloom's Taxonomy Level

Level 1: REMEMBERING

Level 2: UNDERSTANDING



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VALUATION SCHEME/ANSWER KEY

Series Test	**RETEST(SCHEME)**	*Academic Year/Semester*	**2022-23 / S3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Exam	**05/01/2023**	*Duration*	**120 mins**
Starting time	**9:30AM**	*Max. Marks*	**50**

PART A		**<MAX MARKS : 15>**		
Q.No		*Marks*	*CO*	*Level*
1	List out the buzzwords of Java that defines the Java programming language. **List out all the buzzwords of java- 3 marks.**	3	I	2
2	Contrast the difference between checked exception and unchecked exception. **Difference – 3 marks.**	3	III	2
3	Define packages and interfaces. **Definition -1.5 marks each.**	3	III	1
4	Name any three Swing Layout Managers in java and point out their uses in GUI. **Listing – 1.5 marks, Use-1.5 marks.**	3	V	1
5	List out the features of Swing API. **Any 6 Features – 3 marks.**	3	V	1
PART B		**<MAX MARKS: 35>**		
6	Interpret an automated fire alarm system and bring out the difference between function oriented software design approaches and object oriented software design approach. **Figure- 2 marks, Explanation and Difference-5 marks.**	7	I	2
OR				
7	Show an UML interaction diagram for Food Ordering Systems which shows flows between the activity Order, Delivery, Food Item, Category, Payment. **Figure- 2 marks, Explanation and Difference-5 marks.**	7	I	2
8	Explain in detail exceptions and various exceptions handling keyword in Java with appropriate java programs. **Definition-1 mark, Keywords & syntax -5 Its example java programs- 8 marks.**	14	III	2
OR				
9	Elaborate the visibility of all Access Specifiers available in Java with respect to: same class, same package sub-class,	14	III	2

	same package non sub-class, different package sub-class, different package non sub-class. **Definition – 2 marks, Types – 1 mark, Explanation-4marks, Table of Access Specifiers-7 marks.**			
10	Illustrate the steps to establish database connectivity in java with a sample code. **Steps – 3 marks, Explanation-5 marks, Sample Code - 6 marks.**	14	V	2
	OR			
11	Outline a java program to illustrate the use of JTextField, JFrame and JLabel. **Syntax- 2 marks , Logic – 5marks ,Program-7 marks.**	14	V	2

CO - Course Outcome [CO]

CO I: To introduce basic concepts of object oriented design techniques and to understand the basis of java language.

CO III: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism, Input/ Output Streams and Files in Java to develop programs.

CO V: To impart the techniques creating GUI based applications and database connectivity.

LEVEL - Bloom's Taxonomy Level

Level 1:REMEMBERING

Level 2: UNDERSTANDING

Dr. LEENA A. V.
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY, PAYYANUR
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Tutorial	**1**	*Academic Year / Semester*	**2022-23/5**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	14/09/2022	*Date of submission*	29/09/2022

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Illustrate the following java program: 1. Check the given number is prime or not 2. Check the given number is odd or even 3. Check the given string is palindrome or not 4. Print Fibonacci series 5. Matrix Addition 6. Sum of elements in an array. 7. Print a pyramid series	35	I	2

CO - Course Outcome [CO]

CO 1: Implement programs in Java which use data types, operators, control statements, built in packages & interfaces, Input/output streams and Files.

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

Dr. LEENA A. V.
PRINCIPAL
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ANSWER KEY/VALUATION SCHEME

Tutorial	**1 (SCHEME)**	*Academic Year / Semester*	**2022-23/5**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	14/09/2022	*Date of submission*	29/09/2022

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Illustrate the following java program: 1. Check the given number is prime or not 2. Check the given number is odd or even 3. Check the given string is palindrome or not 4. Print Fibonacci series 5. Matrix Addition 6. Sum of elements in an array. 7. Print a pyramid series Each programs – 5 marks	35	I	2

CO - Course Outcome [CO]

CO 1: Implement programs in Java which use data types, operators, control statements, built in packages & interfaces, Input/output streams and Files.

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

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PRINCIPAL
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Tutorial	**2**	*Academic Year / Semester*	**2022-23/5**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	1/10/2022	*Date of submission*	10/10/2022

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Illustrate the following UML diagram: 1. Use case for Movie Reservation System. 2. Use case for Online Music Player System. 3. Class diagram for a Library Management System. 4. Class diagram for Online Movie Ticket Booking. 5. Activity diagram for Food Ordering System.	25	I	2

CO - Course Outcome [CO]

CO 1: Implement programs in Java which use data types, operators, control statements, built in packages & interfaces, Input/output streams and Files.

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

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ANSWER KEY/VALUATION SCHEME

Tutorial	**2 (SCHEME)**	*Academic Year / Semester*	**2022-23/5**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	1/10/2022	*Date of submission*	10/10/2022

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Illustrate the following UML diagram: 1. Use case for Movie Reservation System. 2. Use case for Online Music Player System. 3. Class diagram for a Library Management System. 4. Class diagram for Online Movie Ticket Booking. 5. Activity diagram for Food Ordering System. **Diagram- 5 marks each**	25	I	2

CO - Course Outcome [CO]

CO 1: Implement programs in Java which use data types, operators, control statements, built in packages & interfaces, Input/output streams and Files.

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

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Tutorial	**3**	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**07/10/2022**	*Date of submission*	**14/10/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Demonstrate the following control statements in Java: i. Decision Making /Selection Statements ii. Looping Statements iii. Jump Statements	10	2	2

CO - Course Outcome [CO]

CO 2 : To get thorough knowledge of java languages and to utilize the features of java like datatypes, operators, control statements etc and how to use the object oriented concepts - classes, objects ,constructors, data hiding, inheritance and polymorphism.

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

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Answer key /Valuation Scheme

Tutorial	**3(Scheme)**	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**07/10/2022**	*Date of submission*	**14/10/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Demonstrate the following control statements in Java: i. Decision Making /Selection Statements ii. Looping Statements iii. Jump Statements **Syntax and Flowchart – 5 marks for each , Programming Example – 5 marks for each**	30	2	2

CO - Course Outcome [CO]

CO 2 : To get thorough knowledge of java languages and to utilize the features of java like datatypes, operators, control statements etc and how to use the object oriented concepts - classes, objects ,constructors, data hiding, inheritance and polymorphism.

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

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Tutorial	4	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**17/10/2022**	*Date of submission*	**25/10/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Contrast the difference between Method overloading and Method Overriding.	5	2	2
2.	Define abstract class.	5	2	1
3.	Compare and contrast class and abstract class.	5	2	2

CO - Course Outcome [CO]

CO 2 : To get thorough knowledge of java languages and to utilize the features of java like datatypes, operators, control statements etc and how to use the object oriented concepts - classes, objects ,constructors, data hiding, inheritance and polymorphism.

LEVEL - Bloom's Taxonomy Level

Level 1: Remenmbering
Level 2: Understanding

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Answer Key/Valuation Scheme

Tutorial	4(Scheme)	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**17/10/2022**	*Date of submission*	**25/10/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Contrast the difference between Method overloading and Method Overriding. **Any 5 points – 5 marks**	5	2	2
2.	Define abstract class. **Definition -1 mark, Explanation – 4 marks**	5	2	1
3.	Compare and contrast class and abstract class. **Comparison – 5 marks**	5	2	2

CO - Course Outcome [CO]

CO 2 : To get thorough knowledge of java languages and to utilize the features of java like datatypes, operators, control statements etc and how to use the object oriented concepts - classes, objects ,constructors, data hiding, inheritance and polymorphism.

LEVEL - Bloom's Taxonomy Level

Level 1: Remenmbering
Level 2: Understanding

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Tutorial	5	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**31/10/2022**	*Date of submission*	**11/11/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Develop a java package named primepackage, with a class Prime containing a static method that check whether a number is prime or not and returns that information. Import this package in another class and use to check a number is prime or not.	5	3	3
2.	Illustrate a java package named "even" package with a class Even containing a static method to check whether a given number is even or not.	5	3	2
3.	Contrast the difference between packages and interface.	5	3	2

CO - Course Outcome [CO]

CO 3: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism , Input/ Output Streams and Files in Java to develop programs

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding
Level 3: Applying

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Answer Key / Valuation Scheme

Tutorial	5(Scheme)	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**31/10/2022**	*Date of submission*	**11/11/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Develop a java package named primepackage, with a class Prime containing a static method that check whether a number is prime or not and returns that information. Import this package in another class and use to check a number is prime or not. **Syntax and logic -2.5 mark , Program – 2.5 marks.**	5	3	3
2.	Illustrate a java package named "even" package with a class Even containing a static method to check whether a given number is even or not. **Syntax and logic -2.5 mark , Program – 2.5 marks.**	5	3	2
3.	Contrast the difference between packages and interface. **Any 5 points -5 marks.**	5	3	2

CO - Course Outcome [CO]

CO 3: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism , Input/ Output Streams and Files in Java to develop programs

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding
Level 3: Applying

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Tutorial	6	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**22/11/2022**	*Date of submission*	**30/11/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Explain in detail following file handling operations in java: i. Create a file ii. Get information of a file iii. Read from a file iv. Write to a file v. Delete a file	10	3	2

CO - Course Outcome [CO]

CO 3: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism , Input/ Output Streams and Files in Java to develop programs

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

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Valuation Key/ Answer Scheme

Tutorial	6(Scheme)	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**22/11/2022**	*Date of submission*	**30/11/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Explain in detail following file handling operations in java: i. Create a file ii. Get information of a file iii. Read from a file iv. Write to a file v. Delete a file **Each operation with simple java program – 10 marks.**	10	3	2

CO - Course Outcome [CO]

CO 3: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism , Input/ Output Streams and Files in Java to develop programs

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

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Tutorial	**7**	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**02/12/2022**	*Date of submission*	**15/12/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Illustrate different event classes and event listener interface in java.	10	4	2

CO - Course Outcome [CO]

CO 4: To provide basic exposure for the application of programs in java using multithreading, string handling mechanisms, collection framework and event handling mechanisms.

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

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Valuation Key/ Answer Scheme

Tutorial	7(Scheme)	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**02/12/2022**	*Date of submission*	**15/12/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Illustrate different event classes and event listener interface in java. **List out the event class and event listener interface- 2 marks, Explanation – 8 marks.**	10	4	2

CO - Course Outcome [CO]

CO 4: To provide basic exposure for the application of programs in java using multithreading, string handling mechanisms, collection framework and event handling mechanisms.

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

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Tutorial	**8**	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**12/12/2022**	*Date of submission*	**21/12/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Explain in detail different Swing layout managers in Java swing.	10	5	2

CO - Course Outcome [CO]

CO 5: To impart the techniques of creating GUI based applications and database connectivity.

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

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Valuation Key/ Answer Scheme

Tutorial	**8(Scheme)**	*Academic Year / Semester*	**2022-23/ 3**
Subject name with code	**CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA**	*Branch*	**CSE**
Date of Issue	**12/12/2022**	*Date of submission*	**21/12/2022**

Q.No	*QUESTIONS*	*Mark*	*CO*	*Level*
1.	Explain in detail different Swing layout managers in Java swing. **List out the Swing layout manager - 2 marks, Explanation with figures– 8 marks.**	10	5	2

CO - Course Outcome [CO]

CO 5: To impart the techniques of creating GUI based applications and database connectivity.

LEVEL - Bloom's Taxonomy Level

Level 2: Understanding

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STUDENTS HAND BOOK

2023-24

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PH: 04985 201988/201989

Website :www.sngcet.ac.in

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PRINCIPAL
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CONTENTS

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ABOUT THE COLLEGE

SreeNarayana Guru College of Engineering & Technology, one of the prestigious technical institutions in North Malabar, was established in 2003. The engineering college is fully equipped to meet the rising demands for greater facilities in the scenario of higher education. Since its inception, it has been true to do the mission and the prophetic vision of the great Saint SreeNarayana Guru. With its emphasis on quality education augmented by exposure and training in other individual skills, the institute's focus is on creating individuals who are all round performers and true professionals.

Sree Narayana Guru College of Engineering & Technology is a Self-Financing Institution promoted by Sree Bhakthi Samvardhini Yogam(SBSY) and managed by its committee consists of industrialists, professionals, administrators, social workers who are noted for their leadership qualities, ability to mobilize resources, experience in setting up new ventures and taking-up challenging assignment. The college is approved by AICTE and affiliated to APJ Abdul Kalam Technological University (KTU).Digital library, Incubation Cell, IEDC and student chapters of professional bodies such as NPTEL, ISTE, CSI offer an extensive range of resources, opportunities and services to the outcome based teaching learning process. Effective implementation of quality control processes ensure Engineering graduates with the expected level of knowledge, skill and attitude.

Dedicated and untiring efforts of the management under the leadership of Sri.K P Balakrishnan, President SBSY , Sri. K P Pavithran, Secretary SBSY, Shri. T.K Rajendran Vice President SBSY along with the Board of Directors are instrumental in developing the infrastructure and other facilities within a short span of time.

VISION

A knowledge society promoting human excellence and enlightenment through effective education

MISSION

To provide technical education of the highest quality and standard of excellence for socio-economic progress embedded in clearly articulated values and supported by commitments

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QUALITY POLICY

SNGCET is committed to providing technical education to students hailing from socially and economically underprivileged backgrounds. The institution prioritizes initiatives for fulfillment of needs of learners and other beneficiaries by:

- Enhancing their skills and academic performance
- Offering state-of-the-art infrastructure and pleasant learning environment
- Inculcating moral and ethical values
- Building partnerships with institutions and organizations for mutual progress
- Encouraging a robust dedication to social responsibility

MOTTO

Enlightenment through Education.

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COURSES OFFERED

Under graduate Programs (UG):

Sl No	Branch	Duration	Intake
1	**Civil Engineering**	**4Years**	**60**
2	**Computer Science And Engineering**	**4Years**	**60**
3	**Electronics And Communication Engineering**	**4Years**	**30**
4	**Electrical And Electronics Engineering**	**4Years**	**30**
5	**Mechanical Engineering**	**4Years**	**60**

Post Graduate Programs (PG)

Sl No	Department	M Tech Programme	Duration	No. of seats
1	**Civil Engineering**	**Computer Aided Structural Engineering**	**2 Years/4Semester**	**24**

WORKINGHOURS		
Section	**From**	**To**
Classes	9.00am	4.00 pm
College office	9.00am	5.00 pm
Library	9.00am	4.00 pm
Stationery store	9.00am	4.00 pm
Canteen	7.30am	8.30 pm

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Program Outcomes(POs)

- 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, 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.

- 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.

- 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.

- 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.

- 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.

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

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

- 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.

- 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.

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- 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.

DEPARTMENT OF CIVIL ENGINEERING

VISION OF THE DEPARTMENT

To pursue excellence in Civil Engineering and technology towards sustainable development and to bring out professionals with futuristic vision

MISSION OF THE DEPARTMENT

- To mould students into outstanding Civil Engineers by inculcating technological competency through conducive environment for education and committed faculty.
- To contribute to nation building and development of society through innovation and design of sustainable infrastructure.
- To enhance employability, imbibe professional ethics, encourage entrepreneurship and equip for higher education.

Program Educational Objectives (PEOs)

- To prepare students to excel and succeed in Civil Engineering profession through quality education.
- To provide students with a robust foundation in mathematics, basic sciences and engineering required to solve real life problems as well as also to pursue higher studies and research.
- To enable students to comprehend, design, analyze and create sustainable infrastructure through state of the art tools and technologies.
- To inculcate professionalism, ethics, communication skills, teamwork, multi-disciplinary approach and ability to relate civil engineering with socio economic dynamics for overall development of students.
- To empower the students through intellectually inspiring academic environment to become successful engineers, scientists, technocrats, administrators or entrepreneurs.

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Program Specific Outcome (PSOs)

- Demonstrate in-depth knowledge in the analysis, design, experimental research and construction aspects of civil engineering structures.
- Apply the concept of sustainability in various fields of civil engineering like construction technology, transportation engineering, soil conservation, water resource engineering and waste management.

- COMPUTER AIDED DESIGN (CAD) LABORATORY
- GEOTECHNICAL ENGINEERING LABORATORY
- TRANSPORTATION ENGINEERING LABORATORY
- MATERIAL TESTING LABORATORY &CONCRETE TESTING LABORATORY
- SURVEYING LABORATORY
- ENVIRONMENTAL ENGINEERING LABORATORY

FACULTY DETAILS

Sl. No	Name	Specialisation	Mobile Number	Email id
1	Dr. Susan Abraham	Ph. D - Structural Engineering	9447914480	susanabraham@sngcet.ac.in
2	Mrs. Mary Sonia George	M Tech - Structural Engineering	9446585931	marysoniageorgeb@sngcet.ac.in
3	Mrs. Saritha Sasindran	M Tech - Computer Aided Structural Engineering	8301918207	sarithasasindran@sngcet.ac.in
4	Mrs.Shilpa Valsakumar	M. Tech- Structural Engineering	9400534764	shilpavalsakumar@sngcet.ac.in
5	Ms. Shamya Sukumaran M	M Tech - Computer Aided Structural Engineering	7736446771	shamyasukumaran@sngcet.ac.in
6	Ms. Revathi P	M Tech – Environmental Engineering	9495645806	revathip@sngcet.ac.in
7	Ms. Pooja K P	M Tech - Computer Aided Structural Engineering	7561832627	poojakp@ sngcet.ac.in
8	Ms. Rishna K Raman	M Tech - Structural Engineering and Construction Management	9562945845	rishnakraman@sngcet.ac.in
9	Mr. Deepesh M P	ME- Structural Engineering	9061853671	deepesh@sngcet.ac.in

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SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

10	Ms. Amrutha K	M Tech - Structural Engineering and Construction Management	9496478597	amruthak@sngcet.ac.in

LAB STAFF DETAILS

Name	Qualification	Mob.	Email id
Mr. Akhil K C	B Tech - Civil Engineering	8547210915	akhilkc@sngcet.ac.in
Mr.Akshay K	Diploma in Civil Engineering	9895598163	akshayk@sngcet.ac.in

LABORATORIES AND FACULTY/STAFF IN CHARGE

Sl. No.	Name of faculty	Name of lab	Name of lab in charge
1	Mrs.Saritha Sasindran	Computer Aided design (CAD) Laboratory	Mr.Akshay K
2	Ms.Shamya Sukumaran M	Geotechnical Engineering Laboratory	Mr.Akhil K C
3	Ms.Shamya Sukumaran M	Transportation Engineering Laboratory	Mr.Akhil K C
4	Ms.Pooja K P	Surveying Laboratory	Mr.Akshay K
5	Ms.Revathi P	Environmental Engineering Laboratory	Mr.Akshay K
6	Mrs.Shilpa Valsakumar	Material Testing Laboratory &Concrete Testing Laboratory	Mr.Akhil K C

Department library details:

No of Books available in department library	80Nos.	Ms.Rishna K Dept. Library In-charge

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VISION OF THE DEPARTMENT

To be a centre of excellence in Computer Science and Engineering to produce competent professionals and entrepreneurs capable of exploring and assimilating latest technological advancements for the betterment of the society.

MISSION OF THE DEPARTMENT

- To facilitate transformative education in computer science and engineering.
- To build competent professionals and entrepreneurs by introducing new technologies.
- To accomplish higher education, induce ethical values and spirit of social commitment.

Program Educational Objectives (PEOs)

PEO-1	To prepare students to excel in Computer Science and Engineering programme through quality education enabling them to succeed in computing industry profession.
PEO-2	To provide students with core competencies by strengthening their mathematical, scientific and basic engineering fundamentals.
PEO-3	To design & develop novel products and innovative solutions for real life problems in Computer Science & Engineering field and related domains by broad based knowledge.
PEO-4	To inculcate professionalism among students by providing technical, entrepreneurial skills and soft skills with ethical standards.
PEO-5	To encourage students for higher studies by adapting to new technologies through interactive quality teaching and organizing symposiums, conferences, seminars, workshops and technical discussions.

Program Specific Outcome (PSOs)

PSO-1	**Computer Science Specific Skills:** The ability to identify, analyse and design solutions for complex engineering problems in multidisciplinary areas by understanding the core principles and concepts of computer science.
PSO-2	**Programming and Software Development Skills:** The ability to acquire programming efficiency by designing algorithms and applying standard practices in software project development to deliver quality software products.

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LABORATORIES & FACILITIES

1. NETWORKING LAB
2. HARDWARE LAB
3. PROGRAMMING LAB
4. PROJECT LAB
5. SOFTWARE INCUBATION LAB

Staff and Lab in charge details:

SL No	Name	Specialization	Email-Id	Mobile Number
1	Sunder V	Computer Science and Engineering, Pursuing PhD	hod.cs@sngcet.ac.in	9895477957
2	Dr.RajiSukumar A	NLP, Data Science, Text Mining, Knowledge Engineering and Knowledge Management.	rajisukumar@sngcet.ac.in	8606595503
3	Ms.Kripa p v	M. Tech	kripapv@sngcet.ac.in	9447138968
4	VijinaVijayan	Networks and Security	vijinavijayan@sngcet.ac.in	9400355619
5	Nimisha M K	Computer Science and Information Security	nimishamk@sngcet.ac.in	9496831774
6	Thulasibai A	Computer Science and Engineering, Pursuing PhD	thulasibai@sngcet.ac.in	7558945660
7	Veena K K	Computer Science and Engineering	veenakk@sngcet.ac.in	9446137415
8	Shruthi P	Computer Science and Engineering	shruthip@sngcet.ac.in	9061534320

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9	Aswathi C	Networks and Security	aswathic@sngcet.ac.in	6282988304

Lab in charge:

Name	Qualification	Email id	Mob.
Nishanth K P	Diploma	nishanthkp@sngcet.ac.in	9495975929
Pradeep T V	Diploma	pradeeptv@sngcet.ac.in	7907668310
Rohith M	Diploma	rohithm@sngcet.ac.in	8089241218
Anusha M	Diploma	anusham@sngcet.ac.in	9995452471
Anamika Suresh Babu	Diploma	anamika@sngcet.ac.in	9383490542

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

VISION OF THE DEPARTMENT

To be a centre of excellence in Electronics and Communication Engineering and to create engineers who can address global challenges

MISSION OF THE DEPARTMENT

- To provide students with high quality technical education and to develop their professional and entrepreneurial skills in Electronics and Communication Engineering.
- To enable students for developing different skills in Electronics and Communication Engineering, leading to benchmarking and innovations.
- To inculcate in students a high degree of social consciousness and sense of human ethical values.

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Program Educational Objectives (PEOs)

PEO -1	To enable students to acquire knowledge in the fundamentals and advanced concepts of Electronics and Communication Engineering to analyse, design and create novel products and solutions for the real life problems.
PEO-2	To give exposure to students to new technologies and attain professional competence through lifelong learning such as advanced degrees, professional registration, publications and other professional activities.
PEO-3	To develop a professional outlook in the students with effective communication and responsible interaction.
PEO-4	To work in a team as a member or leader and adapt to the changes taking place in their field through sustained learning.

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Program Specific Outcome (PSOs)

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PSO1	Demonstrate skills in designing, implementing and testing analog and digital electronic circuits, including microprocessor systems, for signal processing, communication, networking, VLSI and embedded systems applications.
PSO2	Apply knowledge and skills to conduct experiments and develop applications using Electronic Design Automation (EDA) tools.

LABORATORIES & FACILITIES

1. ELECTRONICS ENGINEERING WORKSHOP
2. SCIENTIFIC COMPUTING LAB
3. LOGIC DESIGN LAB
4. DIGITAL LAB
5. ANALOG CIRCUITS AND SIMULATION LAB
6. MICROCONTROLLER LAB
7. ANALOG INTEGRATED CIRCUITS AND SIMULATION LAB
8. DIGITAL SIGNAL PROCESSING LAB
9. COMMUNICATION LAB
10. ELECTROMAGNETICS LAB

Staff and Lab in charge details:

Faculty Details:

Name	Specialisation	Mob.	Email id
Dr. Jerry V Jose	Communication Systems	9074216158	hod.ec@sngcet.ac.in

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Leena Narayanan	Embedded System Technology	9746044628	leenanarayanan@sngcet.ac.in
Meera M	Digital Electronics and Communication Systems	9495336283	meeram@sngcet.ac.in
Abhaya D K	Signal Processing And Embedded Systems	8078471912	abhayadk@sngcet.ac.in
AthulyaMadhusoodananNambiar	Signal Processing and Embedded Systems	7034424377	athulyamn@sngcet.ac.in
Ms.Sini Namath	Digital Signal Processing	9061451553	sininamath@sngcet.ac.in
Soshya V C	Advanced Communication & Information systems	9746198557	soshyavc@sngcet.ac.in

Lab in charge:

Name	Qualification	Email id	Mob.
Shahith P	ITI in Mechanics Radio and Television	shahithp@sngcet.ac.in	9995070654
Raveesh Kumar C P	ITI in Mechanics Radio and Television	raveeshkumarcp@sngcet.ac.in	8075956631
Sreejith K	Diploma in Electronics Engineering	sreejithk@sngcet.ac.in	9744077806

III. Laboratories and faculty in charge

Name of faculty	Name of laboratory	Name of lab in charge
Athulya Madhusoodanan Nambiar	Electronics Engineering Workshop	Raveesh Kumar C P

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Soshya V C	Scientific Computing Lab	Sreejith K
Abhaya D K	Logic Design Lab	Raveesh Kumar C P
Abhaya D K	Digital Lab	Raveesh Kumar C P
Ms.Sini Namath	Analog Circuits and Simulation Lab	Shahith P
Leena Narayanan	Microcontroller Lab	Sreejith K
Thrishna S	Analog Integrated Circuits and Simulation lab	Shahith P
Abhaya D K	Digital Signal Processing Lab	Sreejith K
Meera M	Communication Lab	Shahith P
Meera M	Electromagnetics lab	Shahith P

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

VISION OF THE DEPARTMENT

To be a centre of excellence to bring out professionally competent and socially responsible electrical engineers

MISION OF THE DEPARTMENT

To produce graduates with expertise in the field of electrical engineering and to contribute in the making of professional leaders, entrepreneurs and innovators

Program Educational Objectives (PEOs)

PEO-1	To empower students to excel in the areas related to electrical and electronics engineering that requires analytical and professional skills
PEO-2	To enable students to integrate the needs of society by solving technical problems using engineering principles, tools and practices in an ethical and responsible manner
PEO-3	To inculcate leadership qualities, techno managerial ability and skills in students.
PEO-4	To enable the students to adapt to the emerging technologies through continuous learning.
PEO-5	To enable the students to take up higher studies or professional employment or start-up ventures after qualifying the course.

Program Specific Outcome (PSOs)

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PSO-1	An ability to analyse and design electrical machinery, electrical/electronic circuits, electrical/solid state drive systems, lighting systems and deliver technological solution by assimilating advances in allied disciplines
PSO-2	Able to provide socially acceptable technical solutions to complex electrical engineering problems with the application of modern and appropriate techniques for sustainable development

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LABORATORIES & FACILITIES

1. CIRCUIT AND MEASUREMENTS LAB
2. ANALOG ELECTRONICS LAB
3. ELECTRICAL MACHINES LAB
4. DIGITAL ELECTRONICS LAB
5. MICROPROCESSORS AND MICROCONTROLLERS LAB
6. POWER SYSTEMS LAB
7. CONTROL SYSTEMS LAB
8. POWER ELECTRONICS LAB
9. LED MANUFACTURING UNIT

Staff and Lab in charge details:

Faculty Details:

Name	Specialisation	Email id	Mob.
Mr. Abhilash Krishnan T K	Power Systems, PhD(Pursuing)	abhilashkrishnantk@sngcet.ac.in	9400705315
Ms.Surya k	Power Systems	suryak@sngcet.ac.in	8086317635
Mr. Manu C	Power Electronics And Drives	manuc@sngcet.ac.in	904835504
Mr.Vaishakh M Nayanar	Control Systems	vaishakhm@sngcet.com	8606749272
Ms.Archana C P	Power Electronics And Drives	archanacp@gmail.com	9747929183
Ms. Rinsha T V	Power Electronics And Drives	rinshatv@gmail.com	9744323211

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Ms. AswathiRaveendran	Power Systems	aswathiraveendran@sngcet.ac.in	995780223

Lab in charge:

Name	Qualification	Email id	Mob.
Mr.Vilas p	ITI	vilasp@sngcet.ac.in	9846670244
Mr.Biju K K	Diploma	bijukk@sngcet.ac.in	9846866002

III. Laboratories and faculty in charge

Name of faculty	**Name of lab**	**Name of lab in charge**
Mr.Manu C	Electrical machines lab I& II	Mr. VILAS P
Ms. Aswathi Raveendran	Basic electrical workshop	Mr. Vilas P
Ms.Archana C P	Power systems lab	Mr. Biju K K
Mr. Vaishak M Nayanar	Control systems lab	Mr. Biju K K
Mr. Vaishak M Nayanar	Microprocessors and microcontrollers lab	Mr. VILAS P
Ms. Rinsha T V	Power electronics lab	Mr. Biju K K
Mr. Abhilash Krishnan T K	Digital electronics lab	Mr. Biju K K
Ms. Rinsha T V	Circuit and measurements lab	Mr. Vilas P
Mr. Manu C	LED Manufacturing unit	Mr. Biju K K

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DEPARTMENT OF MECHANICAL ENGINEERING

VISION OF THE DEPARTMENT

To be a centre of excellence to develop proficient engineers, who are innovative, entrepreneurial and successful to support the ever changing industrial demands and social needs

MISSION OF THE DEPARTMENT

- To empower the students for rapidly changing technological diversity in the field of mechanical engineering through effective teaching learning process.
- To impart quality engineering education for the development of society through excellence in teaching and innovation.
- To inculcate attitude, skill and knowledge in students to reach their highest potential for life-long learning

Program Educational Objectives (PEOs)

PEO-1	To empower students to excel in industry, technical profession or postgraduate programme through quality education.
PEO-2	To create robust foundation in mathematics, science and engineering fundamentals required to solve technical problems.
PEO-3	To develop ethical, environmental and societal responsibilities in students and make them contribute towards the benefit of professional organization and society
PEO-4	To enable students to acquire knowledge of relevant technologies and multidisciplinary fields
PEO-5	To boost the spirit of inquiry through projects, internships leading to development of creativity, self-confidence and team spirit.

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Program Specific Outcome (PSOs)

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PSO-1	Develop and implement new ideas on product design and development with the help of CAD/CAM tools while ensuring best manufacturing practices
PSO-2	Able to integrate and apply knowledge in the solution of interdisciplinary engineering problems.

LABORATORIES & FACILITIES

1. CIVIL AND MECHANICAL WORKSHOP
2. COMPUTER AIDED MACHINE DRAWING
3. MATERIAL TESTING LAB
4. FM AND HM LAB
5. MACHINE TOOL LAB 1
6. MACHINE TOOL LAB 2
7. THERMAL ENGINEERING LAB 1
8. COMPUTER AIDED DESIGN AND ANALYSIS LAB
9. THERMAL ENGINEERING LAB 2
10. MECHANICAL ENGGINEERING LAB

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Staff and Lab in charge details:

Faculty Details:

Sl. No	Name	Designation	Mobile Number	Email id
1	SudhinChandran	HOD	8281623903	sudhinchandran@sngcet.ac.in
2	Jacob Thomas	Head Project and Consultancy	9497434836	jacobthomas@sngcet.ac.in
3	Athul Raj PP	Assistant Professor	7907289645	athulrajpp@sngcet.ac.in
4	Rahul CG	Assistant Professor	9656369478	rahulcg@sngcet.ac.in
5	Dominic Thomas	Assistant Professor	9995552510	dominicthomas@sngcet.ac.in
6	Jijin I	Assistant Professor	7034000073	jijin@sngcet.ac.in
7	Soubhagya P S	Assistant Professor	9995425905	soubhagya@sngcet.ac.in
8	Gautham V M	Assistant Professor	9562874109	gauthamvm@sngcet.ac.in

Lab in charge:

Name	Qualification	Email id	Mob.
Dhanaraj K	DIPLOMA/BTECH	dhanarajk@sngcet.ac.in	9447737522
Gangadharan A	DIPLOMA	gangadharana@sngcet.ac.in	9400693097
Shiju T V	DIPLOMA	t.v.shiju04@gmail.com	8921111078

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III. Laboratories and faculty in charge

Name of faculty	Name of lab	Name of lab in charge
Soubhagya P S	Mechanical Engineering Workshop	Dhanaraj K
Dominic Thomas	Material Testing Lab	Gangadharan A
Jacob Thomas	Computer Aided Machine Drawing	Shiju TV
Jijin I	Machine Tools Lab II	Dhanaraj K
Rahul CG	Thermal Engineering Lab	Shiju TV
Jacob Thomas	Mechanical Engineering Lab	Shiju TV

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DEPARTMENT OF SCIENCE AND HUMANITIES

VISION OF THE DEPARTMENT

To provide a concrete foundation in Sciences and Humanities that enables the student to pursue both intellectual growth and professional development.

MISSION OF THE DEPARTMENT

To produce well trained professionals with high standards of academic excellence, technical competencies, ethical conduct and integrity.

LABORATORY AND FACILITIES

1. ENGINEERING PHYSICS LAB
2. ENGINEERING CHEMISTRY LAB

Staff and Lab in charge details:

Faculty Details:

Name	Specialisation	Mob.	Email id
Ms.Bindiya M. C	Astrophysics	9495344308	bindiyamc@sngcet.ac.in
Mr.Abhirosh K	Applied economics	9847101124	abhiroshk@sngcet.ac.in
Ms.NimmithaMurali	Chemistry	9567697372	nimmithamurali@sngcet.ac.in
Ms.Anusree T.K	English	9947446118	anusreetk@sngcet.ac.in
Mr.Dinoop.T	Mathematics	8157950585	dinoopt@sngcet.ac.in
Ms.Jisna E.P	Mathematics	8281864754	jisnaep@sngcet.ac.in
Mr.Shyaman V P	Mathematics	9744714187	shyamanvp@sngcet.ac.in
Mr.Unnikrishnan O	Physical education	9446946210	pd@sngcet.ac.in

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Lab in charge:

Name	Qualification	Email id	Mob.
Ms.Bindiya M.C	MSc Physics	bindiyamc@sngcet.ac.in	9495344308
Ms.Nimmitha Murali	MSc Chemistry	nimmithamurali@sngcet.ac.in	9567697372

Laboratories and faculty in charge

Name of faculty	Name of lab	Name of lab in charge
Ms. Bindiya M.C	Engineering Physics Lab	Ms.Bindiya M.C
Ms. Nimmitha Murali	Engineering Chemistry Lab	Ms. Nimmitha Murali

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PROFESSIONAL BODIES

CSI (Computer Society of India)

Computer Society of India is the only member in IFIP (International Federation for Information Processing) from India

The Computer Society of India Students' chapter is established to empower the students with latest skills, tools and technologies through excellence in education and entrepreneurship with industry experts and academicians**.**

Through this chapter the students are able to develop team work and leadership qualities. Also, it provides a platform to connect with distinguished speakers on different technology areas

Currently having 488 student branches and with more than 90,000 Student Volunteers across the nation

Objectives

- To be a part of the distinguished fraternity of famous IT industry leaders, brilliant scientists and dedicated academicians through Networking
- Professional Development at Individual level
- Training and Certification in futuristic areas
- International Competitions and association with International bodies like IFIP and SEARCC
- The activities conducted for the Students associated with the Society include lectures, seminars, conferences, training programmes, programming contests and practical visits to installations.
- Student can earn up to 40 KTU activity points by participating in various activities.
- Improve academic brilliance by conducting special coaching to identified students
- Conducting soft skill training for CSI members to make them industry ready.
- Offer Financial assistance for deserving students.

Student Branches (Advantages of Institutional Membership Plus)

- Eligibility for nomination for the Best Student Branch award
- Opportunity to participate in the international, national, regional and chapter events of CSI such as conferences, seminars, symposia, workshops, technical talks, free lectures on latest technological advancements in IT at discounted rates between 10%-50%.
- Opportunity to offer workshops/ trainings in collaboration with CSI.
- Invitation for all Regional/State/National student conventions/conferences and competitions

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- Concessional rates for CSI Conferences and Tutorials for student members.
- Opportunity for students to interact with Industry professionals fromindustry and chalk out a career path.
- Eligibility to publish articles in CSI communications and journals for student members.
- Eligibility to be nominated for the best student paper in CSI communications.
- Eligibility for CSI funded minor projects (for College Students)
- CSI Certification and Training programs at discounted rates for students
- Permission to conduct events under CSI Banner

CAMPUS CODE OF CONDUCT

1. Students are expected to maintain the highest standards of discipline and dignified manner of behavior inside as well as outside the College campus. They shall abide by the rules and regulations of the College and should act in a way that highlights the discipline and esteem of the College.
2. The first hour will begin with a prayer song which will be played through P.A System. The students shall stand in attention till the prayer ends. Those who are outside the classroom are also expected to stand and maintain silence during the prayer not following the above will be considered as an offence.
3. All the students are expected to be seated in the class room/lab5 minutes before the commencement of the class/lab.
4. Latecomers will be marked as absent in the class
5. No student shall enter or leave the class room when the session is on without the permission of the teacher present.
6. Students who have lab sessions in the FN or AN, have to report to the lab in time and they are not expected to stay in the classroom.
7. Students can leave the campus during class hours, only after getting permission from the Principal/ HOD, or the faculty advisor and after making entry in the Gate Register maintained by the Security.
8. All students shall leave the classes immediately after the last hour. Students are not to stay back in the class room/lab beyond normal working hours unless there is special permission/special class.
9. Canteen and stationery store to be visited only during interval and non-working hours. Unauthorized absence from the class will attract disciplinary action.

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10. All leave applications (Regular & Medical) shall be submitted in time, for sanction by the concerned HOD and the Senior Faculty Advisor. Medical leave applications should be submitted with supporting medical certificates.

11. Students shall enter the college premises only in the proper uniform. During laboratory sessions students it is mandatory to wear safety shoes. Students travelling by college bus shall be in uniform during the entire duration of travel.

12. All the students are expected to attend all programmes organized in the college premises in uniform unless and otherwise specified.

13. All the students shall wear their identity cards within college premises. Identity card is a public document and any teaching staff and non-teaching staff shall have the right to examine it. Denial of which can invite disciplinary action.

14. As per Government rules, students (both day-scholars & hostlers) are not permitted to use vehicles inside the College Campus. Day-scholars shall park their vehicles in the designated places near the entrances.

15. Students are expected to maintain silence in the academic buildings. Any deviant behavior such as howling, whistling, loitering etc. will be treated as an instance of indiscipline.

16. For independent study, students are expected to use the class rooms, library or the demarcated areas of the academic building and shall not resort to sitting in staircases or circulation areas where they could interfere with the free movement.

17. Students are encouraged to make use of the library, common computing facilities and to involve in activities organized by professional body or any programme authorized by the college beyond class hours. However under normal circumstances day scholars shall leave campus before 4.30 p.m and hostellers shall retreat to their respective hostels or residences by 6.00PM.

18. All the students are advised to follow the SNGCET Mobile Phone Policy and violations if any shall be brought to the notice of the authorities.

19. Keep the campus neat and clean. Do not drop waste anywhere else in the campus except in the waste bin placed at various locations .

20. The class rooms shall be kept neat and tidy, personal belongings shall not be stored in the class rooms.

21. Consumption of intoxicants / psychotropic substances in any form or smoking or using chewing-gum, pan

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masala etc. are strictly prohibited. Involving in such activities will invite strict discipline.

22. It is strongly advised to refrain from activities such as scribbling, writing and drawing on walls, door or furniture which could deface the college and destroy the academic ambiance.

23. Carefully handle the furniture, equipment, fixtures and appliances of the college and lab. Careless handling/misuse of the above could result in personal injuries or damage to property. Follow safety precautions near moving machines and electrical installations. In the event of damage of property, the responsible students will have to bear the cost of replacement/repair.

24. Students are not permitted to arrange any unauthorized celebrations and decorations of any magnitude in the campus.

25. Students are not permitted to distribute or display (both physically and electronically) material such as notices, banners etc. in the campus without the permission of the competent authority.

26. Students who intend to represent the college in intercollegiate events shall take prior permission from the concerned head of the department and the selection will be based on parameters such as academic performance, attendance, character, existing academic pressure and competence of the student in the proposed event participation

27. During internal examinations of 1.5 hrs duration, students are not allowed to leave the hall within one hour from the beginning of the exam, and students have to occupy the seat 15 minutes before the commencement of the examination.

28. Appearing in all the Continuous internal Evaluation Tests is mandatory for all the students.

29. Political activity in any form is not permitted in the College campus. Unauthorized meetings, propaganda work, processions or fund collections are forbidden within the College and hostels.

30. Students shall comply with all the instructions of accompanying staff during industrial visits and educational tours. Any deviant behaviour during the college organized programs will attract disciplinary action.

31. Harassing juniors, demeaning fellow students or any form of ragging is prohibited and liable to be treated as a criminal offence by the law enforcing agencies as per the directives of Hon'ble Supreme Court of India

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32. Misbehavior towards girl students/ ladies staff, threatening or violence against staff members or fellow students will be considered as very serious case of misconduct.

33. Tuition fees, bus fees, mess bills etc. should be paid in advance or in time to avoid late fee.

34. Any violation of the above rules will invite penalty in the form of warning, bringing of parents or any course of corrective measure as found suitable by the concerned staff member or higher authority of the College.

a) Expulsion from the College is enough for expulsion from the hostel.

b) In case of any instance of non compliance of existing rules or any observed matter/behavior that violates the code of conduct of SNGCET, all the staff members are empowered to initiate disciplinary procedure by submitting a written complaint which in turn may lead to the constitution of an enquiry committee and further proceedings.

MOBILE PHONE POLICY

This policy establishes clear guidelines for mobile phone usage on campus, applicable to all visitors. Acknowledging the importance of communication and its impact, the guidelines aim to balance accessibility with minimizing disruptions, fostering a conducive learning environment while respecting privacy and focus.

1. **Restrictions during Class Time**: During class hours and examination periods, students are prohibited from using mobile phones on campus. Mobile phones must be kept on silent mode or turned off while in class.

2. **Exam Regulations:** Mobile phones are typically not allowed during exams to prevent cheating or unauthorized communication. Colleges may require students to place their phones in designated areas or turn them off completely before entering the examination room.

3. **Consequences for Violations:** Staff members have the authority to confiscate mobile phones from students who violate these rules. In case of violating mobile phone policies, which may range from warnings to disciplinary action, depending on the severity and frequency of the offense**.**

4. **Educational Use:** the use of mobile phones for educational purposes, such as accessing course materials, educational apps, or communication with instructors is permitted. In such cases, policies may focus on responsible and appropriate use rather than strict restrictions.

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5. **Respect for Others:** In case of using mobile phone always consider importance of respecting others' privacy and concentration. This includes refraining from using phones in ways that disturb or inconvenience fellow students or faculty members. Staff members are prohibited from using mobile phones during class hours and invigilation duties.

INDUSTRIAL VISIT GUIDELINES:

The students may go on industrial visit only when the dates are allotted for the same in the academic calendar.

1. Details of industries/technical/research organization proposed to be visited shall be indicated in the tour program.

2. Travel plan is also prepared by thecoordinators and submitted to the Principal through HODs ,the program proposal should include the distance, date of travel, detailed schedule, mode of travel with the contact details of responsible person, boarding and lodging details, list of students participating etc.

3. For each group of 20 students, one faculty from the same department preferably group faculty advisor should accompany the students. If girl students are participating the tour, one lady faculty member from same department preferably Faculty Advisor should accompany the team.

4. Industrial visit programs should be approved by Principal. The details of the accompanying faculty members should be mentioned in the approval request. The programs and schedule should be duly signed and recommended by both Faculty Advisor and HOD will only be considered for approval by Principal.

5. Written consent of the parent is essential for all students who participate in tour.

6. List of students with their contact details along with the faculty members identified is also included

7. An agreement should be signed with the traveling agency/IV operator.
   Students have to meet the expense for the visits planned (for the Travel/ Lodging and Boarding and other Incidental Expenses). If the visit is planned to nearby places and is on holidays, based on the request from the students, Principal may also decide to give permission to use the any use the college bus for the visits after payment of a nominal fee (or not) based on the distance travelled. On ensuring availability of bus, request is submitted by the Student coordinators (through the HODs) to Transport i/c (with the approval of Principal).

8. The students are to maintain discipline during the industrial visit any behavior which violates the

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instructions of the accompanying staff and affects the safety of fellow students shall be treated as a major instance of indiscipline.

The proposals which do not satisfy the above-mentioned guidelines will be rejected.

RAGGING

Ragging in any form is prohibited and any incidence of indulging in ragging will be reported to the police. Ragging is a non- bailable offence.

Ragging may also attract punishment under the existing laws of land. Ragging constitutes one or more of any of the following acts:

i. Any conduct by any students whether by words spoken or written or by an act which has the effect of teasing, treating or handling with rudeness to a fresher or any other student.

ii. Indulging in indisciplined activities by any student or students which causes or is likely to cause annoyance, hardship, physical or psychological harm or to raise fear or apprehension thereof in any fresher or any other student.

iii. Asking any student to any act which such student will not do in the ordinary course do and which has the effect of causing of generating a sense of shame, or torment of embarrassment there of in any fresher or any other student.

iv. Any act by a senior student that prevents, disrupts or disturbs the regular academic activity of any other student or fresher.

v. Exploiting the service of a fresher or any other student for completing any task assigned to and individual or group of students

vi. Any act of financial extortionor forceful expenditure put on a fresher or any other student by students.

vii. Any act of physical abuse including all variants of it – sexual abuse, homo sexual assaults, stripping, forcing obscene and lewd acts, gestures, causing bodily harm or any other danger to health of a person.

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viii. Any act or abuse by spoken words, email, post, insults which would also include deriving perverted pleasure, vicarious or sadistic thrill from actively or passively participating in the discomfiture to fresher or any other student.

ix. Any act that affect the mental health and self-confidence of a fresher or any other student with or without an intent to derive a sadistic pleasure or showing off power, authority or superiority by a student over any fresher or any other student.

A fresher means a student who has been admitted to an institution and who is undergoing his/her first year of study in such institution

Actions will be taken against student for indulging and abetting ragging depending upon the nature and gravity of the offence as established. The possible punishments for those found guilty of ragging at the institution level are any one or any combination of the following:

i. Cancellation of admission
ii. Suspension from attending the classes
iii. Withholding/withdrawing a scholarship and other benefits.
iv. Debarring from appearing any test/examination or the revaluation process
v. Withholding results
vi. Debarring from representing the institution in any regional, national or international meet, tournament or any such competitions.
vii. Suspension/expulsion from the hostel
viii. Rustication from the institution for a period rangingfrom1 to4semesters
ix. Expulsion from the institution and consequent debarring from admission to any other institution.
x. Collective punishment: when the persons committing or abetting the crime of ragging are not identified, the institution shall resort to collective punishment as a deterrent to ensure community pressure on the potential raggers.

COLLEGE COMMITTEES:

Internal Quality Assurance Cell

The Internal Quality Assurance Cell (IQAC) is established in the college to monitor the academic performance and to work towards excellence. The aim of the IQAC is to assure and maintain the academic activities of the college. It achieves quality through incessant improvement with coordination of all stake holders. The IQAC also reviews the academic performance and presents the details to the University Audit team.

Primary Aim

- To develop a system for conscious, consistent and catalytic action to improve the academic and administrative performance of the institution.
- To promote measures for institutional functioning towards quality enhancement through internalization of quality culture and institutionalization of best practices.

Functions

- IQAC takes a lead role in undertaking academic audit in every semester and gives feedback with the purpose of devising quality enrichment programmes.
- It facilitates the creation of an environment conducive for quality education.
- It documents the various programmes/activities leading to quality improvement.

Profile

The IQAC Cell has the following members

1	Dr.Leena. A.V	, Principal	Chairperson
2	Ms.MarySonia George,	HOD CE	Coordinator
3	Sri. CC Mohanan	Director,SBSY	Member/Management Representative
4	Dr. Susan Abraham,	Dean UG&PG	Member
5	Ms.Leena Narayanan,	HOD ECE	Member
6	Mr.Abhirosh K ,	AP S & H	Member
7	Ms.SarithaSasindran,	AP CE	Member
8	Mr. Jacob Thomas,	HOD ME	Member

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9	Ms.Veena K K,	AP CSE	Member
10	Mr.Jayadeep,	Asst. Engineer, Kerala PWD	Member/industry
11	Prof. T. Divakaran		Member/Professional body
12	Sri Suresh Babu K V		Member/Local body
13	Ms.Aswathi P l,	S6 CSE	Student Member
14	Mr. Sunder V,	HOD CSE	Member/Alumni
15	Ms.PrabhaChandran ,	AP EEE	Convenor

Grievance and Redressal Cell

The Grievance Cell aims to develop a responsive and accountable attitude among all the stakeholders in order to maintain harmony within the institute. The Grievance Cell has been constituted for the redressal of the problems identified by the staff and students of the college with the following objectives:

- Maintain the honour of the College by ensuring a peaceful atmosphere in the College by promoting cordial Student-Studentsand Student-Staff relationship.
- Encourage the Students to express their grievances / issues openly without any fear of victimization.
- Suggestion / Complaint Box is placed in the reception foyer where Students / Staff, may drop their grievances or suggestions for improving the Academics / Administration in the College.
- The grievance may also be mailed to the grievances@sngcet.ac.in

Women's Cell

The Women's Cell at SNGCET aims at empowering the Women of SNGCET by providing them opportunities to attain their true potential. The Women's Cell is committed to create awareness among the Women about gender sensitive issues and their legal rights .The Women's Cell takes necessary action on the grievances put forth by the Women. We are committed to provide a fully confidential and supportive environment to all the female members of our campus community. The Girls/women shall also post their grievances at womengrievances@sngcet.ac.in or contact the 24x7 helpline **–8943616582**

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The objectives if the Cell are :

- To ensure the facilities and needs of the women faculty, staff and students are met
- To address problems arising out of any gender-related discrimination
- To train women in different domains and to help them attain their own stand in a competing world

SC/ ST CELL

The Scheduled Caste (SC) and Scheduled Tribes (ST) Cell at SNGCET endeavors to provide unbiased opportunities to the special interests of students in the reserved category. It lends a helping hand to students in areas where they experience difficulties.

The college takes special interest in facilitating financial support to students from backward communities. They are also encouraged to enroll for career orientation programs, which would equip them build their career.

The objectives of the Committee are:

- To counsel and guide students of reserved category and help them adapt to the academic environment.
- To create awareness about the State Govt. and UGC's orders on various aspects of education, employment of SC/ST & OBC Students.
- To circulate State Govt. and UGC's decisions about different scholarship programs.

ANTI RAGGING CELL

The Anti-ragging committee's mandate is to maintain SNGCET as a ragging free campus. Anti-Ragging Committee is involved in implementing strategies and action plan for curbing the menace of ragging in the college. The Anti-Ragging Squad is formed by the committee to monitor the students.

The objectives of the Committee are:

- The committee creates awareness among the fresher's about its existence and emboldens them to report any ragging incident
- The committee also sensitizes the senior students about the ill effects of ragging and educates them at large about the menace of ragging and related punishment provisions.
- The Anti Ragging Squad works under the Supervision of Anti Ragging Committee and engages in monitoring campus and other places of student gathering, for any incidences of ragging.

DRUG ABUSE PREVENTIVE CELL

The menace of drug abuse has profound social, economic and health implications for communities worldwide. Addressing this issue requires a multidimensional approach. One effective strategy is the formation of a Drug Abuse Prevention Cell, a body dedicated to combatting drug abuse and its associated challenges.

Drug Abuse Prevention Cell are to organize awareness programmes in the college and hostels with the help of government authorized agencies or organizations and also maintain necessary warning sign boards against the use of drugs. The cell plays an important role by educating the students about the ill- effects of drugs and alcohol and encouraging peer policing among students against the use of drugs. Organising awareness campaigns, workshops and seminars can foster a sense of responsibility among students to prevent substance abuse. By focussing on prevention, the cell contributes to a healthier society with lower rates of substance abuse, resulting in improved overall well-being and social harmony.

A Drug Abuse Prevention Cell serves as a central hub for designing, implementing, and monitoring strategies aimed at preventing drug abuse and related issues. Its importance lies in its ability to pool resources, expertise and community engagement to tackle the multifaceted challenges of drug misuse.

LIBRARY

The Central Library is well equipped with modern facilities and resources in the form of books, e-books, journals, e-journals, etc. The Library is automated by Book Magic Software with barcode facility. Central Library has an excellent collection of 22275 volumes of books with 6609 titles. 6 International and 54 National Journals are subscribed. E-journals are subscribed through DELNET. Books are classified according to Dewey Decimal,

Classification scheme.

Library follows an open access system with an OPAC search facility. The library provides campus-wide IP- enabled access to NPTEL courses and other Electronic Resources. Reprographic, scanning and printing facilities are also made available in the library. Our Digital Library System is featured with 4350 e-books. SNGCET is an Institutional Member of DELNET (IM-9376). The institution has the membership of National Digital Library of India Club (Registration ID: INKLNC485J7ADWV).

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APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

APJ Abdul Kalam Technological University (initially Kerala Technological University),a State Government University has come into existence on May 21, 2014 with an aim to give leadership to the technology related policy formulation and Engineering Planning for the State. It also emphaziess to improve the academic standards of the Graduate, Post Graduate and Research Programmes in Engineering Science, Technology and Management and regulate the academic standards of all colleges affiliated to the University. The main thrust areas of the University are Research,Development and Innovation

THE A. P. J. ABDUL KALAM TECHNOLOGICAL UNIVERSITY ACADEMIC REGULATIONS FOR B. TECH, 2019

This may be called the A. P. J. Abdul Kalam Technological University Academic Regulations for B. Tech, 2019. These are subject to the provisions of the APJ Abdul Kalam Technological University Act, 2015, the statutes and ordinances if any issued in the subject from time to time. It is the express understanding that these regulations are subject to the approval of the concerned statutory bodies of the University. These regulations shall be applicable for students admitted from 2019 onward.

1.Preamble	
R1.1	The University has the right to modify the regulations from time to time.
R1.2	In all matters related to the regulations, the decision of the University and its interpretation given by the BOG shall be final and binding.
2.Admission	
R2.1	Admission policy , eligibility for admission and admission procedure shall be decided by the University or the competent statutory authority for admissions from time to time.
R2.2	If at any time after admission, it is found that a candidate has not full filled any of the requirements stipulated by the University or the statutory body concerned, the Vice ChancellormayrevoketheadmissionofthecandidateandreportthemattertotheBOG.
R2.3	No student shall be permitted, under any circumstances, to change the branch/stream to which he/she is admitted by the competent authority for admission.
R2.4	A student admitted to a particular institute shall continue studying in that institute till the completion of the course, unless she/she is permitted an inter college transfer as per R9.1(c)(2).

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3. Structure of B. Tech. Program.

R3.1 The duration of the B.Tech.Programshallbe4years (8semesters)

R3.2 The maximum duration shall be six academic years spanning12semesters.

R3.3 Every academic year shall have two semesters"1st Julyto31st December(Odd semester)" and"1st January to 30th June (Even semester)".Each semester shall have minimum of 72 working days. The vacation of the faculty and staff shall be as per the Government orders from time to time.

R3.4 Every branch of the B Tech Program shall have a curriculum and syllabi for the courses approved by the Academic Council. Syllabus for any course shall be normally modified /updated once in four years. However, innovative elective courses can be included as and when required, on there commendations of the respective Board of Studies and subject to the approval of the Academic Council. All revisions shall be based only on the commendations of the Board of Studies concerned

R3.5 The academic programs of the University follow the credit system. The general pattern is as below:

1Hr.Lecture(L)per week	1credit
1Hr.Tutorial(T)per week	1credit
1to2HoursPractical(P)per week	1credit
3to4HoursPractical(P)per week	2credits
The work load of a faculty member shall be the actual number of hours engaged by the faculty member.	

R3.6 The curriculum of any branch of the B Tech. Program shall have a total of 160 academic credits and 2 additional pass/fail credits.

R3.7 Every course of B Tech. Program shall be placed in one of the nine categories as listed in table below.

S. No.	Category	Code	Breakup of Credits
1	Humanities and Social Sciences including Management courses	HSMC	8
2	Basic Science courses	BSC	26
3	Engineering Science courses including workshop, drawing, basics of electrical/mechanical/computer etc.	ESC	22
4	Professional core courses	PCC	76
5	Professional Elective courses relevant to chosen specialization/branch	PEC	15
6	Open subjects– Electives from other technical and /or emerging subjects `as specified in the curriculum concerned.	OEC	03
7	Project work, seminar and internship in industry or else where	PROJ	

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8	Mandatory Courses [Environmental Sciences, Induction training, Indian Constitution, Essence of Indian Traditional Knowledge]	MC	Noncredit
9	Mandatory Student Activities(Pass/Fail)	SA	2
		Total Credits	162

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R3.8	No semester shall have more than six lecture- based courses and two laboratory and/or drawing/seminar/project courses in the curriculum. Credit per semester shall not be less than 15 or greater than 25 and cumulative credits shall not be less than 162.
R3.9	The medium of instruction shall be English. All examinations, project/seminar reports and presentations shall be in English.
4.Academic Monitoring and Student Support.	
R4.1	Advisory System: There shall be one Senior Faculty Advisor (SFA) for a class and a faculty advisor (FA) each for 25 to 35 students in the class. The Principal shall assign a regular faculty member with minimum five years of experience as the Senior Faculty Advisor(SFA)in discussion with the Head of Department concerned.
R4.2	The documents regarding all academic and non-academic matters of students under an advisory group shall be kept under the custody of Faculty Advisor/Senior Faculty Advisor.
R4.3	All requests/applications from a student or parent to higher offices are to be forwarded/recommended by his/her Faculty Advisor/Senior Faculty Advisor. Students and parents shall first approach their Faculty Advisor/ Senior Faculty Advisor for all kinds of advices, clarifications and permissions on academic matters. It is the official responsibility of the institution to provide the required guidance, clarifications andadvicestothestudentsandparentsstrictlybasedontheprevailingacademicregulations.
R4.4	The SFA shall arrange separate or combined meetings with advisors; course faculty, Parents and students as and when required and discuss the academic progress of students under their advisory group. The Senior Faculty Advisor/ Faculty Advisor shall also offer guidance and help to solve the issues on academic and non-academic matters including personal issues of the students in their advisory group. Advisory meetings shall preferably be convened: 1. Immediately after the commencement of the semester. 2. Immediately after announcing the marks of first internal evaluation test. The internal marks, activity points earned during the semester and eligibility of attendance shall be uploaded in the University portal only after displaying the same in the department notice board at least for two working days. This is for the information and feedback of the students. Any concerns raised by the students regarding attendance and internal marks and activity points shall be looked into in the combined meetings of advisors, course faculty and the students concerned. The Principal/ HoD shall ensure the proper redressal of the concerns raised by the students regarding internal assessment and attendance. The FA/SFA shall be the custodian of the minutes and action taken reports of the advisory meetings.

R4.5	The SFA shall get the minutes and action taken reports of advisory meetings approved by the Head of Department and the Principal. It shall be the duty of the HoD and the Principal to produce it before the University as and when required.
R4.6	The FA/SFA shall keep a hardcopy of the consolidated statement of attendance, activity points and internal marks of the students in their advisory group. It shall be kept with the HoD without fail for all sorts of inspections.
R4.7	Regular communication with the parents of students in respect of progress in academic matters and other general issues shall be the responsibility of the Senior Faculty Advisor/Faculty Advisor.
R4.8	The Principal shall inform/forward all regulations, guidelines, communications, announcements etc issued by the University regarding student academic and other matters to the HoDs/Senior Faculty Advisors for information and timely action.
R4.9	It shall be the official responsibility of the Principal to arrange necessary orientationprogrammes to the HoDs, SFAs and SAs regarding student counseling, the prevailing University norms, regulations, guidelines and procedures on all academic and other University related matters.
5.Academic Auditing of affiliated institutions.	
R5.1	There shall be academic auditing in each affiliated college at stipulated intervals. The academic auditing shall be conducted jointly by an Internal Quality Assurance Cell(IQAC)withinthecollegeandexternalacademicauditor(s)appointedbytheUniversity. The Internal Quality Assurance Cell (IQAC) in each college shall overseeandmonitorallthe academicactivities including allinternalevaluationsandexaminations.Thiscellshallprepareacademicauditstatementsinth eformatsprescribed by the University for each semester at regular intervals. These reports shall be presented to the external academic auditor(s), who shall use it as reference for independent auditing. The external auditor(s) shall submit the final audit report to the University in the prescribed format. Academic auditing shall cover:- 1. Course delivery and adherence to the course plan, syllabus coverage, quality ofquestionpapersusedforinternalexaminations,internalevaluation,maintenanceof laboratory experimental setups and equipment's, practical assignments, mini projects and conduct of practical classes and their evaluation. 2. Co-curricular and Extra-curricular activities available for students, the monitoring mechanism of activity points to be earned by the students. 3. Academicfunctioningofthecollegeencompassingstudents,facultyandcollege administration covering punctuality, attendance, discipline, academic, environment,learning ecosystem, academic accountability, academic achievements and bench marking. 4. The audit shall also cover the quality criteria prescribed by NBA/NAAC.

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6.Assessment

R6.1 There shall be End Semester Examinations (ESE) in every semester for all courses as prescribed under the respective curriculum, except the Lab/ workshops courses for 1 &2 semesters. The End Semester Examinations shall be conducted by the University.Semesterclassesshallbecompletedatleasttendaysbeforethecommencementofthe End Semester Examination.

R6.2 The End Semester Examinations (ESE) shall be held twice in a year – May/June session (for even semesters) and November/December session (for odd semesters).However, the End Semester Examinations of the VII and VIII Semesters shall be conducted in both the sessions.

R6.3 Candidates in each semester shall be evaluated both by Continuous Internal Evaluation(CIE)andEndSemesterExaminations(ESE).TheratioofContinuousInternalEvaluation(CIE)toEndSemesterExaminations(ESE)shallbeasbelow:

1. Theory Courses :1:2
2. Laboratory Courses :1:1
3. Project :CIE only
4. Seminar :CIE only

R6.4 Continuous Internal Evaluation(CIE)):The Continuous Internal Evaluation shall be on the basis of the day-to-day work, periodic tests (minimum two in a semester) and assignments (minimum two). The faculty member (s) concerned shall carry out the Continuous Internal Evaluation (CIE) for the course allotted to him/her. The CIE marksforindividualsubjectsshallbecomputedbygivingweightagetothefollowing Parameters unless otherwise specified in the curriculum.

Course	Attendance	Tests	Assignment/Classwork/ Course project.
Theory	20%	50%	30%
Drawing/Practical	20%	40%	40%

There shall be minimum two internal evaluation tests, each of 2hrs duration. Each test shall cover 50% of the syllabus and shall be for 50 marks. Retest shall be permitted to the students who could not appear for the internal tests due to genuine grounds. Three days shall be utilized for conducting the internal evaluation test.

Project work	a. Work assessed by the project guide–30% b. Three member Continuous Internal Evaluation Committee – 40% (Guide shall be one member in the CIE committee) c. Final Evaluation by a three member Committee comprising of the department project coordinator, guide and an external expert. The external expert shall be an academician or from industry. The industry expert ispreferred:30% d. One third of the project credit shall be completed in VII semester and two third in VIII semester.

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	Seminar	The report and the presentation shall be evaluated by a team of internal members comprising threesenior faculty members based on the style of presentation, technical content, adequacy of reference, depth of knowledge and overall quality of the report. a) Attendance :10% b) Guide :20% c) Technicalcontent:30% d) Presentation :40%

	The CIE marks for the attendance (20%) for each theory, practical and drawing shall be awarded in full, only if the candidate has secured 90% attendance or above in the subject. If a student has attendance for a subject below 90%, reduction in the marks for the attendance shall be made proportionally. The CIE marks obtained by the studentforallsubjectsinasemesteraretobepublishedatleast5daysbeforethecommencemento f the University examinations. Duty leave shall be accounted for awarding the internal marks for attendance.
R6.5	Students, who have completed a course but could not write the end semester examination, shall be awarded "I' Grade, provided they meet other eligibility criteria(R6.6).They shall register (exam registration) and appear for the end semester examination at the next opportunity and earn the credits without having to register (course registration)for the course again.
R6.6	The main eligibility criteria for registering to the End Semester Examination are attendance in the course and no pending disciplinary action. The minimum attendance for appearing for the End Semester Examination is 75% in each course. Students who Do not meet these eligibility criteria are awarded an FE grade.
R6.7	The students with FE grade shall register for the courses during the normal semesters in which the courses are offered. However, or the seventh and eighth semester FE grade Students can register for the courses in the next immediate chance, if offered by their institute.
R6.8	A student who does not register for all the courses listed in the curriculum for a semester shall not be eligible to enroll for the next higher semester.
R6.9	The maximum number of credits a student can register (course registration) for, in a semester is limited to 08 credits in excess of the total mandatory credits allotted in the curriculum for that semester.
R6.10	A student will be eligible for the award of B Tech. Degree of the University on satisfying the following requirements: 1. Fulfilled all the curriculum requirements within the stipulated duration of the course. 2. Earned the required minimum credits as specified in the curriculum for the branch of study(R3.6andR3.7). 3. No pending disciplinary action.

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R6.11	Students registered for a course have to attend the course regularly and undergo the Continuous Internal Evaluation (CIE) and appear for the End Semester Examinations(ESE).Credits for the course are deemed to be earned only on getting at least a pass Grade 'P' or better in the composite evaluation.
R6.12	Pass minimum for a course shall be 40% for the End Semester Examination and 50%of CIE and ESA put together. Letter grade 'F' will be awarded to the student for a course if either his/her mark for the End Semester Examination (ESE) is below 40 % ortheoverallmark[ContinuousInternalEvaluation(CIE)+EndSemesterExamination (ESE)] isbelow50%.
R6.13	Students who received Fgrade in an End Semester Examination shall have to appear for the End Semester Examination at the next opportunity and earn the credits. They Shall not be permitted to register for the course again.
R6.14	Continuous Internal Evaluation mark percentage shall not exceed 30% over the End Semester Examination mark %. CIE marks awarded to a student shall be normalisedaccordingly.Forexampleiftheendsemestermark%is40,then the maximum eligible CIEmark%is40+30=70%.)
R6.15	Grading is based on the overall % marks obtained by the student in a course, as given in 6.16. The grade card shall only give the grades against the courses the student has registered. Semester grade card shall give the grade for each registered course, Semester Grade Point Average (SGPA) for the semester as well as Cumulative Grade Point Average (CGPA).

R6.16

Grade and Grade Points

Grades	**Grade Point(GP)**	**% of Total Marks obtained in the course**
S	10	90%and above
A+	9.0	85%and above but less than90%
A	8.5	80%and above but less than 85%
B+	8.0	75% and above but less than 80%
B	7.5	70% and above but less than75%
C+	7.0	65% and above but less than70%
C	6.5	60% and above but less than 65%
D	6.0	55% and above but less than 60%
P(Pass)	5.5	50% and above but less than 55%
F(Fail)	0	Below50%(CIE+ESE)orBelow40%forESE
FE	0	Failed due to lack of eligibility criteria (R6.6)
I	0	Could not appear for the end semester examination but fulfills the eligibility criteria.
Classification of B Tech Degree.	First Class with Distinction	CGPA8.0andabove
	First Class	CGPA6.5andabove
Equivalent percentage mark shall be=10*CGPA–2.5		

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R6.17	**Minimum Cumulative Credit Requirements for Registering to Higher Semesters**				
	Semester	**Allotted Credits**	**Cumulative Credits**	**Minimum Cumulative Credits required for B. Tech**	**Minimum Cumulative Credits required for B. Tech Lateral Entry**
	First	17	17	Not Applicable	Not Applicable
	Second	21	38	Not Insisted	Not Insisted
	Third	22	60	Not Insisted	Not Insisted
	Fourth	22	82	Not Insisted	Not Insisted
	Fifth	23	105	21CreditsfromS1&S2	Not Insisted
	Sixth	24	129	Not Insisted	Not Insisted
	Seventh	15	144	47CreditsfromS1to S4	09CreditsfromS3to S4
	Eight	16	160	Not Insisted	Not Insisted
R6.18	There is no provision for improving the grade. However, the student is permitted to check the answer books of the End Semester Examination after the results are declared, on payment of the prescribed fee. Any discrepancy in evaluation could be brought to the notice of the Controller of Examination, who shall initiate appropriate action as per The University Examination Manual.				
R.6.19	The students can apply for revaluation of the answer books of the end semester examination after the results are declared. The final mark awarded will be the better of the two marks. If the difference in marks obtained in revaluation and the original valuation is more than 15% of the maximum marks, it shall be sent for third valuation. The final mark shall then be the average of the closer of the two marks obtained in the three valuations to the advantage of the student or the mark obtained in the original valuation whichever is higher. The Controller of Examination shall examine such cases and conduct proper enquiry to see whether any of the examiners is responsible for negligent valuation of answer script and initiate suitable action as per the University Examination Manual.				
R6.20	Grade cards shall be made available in the student login for the registered courses,in Every semester. On earning the required credits for the degree, the University will issue the final consolidated grade sheet for the B. Tech program including CGPA.				
R6.21	**Calculation of SGPA/CGPA**				
	Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA)are calculated as follows. SGPA = $\Sigma(Ci \times GPi)/\Sigma Ci$, where 'Ci' is the credit assigned for a course and 'GPi' is the grade point for that course. Summation is done for all courses specified in the curriculum of that semester. The failed and incomplete courses shall also be considered in the calculation. CGPA = $\Sigma(Ci \times GPi)/\Sigma Ci$, where 'Ci' is the credit assigned for a course and 'GPi' is the grade point for that course. Summation is done for all courses specified in the				

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	curriculum up to that semester for which the 'CGPA' is needed. Here the failed courses shall also be accounted. CGPA for the B. Tech programme is arrived at by considering all course credits that are needed for the degree and their respective grade points. For students admitted under lateral entry scheme, credits for the first and second semester courses shall not be accounted for the calculation of CGPA. Equivalent percentage mark shall be=10*CGPA–2.5
R6.22	Any act of violation of University directions, indiscipline, misbehavior, or unfair practice in examinations from the part of students, faculty members, staff, institution, managementoranyothersourceshallbeviewedveryseriously.Itisthelegalresponsibility of the principal and the college management to see that the examinations are conducted strictly as per the directions of the University and as specified in the examination Manual. Malpractices in examinations observed or reported by an official employed by the University, faculty member, invigilator or anybody shall be immediately reported to the Principal. The principal shall in turn conduct a preliminary enquiry giving the student concerned a chance to explain his/her case. The Principal shall then forward the case with his/her preliminary enquiry report and remarks to the Controller of Examinations along with all related documents and evidences within two working days. The Controller of examination shall decide the course of action on the issue as per the prescribed norms in the University Examination Manual.
R6.23	A student shall earn 2 credits by actively involving in co – curricular and extra – curricularactivitiesaspertheguidelinesissuedbytheUniversityfromtimetotime.Ongetting minimum 100 activity points the student passes the course and earns the two credits which shall not be counted for the calculation of CGPA but mandatory for the award of the Degree. For the students admitted under lateral entry scheme the 2 credits shall be considered to be earned on getting 75 activity points. The students are required to keep a file containing documentary proofs of activities done by him/her attested by the Senior Faculty Advisor/Faculty Advisor.
7.BreakofStudy	
R7.1	A student is permitted to avail break of study: i) In case of accident or serious illness need in prolonged hospitalization and rest. ii)In case the student has a bright idea and would like to initiate a start up venture or develop a product. iii) In case of any personal reasons that need a break in study. iv) For intern ship leading to employment. For break of study due to illness, student shall submit all necessary medical reports together with the recommendation of the doctor treating him giving definite reasons for break of study and its duration. Before joining back, the student should submit the fitness certificate from the doctor who treated him. Studentswhowanttoinitiateastart-upventureoraproductdevelopment,haveto

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	submit a project report, clearly indicating the purpose, action plan, technical details, funding details and future plans to the college Principal. The Principal shall evaluate the proposal by constituting an expert team consisting of a technocrat and a bank executive and take an appropriate decision based on the team's recommendation. The break of study for the start up shall be permitted only after the 4th semester for a maximum duration of two semesters. This is however permitted only on successfully completing the courses listed out in the first two semesters. Students who require a break in study due to personal reasons shall convince the Principal on the genuine need for it by giving authentic evidence for the same. Students who require break in study for internship leading to employment shall produce the offer letter obtained from the employer concerned. The principal shall verify the authenticity of the offer and submit his recommendation to the University sufficiently in advance for approval. Only campus placed students with an annual compensation more than 6 lakhs are eligible to avail this facility. In the semester system followed by the University, break of study for an academic year is the preferred option than break of study for a semester. The student can avail the break of study only with the prior approval of the University. The Principal shall upload the request of the student with all relevant documents to the University portal for the approval with his/her recommendations. Students shall have to rejoin on the first working day of the same semester on which he/she had started availing the break of study.
8.Attendance	
R8.1	Students are expected to attain 100% attendance for all courses. However, under unavoidable circumstances they are permitted to avail leave. Total leave of absence shall not exceed 25% of the academic contact hours for a course and 75% attendance is mandatory for registering to the end semester examination. On medical ground the college Principal can relax them in minimum attendance requirement to 60%, to write the end semester examination. This is permitted for one or more courses registered in the semester. Principal shall keep all records which led to his decision on attendance, for verification by the Academic Auditors/University officials. This provision is applicable only to any two semesters during the entire program period. In case of prolonged illness, break of study is permitted as per R7.1.
R8.2	The Principals are authorized to grant attendance relaxation (duty leave) to the students in officially sponsored national level competitions/championships/ tournaments when called upon to do so, up to a maximum of 10%. Such students should produce theparticipationcertificatecountersignedbytheUniversitySportsCoordinator/theDirector of Physical Education in the case of sports activities and the Senior Faculty Advisor in the case of other extracurricular activities: within ten days of the event. The participation certificate thus produced shall be forwarded to the Principal with the due recommendation of the respective Head of the Department. Under any circumstances, the principal shall not consider the certificate if the overall attendance of the candidate is less than 60%.Lateapplications received shall not be considered on any account.Thestudentshallgetofficialpriorpermissionfromtheuniversityforrepresentingthe University.

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8.3	The Principals are authorized to grant attendance relaxation (duty leave) to the students for organizing extra/ co-curricular activities, up to a maximum of 05%. Such studentsshouldproducetherequireddocumentscountersignedbytheUniversitySportsCoordinator/ the Director of Physical Education in the case of sports activities and the Senior Faculty Advisor in the case of other extra/ co-curricular activities: within ten days of the events. The documents thus produced shall be forwarded to the Principal with the due recommendation of the respective Head of the Department. Under any circumstances, the principal shall not consider the documents, if the overall attendance of the candidate is less than 60%. Late applications received shall not be considered on any account.
9.InterCollegeTransfer	
R9.1	Inter college transfer shall be applicable only for regular B. Tech students.
R9.2	The transfer shall be permitted just before the commencement of third semester.
R9.3	The transfer shall be with effect from the first working day of the third semester.
R9.4	The transfer shall be only within the sanctioned strength of the receiving college.
R9.5	The following Category of students shall not be eligible for intercollege transfer 1. Govt. of India Nominee. 2. Management Quota in Aided colleges. 3. Management Quota in private Self Financing Colleges 4. Students admitted under NRI/PIO quota. 5. Lateral Entry students. 6. Students admitted under TFW Scheme. 7. Students admitted in any super numeracy seats. 8. Any other category which are ineligible as per the conditions for admission prescribed by Govt. of Kerala/ Govt. of India.
R9.6	The transfer shall be permitted: 1. Between Govt Govt. Aided Colleges. 2. Between Self–Financing Colleges.(Including Govt. Controlled SFC).
R9.7	Notification inviting application for intercollege transfer shall be issued by the University just before the commencement to the third semester.
R9.8	The candidate should fulfill the academic eligibility requirement for promotion to the Third semester.
R9.9	If the number of applicants is more than the vacant seats available, the transfer may be Based on the Kerala Engineering Entrance Rank.
R9.10	The students shall opt only one college for inter college transfer.
R9.11	The selected candidates shall remit a fee of Rs3000/-(No fee for SC/ST students)with in the stipulated date to the University. However, this rule is not applicable to the Students transferred to other institutes under “Shift College” University order.
R9.12	The College transfer once approved by the receiving college will be final and binding On the applicant. No student will be permitted, under any circumstances, to refuse the change of college once offered.

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10.MigrationfromotherUniversities	
R10.1	Migration to the University from other Universities shall be permitted only if the parent University and the APJ Abdul Kalam Technological University enters into a bipartite agreement/ MoU for this purpose. However, this condition is not applicable to the students in any of the Engineering colleges/institutions, which, before the commencement of KTU Act remained affiliated to Universities except Deemed to be Universities in the State of Kerala.
R10.2	The student shall be permitted to migrate only If he/she fulfills he University eligibility Criteria for admission to the course applied for migration.
R10.3	The migration shall be permitted only up to the fifth semester of the B. Tech program And half the duration of the program in the case of other programs.
R10.4	The admission shall be offered on migration basis through lateral transfer of credits. Lateral credit transfer shall be as recommended by the concerned Board of Studies.
R10.5	The students shall be allowed to migrate to the University subject to satisfying the rulesandregulationsoftheUniversityasregardsto,maximumnumberofbacklogs,grade points, minimum credit requirement for promotion to higher semesters, etc.
R10.6	The student shall be offered admission in any of the affiliated colleges/institutions of the University subject to availability of seats. The student shall produce no objection Certificate from the concerned college/institute in this regard.
R10.7	The students offered admission shall have to take transitory courses/additional courses of the previous semesters to satisfy the program requirement as recommended by the Concerned board of studies.
R10.8	The students offered admission shall pay the migration fees and the University fees as prescribed by the University. The application processing fee (University fee) shall be Rs 5000/- (Rupees five thousand only) and the migration fees shall be Rs 20000/- (Rupees twenty thousand only). The migration fee is charged for the meeting expenses of the concerned Board of studies to decide on the student suitability for migration and to recommend the transitory courses/ additional courses to be done by the student to fulfill the academic requirement of the University. The processing fee shall be paid along with the application, and the migration fee shall be paid to the University at thetimeofofferingadmission.Thefeeoncepaidshallnotberefundedunderanycircumstances . The students in any of the Engineering colleges / institutions, which,beforethecommencementofKTUActremainedaffiliatedtoUniversitiesexceptDeemedtobeUniversitiesintheStateofKerala,areexemptedfrompayingthe Processing fee and the migration fee.
R10.9	The migrated students shall follow the rules and regulations of the University.
R10.10	The students offered admission shall produce a migration certificate from the parent University at the time of admission.
R10.11	The student offered admission shall produce a character certificate from the parent institute/University at the time of admission.
R10.12	Regulations,SchemeandSyllabusoftherespectivespecializationattestedbythe Registrar of the parent University or equivalent authority shall be submitted to the University along with the application seeking migration to the University.
R10.13	At tested copies of all certificates and mark lists from 10th on wards shall be submitted Along with the application forming ration(Original certificate sand mark lists shall be

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	Produced as and when required by the University).
R10.14	Assessment of the student suitability for migration in terms of programs, backlogs, Grade points, credit requirements, etc. shall be done by the concerned Board ofStudies.
R10.15	Assessment of the transitory courses/additional courses to be done by the student as per the academic requirement of the University shall be as recommended by the concerned Board of Studies.
11.Minorin Engineering.	
R11.1	All B. Tech students shall be eligible to register for Minorin Engineering.
R11.2	The Minorin Engineering registration shall be along with the registration of the 3rd semester
R11.3	If a student fails in any course of the minor, he/she shall not be eligible to continue the B. Tech Minor. However, the additional credits and grades thus far earned by the Student shall be included in the grade card but shall not be considered in calculating the CGPA.
R11.4	The student shall earn additional 20 credits to be eligible for the award of B. Tech Degree with Minor.
R11.5	Out of the 20 Credits, 12 credits shall be earned by undergoing a minimum of three courses, during the specified period. The total number of contact hours for these three courses shall be 126Hrs(42Hrs/course).The duration of a course shall beminimum14 weeks. The remaining 8 credits could be acquired through two MOOCs recommended by the Board of studies and approved by the Academic Council.
R11.6	Curriculum and the syllabus of the three courses shall be approved by the Board of Studies and the Academic Council.
R11.7	The assessment of the courses other than MOOCs and earning of credits shall be as perR6.1 to R6.23. The assessment and certification of the MOOCs shall be as per theprescribednormsoftheMOOCs.Thecandidateshallproducethecertificationissued By the MOOCs conducting agency in proof of credit attainment.
R11.8	UndergraduateDegreewithminorshallbeissuedbytheUniversitytothestudents whofulfillalltheacademiceligibilityrequirementsfortheB.TechprogramandMinorinEngineering.
12.B.Tech(Honours)	
R12.1	All B. Tech students are eligible to register B. Tech (Honours).However, their Mandatory CGP At the end of eighth semester shall be 8.5 or higher to be eligible for the award of B. Tech (Honours).
R12.2	The B. Tech (Honours) registration shall be along with the registration of the 4th semester.
R12.3	If a student fails in any course including the course chosen for B. Tech (Honours),he/she shall not be eligible to continue the B. Tech (Honours). However, the additional credits thus far earned by the student shall be included in the grade card but shall not be considered in calculating the CGPA.
R12.4	The student shall earn additional 20 credits to be eligible for the award of B. Tech (Honours) Degree.

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R12.5	Out of the 20 Credits, 12 credits shall be earned by under going minimum three specified B. Tech (Honours) Elective courses of the respective stream. Credits for the B. Tech (Honours) Elective courses are deemed to be earned only on getting at least a grade 'C' or better in the composite evaluation. A student shall not be permitted to select the normal elective courses of the respective B. Tech programs for attaining the credit requirements of B. Tech (Honours). The remaining 8 credits could be acquired through two MOOCs of the respective streams recommended by the Board of studies and approved by the Academic Council.
R12.6	The assessment and certification of the MOOCs shall be as per the prescribed norms of the MOOCs. The candidate shall produce the certification issued by the MOOCs Conducting agency in proof of credit attainment.
R12.7	The institutions offering B. Tech Honours programs shall not charge any additional fee From the students.
R12.8	B. Tech (Honours)Degree shall be issued by the University to the students who fulfill all the academic eligibility requirements for the B. Tech and B. Tech(Honours) programs.

13.Grace Marks for Sports/Arts Competitions.

R13.1	Only bona-fide, regular candidates are eligible for the award of Grace Marks.
R13.2	The criterion for the award of Grace Marks is representing the University in officially sponsored national level competitions / championships / tournaments when called up on to do so. The student shall get official prior permission from the University for Representing the University.
R13.3	The maximum grace marks that can be awarded to a candidate in a particular semester for all activities put together shall be 5% of the aggregate maximum End Semester Examination marks of all theory courses for which the University conducts End Semester Examinations.
R13.4	The maximum grace marks that can be awarded to a student for a theory course in a Particular semester for all activities put together shall not exceed 10% of the maximum aggregate marks of End Semester Examination of the course.
R13.5	The Grace Marks shall not be awarded to a student for Practical/Lab/VivaVoce/ Internal assessment/Seminar etc. even though she/he fails for the same.
R13.6	Eligible Grace Marks shall be distributed equally on all theory papers/courses of an examination. However, re – distribution of Grace Marks shall be allowed only in the case of those courses of an examination for which the candidate has passed.Re-distributionispossiblefrompassedcoursestofailedcoursesonly.Re-distributionof Grace Marks is not permissible from failed courses to other courses for a pass.
R13.7	The Grace Marks shall be awarded for all theory papers/courses/subject sin a semester.
R13.8	Re-distributionshallbedoneonlyforenablingacandidatetoobtaintheminimum Marks required for a pass.
R13.09	Grace Marks shall not be re–distributed from one semester to another semester.
R13.10	If the candidate does not secure the minimum marks required for a pass even after effecting re-distribution, eligible moderation fixed by the respective board if any, shall Be awarded to that candidate in addition to the Grace Marks for a pass.
R13.11	Eligible Grace Marks shall be awarded for the regular examination of the performing Semester only. Grace Marks shall not be awarded for supplementary examinations.

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R13.12	The performing semester shall be considered from 1st July to 31st December (Odd semester)and1stJanuaryto30thJune(Even Semester).
R13.13	Grace Marks shall be awarded on the basis of performance in the respective semester.
R13.14	The request for Grace Marks shall be submitted to the Controller of Examinations through the principal along with all relevant documents, with in the time limit prescribed by the University. The request for Grace Marks received after the time limit Shall not be entertained on any account.
R13.15	Only a single highest achievement during the period of a semester shall be considered Forwarding the grace marks.
14.GraceMarksforPersonsWithDisability(PWD)	
R14.1	A person with disability means a person suffering from not less than 40% of any disability as certified by the District Medical Board. To be eligible for the grace marks,thecertificateofdisabilityspecifyingthepercentageofdisabilityshallbeproduced Before the Principal at the time of admission.
R14.2	The Grace Marks that can be awarded for PWD candidates shall be 25% of the marks Scored by the candidate in each course at the time of finalization of the results.
R14.3	Transfer of marks from one paper to another shall not be permitted. Fractions of marks if any, while computing the Grace Marks shall be rounded off to the next higher integer.
R14.4	PWD candidates who are eligible for Grace Marks shall be awarded Grace Marks for Regular and supplementary chances until they pass the whole examination.
R14.5	Grace Marks shall be awarded only for the marks of the End Semester Examinations Conducted by the University.
R14.6	The request for Grace Marks shall be submitted to the Controller of Examinationsthroughtheprincipalalongwithallrelevantdocuments,within thetimelimitprescribed by the University. The request for Grace Marks received after the time limit shall not been tertained on any account.
15.Transitory provision.	
15.1	Not with standing anything contained in these regulations, the Vice-Chancellor shall, for a period of two years from the date of coming into force of these regulations, has thepowertoprovidebyorderthattheseRegulationsshallbeappliedtoanyB.Tech program with such modifications as may be necessary.

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Student Activity Points

Apart from technical knowledge and skills, to be successful as professionals, students should have excellent soft skills, leadership qualities and team spirit. They should have entrepreneurial capabilities and societal commitment.

In order to nurture these qualities, KTU has introduced activity points to be earned by the students during their academic stay at the University covering extra-curricular and co-curricular activities. All students have to earn a minimum of 100 activity points from various activity segments listed to qualify for the B. Tech degree. Two credits are given for this on a pass/ fail basis and is mandatory forgetting the B. Tech Degree. As no grade is given for these two credits, they are not included in the CGPA calculation. For lateral entry students joining from the third semester, the activity point requirement is 75.Points earned by the student will be indicated in the consolidated academic statement.

Colleges shall consolidate the activity points earned by students on a semester basis and enter the consolidated points on an academic year basis in the KTU portal. In case of NSS and NCC, points can be entered after the completion of two-year Programme. The portal for this will only be open for a specific time period. All documental proof for awarding the activity points should be obtained and kept with the college authorities to be verified by the Academic Auditor.

THE MAIN ACTIVITY SEGMENTS ARE AS GIVEN BELOW:-

1. National Initiatives
2. Sports & Games
3. Cultural Activities
4. Professional Self Initiatives
5. Entrepreneurship and Innovation
6. Leadership & Management

The following table gives the list of activities under each of these segments, the level of achievement expected, activity points, evidence needed to assign the points and the minimum duration needed for certain activities.

Additional activities falling under these segments can be considered, if requested by the college with full details. However this has to be approved by the Academic Committee of the KTU

Activity Head	Sl. No	Activity	Achievement Levels and Assigned Activity Points					**Approval Document	Max. Points	Min. Duration of activity
		*Level	I	II	III	IV	V			
National Initiatives Participation	1	N C C	-	-	-	-	-	a/b	60	2Years
	2	N S S	-	-	-	-	-	a/b	60	2Years
	For C certificate / outstanding performance supported by certification, additional marks up to 20 can be provided subjected to maximum limit of80 points Best NSS Volunteer Awardee (University level) / Participation in National Integration Camp/ Pre Republic Day Parade Camp (South India), supported by certification, additional marks up to 10 can be provided subjected to maximum limit of70 points Best NSS Volunteer Awardee (State / National level) / Participation in Republic Day Parade Camp /International Youth Exchange Programme , supported by certification, additional marks up to 20 can be provided subjected to maximum limit of80 points									
Sports &Games Participation	3	Sports:	8	15	25	40	60	a	60	1Year
	4	Games	8	15	25	40	60	a	60	1Year
		First Prize	10	10	10	20	20	Additional points can be provided for winning. The maximum limit for activity points is 60. But for Level IV and V winning, the maximum point limit is enhanced to80.		
		Second Prize	8	8	8	16	16			
		Third Prize	5	5	5	12	12			
Cultural Activities Participation	5	Music	8	12	20	40	60	a	60	1Year
	6	Performing arts	8	12	20	40	60	a	60	1Year
	7	Literary arts	8	12	20	40	60	a	60	1Year
		First Prize	10	10	10	20	20	Additional points can be provided for winning. The maximum limit for activity points is 60. But for Level IV and V winning, the maximum point limit is enhanced to 80.		
		Second Prize	8	8	8	16	16			
		Third Prize	5	5	5	12	12			

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Professional Self Initiatives	8	Tech Fest, Tech Quiz	10	20	30	40	50	a	50	
	9	MOOC with final assessment certificate	50					a	50	
	10	Competitions conducted by Professional Societies - (IEEE, IET, ASME, SAE, NASA etc.)	10	15	20	30	40	a	40	
	11	Attending Fulltime Conference/Seminars/Exhibitions/Workshop/ STTP conducted at IITs/NITs	20					a	40	
	12	Paper presentation/ publication at IITs/NITs	30					a	40	
		Additional 10 points for certificate of recognition.								
	13	Poster Presentation at IITs /NITs	20					a	30	
		Additional 10points for certificate of recognition.								
	14	Industrial Training/Internship (at least for 5 full days)	20					a/b	20	
	15	Industrial/ Exhibition visits	5					a/b/d	10	

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	16	Foreign Language Skill (TOFEL/IELTS /BEC exams etc.)	50	a	50	
Entrepreneurship and Innovation	17	Start-up Company– Registered legally	60	d	60	
	18	Patent-Filed	30	d	60	
	19	Patent-Published	35	d	60	
	20	Patent Approved	50	d	60	
	21	Patent-Licensed	80	d	80	
	22	Proto type developed and tested	60	d	60	
	23	Awards for Products developed	60	d	60	
	24	Innovative technologies developed and used by industries/users	60	d	60	
	25	Got venture capital funding for innovative ideas/products.	80	d	80	
	26	Start-up Employment(Offering jobs to two persons less than Rs. 15000/- per month)	80	d	80	

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	27	Societal innovations	50			d	50	
Leadership & Management			Core coordinator	Sub coordinator	Volunteer			
	28	Student Professional Societies (IEEE, IET, ASME, SAE, NASA etc.)	15	10	5	d	40	
	29	College Association Chapters (Mechanical, Civil, Electrical etc.)	15	10	5	d	40	
	30	Festival &Technical Events(College approved)	15	10	5	d	40	
	31	Hobby Clubs	15	10	5	d	40	
	32	Special Initiatives (Approval from College and University is mandatory)	15	10	5	d	40	
	33	Elected student representatives	30 (Chairman)	25 (Secretary)	15(Other Council Members)	d		

*Level I College Events
*Level II Zonal Events
*Level III State/University Events
*Level IV National Events
*Level V International Events

**Approval Documents: (a) Certificate (b) Letter from Authorities (c) Appreciation recognition letter(d)Documentary evidence(e)Legal Proof(f)Others(specify)

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Curriculum Details -CIVIL ENGINEERING

Semester: 1

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	LINEAR ALGEBRA AND CALCULUS	1	3	0	4	4
B	ENGINEERING PHYSICS B	1	3	0	4	4
	ENGINEERING CHEMISTRY	1	3	0	4	4
C	ENGINEERING MECHANICS	1	2	0	3	3
	ENGINEERING GRAPHICS	0	2	2	4	3
D	BASICS OF CIVIL AND MECHANICAL ENGINEERING	0	4	0	4	4
	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	0	4	0	4	4
E	LIFE SKILLS	0	2	2	4	0
S	ENGINEERING PHYSICS LAB	0	0	2	2	1
	ENGINEERING CHEMISTRY LAB	0	0	2	2	1
T	CIVIL AND MECHANICAL WORKSHOP	0	0	2	2	1
	ELECTRICAL AND ELECTRONICS WORKSHOP	0	0	2	2	1

Semester: 2

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	VECTOR CALCULUS, DIFFERENTIAL EQUATIONS AND TRANSFORMS	1	3	0	4	4
B	ENGINEERING PHYSICS B	1	3	0	4	4
	ENGINEERING CHEMISTRY	1	3	0	4	4
C	ENGINEERING MECHANICS	1	2	0	3	3
	ENGINEERING GRAPHICS	0	2	2	4	3
D	BASICS OF CIVIL AND MECHANICAL ENGINEERING	0	4	0	4	4
	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	0	4	0	4	4
E	PROFESSIONAL COMMUNICATION	0	2	2	4	0
F	PROGRAMMING IN C	1	2	2	5	4
S	ENGINEERING PHYSICS LAB	0	0	2	2	1
	ENGINEERING CHEMISTRY LAB	0	0	2	2	1
T	CIVIL AND MECHANICAL WORKSHOP	0	0	2	2	1
	ELECTRICAL AND ELECTRONICS WORKSHOP	0	0	2	2	1

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Semester: 3

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	PARTIAL DIFFERENTIAL EQUATION AND COMPLEX ANALYSIS	1	3	0	4	4
B	MECHANICS OF SOLIDS	1	3	0	4	4
C	FLUID MECHANICS AND HYDRAULICS	1	3	0	4	4
D	SURVEYING AND GEOMATICS	0	4	0	4	4
E	DESIGN AND ENGINEERING	0	2	0	2	2
	PROFESSIONAL ETHICS	0	2	0	2	2
F	SUSTAINABLE ENGINEERING	0	2	0	2	0
M	BUILDING CONSTRUCTION AND STRUCTURAL SYSTEMS	0	4	0	4	4
	INTRODUCTION TO GEOTECHNICAL ENGINEERING	0	4	0	4	4
	INFORMATICS FOR INFRASTRUCTURE MANAGEMENT	1	3	0	4	4
	ADVANCED CONCRETE TECHNOLOGY	0	0	0	0	4
	PRINCIPLES OF CONSTRUCTION MANAGEMENT	0	0	0	0	4
	SAFETY IN CONSTRUCTION	0	0	0	0	4
	DEVELOPMENT AND APPLICATION OF SPECIAL CONCRETE	0	0	0	0	4
	CONSTRUCTION METHODS AND EQUIPMENT MANAGEMENT	0	0	0	0	4
	MAINTENANCE AND REPAIR OF CONCRETE STRUCTURES	0	0	0	0	4
	MECHANICS OF SOLIDS	0	0	0	0	4
	BASIC CONSTRUCTION MATERIALS	0	0	0	0	4
	STRUCTURAL ANALYSIS-I	0	0	0	0	4
	INTRODUCTION TO ACCOUNTING AND FINANCE FOR CIVIL ENGINEERS	0	0	0	0	4
	GEOLOGY AND SOIL MECHANICS	0	0	0	0	4
	GEOTECHNICAL ENGINEERING - I	0	0	0	0	4
	TRAFFIC ENGINEERING	0	0	0	0	4
	URBAN TRANSPORTATION SYSTEMS PLANNING	0	0	0	0	4
	GEOTECHNICAL ENGINEERING II FOUNDATION ENGINEERING	0	0	0	0	4
	REMOTE SENSING ESSENTIALS	0	0	0	0	4
	REMOTE SENSING: PRINCIPLES AND APPLICATIONS	0	0	0	0	4
	GEOGRAPHIC INFORMATION SYSTEMS	0	0	0	0	4
	NATURAL HAZARDS	0	0	0	0	4
	INTRODUCTION TO	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	ENVIRONMENTAL ENGINEERING AND SCIENCE - FUNDAMENTAL AND SUSTAINABILITY CONCEPTS					
	ENVIRONMENTAL QUALITY MONITORING AND ANALYSIS	0	0	0	0	4
	REMOTE SENSING AND GIS	0	0	0	0	4
	HOUSING POLICY AND PLANNING	0	0	0	0	4
S	CIVIL ENGINEERING PLANNING AND DRAFTING LAB	0	0	3	3	2
T	SURVEY LAB	0	0	3	3	2

Semester: 4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	PROBABILITY, STATISTICS AND NUMERICAL METHODS	1	3	0	4	4
B	ENGINEERING GEOLOGY	0	3	1	4	4
C	GEOTECHNICAL ENGINEERING I	0	4	0	4	4
D	TRANSPORTATION ENGINEERING	0	4	0	4	4
E	DESIGN AND ENGINEERING	0	2	0	2	2
	PROFESSIONAL ETHICS	0	2	0	2	2
F	CONSTITUTION OF INDIA	0	2	0	2	0
H1	ADVANCED MECHANICS OF SOLIDS	1	3	0	4	4
	PAVEMENT CONSTRUCTION AND MANAGEMENT	1	3	0	4	4
	GEOGRAPHICAL INFORMATION SYSTEMS	1	3	0	4	4
	MODERN CONSTRUCTION MATERIALS	0	0	0	0	4
	STRUCTRAL DYNAMICS	0	0	0	0	4
	FINITE ELEMENT METHOD	0	0	0	0	4
	EXPERIMENTAL STRESS ANALYSIS	0	0	0	0	4
	GEOSYNTHETICS AND REINFORCED SOIL STRUCTURES	0	0	0	0	4
	ADVANCED SOIL MECHANICS	0	0	0	0	4
	ROCK ENGINEERING	0	0	0	0	4
	ADVANCED SOIL MECHANICS	0	0	0	0	4
	SOIL STRUCTURE INTERACTION	0	0	0	0	4
	EXPANSIVE SOIL	0	0	0	0	4
	ADVANCED FOUNDATION ENGINEERING	0	0	0	0	4
	URBAN TRANSPORTATION SYSTEMS PLANNING	0	0	0	0	4
	GEOMORPHOLOGY	0	0	0	0	4
	PLASTIC WASTE MANAGEMENT	0	0	0	0	4
	ENVIRONMENTAL REMEDIATION OF CONTAMINATED SITES	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	GEOGRAPHIC INFORMATION SYSTEMS	0	0	0	0	4
	MICROWAVE REMOTE SENSING IN HYDROLOGY	0	0	0	0	4
	APPLIED ENVIRONMENTAL MICROBIOLOGY	0	0	0	0	4
	ENGINEERING HYDROLOGY	0	0	0	0	4
	AIR POLLUTION AND CONTROL	0	0	0	0	4
M	BUILDING DRAWING	1	3	0	4	4
	INTRODUCTION TO TRANSPORTATION ENGINEERING	1	3	0	4	4
	CLIMATE CHANGE AND HAZARD MITIGATION	1	3	0	4	4
	ADVANCED CONCRETE TECHNOLOGY	0	0	0	0	4
	PRINCIPLES OF CONSTRUCTION MANAGEMENT	0	0	0	0	4
	SAFETY IN CONSTRUCTION	0	0	0	0	4
	DEVELOPMENT AND APPLICATION OF SPECIAL CONCRETE	0	0	0	0	4
	CONSTRUCTION METHODS AND EQUIPMENT MANAGEMENT	0	0	0	0	4
	MAINTENANCE AND REPAIR OF CONCRETE STRUCTURES	0	0	0	0	4
	MECHANICS OF SOLIDS	0	0	0	0	4
	BASIC CONSTRUCTION MATERIALS	0	0	0	0	4
	STRUCTURAL ANALYSIS-I	0	0	0	0	4
	INTRODUCTION TO ACCOUNTING AND FINANCE FOR CIVIL ENGINEERS	0	0	0	0	4
	GEOLOGY AND SOIL MECHANICS	0	0	0	0	4
	GEOTECHNICAL ENGINEERING - I	0	0	0	0	4
	TRAFFIC ENGINEERING	0	0	0	0	4
	URBAN TRANSPORTATION SYSTEMS PLANNING	0	0	0	0	4
	GEOTECHNICAL ENGINEERING II FOUNDATION ENGINEERING	0	0	0	0	4
	REMOTE SENSING ESSENTIALS	0	0	0	0	4
	REMOTE SENSING: PRINCIPLES AND APPLICATIONS	0	0	0	0	4
	GEOGRAPHIC INFORMATION SYSTEMS	0	0	0	0	4
	NATURAL HAZARDS	0	0	0	0	4
	INTRODUCTION TO ENVIRONMENTAL ENGINEERING AND SCIENCE - FUNDAMENTAL AND SUSTAINABILITY CONCEPTS	0	0	0	0	4
	ENVIRONMENTAL QUALITY MONITORING AND ANALYSIS	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
S	MATERIAL TESTING LAB I	0	0	3	3	2
T	FLUID MECHANICS LAB	0	0	3	3	2

Semester: 5

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	STRUCTURAL ANALYSIS I	1	3	0	4	4
B	DESIGN OF CONCRETE STRUCTURES	1	3	0	4	4
C	GEOTECHNICAL ENGINEERING II	0	4	0	4	4
D	HYDROLOGY AND WATER RESOURCES ENGINEERING	0	4	0	4	4
E	CONSTRUCTION TECHNOLOGY AND MANAGEMENT	0	3	0	3	3
F	DISASTER MANAGEMENT	0	2	0	2	0
H1	STRUCTURAL DYNAMICS	1	3	0	4	4
	TRANSPORTATION SYSTEMS MANAGEMENT	1	3	0	4	4
	GROUND WATER HYDROLOGY	1	3	0	4	4
	MODERN CONSTRUCTION MATERIALS	0	0	0	0	4
	STRUCTRAL DYNAMICS	0	0	0	0	4
	FINITE ELEMENT METHOD	0	0	0	0	4
	EXPERIMENTAL STRESS ANALYSIS	0	0	0	0	4
	GEOSYNTHETICS AND REINFORCED SOIL STRUCTURES	0	0	0	0	4
	ADVANCED SOIL MECHANICS	0	0	0	0	4
	ROCK ENGINEERING	0	0	0	0	4
	ADVANCED SOIL MECHANICS	0	0	0	0	4
	SOIL STRUCTURE INTERACTION	0	0	0	0	4
	EXPANSIVE SOIL	0	0	0	0	4
	ADVANCED FOUNDATION ENGINEERING	0	0	0	0	4
	URBAN TRANSPORTATION SYSTEMS PLANNING	0	0	0	0	4
	GEOMORPHOLOGY	0	0	0	0	4
	PLASTIC WASTE MANAGEMENT	0	0	0	0	4
	ENVIRONMENTAL REMEDIATION OF CONTAMINATED SITES	0	0	0	0	4
	GEOGRAPHIC INFORMATION SYSTEMS	0	0	0	0	4
	MICROWAVE REMOTE SENSING IN HYDROLOGY	0	0	0	0	4
	APPLIED ENVIRONMENTAL MICROBIOLOGY	0	0	0	0	4
	ENGINEERING HYDROLOGY	0	0	0	0	4
	AIR POLLUTION AND CONTROL	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	WATER ECONOMICS AND GOVERNANCE	0	0	0	0	4
	ENVIRONMENTAL MODELLING AND SIMULATION	0	0	0	0	4
	ENVIRONMENTAL IMPACT ASSESSMENT	0	0	0	0	4
	REMOTE SENSING AND GIS FOR RURAL DEVELOPMENT	0	0	0	0	4
	CHARACTERIZATION OF CONSTRUCTION MATERIALS	0	0	0	0	4
	CONCRETE TECHNOLOGY	0	0	0	0	4
	MAINTENANCE AND REPAIR OF CONCRETE STRUCTURES	0	0	0	0	4
	STRATEGIES FOR SUSTAINABLE DESIGN	0	0	0	0	4
M	STRUCTURAL MECHANICS	1	3	0	4	4
	ECO-FRIENDLY TRANSPORTATION SYSTEMS	1	3	0	4	4
	SUSTAINABILITY ANALYSIS AND DESIGN	1	3	0	4	4
	ADVANCED CONCRETE TECHNOLOGY	0	0	0	0	4
	PRINCIPLES OF CONSTRUCTION MANAGEMENT	0	0	0	0	4
	SAFETY IN CONSTRUCTION	0	0	0	0	4
	DEVELOPMENT AND APPLICATION OF SPECIAL CONCRETE	0	0	0	0	4
	CONSTRUCTION METHODS AND EQUIPMENT MANAGEMENT	0	0	0	0	4
	MAINTENANCE AND REPAIR OF CONCRETE STRUCTURES	0	0	0	0	4
	MECHANICS OF SOLIDS	0	0	0	0	4
	BASIC CONSTRUCTION MATERIALS	0	0	0	0	4
	STRUCTURAL ANALYSIS-I	0	0	0	0	4
	INTRODUCTION TO ACCOUNTING AND FINANCE FOR CIVIL ENGINEERS	0	0	0	0	4
	GEOLOGY AND SOIL MECHANICS	0	0	0	0	4
	GEOTECHNICAL ENGINEERING - I	0	0	0	0	4
	TRAFFIC ENGINEERING	0	0	0	0	4
	URBAN TRANSPORTATION SYSTEMS PLANNING	0	0	0	0	4
	GEOTECHNICAL ENGINEERING II FOUNDATION ENGINEERING	0	0	0	0	4
	REMOTE SENSING ESSENTIALS	0	0	0	0	4
	REMOTE SENSING: PRINCIPLES AND APPLICATIONS	0	0	0	0	4
	GEOGRAPHIC INFORMATION SYSTEMS	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	NATURAL HAZARDS	0	0	0	0	4
	INTRODUCTION TO ENVIRONMENTAL ENGINEERING AND SCIENCE - FUNDAMENTAL AND SUSTAINABILITY CONCEPTS	0	0	0	0	4
	ENVIRONMENTAL QUALITY MONITORING AND ANALYSIS	0	0	0	0	4
	WASTEWATER TREATMENT AND RECYCLING	0	0	0	0	4
	REMOTE SENSING AND GIS	0	0	0	0	4
	HOUSING POLICY AND PLANNING	0	0	0	0	4
S	MATERIAL TESTING LAB II	0	0	3	3	2
T	GEOTECHNICAL ENGINEERING LAB	0	0	3	3	2

Semester: 6

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	STRUCTURAL ANALYSIS - II	1	3	0	4	4
B	ENVIRONMENTAL ENGINEERING	0	4	0	4	4
C	DESIGN OF HYDRAULIC STRUCTURES	0	4	0	4	4
D	ADVANCED COMPUTATIONAL METHODS	0	3	0	3	3
	GEOTECHNICHAL INVESTIGATION	0	3	0	3	3
	TRAFFIC ENGINEERING AND MANAGEMENT	0	3	0	3	3
	MECHANICS OF FLUID FLOW	0	3	0	3	3
	ADVANCED CONCRETE TECHNOLOGY	0	3	0	3	3
	ENVIRONMENTAL IMPACT ASSESSMENT	0	3	0	3	3
	FUNCTIONAL DESIGN OF BUILDINGS	0	3	0	3	3
E	INDUSTRIAL ECONOMICS AND FOREIGN TRADE	0	3	0	3	3
F	COMPREHENSIVE COURSE WORK	0	1	0	1	1
H1	FINITE ELEMENT METHODS	1	3	0	4	4
	EARTH DAMS AND EARTH RETAINING STRUCTURES	1	3	0	4	4
	ENVIRONMENTAL POLLUTION MODELLING	1	3	0	4	4
	MODERN CONSTRUCTION MATERIALS	0	0	0	0	4
	EXPERIMENTAL STRESS ANALYSIS	0	0	0	0	4
	GEOSYNTHETICS AND REINFORCED SOIL STRUCTURES	0	0	0	0	4
	STRUCTRAL DYNAMICS	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	FINITE ELEMENT METHOD	0	0	0	0	4
	ADVANCED SOIL MECHANICS	0	0	0	0	4
	ROCK ENGINEERING	0	0	0	0	4
	ADVANCED SOIL MECHANICS	0	0	0	0	4
	SOIL STRUCTURE INTERACTION	0	0	0	0	4
	EXPANSIVE SOIL	0	0	0	0	4
	ADVANCED FOUNDATION ENGINEERING	0	0	0	0	4
	URBAN TRANSPORTATION SYSTEMS PLANNING	0	0	0	0	4
	GEOMORPHOLOGY	0	0	0	0	4
	PLASTIC WASTE MANAGEMENT	0	0	0	0	4
	ENVIRONMENTAL REMEDIATION OF CONTAMINATED SITES	0	0	0	0	4
	GEOGRAPHIC INFORMATION SYSTEMS	0	0	0	0	4
	MICROWAVE REMOTE SENSING IN HYDROLOGY	0	0	0	0	4
	APPLIED ENVIRONMENTAL MICROBIOLOGY	0	0	0	0	4
	ENGINEERING HYDROLOGY	0	0	0	0	4
	AIR POLLUTION AND CONTROL	0	0	0	0	4
	ENVIRONMENTAL IMPACT ASSESSMENT	0	0	0	0	4
	REMOTE SENSING AND GIS FOR RURAL DEVELOPMENT	0	0	0	0	4
	WATER ECONOMICS AND GOVERNANCE	0	0	0	0	4
	ENVIRONMENTAL MODELLING AND SIMULATION	0	0	0	0	4
	CHARACTERIZATION OF CONSTRUCTION MATERIALS	0	0	0	0	4
	CONCRETE TECHNOLOGY	0	0	0	0	4
	MAINTENANCE AND REPAIR OF CONCRETE STRUCTURES	0	0	0	0	4
	STRATEGIES FOR SUSTAINABLE DESIGN	0	0	0	0	4
M	ESTIMATION, COSTING AND VALUATION	1	3	0	4	4
	GEOTECHNICAL INVESTIGATION AND GROUND IMPROVEMENT TECHNIQUES	1	3	0	4	4
	ENVIRONMENTAL HEALTH AND SAFETY	1	3	0	4	4
	ADVANCED CONCRETE TECHNOLOGY	0	0	0	0	4
	PRINCIPLES OF CONSTRUCTION MANAGEMENT	0	0	0	0	4
	SAFETY IN CONSTRUCTION	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	DEVELOPMENT AND APPLICATION OF SPECIAL CONCRETE	0	0	0	0	4
	CONSTRUCTION METHODS AND EQUIPMENT MANAGEMENT	0	0	0	0	4
	MAINTENANCE AND REPAIR OF CONCRETE STRUCTURES	0	0	0	0	4
	MECHANICS OF SOLIDS	0	0	0	0	4
	BASIC CONSTRUCTION MATERIALS	0	0	0	0	4
	STRUCTURAL ANALYSIS-I	0	0	0	0	4
	INTRODUCTION TO ACCOUNTING AND FINANCE FOR CIVIL ENGINEERS	0	0	0	0	4
	GEOLOGY AND SOIL MECHANICS	0	0	0	0	4
	GEOTECHNICAL ENGINEERING - I	0	0	0	0	4
	TRAFFIC ENGINEERING	0	0	0	0	4
	URBAN TRANSPORTATION SYSTEMS PLANNING	0	0	0	0	4
	REMOTE SENSING ESSENTIALS	0	0	0	0	4
	GEOGRAPHIC INFORMATION SYSTEMS	0	0	0	0	4
	NATURAL HAZARDS	0	0	0	0	4
	INTRODUCTION TO ENVIRONMENTAL ENGINEERING AND SCIENCE - FUNDAMENTAL AND SUSTAINABILITY CONCEPTS	0	0	0	0	4
	ENVIRONMENTAL QUALITY MONITORING AND ANALYSIS	0	0	0	0	4
	GEOTECHNICAL ENGINEERING II FOUNDATION ENGINEERING	0	0	0	0	4
	REMOTE SENSING: PRINCIPLES AND APPLICATIONS	0	0	0	0	4
S	TRANSPORTATION ENGINEERING LAB	0	0	3	3	2
T	CIVIL ENGINEERING SOFTWARE LAB	0	0	3	3	2

Semester: 7

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	DESIGN OF STEEL STRUCTURES	0	3	0	3	3
B	PRESTRESSED CONCRETE	0	3	0	3	3
	GROUND IMPROVEMENT TECHNIQUES	0	3	0	3	3
	HIGHWAY MATERIALS AND DESIGN	0	3	0	3	3
	APPLIED HYDROLOGY	0	3	0	3	3
	CONSTRUCTION PLANNING AND MANAGEMENT	0	3	0	3	3

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	ADVANCED ENVIRONMENTAL ENGINEERING	0	3	0	3	3
	OPTIMISATION TECHNIQUES IN CIVIL ENGINEERING	0	3	0	3	3
C	INTRODUCTION TO AERONAUTICS	1	2	0	3	3
	INTRODUCTION TO AERODYNAMICS	1	2	0	3	3
	FLIGHT AGAINST GRAVITY	1	2	0	3	3
	NUMERICAL METHODS AND PROGRAMMING	1	2	0	3	3
	INSTRUMENTATION SYSTEMS	1	2	0	3	3
	BIOMEDICAL ENGINEERING	1	2	0	3	3
	MEMS	1	2	0	3	3
	ROBOTICS AND INDUSTRIAL AUTOMATION	1	2	0	3	3
	MODERN AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	HYBRID AND ELECTRIC VEHICLES	1	2	0	3	3
	AUTOMOTIVE ERGONOMICS AND SAFETY	1	2	0	3	3
	AVG AND AUTONOMOUS VEHICLES	1	2	0	3	3
	COMPUTER SIMULATION AND ANALYSIS OF AUTOMOTIVE SYSTEMS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	MEDICAL IMAGING AND IMAGE PROCESSING	1	2	0	3	3
	ARTIFICIAL ORGANS AND IMPLANTS	1	2	0	3	3
	ASSISTIVE MEDICAL DEVICES	1	2	0	3	3
	INDUSTRIAL BIOTECHNOLOGY	1	2	0	3	3
	BASICS IN BIOINFORMATICS AND DRUG DESIGN	1	2	0	3	3
	SUSTAINABLE ENERGY PROCESS	1	2	0	3	3
	OCCUPATIONAL HEALTH AND GENERAL SAFETY	1	2	0	3	3
	WASTE WATER ENGINEERING	1	2	0	3	3
	ENERGY TECHNOLOGY AND ENERGY MANAGEMENT	1	2	0	3	3
	PETROLEUM RESOURCES AND PETROCHEMICALS	1	2	0	3	3
	PROCESS SAFETY ENGINEERING	1	2	0	3	3
	PIPING AND PIPELINE DESIGN FOR PROCESS INDUSTRIES	1	2	0	3	3
	INTRODUCTION TO MOBILE COMPUTING	1	2	0	3	3
	INTRODUCTION TO DEEP LEARNING	1	2	0	3	3
	COMPUTER GRAPHICS	1	2	0	3	3
	PYTHON FOR ENGINEERS	1	2	0	3	3

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	OBJECT ORIENTED CONCEPTS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	MEDICAL IMAGING AND IMAGE PROCESSING	1	2	0	3	3
	BIOSIGNALS AND SIGNAL PROCESSING	1	2	0	3	3
	BIOMATERIALS AND BIOMECHANICS	1	2	0	3	3
	MECHATRONICS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	ELECTRONIC HARDWARE FOR ENGINEERS	1	2	0	3	3
	IOT AND APPLICATIONS	1	2	0	3	3
	ENTERTAINMENT ELECTRONICS	1	2	0	3	3
	CONTROL SYSTEMS ENGINEERING	1	2	0	3	3
	INTRODUCTION TO POWER PROCESSING	1	2	0	3	3
	RENEWABLE ENERGY SYSTEMS	1	2	0	3	3
	ELECTRIC VEHICLES	1	2	0	3	3
	ENERGY MANAGEMENT	1	2	0	3	3
	FOOD PROCESS ENGINEERING	1	2	0	3	3
	INSTRUMENTAL METHODS IN FOOD ANALYSIS	1	2	0	3	3
	UNIT OPERATIONS IN FOOD TECHNOLOGY	1	2	0	3	3
	NON THERMAL PROCESSING	1	2	0	3	3
	TOTAL QUALITY MANAGEMENT	1	2	0	3	3
	MAINTENANCE ENGINEERING AND MANAGEMENT	1	2	0	3	3
	SYSTEM SIMULATION	1	2	0	3	3
	SUPPLY CHAIN MANAGEMENT	1	2	0	3	3
	FACILITIES PLANNING AND MATERIAL HANDLING	1	2	0	3	3
	WEB DESIGNING	1	2	0	3	3
	MULTIMEDIA TECHNIQUES	1	2	0	3	3
	FREE AND OPEN SOURCE SOFTWARE	1	2	0	3	3
	MOBILE APPLICATION DEVELOPMENT	1	2	0	3	3
	ENVIRONMENTAL INSTRUMENTATION	1	2	0	3	3
	INDUSTRIAL INSTRUMENTATION	1	2	0	3	3
	AUTOMOBILE INSTRUMENTATION	1	2	0	3	3
	INTRODUCTION TO BUSINESS ANALYTICS	1	2	0	3	3
	QUANTITATIVE TECHNIQUES FOR ENGINEERS	1	2	0	3	3
	AUTOMOTIVE TECHNOLOGY	1	2	0	3	3

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	RENEWABLE ENERGY ENGINEERING	1	2	0	3	3
	QUALITY ENGINEERING AND MANAGEMENT	1	2	0	3	3
	BASICS OF ROBOTICS AND AUTOMATION	1	2	0	3	3
	INTRODUCTION TO QUALITY MANAGEMENT	1	2	0	3	3
	NON DESTRUCTIVE TESTING AND FAILURE ANALYSIS	1	2	0	3	3
	MATERIALS AND MANUFACTURING TECHNIQUES FOR INDUSTRIES	1	2	0	3	3
	FUNDAMENTALS OF NANO MATERIALS	1	2	0	3	3
	MODERN AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	HYBRID AND ELECTRIC VEHICLES	1	2	0	3	3
	AVG AND AUTONOMOUS VEHICLES	1	2	0	3	3
	COMPUTER SIMULATION AND ANALYSIS OF AUTOMOTIVE SYSTEMS	1	2	0	3	3
	SHIPBUILDING TECHNOLOGY	1	2	0	3	3
	MARINE MATERIALS AND CORROSION	1	2	0	3	3
	INTEGRATED PRODUCT DEVELOPMENT	1	2	0	3	3
	CONTEMPORARY MATERIALS	1	2	0	3	3
	FLIGHT AGAINST GRAVITY	1	2	0	3	3
	TQM	1	2	0	3	3
	ADDITIVE MANUFACTURING	1	2	0	3	3
	FUNDAMENTALS OF ROBOTICS	1	2	0	3	3
	BASICS OF MOBILE ROBOTICS	1	2	0	3	3
	INDUSTRIAL AUTOMATION	1	2	0	3	3
	AI FOR ROBOTICS	1	2	0	3	3
	RESPONSIBLE ENGINEERING	1	2	0	3	3
	SAFETY IN CONSTRUCTION INDUSTRY	1	2	0	3	3
	PRODUCT DEVELOPMENT AND DESIGN	1	2	0	3	3
	PLANT ENGINEERING AND MAINTENANCE	1	2	0	3	3
	INDUSTRIAL PSYCHOLOGY AND ORGANISATIONAL BEHAVIOUR	1	2	0	3	3
	AUTOMOTIVE ERGONOMICS AND SAFETY	1	2	0	3	3
	DREDGERS AND HARBOUR CRAFTS	1	2	0	3	3
D	INDUSTRIAL SAFETY ENGINEERING	1	2	0	3	0
H1	MODERN CONSTRUCTION MATERIALS	1	3	0	4	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	SOIL DYNAMICS AND MACHINE FOUNDATIONS	1	3	0	4	4
	ENVIRONMENTAL POLLUTION CONTROL TECHNIQUES	1	3	0	4	4
	MODERN CONSTRUCTION MATERIALS	0	0	0	0	4
	STRUCTRAL DYNAMICS	0	0	0	0	4
	FINITE ELEMENT METHOD	0	0	0	0	4
	EXPERIMENTAL STRESS ANALYSIS	0	0	0	0	4
	GEOSYNTHETICS AND REINFORCED SOIL STRUCTURES	0	0	0	0	4
	ADVANCED SOIL MECHANICS	0	0	0	0	4
	ROCK ENGINEERING	0	0	0	0	4
	ADVANCED SOIL MECHANICS	0	0	0	0	4
	SOIL STRUCTURE INTERACTION	0	0	0	0	4
	EXPANSIVE SOIL	0	0	0	0	4
	ADVANCED FOUNDATION ENGINEERING	0	0	0	0	4
	URBAN TRANSPORTATION SYSTEMS PLANNING	0	0	0	0	4
	GEOMORPHOLOGY	0	0	0	0	4
	PLASTIC WASTE MANAGEMENT	0	0	0	0	4
	ENVIRONMENTAL REMEDIATION OF CONTAMINATED SITES	0	0	0	0	4
	GEOGRAPHIC INFORMATION SYSTEMS	0	0	0	0	4
	MICROWAVE REMOTE SENSING IN HYDROLOGY	0	0	0	0	4
	APPLIED ENVIRONMENTAL MICROBIOLOGY	0	0	0	0	4
	ENGINEERING HYDROLOGY	0	0	0	0	4
	AIR POLLUTION AND CONTROL	0	0	0	0	4
	WATER ECONOMICS AND GOVERNANCE	0	0	0	0	4
	ENVIRONMENTAL MODELLING AND SIMULATION	0	0	0	0	4
	CHARACTERIZATION OF CONSTRUCTION MATERIALS	0	0	0	0	4
	CONCRETE TECHNOLOGY	0	0	0	0	4
	MAINTENANCE AND REPAIR OF CONCRETE STRUCTURES	0	0	0	0	4
	STRATEGIES FOR SUSTAINABLE DESIGN	0	0	0	0	4
	ENVIRONMENTAL IMPACT ASSESSMENT	0	0	0	0	4
	REMOTE SENSING AND GIS FOR RURAL DEVELOPMENT	0	0	0	0	4
M	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4

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PAYYANUR, KANNUR

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	MINI PROJECT	1	3	0	4	4
	ADVANCED CONCRETE TECHNOLOGY	0	0	0	0	4
	PRINCIPLES OF CONSTRUCTION MANAGEMENT	0	0	0	0	4
	SAFETY IN CONSTRUCTION	0	0	0	0	4
	DEVELOPMENT AND APPLICATION OF SPECIAL CONCRETE	0	0	0	0	4
	CONSTRUCTION METHODS AND EQUIPMENT MANAGEMENT	0	0	0	0	4
	MAINTENANCE AND REPAIR OF CONCRETE STRUCTURES	0	0	0	0	4
	MECHANICS OF SOLIDS	0	0	0	0	4
	BASIC CONSTRUCTION MATERIALS	0	0	0	0	4
	STRUCTURAL ANALYSIS-I	0	0	0	0	4
	INTRODUCTION TO ACCOUNTING AND FINANCE FOR CIVIL ENGINEERS	0	0	0	0	4
	GEOLOGY AND SOIL MECHANICS	0	0	0	0	4
	GEOTECHNICAL ENGINEERING - I	0	0	0	0	4
	TRAFFIC ENGINEERING	0	0	0	0	4
	URBAN TRANSPORTATION SYSTEMS PLANNING	0	0	0	0	4
	GEOTECHNICAL ENGINEERING II FOUNDATION ENGINEERING	0	0	0	0	4
	REMOTE SENSING ESSENTIALS	0	0	0	0	4
	REMOTE SENSING: PRINCIPLES AND APPLICATIONS	0	0	0	0	4
	GEOGRAPHIC INFORMATION SYSTEMS	0	0	0	0	4
	NATURAL HAZARDS	0	0	0	0	4
	INTRODUCTION TO ENVIRONMENTAL ENGINEERING AND SCIENCE - FUNDAMENTAL AND SUSTAINABILITY CONCEPTS	0	0	0	0	4
	ENVIRONMENTAL QUALITY MONITORING AND ANALYSIS	0	0	0	0	4
	WASTEWATER TREATMENT AND RECYCLING	0	0	0	0	4
	REMOTE SENSING AND GIS	0	0	0	0	4
	HOUSING POLICY AND PLANNING	0	0	0	0	4
S	ENVIRONMENTAL ENGG LAB	0	0	3	3	2
T	SEMINAR	0	0	3	3	2
U	PROJECT PHASE I	0	0	6	6	2

Semester: 8

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	QUANTITY SURVEYING AND VALUATION	0	3	0	3	3
B	ADVANCED STRUCTURAL DESIGN	0	3	0	3	3
	GEOENVIRONMENTAL ENGINEERING	0	3	0	3	3
	RAILWAY AND TUNNEL ENGINEERING	0	3	0	3	3
	IRRIGATION AND DRAINAGE ENGINEERING	0	3	0	3	3
	CONSTRUCTION METHODS AND EQUIPMENT	0	3	0	3	3
	AIRQUALITY MANAGEMENT	0	3	0	3	3
	URBAN PLANNING AND ARCHITECTURE	0	3	0	3	3
C	BRIDGE ENGINEERING	0	3	0	3	3
	ADVANCED FOUNDATION DESIGN	0	3	0	3	3
	TRANSPORTATION PLANNING	0	3	0	3	3
	INFORMATICS FOR INFRASTRUCTURE MANAGEMENT	0	3	0	3	3
	REPAIR AND REHABILITATION OF BUILDINGS	0	3	0	3	3
	ENVIRONMENTAL REMOTE SENSING	0	3	0	3	3
	BUILDING SERVICES	0	3	0	3	3
D	EARTHQUAKE RESISTANT DESIGN	0	3	0	3	3
	SOIL STRUCTURE INTERACTION	0	3	0	3	3
	AIRPORT, SEAPORT AND HARBOUR ENGINEERING	0	3	0	3	3
	HYDROCLIMATOLOGY	0	3	0	3	3
	SUSTAINABLE CONSTRUCTION	0	3	0	3	3
	CLIMATE CHANGE AND SUSTAINABILITY	0	3	0	3	3
	BUILDING INFORMATION MODELLING	0	3	0	3	3
H1	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
M	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	ADVANCED CONCRETE TECHNOLOGY	0	0	0	0	4
	PRINCIPLES OF CONSTRUCTION MANAGEMENT	0	0	0	0	4
	SAFETY IN CONSTRUCTION	0	0	0	0	4
	DEVELOPMENT AND APPLICATION OF SPECIAL CONCRETE	0	0	0	0	4
	CONSTRUCTION METHODS AND	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	EQUIPMENT MANAGEMENT					
	MAINTENANCE AND REPAIR OF CONCRETE STRUCTURES	0	0	0	0	4
	MECHANICS OF SOLIDS	0	0	0	0	4
	REMOTE SENSING AND GIS	0	0	0	0	4
	BASIC CONSTRUCTION MATERIALS	0	0	0	0	4
	STRUCTURAL ANALYSIS-I	0	0	0	0	4
	INTRODUCTION TO ACCOUNTING AND FINANCE FOR CIVIL ENGINEERS	0	0	0	0	4
	HOUSING POLICY AND PLANNING	0	0	0	0	4
	GEOLOGY AND SOIL MECHANICS	0	0	0	0	4
	GEOTECHNICAL ENGINEERING - I	0	0	0	0	4
	TRAFFIC ENGINEERING	0	0	0	0	4
	URBAN TRANSPORTATION SYSTEMS PLANNING	0	0	0	0	4
	GEOTECHNICAL ENGINEERING II FOUNDATION ENGINEERING	0	0	0	0	4
	REMOTE SENSING ESSENTIALS	0	0	0	0	4
	REMOTE SENSING: PRINCIPLES AND APPLICATIONS	0	0	0	0	4
	GEOGRAPHIC INFORMATION SYSTEMS	0	0	0	0	4
	INTRODUCTION TO ENVIRONMENTAL ENGINEERING AND SCIENCE - FUNDAMENTAL AND SUSTAINABILITY CONCEPTS	0	0	0	0	4
	NATURAL HAZARDS	0	0	0	0	4
	ENVIRONMENTAL QUALITY MONITORING AND ANALYSIS	0	0	0	0	4
	WASTEWATER TREATMENT AND RECYCLING	0	0	0	0	4
T	COMPREHENSIVE VIVA VOCE	0	1	0	1	1
U	PROJECT PHASE II	0	0	12	12	4

Curriculam Details –COMPUTER SCIENCE AND ENGINEERING

Semester: 1

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	LINEAR ALGEBRA AND CALCULUS	1	3	0	4	4
B	ENGINEERING PHYSICS A	1	3	0	4	4
	ENGINEERING CHEMISTRY	1	3	0	4	4
C	ENGINEERING MECHANICS	1	2	0	3	3
	ENGINEERING GRAPHICS	0	2	2	4	3

Dr. LEENA A V
PRINCIPAL
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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
D	BASICS OF CIVIL AND MECHANICAL ENGINEERING	0	4	0	4	4
	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	0	4	0	4	4
E	LIFE SKILLS	0	2	2	4	0
S	ENGINEERING PHYSICS LAB	0	0	2	2	1
	ENGINEERING CHEMISTRY LAB	0	0	2	2	1
T	CIVIL AND MECHANICAL WORKSHOP	0	0	2	2	1
	ELECTRICAL AND ELECTRONICS WORKSHOP	0	0	2	2	1

Semester: 2

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	VECTOR CALCULUS, DIFFERENTIAL EQUATIONS AND TRANSFORMS	1	3	0	4	4
B	ENGINEERING PHYSICS A	1	3	0	4	4
	ENGINEERING CHEMISTRY	1	3	0	4	4
C	ENGINEERING MECHANICS	1	2	0	3	3
	ENGINEERING GRAPHICS	0	2	2	4	3
D	BASICS OF CIVIL AND MECHANICAL ENGINEERING	0	4	0	4	4
	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	0	4	0	4	4
E	PROFESSIONAL COMMUNICATION	0	2	2	4	0
F	PROGRAMMING IN C	1	2	2	5	4
S	ENGINEERING PHYSICS LAB	0	0	2	2	1
	ENGINEERING CHEMISTRY LAB	0	0	2	2	1
T	CIVIL AND MECHANICAL WORKSHOP	0	0	2	2	1
	ELECTRICAL AND ELECTRONICS WORKSHOP	0	0	2	2	1

Semester: 3

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	DISCRETE MATHEMATICAL STRUCTURES	1	3	0	4	4
B	DATA STRUCTURES	1	3	0	4	4
C	LOGIC SYSTEM DESIGN	1	3	0	4	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
D	OBJECT ORIENTED PROGRAMMING USING JAVA	1	3	0	4	4
E	DESIGN AND ENGINEERING	0	2	0	2	2
	PROFESSIONAL ETHICS	0	2	0	2	2
F	SUSTAINABLE ENGINEERING	0	2	0	2	0
M	OBJECT ORIENTED PROGRAMMING	1	3	0	4	4
	PYTHON FOR MACHINE LEARNING	1	3	0	4	4
	DATA COMMUNICATION	1	3	0	4	4
	SOFTWARE ENGINEERING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO COMPUTER NETWORKS AND INTERNET PROTOCOLS	0	0	0	0	4
	COMPUTER NETWORKS AND INTERNET PROTOCOL	0	0	0	0	4
	INTRODUCTION TO INTERNET OF THINGS	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO INTERNET OF THINGS	0	0	0	0	4
	OBJECT ORIENTED SYSTEM DEVELOPMENT USING UML, JAVA AND PATTERNS	0	0	0	0	4
	PROGRAMMING IN JAVA	0	0	0	0	4
	DEEP LEARNING FOR COMPUTER VISION	0	0	0	0	4
	COMMUNICATION NETWORKS	0	0	0	0	4
S	DATA STRUCTURES LAB	0	0	3	3	2
T	OBJECT ORIENTED PROGRAMMING LAB (IN JAVA)	0	0	3	3	2

Semester: 4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	GRAPH THEORY	1	3	0	4	4
B	COMPUTER ORGANISATION AND	1	3	0	4	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	ARCHITECTURE					
C	DATABASE MANAGEMENT SYSTEMS	1	3	0	4	4
D	OPERATING SYSTEMS	1	3	0	4	4
E	DESIGN AND ENGINEERING	0	2	0	2	2
	PROFESSIONAL ETHICS	0	2	0	2	2
F	CONSTITUTION OF INDIA	0	2	0	2	0
H1	NUMBER THEORY	1	3	0	4	4
	COMPUTATIONAL FUNDAMENTALS FOR MACHINE LEARNING	1	3	0	4	4
	PRINCIPLES OF PROGRAM ANALYSIS AND VERIFICATION	1	3	0	4	4
	CRYPTOGRAPHY AND NETWORK SECURITY	0	0	0	0	4
	A BASIC COURSE IN NUMBER THEORY	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	REINFORCEMENT LEARNING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	FOUNDATIONS OF CRYPTOGRAPHY	0	0	0	0	4
	INFORMATION SECURITY AND CYBER FORENSICS	0	0	0	0	4
	ETHICAL HACKING	0	0	0	0	4
	INFORMATION SECURITY AND CYBER FORENSICS	0	0	0	0	4
	DEEP LEARNING FOR COMPUTER VISION	0	0	0	0	4
	REINFORCEMENT LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	OPTIMIZATION FOR MACHINE LEARNING: THEORY AND IMPLEMENTATION	0	0	0	0	4
	MODEL CHECKING	0	0	0	0	4
M	PROGRAMMING METHODOLOGIES	1	3	0	4	4
	MATHEMATICS FOR MACHINE LEARNING	1	3	0	4	4
	INTRODUCTION TO COMPUTER NETWORKS	1	3	0	4	4
	SOFTWARE ENGINEERING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO COMPUTER NETWORKS AND INTERNET PROTOCOLS	0	0	0	0	4
	COMPUTER NETWORKS AND INTERNET PROTOCOL	0	0	0	0	4
	INTRODUCTION TO INTERNET OF THINGS	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO INTERNET OF THINGS	0	0	0	0	4
S	DIGITAL LAB	0	0	3	3	2
T	OPERATING SYSTEMS LAB	0	0	3	3	2

Semester: 5

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	FORMAL LANGUAGES AND AUTOMATA THEORY	1	3	0	4	4
B	COMPUTER NETWORKS	1	3	0	4	4
C	SYSTEM SOFTWARE	1	3	0	4	4
D	MICROPROCESSORS AND MICROCONTROLLERS	1	3	0	4	4
E	MANAGEMENT OF SOFTWARE SYSTEMS	0	3	0	3	3
F	DISASTER MANAGEMENT	0	2	0	2	0
H1	CRYPTOGRAPHIC ALGORITHMS	1	3	0	4	4
	NEURAL NETWORKS AND DEEP LEARNING	1	3	0	4	4
	PRINCIPLES OF MODEL CHECKING	1	3	0	4	4
	CRYPTOGRAPHY AND NETWORK SECURITY	0	0	0	0	4
	A BASIC COURSE IN NUMBER THEORY	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	REINFORCEMENT LEARNING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	DEEP LEARNING FOR COMPUTER VISION	0	0	0	0	4
	REINFORCEMENT LEARNING	0	0	0	0	4
	MODEL CHECKING	0	0	0	0	4
	FOUNDATIONS OF CRYPTOGRAPHY	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	INFORMATION SECURITY AND CYBER FORENSICS	0	0	0	0	4
	ETHICAL HACKING	0	0	0	0	4
	INFORMATION SECURITY AND CYBER FORENSICS	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	OPTIMIZATION FOR MACHINE LEARNING: THEORY AND IMPLEMENTATION	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
M	CONCEPTS IN SOFTWARE ENGINEERING	1	3	0	4	4
	CONCEPTS IN MACHINE LEARNING	1	3	0	4	4
	CLIENT SERVER SYSTEMS	1	3	0	4	4
	SOFTWARE ENGINEERING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO COMPUTER NETWORKS AND INTERNET PROTOCOLS	0	0	0	0	4
	COMPUTER NETWORKS AND INTERNET PROTOCOL	0	0	0	0	4
	INTRODUCTION TO INTERNET OF THINGS	0	0	0	0	4
	INTRODUCTION TO INTERNET OF THINGS	0	0	0	0	4
	OBJECT ORIENTED SYSTEM DEVELOPMENT USING UML, JAVA AND PATTERNS	0	0	0	0	4
	PROGRAMMING IN JAVA	0	0	0	0	4
	DEEP LEARNING FOR COMPUTER VISION	0	0	0	0	4
	COMMUNICATION NETWORKS	0	0	0	0	4
S	SYSTEM SOFTWARE AND MICROPROCESSORS LAB	0	0	4	4	2
T	DATABASE MANAGEMENT SYSTEMS LAB	0	0	4	4	2

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Semester: 6

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	COMPILER DESIGN	1	3	0	4	4
B	COMPUTER GRAPHICS AND IMAGE PROCESSING	1	3	0	4	4
C	ALGORITHM ANALYSIS AND DESIGN	1	3	0	4	4
D	FOUNDATIONS OF MACHINE LEARNING	1	2	0	3	3
	DATA ANALYTICS	1	2	0	3	3
	FOUNDATIONS OF SECURITY IN COMPUTING	1	2	0	3	3
	AUTOMATED VERIFICATION	1	2	0	3	3
	PROGRAMMING IN PYTHON	1	2	0	3	3
	DATA AND COMPUTER COMMUNICATION	1	2	0	3	3
E	INDUSTRIAL ECONOMICS AND FOREIGN TRADE	0	3	0	3	3
F	COMPREHENSIVE COURSE WORK	0	1	0	1	1
H1	NETWORK SECURITY	1	3	0	4	4
	ADVANCED TOPICS IN MACHINE LEARNING	1	3	0	4	4
	THEORY OF COMPUTABILITY AND COMPLEXITY	1	3	0	4	4
	A BASIC COURSE IN NUMBER THEORY	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	CRYPTOGRAPHY AND NETWORK SECURITY	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	REINFORCEMENT LEARNING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	DEEP LEARNING FOR COMPUTER VISION	0	0	0	0	4
	REINFORCEMENT LEARNING	0	0	0	0	4
	FOUNDATIONS OF CRYPTOGRAPHY	0	0	0	0	4
	INFORMATION SECURITY AND CYBER FORENSICS	0	0	0	0	4
	MODEL CHECKING	0	0	0	0	4
	ETHICAL HACKING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	OPTIMIZATION FOR MACHINE LEARNING: THEORY AND IMPLEMENTATION	0	0	0	0	4
	INFORMATION SECURITY AND CYBER FORENSICS	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
M	INTRODUCTION TO SOFTWARE TESTING	1	3	0	4	4
	CONCEPTS IN DEEP LEARNING	1	3	0	4	4
	WIRELESS NETWORKS AND IOT APPLICATIONS	1	3	0	4	4
	SOFTWARE ENGINEERING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO COMPUTER NETWORKS AND INTERNET PROTOCOLS	0	0	0	0	4
	COMPUTER NETWORKS AND INTERNET PROTOCOL	0	0	0	0	4
	INTRODUCTION TO INTERNET OF THINGS	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO INTERNET OF THINGS	0	0	0	0	4
	DEEP LEARNING FOR COMPUTER VISION	0	0	0	0	4
	LINEAR ALGEBRA IN AI AND ML	0	0	0	0	4
	COMMUNICATION NETWORKS	0	0	0	0	4
	ADVANCED COMPUTER NETWORKS	0	0	0	0	4
	OBJECT ORIENTED SYSTEM DEVELOPMENT USING UML, JAVA AND PATTERNS	0	0	0	0	4
	PROGRAMMING IN JAVA	0	0	0	0	4
S	NETWORKING LAB	0	0	3	3	2
T	MINIPROJECT	0	0	3	3	2

Semester: 7

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	ARTIFICIAL INTELLIGENCE	1	2	0	3	3
B	MACHINE LEARNING	1	2	0	3	3
	CLOUD COMPUTING	1	2	0	3	3
	SECURITY IN COMPUTING	1	2	0	3	3
	MODEL BASED SOFTWARE DEVELOPMENT	1	2	0	3	3
	WEB PROGRAMMING	1	2	0	3	3
	NATURAL LANGUAGE PROCESSING	1	2	0	3	3
C	INTRODUCTION TO AERONAUTICS	1	2	0	3	3
	INTRODUCTION TO AERODYNAMICS	1	2	0	3	3
	FLIGHT AGAINST GRAVITY	1	2	0	3	3
	NUMERICAL METHODS AND PROGRAMMING	1	2	0	3	3
	INSTRUMENTATION SYSTEMS	1	2	0	3	3
	BIOMEDICAL ENGINEERING	1	2	0	3	3
	MEMS	1	2	0	3	3
	ROBOTICS AND INDUSTRIAL AUTOMATION	1	2	0	3	3
	MODERN AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	HYBRID AND ELECTRIC VEHICLES	1	2	0	3	3

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	AUTOMOTIVE ERGONOMICS AND SAFETY	1	2	0	3	3
	AVG AND AUTONOMOUS VEHICLES	1	2	0	3	3
	COMPUTER SIMULATION AND ANALYSIS OF AUTOMOTIVE SYSTEMS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	MEDICAL IMAGING AND IMAGE PROCESSING	1	2	0	3	3
	ARTIFICIAL ORGANS AND IMPLANTS	1	2	0	3	3
	ASSISTIVE MEDICAL DEVICES	1	2	0	3	3
	INDUSTRIAL BIOTECHNOLOGY	1	2	0	3	3
	BASICS IN BIOINFORMATICS AND DRUG DESIGN	1	2	0	3	3
	SUSTAINABLE ENERGY PROCESS	1	2	0	3	3
	OCCUPATIONAL HEALTH AND GENERAL SAFETY	1	2	0	3	3
	WASTE WATER ENGINEERING	1	2	0	3	3
	ENERGY TECHNOLOGY AND ENERGY MANAGEMENT	1	2	0	3	3
	PETROLEUM RESOURCES AND PETROCHEMICALS	1	2	0	3	3
	PROCESS SAFETY ENGINEERING	1	2	0	3	3
	PIPING AND PIPELINE DESIGN FOR PROCESS INDUSTRIES	1	2	0	3	3
	ENVIRONMENTAL IMPACT ASSESSMENT	1	2	0	3	3
	APPLIED EARTH SYSTEMS	1	2	0	3	3
	INFORMATICS FOR INFRASTRUCTURE MANAGEMENT	1	2	0	3	3
	NATURAL DISASTERS AND MITIGATION	1	2	0	3	3
	ENVIRONMENTAL HEALTH AND SAFETY	1	2	0	3	3
	GEOINFORMATICS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	MEDICAL IMAGING AND IMAGE PROCESSING	1	2	0	3	3
	BIOSIGNALS AND SIGNAL PROCESSING	1	2	0	3	3
	BIOMATERIALS AND BIOMECHANICS	1	2	0	3	3
	MECHATRONICS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	ELECTRONIC HARDWARE FOR ENGINEERS	1	2	0	3	3
	IOT AND APPLICATIONS	1	2	0	3	3
	ENTERTAINMENT ELECTRONICS	1	2	0	3	3
	CONTROL SYSTEMS ENGINEERING	1	2	0	3	3
	INTRODUCTION TO POWER PROCESSING	1	2	0	3	3
	RENEWABLE ENERGY SYSTEMS	1	2	0	3	3
	ELECTRIC VEHICLES	1	2	0	3	3
	ENERGY MANAGEMENT	1	2	0	3	3
	FOOD PROCESS ENGINEERING	1	2	0	3	3
	INSTRUMENTAL METHODS IN FOOD ANALYSIS	1	2	0	3	3

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	UNIT OPERATIONS IN FOOD TECHNOLOGY	1	2	0	3	3
	NON THERMAL PROCESSING	1	2	0	3	3
	TOTAL QUALITY MANAGEMENT	1	2	0	3	3
	MAINTENANCE ENGINEERING AND MANAGEMENT	1	2	0	3	3
	SYSTEM SIMULATION	1	2	0	3	3
	SUPPLY CHAIN MANAGEMENT	1	2	0	3	3
	FACILITIES PLANNING AND MATERIAL HANDLING	1	2	0	3	3
	WEB DESIGNING	1	2	0	3	3
	MULTIMEDIA TECHNIQUES	1	2	0	3	3
	FREE AND OPEN SOURCE SOFTWARE	1	2	0	3	3
	MOBILE APPLICATION DEVELOPMENT	1	2	0	3	3
	ENVIRONMENTAL INSTRUMENTATION	1	2	0	3	3
	INDUSTRIAL INSTRUMENTATION	1	2	0	3	3
	AUTOMOBILE INSTRUMENTATION	1	2	0	3	3
	INTRODUCTION TO BUSINESS ANALYTICS	1	2	0	3	3
	QUANTITATIVE TECHNIQUES FOR ENGINEERS	1	2	0	3	3
	AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	RENEWABLE ENERGY ENGINEERING	1	2	0	3	3
	QUALITY ENGINEERING AND MANAGEMENT	1	2	0	3	3
	BASICS OF ROBOTICS AND AUTOMATION	1	2	0	3	3
	INTRODUCTION TO QUALITY MANAGEMENT	1	2	0	3	3
	NON DESTRUCTIVE TESTING AND FAILURE ANALYSIS	1	2	0	3	3
	MATERIALS AND MANUFACTURING TECHNIQUES FOR INDUSTRIES	1	2	0	3	3
	FUNDAMENTALS OF NANO MATERIALS	1	2	0	3	3
	MODERN AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	HYBRID AND ELECTRIC VEHICLES	1	2	0	3	3
	AUTOMOTIVE ERGONOMICS AND SAFETY	1	2	0	3	3
	AVG AND AUTONOMOUS VEHICLES	1	2	0	3	3
	COMPUTER SIMULATION AND ANALYSIS OF AUTOMOTIVE SYSTEMS	1	2	0	3	3
	PRODUCT DEVELOPMENT AND DESIGN	1	2	0	3	3
	PLANT ENGINEERING AND MAINTENANCE	1	2	0	3	3
	INDUSTRIAL PSYCHOLOGY AND ORGANISATIONAL BEHAVIOUR	1	2	0	3	3
	DREDGERS AND HARBOUR CRAFTS	1	2	0	3	3
	SHIPBUILDING TECHNOLOGY	1	2	0	3	3
	MARINE MATERIALS AND CORROSION	1	2	0	3	3
	INTEGRATED PRODUCT DEVELOPMENT	1	2	0	3	3
	CONTEMPORARY MATERIALS	1	2	0	3	3
	FLIGHT AGAINST GRAVITY	1	2	0	3	3
	TQM	1	2	0	3	3

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	ADDITIVE MANUFACTURING	1	2	0	3	3
	FUNDAMENTALS OF ROBOTICS	1	2	0	3	3
	BASICS OF MOBILE ROBOTICS	1	2	0	3	3
	INDUSTRIAL AUTOMATION	1	2	0	3	3
	AI FOR ROBOTICS	1	2	0	3	3
	RESPONSIBLE ENGINEERING	1	2	0	3	3
	SAFETY IN CONSTRUCTION INDUSTRY	1	2	0	3	3
D	INDUSTRIAL SAFETY ENGINEERING	1	2	0	3	0
H1	CYBER FORENSICS	1	3	0	4	4
	REINFORCEMENT LEARNING	1	3	0	4	4
	LOGIC FOR COMPUTER SCIENCE	1	3	0	4	4
	CRYPTOGRAPHY AND NETWORK SECURITY	0	0	0	0	4
	A BASIC COURSE IN NUMBER THEORY	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	REINFORCEMENT LEARNING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	DEEP LEARNING FOR COMPUTER VISION	0	0	0	0	4
	REINFORCEMENT LEARNING	0	0	0	0	4
	MODEL CHECKING	0	0	0	0	4
	FOUNDATIONS OF CRYPTOGRAPHY	0	0	0	0	4
	INFORMATION SECURITY AND CYBER FORENSICS	0	0	0	0	4
	ETHICAL HACKING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	OPTIMIZATION FOR MACHINE LEARNING: THEORY AND IMPLEMENTATION	0	0	0	0	4
	INFORMATION SECURITY AND CYBER FORENSICS	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
M	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	SOFTWARE ENGINEERING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO MACHINE LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	DEEP LEARNING	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO COMPUTER NETWORKS AND INTERNET PROTOCOLS	0	0	0	0	4
	COMPUTER NETWORKS AND INTERNET PROTOCOL	0	0	0	0	4
	INTRODUCTION TO INTERNET OF THINGS	0	0	0	0	4
	ESSENTIAL MATHEMATICS FOR MACHINE	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	LEARNING					
	INTRODUCTION TO INTERNET OF THINGS	0	0	0	0	4
	OBJECT ORIENTED SYSTEM DEVELOPMENT USING UML, JAVA AND PATTERNS	0	0	0	0	4
	PROGRAMMING IN JAVA	0	0	0	0	4
	DEEP LEARNING FOR COMPUTER VISION	0	0	0	0	4
	COMMUNICATION NETWORKS	0	0	0	0	4
S	COMPILER LAB	0	0	3	3	2
T	SEMINAR	0	0	3	3	2
U	PROJECT PHASE I	0	0	6	6	2

Semester: 8

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	DISTRIBUTED COMPUTING	1	2	0	3	3
B	DEEP LEARNING	1	2	0	3	3
	PROGRAMMING PARADIGMS	1	2	0	3	3
	NETWORK SECURITY PROTOCOLS	1	2	0	3	3
	SOFT COMPUTING	1	2	0	3	3
	FUZZY SET THEORY AND APPLICATIONS	1	2	0	3	3
	EMBEDDED SYSTEMS	1	2	0	3	3
	COMPUTER VISION	1	2	0	3	3
C	FORMAL METHODS AND TOOLS IN SOFTWARE ENGINEERING	1	2	0	3	3
	CLIENT SERVER ARCHITECTURE	1	2	0	3	3
	PARALLEL COMPUTING	1	2	0	3	3
	DATA COMPRESSION TECHNIQUES	1	2	0	3	3
	DATA MINING	1	2	0	3	3
	MOBILE COMPUTING	1	2	0	3	3
D	HIGH PERFORMANCE COMPUTING	1	2	0	3	3
	BLOCK CHAIN TECHNOLOGIES	1	2	0	3	3
	IMAGE PROCESSING TECHNIQUE	1	2	0	3	3
	INTERNET OF THINGS	1	2	0	3	3
	SOFTWARE TESTING	1	2	0	3	3
	BIOINFORMATICS	1	2	0	3	3
	COMPUTATIONAL LINGUISTICS	1	2	0	3	3
H1	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
M	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
T	COMPREHENSIVE VIVA VOCE	0	1	0	1	1
U	PROJECT PHASE II	0	0	12	12	4

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Curriculam Details -ELECTRONICS AND COMMUNICATION ENGINEERING

Semester: 1

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	LINEAR ALGEBRA AND CALCULUS	1	3	0	4	4
B	ENGINEERING PHYSICS A	1	3	0	4	4
	ENGINEERING CHEMISTRY	1	3	0	4	4
C	ENGINEERING MECHANICS	1	2	0	3	3
	ENGINEERING GRAPHICS	0	2	2	4	3
D	BASICS OF CIVIL AND MECHANICAL ENGINEERING	0	4	0	4	4
	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	0	4	0	4	4
E	LIFE SKILLS	0	2	2	4	0
S	ENGINEERING PHYSICS LAB	0	0	2	2	1
	ENGINEERING CHEMISTRY LAB	0	0	2	2	1
T	CIVIL AND MECHANICAL WORKSHOP	0	0	2	2	1
	ELECTRICAL AND ELECTRONICS WORKSHOP	0	0	2	2	1

Semester: 2

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	VECTOR CALCULUS, DIFFERENTIAL EQUATIONS AND TRANSFORMS	1	3	0	4	4
B	ENGINEERING PHYSICS A	1	3	0	4	4
	ENGINEERING CHEMISTRY	1	3	0	4	4
C	ENGINEERING MECHANICS	1	2	0	3	3
	ENGINEERING GRAPHICS	0	2	2	4	3
D	BASICS OF CIVIL AND MECHANICAL ENGINEERING	0	4	0	4	4
	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	0	4	0	4	4
E	PROFESSIONAL COMMUNICATION	0	2	2	4	0
F	PROGRAMMING IN C	1	2	2	5	4
S	ENGINEERING PHYSICS LAB	0	0	2	2	1
	ENGINEERING CHEMISTRY LAB	0	0	2	2	1
T	CIVIL AND MECHANICAL WORKSHOP	0	0	2	2	1
	ELECTRICAL AND ELECTRONICS WORKSHOP	0	0	2	2	1

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Semester: 3

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	PARTIAL DIFFERENTIAL EQUATION AND COMPLEX ANALYSIS	1	3	0	4	4
B	SOLID STATE DEVICES	1	3	0	4	4
C	LOGIC CIRCUIT DESIGN	1	3	0	4	4
D	NETWORK THEORY	1	3	0	4	4
E	DESIGN AND ENGINEERING	0	2	0	2	2
	PROFESSIONAL ETHICS	0	2	0	2	2
F	SUSTAINABLE ENGINEERING	0	2	0	2	0
M	ELECTRONIC CIRCUITS	1	3	0	4	4
	ANALOG COMMUNICATION	1	3	0	4	4
	INTRODUCTION TO SIGNALS AND SYSTEMS	1	3	0	4	4
	DIGITAL CIRCUITS	0	0	0	0	4
	DIGITAL CIRCUITS AND SYSTEMS	0	0	0	0	4
	DIGITAL SYSTEM DESIGN	0	0	0	0	4
	ELECTRONICS SYSTEM FOR CANCER DIAGNOSIS	0	0	0	0	4
	FABRICATION TECHNIQUES FOR MEMS-BASED SENSORS: CLINICAL PERSPECTIVE	0	0	0	0	4
	INTEGRATED CIRCUITS, MOSFETS, OP-AMPS AND THEIR APPLICATIONS	0	0	0	0	4
	MICROELECTRONICS: DEVICES TO CIRCUITS	0	0	0	0	4
	DIGITAL ELECTRONIC CIRCUITS	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINEAR ALGEBRA	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO WIRELESS AND CELLULAR COMMUNICATIONS	0	0	0	0	4
	PEER TO PEER NETWORKS	0	0	0	0	4
	PRINCIPLES OF COMMUNICATION SYSTEMS PART II	0	0	0	0	4
	PROBABILITY FOUNDATIONS FOR ELECTRICAL ENGINEERS	0	0	0	0	4
	SATELLITE COMMUNICATION SYSTEMS	0	0	0	0	4
	BIOMEDICAL SIGNAL PROCESSING	0	0	0	0	4
	DIGITAL SPEECH PROCESSING	0	0	0	0	4
	FOUNDATIONS OF WAVELETS AND MULTIRATE DIGITAL SIGNAL PROCESSING	0	0	0	0	4
	MEDICAL IMAGE ANALYSIS	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINAER ALGEBRA FOR SIGNAL	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	PROCESSING, DATA ANALYTICS AND MACHINE LEARNING					
	FUNDAMENTALS OF WAVELETS, FILTER BANKS AND TIME FREQUENCY ANALYSIS	0	0	0	0	4
	IMAGE SIGNAL PROCESSING	0	0	0	0	4
	INTRODUCTION TO BIOMEDICAL IMAGE SYSTEM	0	0	0	0	4
	COMPUTER VISION AND IMAGE PROCESSING FUNDAMENTALS AND APPLICATIONS	0	0	0	0	4
	EVOLUTION OF AIR INTERFACE TOWARDS 5G	0	0	0	0	4
	FUNDAMENTALS OF MIMO WIRELESS COMMUNICATION	0	0	0	0	4
S	SCIENTIFIC COMPUTING LAB	0	0	3	3	2
T	LOGIC DESIGN LAB	0	0	3	3	2

Semester: 4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	PROBABILITY, RANDOM PROCESS AND NUMERICAL METHODS	1	3	0	4	4
B	ANALOG CIRCUITS	1	3	0	4	4
C	SIGNALS AND SYSTEMS	1	3	0	4	4
D	COMPUTER ARCHITECTURE AND MICROCONTROLLERS	1	3	0	4	4
E	DESIGN AND ENGINEERING	0	2	0	2	2
	PROFESSIONAL ETHICS	0	2	0	2	2
F	CONSTITUTION OF INDIA	0	2	0	2	0
H1	NANOELECTRONICS	1	3	0	4	4
	STOCHASTIC PROCESSES FOR COMMUNICATION	1	3	0	4	4
	STOCHASTIC SIGNAL PROCESSING	1	3	0	4	4
	ANALOG IC DESIGN	0	0	0	0	4
	ARCHITECTURAL DESIGN OF DIGITAL INTEGRATED CIRCUITS	0	0	0	0	4
	CMOS DIGITAL VLSI DESIGN	0	0	0	0	4
	DESIGN FOR INTERNET OF THINGS	0	0	0	0	4
	DIGITAL CIRCUITS AND SYSTEMS	0	0	0	0	4
	DIGITAL IC DESIGN	0	0	0	0	4
	DIGITAL VLSI TESTING	0	0	0	0	4
	OPTIMIZATION TECHNIQUES FOR DOGITAL VLSI DESIGN	0	0	0	0	4
	VLSI DESIGN VERIFICATION AND TEST	0	0	0	0	4
	VLSI SIGNAL PROCESSING	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	ANALYSIS AND DESIGN PRINCIPLES OF MICROWAVE ANTENNAS	0	0	0	0	4
	APPLIED LINEAR ALGEBRA	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	APPLIED OPTIMIZATION FOR WIRELESS, MACHINE LEARNING, BIG DATA	0	0	0	0	4
	BASIC BUILDING BLOCKS OF MICROWAVE ENGINEERING AND DESIGN PRINCIPLES OF RF AND MICROWAVE FILTERS AND AMPLIFIERS	0	0	0	0	4
	BAYESIAN / MMSE ESTIMATION FOR WIRELESS COMMUNICATIONS - MIMO / OFDM	0	0	0	0	4
	COMPUTATIONAL ELECTROMAGNETICS	0	0	0	0	4
	COMPUTATIONAL ELECTROMAGNETICS AND APPLICATIONS	0	0	0	0	4
	ELECTROMAGNETIC COMPATIBILITY, EMC	0	0	0	0	4
	ELECTROMAGNETIC WAVES IN GUIDED AND WIRELESS MEDIA	0	0	0	0	4
	ESTIMATION FOR WIRELESS COMMUNICATION :MIMO-OFDM CELLULAR AND SENSOR NETWORKS	0	0	0	0	4
	EVOLUTION OF AIR INTERFACE TOWARDS 5G	0	0	0	0	4
	FIBER-OPTIC COMMUNICATION SYSTEMS AND TECHNIQUES	0	0	0	0	4
	MICROWAVE INTEGRATED CIRCUITS	0	0	0	0	4
	MILLIMETER WAVE TECHNOLOGY	0	0	0	0	4
	PRINCIPLES AND TECHNIQUES OF MODERN RADAR SYSTEMS	0	0	0	0	4
	PRINCIPLES OF SIGNAL ESTIMATION FOR MIMO/OFDM WIRELESS COMMUNICATION	0	0	0	0	4
	SIGNAL PROCESSING FOR MM WAVE COMMUNICATION FOR 5G AND BEYOND	0	0	0	0	4
	SPREAD SPECTRUM COMMUNICATIONS AND JAMMING	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	APPLIED OPTIMIZATION FOR WIRELESS, MACHINE LEARNING, BIG DATA	0	0	0	0	4
	BIOMEDICAL SIGNAL PROCESSING	0	0	0	0	4
	DEEP LEARNING FOR VISUAL COMPUTING	0	0	0	0	4
	DIGITAL SPEECH PROCESSING	0	0	0	0	4
	MAPPING SIGNAL PROCESSING	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	ALGORITHMS TO ARCHITECTURES					
	MATHEMATICAL METHODS AND TECHNIQUES IN SIGNAL PROCESSING	0	0	0	0	4
	MEDICAL IMAGE ANALYSIS	0	0	0	0	4
	NEURAL NETWORKS FOR SIGNAL PROCESSING -I	0	0	0	0	4
	PRINCIPLES OF SIGNAL ESTIMATION FOR MIMO/OFDM WIRELESS COMMUNICATION	0	0	0	0	4
	STATISTICAL SIGNAL PROCESSING	0	0	0	0	4
	VLSI SIGNAL PROCESSING	0	0	0	0	4
M	MICROCONTROLLERS	1	3	0	4	4
	DIGITAL COMMUNICATION	1	3	0	4	4
	INTRODUCTION TO DIGITAL SIGNAL PROCESSING	1	3	0	4	4
	DIGITAL CIRCUITS	0	0	0	0	4
	DIGITAL CIRCUITS AND SYSTEMS	0	0	0	0	4
	DIGITAL SYSTEM DESIGN	0	0	0	0	4
	ELECTRONICS SYSTEM FOR CANCER DIAGNOSIS	0	0	0	0	4
	FABRICATION TECHNIQUES FOR MEMS-BASED SENSORS: CLINICAL PERSPECTIVE	0	0	0	0	4
	INTEGRATED CIRCUITS, MOSFETS, OP-AMPS AND THEIR APPLICATIONS	0	0	0	0	4
	MICROELECTRONICS: DEVICES TO CIRCUITS	0	0	0	0	4
	DIGITAL ELECTRONIC CIRCUITS	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINEAR ALGEBRA	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO WIRELESS AND CELLULAR COMMUNICATIONS	0	0	0	0	4
	PEER TO PEER NETWORKS	0	0	0	0	4
	PRINCIPLES OF COMMUNICATION SYSTEMS PART II	0	0	0	0	4
	PROBABILITY FOUNDATIONS FOR ELECTRICAL ENGINEERS	0	0	0	0	4
	SATELLITE COMMUNICATION SYSTEMS	0	0	0	0	4
	BIOMEDICAL SIGNAL PROCESSING	0	0	0	0	4
	DIGITAL SPEECH PROCESSING	0	0	0	0	4
	FOUNDATIONS OF WAVELETS AND MULTIRATE DIGITAL SIGNAL PROCESSING	0	0	0	0	4
	MEDICAL IMAGE ANALYSIS	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINAER ALGEBRA FOR SIGNAL	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	PROCESSING, DATA ANALYTICS AND MACHINE LEARNING					
	FUNDAMENTALS OF WAVELETS, FILTER BANKS AND TIME FREQUENCY ANALYSIS	0	0	0	0	4
	IMAGE SIGNAL PROCESSING	0	0	0	0	4
	INTRODUCTION TO BIOMEDICAL IMAGE SYSTEM	0	0	0	0	4
	DIGITAL CIRCUITS	0	0	0	0	4
	DIGITAL IMAGE PROCESSING	0	0	0	0	4
S	ANALOG CIRCUITS AND SIMULATION LAB	0	0	3	3	2
T	MICROCONTROLLER LAB	0	0	3	3	2

Semester: 5

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	LINEAR INTEGRATED CIRCUITS	1	3	0	4	4
B	DIGITAL SIGNAL PROCESSING	1	3	0	4	4
C	ANALOG AND DIGITAL COMMUNICATION	1	3	0	4	4
D	CONTROL SYSTEMS	1	3	0	4	4
E	INDUSTRIAL ECONOMICS AND FOREIGN TRADE	0	3	0	3	3
	MANAGEMENT FOR ENGINEERS	0	3	0	3	3
F	DISASTER MANAGEMENT	0	2	0	2	0
H1	FPGA BASED SYSTEM DESIGN	1	3	0	4	4
	DETECTION AND ESTIMATION THEORY	1	3	0	4	4
	COMPUTATIONAL TOOLS FOR SIGNAL PROCESSING	1	3	0	4	4
	ANALOG IC DESIGN	0	0	0	0	4
	ARCHITECTURAL DESIGN OF DIGITAL INTEGRATED CIRCUITS	0	0	0	0	4
	CMOS DIGITAL VLSI DESIGN	0	0	0	0	4
	DESIGN FOR INTERNET OF THINGS	0	0	0	0	4
	DIGITAL CIRCUITS AND SYSTEMS	0	0	0	0	4
	DIGITAL IC DESIGN	0	0	0	0	4
	DIGITAL VLSI TESTING	0	0	0	0	4
	OPTIMIZATION TECHNIQUES FOR DOGITAL VLSI DESIGN	0	0	0	0	4
	VLSI DESIGN VERIFICATION AND TEST	0	0	0	0	4
	VLSI SIGNAL PROCESSING	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	ANALYSIS AND DESIGN PRINCIPLES OF MICROWAVE ANTENNAS	0	0	0	0	4
	APPLIED LINEAR ALGEBRA	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	APPLIED OPTIMIZATION FOR WIRELESS, MACHINE LEARNING, BIG DATA	0	0	0	0	4
	BASIC BUILDING BLOCKS OF MICROWAVE ENGINEERING AND DESIGN PRINCIPLES OF RF AND MICROWAVE FILTERS AND AMPLIFIERS	0	0	0	0	4
	BAYESIAN / MMSE ESTIMATION FOR WIRELESS COMMUNICATIONS - MIMO / OFDM	0	0	0	0	4
	COMPUTATIONAL ELECTROMAGNETICS	0	0	0	0	4
	COMPUTATIONAL ELECTROMAGNETICS AND APPLICATIONS	0	0	0	0	4
	ELECTROMAGNETIC COMPATIBILITY, EMC	0	0	0	0	4
	ELECTROMAGNETIC WAVES IN GUIDED AND WIRELESS MEDIA	0	0	0	0	4
	ESTIMATION FOR WIRELESS COMMUNICATION :MIMO-OFDM CELLULAR AND SENSOR NETWORKS	0	0	0	0	4
	EVOLUTION OF AIR INTERFACE TOWARDS 5G	0	0	0	0	4
	FIBER-OPTIC COMMUNICATION SYSTEMS AND TECHNIQUES	0	0	0	0	4
	MICROWAVE INTEGRATED CIRCUITS	0	0	0	0	4
	MILLIMETER WAVE TECHNOLOGY	0	0	0	0	4
	PRINCIPLES AND TECHNIQUES OF MODERN RADAR SYSTEMS	0	0	0	0	4
	PRINCIPLES OF SIGNAL ESTIMATION FOR MIMO/OFDM WIRELESS COMMUNICATION	0	0	0	0	4
	SIGNAL PROCESSING FOR MM WAVE COMMUNICATION FOR 5G AND BEYOND	0	0	0	0	4
	SPREAD SPECTRUM COMMUNICATIONS AND JAMMING	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	APPLIED OPTIMIZATION FOR WIRELESS, MACHINE LEARNING, BIG DATA	0	0	0	0	4
	BIOMEDICAL SIGNAL PROCESSING	0	0	0	0	4
	DEEP LEARNING FOR VISUAL COMPUTING	0	0	0	0	4
	DIGITAL SPEECH PROCESSING	0	0	0	0	4
	MAPPING SIGNAL PROCESSING ALGORITHMS TO ARCHITECTURES	0	0	0	0	4
	MATHEMATICAL METHODS AND TECHNIQUES IN SIGNAL PROCESSING	0	0	0	0	4
	MEDICAL IMAGE ANALYSIS	0	0	0	0	4
	NEURAL NETWORKS FOR SIGNAL PROCESSING -I	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	PRINCIPLES OF SIGNAL ESTIMATION FOR MIMO/OFDM WIRELESS COMMUNICATION	0	0	0	0	4
	STATISTICAL SIGNAL PROCESSING	0	0	0	0	4
	VLSI SIGNAL PROCESSING	0	0	0	0	4
M	EMBEDDED SYSTEM DESIGN	1	3	0	4	4
	COMMUNICATION SYSTEMS	1	3	0	4	4
	TOPICS IN DIGITAL IMAGE PROCESSING	1	3	0	4	4
	DIGITAL CIRCUITS	0	0	0	0	4
	DIGITAL CIRCUITS AND SYSTEMS	0	0	0	0	4
	DIGITAL SYSTEM DESIGN	0	0	0	0	4
	ELECTRONICS SYSTEM FOR CANCER DIAGNOSIS	0	0	0	0	4
	FABRICATION TECHNIQUES FOR MEMS-BASED SENSORS: CLINICAL PERSPECTIVE	0	0	0	0	4
	INTEGRATED CIRCUITS, MOSFETS, OP-AMPS AND THEIR APPLICATIONS	0	0	0	0	4
	MICROELECTRONICS: DEVICES TO CIRCUITS	0	0	0	0	4
	DIGITAL ELECTRONIC CIRCUITS	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINEAR ALGEBRA	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO WIRELESS AND CELLULAR COMMUNICATIONS	0	0	0	0	4
	PEER TO PEER NETWORKS	0	0	0	0	4
	PRINCIPLES OF COMMUNICATION SYSTEMS PART II	0	0	0	0	4
	PROBABILITY FOUNDATIONS FOR ELECTRICAL ENGINEERS	0	0	0	0	4
	SATELLITE COMMUNICATION SYSTEMS	0	0	0	0	4
	BIOMEDICAL SIGNAL PROCESSING	0	0	0	0	4
	DIGITAL SPEECH PROCESSING	0	0	0	0	4
	FOUNDATIONS OF WAVELETS AND MULTIRATE DIGITAL SIGNAL PROCESSING	0	0	0	0	4
	MEDICAL IMAGE ANALYSIS	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINAER ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	FUNDAMENTALS OF WAVELETS, FILTER BANKS AND TIME FREQUENCY ANALYSIS	0	0	0	0	4
	IMAGE SIGNAL PROCESSING	0	0	0	0	4
	INTRODUCTION TO BIOMEDICAL IMAGE SYSTEM	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	DIGITAL CIRCUITS	0	0	0	0	4
	DIGITAL IMAGE PROCESSING	0	0	0	0	4
	COMPUTER VISION AND IMAGE PROCESSING FUNDAMENTALS AND APPLICATIONS	0	0	0	0	4
	EVOLUTION OF AIR INTERFACE TOWARDS 5G	0	0	0	0	4
	FUNDAMENTALS OF MIMO WIRELESS COMMUNICATION	0	0	0	0	4
	COMMUNICATION NETWORKS	0	0	0	0	4
	ADVANCED LINEAR ALGEBRA	0	0	0	0	4
	NUMERICAL LINEAR ALGEBRA	0	0	0	0	4
	APPLIED LINEAR ALGEBRA IN AI AND ML	0	0	0	0	4
	PRINCIPLES OF COMMUNICATION SYSTEMS - PART I	0	0	0	0	4
	PRINCIPLES OF COMMUNICATION SYSTEMS - PART I	0	0	0	0	4
	PRINCIPLES OF DIGITAL COMMUNICATIONS	0	0	0	0	4
	OPTICAL WIRELESS COMMUNICATIONS FOR BEYOND 5G NETWORKS AND IOT	0	0	0	0	4
	ANALOG COMMUNICATION	0	0	0	0	4
S	ANALOG INTEGRATED CIRCUITS AND SIMULATION LAB	0	0	3	3	2
T	DIGITAL SIGNAL PROCESSING LAB	0	0	3	3	2

Semester: 6

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	ELECTROMAGNETICS	1	3	0	4	4
B	VLSI CIRCUIT DESIGN	1	3	0	4	4
C	INFORMATION THEORY AND CODING	1	3	0	4	4
D	DIGITAL SYSTEM DESIGN	1	2	0	3	3
	POWER ELECTRONICS	1	2	0	3	3
	DATA ANALYSIS	1	2	0	3	3
	EMBEDDED SYSTEMS	1	2	0	3	3
	DIGITAL IMAGE PROCESSING	1	2	0	3	3
	INTRODUCTION TO MEMS	1	2	0	3	3
	QUANTUM COMPUTING	1	2	0	3	3
E	INDUSTRIAL ECONOMICS AND FOREIGN TRADE	0	3	0	3	3
	MANAGEMENT FOR ENGINEERS	0	3	0	3	3
F	COMPREHENSIVE COURSE WORK	0	1	0	1	1
H1	ELECTRONIC DESIGN AUTOMATION	1	3	0	4	4
	MIMO AND MULTIUSER COMMUNICATION SYSTEMS	1	3	0	4	4
	DETECTION AND ESTIMATION THEORY	1	3	0	4	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	ANALOG IC DESIGN	0	0	0	0	4
	ARCHITECTURAL DESIGN OF DIGITAL INTEGRATED CIRCUITS	0	0	0	0	4
	CMOS DIGITAL VLSI DESIGN	0	0	0	0	4
	DESIGN FOR INTERNET OF THINGS	0	0	0	0	4
	DIGITAL CIRCUITS AND SYSTEMS	0	0	0	0	4
	DIGITAL IC DESIGN	0	0	0	0	4
	DIGITAL VLSI TESTING	0	0	0	0	4
	OPTIMIZATION TECHNIQUES FOR DOGITAL VLSI DESIGN	0	0	0	0	4
	VLSI DESIGN VERIFICATION AND TEST	0	0	0	0	4
	VLSI SIGNAL PROCESSING	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	ANALYSIS AND DESIGN PRINCIPLES OF MICROWAVE ANTENNAS	0	0	0	0	4
	APPLIED LINEAR ALGEBRA	0	0	0	0	4
	APPLIED OPTIMIZATION FOR WIRELESS, MACHINE LEARNING, BIG DATA	0	0	0	0	4
	BASIC BUILDING BLOCKS OF MICROWAVE ENGINEERING AND DESIGN PRINCIPLES OF RF AND MICROWAVE FILTERS AND AMPLIFIERS	0	0	0	0	4
	BAYESIAN / MMSE ESTIMATION FOR WIRELESS COMMUNICATIONS - MIMO / OFDM	0	0	0	0	4
	COMPUTATIONAL ELECTROMAGNETICS	0	0	0	0	4
	COMPUTATIONAL ELECTROMAGNETICS AND APPLICATIONS	0	0	0	0	4
	ELECTROMAGNETIC COMPATIBILITY, EMC	0	0	0	0	4
	ELECTROMAGNETIC WAVES IN GUIDED AND WIRELESS MEDIA	0	0	0	0	4
	ESTIMATION FOR WIRELESS COMMUNICATION :MIMO-OFDM CELLULAR AND SENSOR NETWORKS	0	0	0	0	4
	EVOLUTION OF AIR INTERFACE TOWARDS 5G	0	0	0	0	4
	FIBER-OPTIC COMMUNICATION SYSTEMS AND TECHNIQUES	0	0	0	0	4
	MICROWAVE INTEGRATED CIRCUITS	0	0	0	0	4
	MILLIMETER WAVE TECHNOLOGY	0	0	0	0	4
	PRINCIPLES AND TECHNIQUES OF MODERN RADAR SYSTEMS	0	0	0	0	4
	ADVANCED ELECTRIC DRIVES	0	0	0	0	4
	SIGNAL PROCESSING FOR MM WAVE COMMUNICATION FOR 5G AND BEYOND	0	0	0	0	4
	SPREAD SPECTRUM COMMUNICATIONS AND JAMMING	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	BIOMEDICAL SIGNAL PROCESSING	0	0	0	0	4
	DEEP LEARNING FOR VISUAL COMPUTING	0	0	0	0	4
	DIGITAL SPEECH PROCESSING	0	0	0	0	4
	MAPPING SIGNAL PROCESSING ALGORITHMS TO ARCHITECTURES	0	0	0	0	4
	MATHEMATICAL METHODS AND TECHNIQUES IN SIGNAL PROCESSING	0	0	0	0	4
	MEDICAL IMAGE ANALYSIS	0	0	0	0	4
	NEURAL NETWORKS FOR SIGNAL PROCESSING -I	0	0	0	0	4
	PRINCIPLES OF SIGNAL ESTIMATION FOR MIMO/OFDM WIRELESS COMMUNICATION	0	0	0	0	4
	STATISTICAL SIGNAL PROCESSING	0	0	0	0	4
	VLSI SIGNAL PROCESSING	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	APPLIED OPTIMIZATION FOR WIRELESS, MACHINE LEARNING, BIG DATA	0	0	0	0	4
M	VLSI CIRCUITS	1	3	0	4	4
	DATA NETWORKS	1	3	0	4	4
	TOPICS IN COMPUTER VISION	1	3	0	4	4
	DIGITAL CIRCUITS	0	0	0	0	4
	DIGITAL CIRCUITS AND SYSTEMS	0	0	0	0	4
	DIGITAL SYSTEM DESIGN	0	0	0	0	4
	ELECTRONICS SYSTEM FOR CANCER DIAGNOSIS	0	0	0	0	4
	DIGITAL ELECTRONIC CIRCUITS	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINEAR ALGEBRA	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO WIRELESS AND CELLULAR COMMUNICATIONS	0	0	0	0	4
	PEER TO PEER NETWORKS	0	0	0	0	4
	PRINCIPLES OF COMMUNICATION SYSTEMS PART II	0	0	0	0	4
	PROBABILITY FOUNDATIONS FOR ELECTRICAL ENGINEERS	0	0	0	0	4
	SATELLITE COMMUNICATION SYSTEMS	0	0	0	0	4
	BIOMEDICAL SIGNAL PROCESSING	0	0	0	0	4
	DIGITAL SPEECH PROCESSING	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	FOUNDATIONS OF WAVELETS AND MULTIRATE DIGITAL SIGNAL PROCESSING	0	0	0	0	4
	MEDICAL IMAGE ANALYSIS	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINAER ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	IMAGE SIGNAL PROCESSING	0	0	0	0	4
	INTRODUCTION TO BIOMEDICAL IMAGE SYSTEM	0	0	0	0	4
	INTEGRATED CIRCUITS, MOSFETS, OP-AMPS AND THEIR APPLICATIONS	0	0	0	0	4
	MICROELECTRONICS: DEVICES TO CIRCUITS	0	0	0	0	4
	FUNDAMENTALS OF WAVELETS, FILTER BANKS AND TIME FREQUENCY ANALYSIS	0	0	0	0	4
	FABRICATION TECHNIQUES FOR MEMS-BASED SENSORS: CLINICAL PERSPECTIVE	0	0	0	0	4
	DIGITAL CIRCUITS	0	0	0	0	4
	DIGITAL IMAGE PROCESSING	0	0	0	0	4
	ADVANCED LINEAR ALGEBRA	0	0	0	0	4
	NUMERICAL LINEAR ALGEBRA	0	0	0	0	4
	APPLIED LINEAR ALGEBRA IN AI AND ML	0	0	0	0	4
	PRINCIPLES OF COMMUNICATION SYSTEMS - PART I	0	0	0	0	4
	PRINCIPLES OF COMMUNICATION SYSTEMS - PART I	0	0	0	0	4
	PRINCIPLES OF DIGITAL COMMUNICATIONS	0	0	0	0	4
	COMMUNICATION NETWORKS	0	0	0	0	4
	OPTICAL WIRELESS COMMUNICATIONS FOR BEYOND 5G NETWORKS AND IOT	0	0	0	0	4
	ANALOG COMMUNICATION	0	0	0	0	4
	DIGITAL SIGNAL PROCESSING AND ITS APPLICATIONS	0	0	0	0	4
	COMPUTER VISION AND IMAGE PROCESSING FUNDAMENTALS AND APPLICATIONS	0	0	0	0	4
	EVOLUTION OF AIR INTERFACE TOWARDS 5G	0	0	0	0	4
	FUNDAMENTALS OF MIMO WIRELESS COMMUNICATION	0	0	0	0	4
S	COMMUNICATION LAB	0	0	3	3	2
T	MINIPROJECT	0	0	3	3	2

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Semester: 7

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	MICROWAVES AND ANTENNAS	1	2	0	3	3
B	OPTICAL FIBER COMMUNICATION	1	2	0	3	3
	COMPUTER NETWORKS	1	2	0	3	3
	OPTO-ELECTRONIC DEVICES	1	2	0	3	3
	INSTRUMENTATION	1	2	0	3	3
	ERROR CONTROL CODES	1	2	0	3	3
	MACHINE LEARNING	1	2	0	3	3
	DSP ARCHITECTURES	1	2	0	3	3
C	INTRODUCTION TO AERONAUTICS	1	2	0	3	3
	INTRODUCTION TO AERODYNAMICS	1	2	0	3	3
	FLIGHT AGAINST GRAVITY	1	2	0	3	3
	NUMERICAL METHODS AND PROGRAMMING	1	2	0	3	3
	INSTRUMENTATION SYSTEMS	1	2	0	3	3
	BIOMEDICAL ENGINEERING	1	2	0	3	3
	MEMS	1	2	0	3	3
	ROBOTICS AND INDUSTRIAL AUTOMATION	1	2	0	3	3
	MODERN AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	HYBRID AND ELECTRIC VEHICLES	1	2	0	3	3
	AUTOMOTIVE ERGONOMICS AND SAFETY	1	2	0	3	3
	AVG AND AUTONOMOUS VEHICLES	1	2	0	3	3
	COMPUTER SIMULATION AND ANALYSIS OF AUTOMOTIVE SYSTEMS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	MEDICAL IMAGING AND IMAGE PROCESSING	1	2	0	3	3
	ARTIFICIAL ORGANS AND IMPLANTS	1	2	0	3	3
	ASSISTIVE MEDICAL DEVICES	1	2	0	3	3
	INDUSTRIAL BIOTECHNOLOGY	1	2	0	3	3
	BASICS IN BIOINFORMATICS AND DRUG DESIGN	1	2	0	3	3
	SUSTAINABLE ENERGY PROCESS	1	2	0	3	3
	OCCUPATIONAL HEALTH AND GENERAL SAFETY	1	2	0	3	3
	WASTE WATER ENGINEERING	1	2	0	3	3
	ENERGY TECHNOLOGY AND ENERGY MANAGEMENT	1	2	0	3	3
	PETROLEUM RESOURCES AND PETROCHEMICALS	1	2	0	3	3
	PROCESS SAFETY ENGINEERING	1	2	0	3	3
	PIPING AND PIPELINE DESIGN FOR PROCESS INDUSTRIES	1	2	0	3	3
	ENVIRONMENTAL IMPACT ASSESSMENT	1	2	0	3	3
	APPLIED EARTH SYSTEMS	1	2	0	3	3
	INFORMATICS FOR INFRASTRUCTURE	1	2	0	3	3

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	MANAGEMENT					
	NATURAL DISASTERS AND MITIGATION	1	2	0	3	3
	ENVIRONMENTAL HEALTH AND SAFETY	1	2	0	3	3
	GEOINFORMATICS	1	2	0	3	3
	INTRODUCTION TO MOBILE COMPUTING	1	2	0	3	3
	INTRODUCTION TO DEEP LEARNING	1	2	0	3	3
	COMPUTER GRAPHICS	1	2	0	3	3
	PYTHON FOR ENGINEERS	1	2	0	3	3
	OBJECT ORIENTED CONCEPTS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	MEDICAL IMAGING AND IMAGE PROCESSING	1	2	0	3	3
	BIOSIGNALS AND SIGNAL PROCESSING	1	2	0	3	3
	BIOMATERIALS AND BIOMECHANICS	1	2	0	3	3
	TOTAL QUALITY MANAGEMENT	1	2	0	3	3
	MAINTENANCE ENGINEERING AND MANAGEMENT	1	2	0	3	3
	SYSTEM SIMULATION	1	2	0	3	3
	SUPPLY CHAIN MANAGEMENT	1	2	0	3	3
	FACILITIES PLANNING AND MATERIAL HANDLING	1	2	0	3	3
	CONTROL SYSTEMS ENGINEERING	1	2	0	3	3
	INTRODUCTION TO POWER PROCESSING	1	2	0	3	3
	RENEWABLE ENERGY SYSTEMS	1	2	0	3	3
	ELECTRIC VEHICLES	1	2	0	3	3
	ENERGY MANAGEMENT	1	2	0	3	3
	FOOD PROCESS ENGINEERING	1	2	0	3	3
	INSTRUMENTAL METHODS IN FOOD ANALYSIS	1	2	0	3	3
	UNIT OPERATIONS IN FOOD TECHNOLOGY	1	2	0	3	3
	NON THERMAL PROCESSING	1	2	0	3	3
	WEB DESIGNING	1	2	0	3	3
	MULTIMEDIA TECHNIQUES	1	2	0	3	3
	FREE AND OPEN SOURCE SOFTWARE	1	2	0	3	3
	MOBILE APPLICATION DEVELOPMENT	1	2	0	3	3
	ENVIRONMENTAL INSTRUMENTATION	1	2	0	3	3
	INDUSTRIAL INSTRUMENTATION	1	2	0	3	3
	AUTOMOBILE INSTRUMENTATION	1	2	0	3	3
	INTRODUCTION TO BUSINESS ANALYTICS	1	2	0	3	3
	QUANTITATIVE TECHNIQUES FOR ENGINEERS	1	2	0	3	3
	AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	RENEWABLE ENERGY ENGINEERING	1	2	0	3	3
	QUALITY ENGINEERING AND MANAGEMENT	1	2	0	3	3
	BASICS OF ROBOTICS AND AUTOMATION	1	2	0	3	3
	INTRODUCTION TO QUALITY	1	2	0	3	3

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	MANAGEMENT					
	NON DESTRUCTIVE TESTING AND FAILURE ANALYSIS	1	2	0	3	3
	MATERIALS AND MANUFACTURING TECHNIQUES FOR INDUSTRIES	1	2	0	3	3
	FUNDAMENTALS OF NANO MATERIALS	1	2	0	3	3
	MODERN AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	HYBRID AND ELECTRIC VEHICLES	1	2	0	3	3
	AUTOMOTIVE ERGONOMICS AND SAFETY	1	2	0	3	3
	AVG AND AUTONOMOUS VEHICLES	1	2	0	3	3
	COMPUTER SIMULATION AND ANALYSIS OF AUTOMOTIVE SYSTEMS	1	2	0	3	3
	PRODUCT DEVELOPMENT AND DESIGN	1	2	0	3	3
	PLANT ENGINEERING AND MAINTENANCE	1	2	0	3	3
	INDUSTRIAL PSYCHOLOGY AND ORGANISATIONAL BEHAVIOUR	1	2	0	3	3
	DREDGERS AND HARBOUR CRAFTS	1	2	0	3	3
	SHIPBUILDING TECHNOLOGY	1	2	0	3	3
	MARINE MATERIALS AND CORROSION	1	2	0	3	3
	INTEGRATED PRODUCT DEVELOPMENT	1	2	0	3	3
	CONTEMPORARY MATERIALS	1	2	0	3	3
	FLIGHT AGAINST GRAVITY	1	2	0	3	3
	TQM	1	2	0	3	3
	ADDITIVE MANUFACTURING	1	2	0	3	3
	FUNDAMENTALS OF ROBOTICS	1	2	0	3	3
	BASICS OF MOBILE ROBOTICS	1	2	0	3	3
	INDUSTRIAL AUTOMATION	1	2	0	3	3
	AI FOR ROBOTICS	1	2	0	3	3
	RESPONSIBLE ENGINEERING	1	2	0	3	3
	SAFETY IN CONSTRUCTION INDUSTRY	1	2	0	3	3
D	INDUSTRIAL SAFETY ENGINEERING	1	2	0	3	0
H1	RF MEMS	1	3	0	4	4
	DESIGN AND ANALYSIS OF ANTENNAS	1	3	0	4	4
	MULTIRATE SIGNAL PROCESSING AND WAVELETS	1	3	0	4	4
	ANALOG IC DESIGN	0	0	0	0	4
	ARCHITECTURAL DESIGN OF DIGITAL INTEGRATED CIRCUITS	0	0	0	0	4
	CMOS DIGITAL VLSI DESIGN	0	0	0	0	4
	DESIGN FOR INTERNET OF THINGS	0	0	0	0	4
	DIGITAL CIRCUITS AND SYSTEMS	0	0	0	0	4
	DIGITAL IC DESIGN	0	0	0	0	4
	DIGITAL VLSI TESTING	0	0	0	0	4
	OPTIMIZATION TECHNIQUES FOR DOGITAL VLSI DESIGN	0	0	0	0	4
	VLSI DESIGN VERIFICATION AND TEST	0	0	0	0	4
	VLSI SIGNAL PROCESSING	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	ANALYSIS AND DESIGN PRINCIPLES OF MICROWAVE ANTENNAS	0	0	0	0	4
	APPLIED LINEAR ALGEBRA	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	APPLIED OPTIMIZATION FOR WIRELESS, MACHINE LEARNING, BIG DATA	0	0	0	0	4
	BASIC BUILDING BLOCKS OF MICROWAVE ENGINEERING AND DESIGN PRINCIPLES OF RF AND MICROWAVE FILTERS AND AMPLIFIERS	0	0	0	0	4
	BAYESIAN / MMSE ESTIMATION FOR WIRELESS COMMUNICATIONS - MIMO / OFDM	0	0	0	0	4
	COMPUTATIONAL ELECTROMAGNETICS	0	0	0	0	4
	COMPUTATIONAL ELECTROMAGNETICS AND APPLICATIONS	0	0	0	0	4
	ELECTROMAGNETIC COMPATIBILITY, EMC	0	0	0	0	4
	ELECTROMAGNETIC WAVES IN GUIDED AND WIRELESS MEDIA	0	0	0	0	4
	ESTIMATION FOR WIRELESS COMMUNICATION :MIMO-OFDM CELLULAR AND SENSOR NETWORKS	0	0	0	0	4
	EVOLUTION OF AIR INTERFACE TOWARDS 5G	0	0	0	0	4
	FIBER-OPTIC COMMUNICATION SYSTEMS AND TECHNIQUES	0	0	0	0	4
	MICROWAVE INTEGRATED CIRCUITS	0	0	0	0	4
	MILLIMETER WAVE TECHNOLOGY	0	0	0	0	4
	PRINCIPLES AND TECHNIQUES OF MODERN RADAR SYSTEMS	0	0	0	0	4
	PRINCIPLES OF SIGNAL ESTIMATION FOR MIMO/OFDM WIRELESS COMMUNICATION	0	0	0	0	4
	SIGNAL PROCESSING FOR MM WAVE COMMUNICATION FOR 5G AND BEYOND	0	0	0	0	4
	SPREAD SPECTRUM COMMUNICATIONS AND JAMMING	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	APPLIED OPTIMIZATION FOR WIRELESS, MACHINE LEARNING, BIG DATA	0	0	0	0	4
	BIOMEDICAL SIGNAL PROCESSING	0	0	0	0	4
	DEEP LEARNING FOR VISUAL COMPUTING	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	DIGITAL SPEECH PROCESSING	0	0	0	0	4
	MAPPING SIGNAL PROCESSING ALGORITHMS TO ARCHITECTURES	0	0	0	0	4
	MATHEMATICAL METHODS AND TECHNIQUES IN SIGNAL PROCESSING	0	0	0	0	4
	MEDICAL IMAGE ANALYSIS	0	0	0	0	4
	NEURAL NETWORKS FOR SIGNAL PROCESSING -I	0	0	0	0	4
	PRINCIPLES OF SIGNAL ESTIMATION FOR MIMO/OFDM WIRELESS COMMUNICATION	0	0	0	0	4
	STATISTICAL SIGNAL PROCESSING	0	0	0	0	4
	VLSI SIGNAL PROCESSING	0	0	0	0	4
M	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	DIGITAL CIRCUITS	0	0	0	0	4
	DIGITAL CIRCUITS AND SYSTEMS	0	0	0	0	4
	DIGITAL SYSTEM DESIGN	0	0	0	0	4
	ELECTRONICS SYSTEM FOR CANCER DIAGNOSIS	0	0	0	0	4
	FABRICATION TECHNIQUES FOR MEMS-BASED SENSORS: CLINICAL PERSPECTIVE	0	0	0	0	4
	INTEGRATED CIRCUITS, MOSFETS, OP-AMPS AND THEIR APPLICATIONS	0	0	0	0	4
	MICROELECTRONICS: DEVICES TO CIRCUITS	0	0	0	0	4
	DIGITAL ELECTRONIC CIRCUITS	0	0	0	0	4
	DIGITAL CIRCUITS	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINEAR ALGEBRA	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	INTRODUCTION TO WIRELESS AND CELLULAR COMMUNICATIONS	0	0	0	0	4
	PEER TO PEER NETWORKS	0	0	0	0	4
	PRINCIPLES OF COMMUNICATION SYSTEMS PART II	0	0	0	0	4
	PROBABILITY FOUNDATIONS FOR ELECTRICAL ENGINEERS	0	0	0	0	4
	SATELLITE COMMUNICATION SYSTEMS	0	0	0	0	4
	BIOMEDICAL SIGNAL PROCESSING	0	0	0	0	4
	DIGITAL SPEECH PROCESSING	0	0	0	0	4
	FOUNDATIONS OF WAVELETS AND MULTIRATE DIGITAL SIGNAL PROCESSING	0	0	0	0	4
	MEDICAL IMAGE ANALYSIS	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	RANDOM PROCESSES					
	APPLIED LINAER ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	FUNDAMENTALS OF WAVELETS, FILTER BANKS AND TIME FREQUENCY ANALYSIS	0	0	0	0	4
	IMAGE SIGNAL PROCESSING	0	0	0	0	4
	INTRODUCTION TO BIOMEDICAL IMAGE SYSTEM	0	0	0	0	4
	DIGITAL IMAGE PROCESSING	0	0	0	0	4
	COMPUTER VISION AND IMAGE PROCESSING FUNDAMENTALS AND APPLICATIONS	0	0	0	0	4
	EVOLUTION OF AIR INTERFACE TOWARDS 5G	0	0	0	0	4
	FUNDAMENTALS OF MIMO WIRELESS COMMUNICATION	0	0	0	0	4
	COMMUNICATION NETWORKS	0	0	0	0	4
S	ELECTROMAGNETICS LAB	0	0	3	3	2
T	SEMINAR	0	0	3	3	2
U	PROJECT PHASE I	0	0	6	6	2

Semester: 8

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	WIRELESS COMMUNICATION	1	2	0	3	3
B	BIOMEDICAL ENGINEERING	1	2	0	3	3
	SATELLITE COMMUNICATION	1	2	0	3	3
	SECURE COMMUNICATION	1	2	0	3	3
	PATTERN RECOGNITION	1	2	0	3	3
	RF CIRCUIT DESIGN	1	2	0	3	3
	MIXED SIGNAL CIRCUIT DESIGN	1	2	0	3	3
	ENTREPRENEURSHIP	1	2	0	3	3
C	MODERN COMMUNICATION SYSTEMS	1	2	0	3	3
	REAL TIME OPERATING SYSTEMS	1	2	0	3	3
	ADAPTIVE SIGNAL PROCESSING	1	2	0	3	3
	MICROWAVE DEVICES AND CIRCUITS	1	2	0	3	3
	SPEECH AND AUDIO PROCESSING	1	2	0	3	3
	ANALOG CMOS DESIGN	1	2	0	3	3
	ROBOTICS	1	2	0	3	3
D	MECHATRONICS	1	2	0	3	3
	OPTIMIZATION TECHNIQUES	1	2	0	3	3
	COMPUTER VISION	1	2	0	3	3
	LOW POWER VLSI	1	2	0	3	3
	INTERNET OF THINGS	1	2	0	3	3
	RENEWABLE ENERGY SYSTEMS	1	2	0	3	3

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	ORGANIC ELECTRONICS	1	2	0	3	3
H1	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	ANALOG IC DESIGN	0	0	0	0	4
	ARCHITECTURAL DESIGN OF DIGITAL INTEGRATED CIRCUITS	0	0	0	0	4
	CMOS DIGITAL VLSI DESIGN	0	0	0	0	4
	DESIGN FOR INTERNET OF THINGS	0	0	0	0	4
	DIGITAL CIRCUITS AND SYSTEMS	0	0	0	0	4
	DIGITAL IC DESIGN	0	0	0	0	4
	DIGITAL VLSI TESTING	0	0	0	0	4
	OPTIMIZATION TECHNIQUES FOR DOGITAL VLSI DESIGN	0	0	0	0	4
	VLSI DESIGN VERIFICATION AND TEST	0	0	0	0	4
	VLSI SIGNAL PROCESSING	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	ANALYSIS AND DESIGN PRINCIPLES OF MICROWAVE ANTENNAS	0	0	0	0	4
	APPLIED LINEAR ALGEBRA	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	APPLIED OPTIMIZATION FOR WIRELESS, MACHINE LEARNING, BIG DATA	0	0	0	0	4
	BASIC BUILDING BLOCKS OF MICROWAVE ENGINEERING AND DESIGN PRINCIPLES OF RF AND MICROWAVE FILTERS AND AMPLIFIERS	0	0	0	0	4
	BAYESIAN / MMSE ESTIMATION FOR WIRELESS COMMUNICATIONS - MIMO / OFDM	0	0	0	0	4
	COMPUTATIONAL ELECTROMAGNETICS	0	0	0	0	4
	COMPUTATIONAL ELECTROMAGNETICS AND APPLICATIONS	0	0	0	0	4
	ELECTROMAGNETIC COMPATIBILITY, EMC	0	0	0	0	4
	ELECTROMAGNETIC WAVES IN GUIDED AND WIRELESS MEDIA	0	0	0	0	4
	ESTIMATION FOR WIRELESS COMMUNICATION :MIMO-OFDM CELLULAR AND SENSOR NETWORKS	0	0	0	0	4
	EVOLUTION OF AIR INTERFACE TOWARDS 5G	0	0	0	0	4
	FIBER-OPTIC COMMUNICATION SYSTEMS AND TECHNIQUES	0	0	0	0	4
	MICROWAVE INTEGRATED CIRCUITS	0	0	0	0	4
	MILLIMETER WAVE TECHNOLOGY	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	PRINCIPLES AND TECHNIQUES OF MODERN RADAR SYSTEMS	0	0	0	0	4
	PRINCIPLES OF SIGNAL ESTIMATION FOR MIMO/OFDM WIRELESS COMMUNICATION	0	0	0	0	4
	SIGNAL PROCESSING FOR MM WAVE COMMUNICATION FOR 5G AND BEYOND	0	0	0	0	4
	SPREAD SPECTRUM COMMUNICATIONS AND JAMMING	0	0	0	0	4
	ADVANCED TOPICS IN PROBABILITY AND RANDOM PROCESSES	0	0	0	0	4
	APPLIED LINEAR ALGEBRA FOR SIGNAL PROCESSING, DATA ANALYTICS AND MACHINE LEARNING	0	0	0	0	4
	APPLIED OPTIMIZATION FOR WIRELESS, MACHINE LEARNING, BIG DATA	0	0	0	0	4
	BIOMEDICAL SIGNAL PROCESSING	0	0	0	0	4
	DEEP LEARNING FOR VISUAL COMPUTING	0	0	0	0	4
	DIGITAL SPEECH PROCESSING	0	0	0	0	4
	MAPPING SIGNAL PROCESSING ALGORITHMS TO ARCHITECTURES	0	0	0	0	4
	MATHEMATICAL METHODS AND TECHNIQUES IN SIGNAL PROCESSING	0	0	0	0	4
	MEDICAL IMAGE ANALYSIS	0	0	0	0	4
	NEURAL NETWORKS FOR SIGNAL PROCESSING -I	0	0	0	0	4
	PRINCIPLES OF SIGNAL ESTIMATION FOR MIMO/OFDM WIRELESS COMMUNICATION	0	0	0	0	4
	STATISTICAL SIGNAL PROCESSING	0	0	0	0	4
	VLSI SIGNAL PROCESSING	0	0	0	0	4
M	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
T	COMPREHENSIVE VIVA VOCE	0	1	0	1	1
U	PROJECT PHASE II	0	0	12	12	4

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PRINCIPAL
SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY
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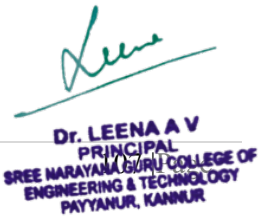
Curriculam Details -ELECTRICAL AND ELECTRONICS ENGINEERING

Semester: 1

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	LINEAR ALGEBRA AND CALCULUS	1	3	0	4	4
B	ENGINEERING PHYSICS A	1	3	0	4	4
	ENGINEERING CHEMISTRY	1	3	0	4	4
C	ENGINEERING MECHANICS	1	2	0	3	3
	ENGINEERING GRAPHICS	0	2	2	4	3
D	BASICS OF CIVIL AND MECHANICAL ENGINEERING	0	4	0	4	4
	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	0	4	0	4	4
E	LIFE SKILLS	0	2	2	4	0
S	ENGINEERING PHYSICS LAB	0	0	2	2	1
	ENGINEERING CHEMISTRY LAB	0	0	2	2	1
T	CIVIL AND MECHANICAL WORKSHOP	0	0	2	2	1
	ELECTRICAL AND ELECTRONICS WORKSHOP	0	0	2	2	1

Semester: 2

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	VECTOR CALCULUS, DIFFERENTIAL EQUATIONS AND TRANSFORMS	1	3	0	4	4
B	ENGINEERING PHYSICS A	1	3	0	4	4
	ENGINEERING CHEMISTRY	1	3	0	4	4
C	ENGINEERING MECHANICS	1	2	0	3	3
	ENGINEERING GRAPHICS	0	2	2	4	3
D	BASICS OF CIVIL AND MECHANICAL ENGINEERING	0	4	0	4	4
	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	0	4	0	4	4
E	PROFESSIONAL COMMUNICATION	0	2	2	4	0
F	PROGRAMMING IN C	1	2	2	5	4
S	ENGINEERING PHYSICS LAB	0	0	2	2	1
	ENGINEERING CHEMISTRY LAB	0	0	2	2	1
T	CIVIL AND MECHANICAL WORKSHOP	0	0	2	2	1
	ELECTRICAL AND ELECTRONICS WORKSHOP	0	0	2	2	1



Semester: 3

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	PARTIAL DIFFERENTIAL EQUATION AND COMPLEX ANALYSIS	1	3	0	4	4
B	CIRCUITS AND NETWORKS	2	2	0	4	4
C	MEASUREMENTS AND INSTRUMENTATION	1	3	0	4	4
D	ANALOG ELECTRONICS	1	3	0	4	4
E	DESIGN AND ENGINEERING	0	2	0	2	2
	PROFESSIONAL ETHICS	0	2	0	2	2
F	SUSTAINABLE ENGINEERING	0	2	0	2	0
M	ELECTRIC CIRCUITS	1	3	0	4	4
	INTRODUCTION TO POWER ENGINEERING	1	3	0	4	4
	DYNAMIC CIRCUITS AND SYSTEMS	1	3	0	4	4
	FUNDAMENTALS OF POWER ELECTRONICS	0	0	0	0	4
	E-MOBILITY AND CHARGING INFRASTRUCTURE	0	0	0	0	4
	INTRODUCTION TO EMBEDDED SYSTEM DESIGN	0	0	0	0	4
	SEMICONDUCTOR DEVICES AND CIRCUITS	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	INDUSTRIAL AUTOMATION AND CONTROL	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	ADVANCE POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC DRIVES	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	POWER SYSTEM ENGINEERING	0	0	0	0	4
	POWER SYSTEM DYNAMICS, CONTROL AND MONITORING	0	0	0	0	4
	ENERGY RESOURCES, ECONOMICS AND ENVIRONMENT	0	0	0	0	4
	POWER MANAGEMENT INTEGRATED CIRCUITS	0	0	0	0	4
	ELEMENTS OF SOLAR ENERGY CONVERSION	0	0	0	0	4
	NON-CONVENTIONAL ENERGY RESOURCES	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	WASTE TO ENERGY CONVERSION	0	0	0	0	4
	SOLAR PHOTOVOLTAICS: PRINCIPLES, TECHNOLOGIES AND MATERIALS	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	POWER SYSTEM PROTECTION AND SWITCHGEAR	0	0	0	0	4
	POWER SYSTEM PROTECTION	0	0	0	0	4
	POWER SYSTEM ENGINEERING	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	ADVANCES IN UHV TRANSMISSION AND DISTRIBUTION	0	0	0	0	4
	POWER QUALITY	0	0	0	0	4
	DESIGN OF PHOTOVOLTAIC SYSTEMS	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	CONTROL ENGINEERING	0	0	0	0	4
	POWER SYSTEM DYNAMICS,CONTROL AND MONITORING	0	0	0	0	4
	SENSORS AND ACTUATORS	0	0	0	0	4
	NONLINEAR SYSTEM ANALYSIS	0	0	0	0	4
	LINEAR DYNAMICAL SYSTEMS	0	0	0	0	4
	MODELLING AND SIMULATION OF DYAMIC SYSTEMS	0	0	0	0	4
	ADVANCED POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	POWER PLANT ENGINEERING	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
S	CIRCUITS AND MEASUREMENTS LAB	0	0	3	3	2
T	ANALOG ELECTRONICS LAB	0	0	3	3	2

Semester: 4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	PROBABILITY, RANDOM PROCESS AND NUMERICAL METHODS	1	3	0	4	4
B	DC MACHINES AND TRANSFORMERS	2	2	0	4	4
C	ELECTROMAGNETIC THEORY	1	3	0	4	4
D	DIGITAL ELECTRONICS	1	3	0	4	4
E	DESIGN AND ENGINEERING	0	2	0	2	2

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	PROFESSIONAL ETHICS	0	2	0	2	2
F	CONSTITUTION OF INDIA	0	2	0	2	0
H1	NETWORK ANALYSIS AND SYNTHESIS	1	3	0	4	4
	NETWORK ANALYSIS AND SYNTHESIS	1	3	0	4	4
	NETWORK ANALYSIS AND SYNTHESIS	1	3	0	4	4
	COMPUTATIONAL ELECTROMAGNETICS	0	0	0	0	4
	ELECTRIC VEHICLES AND RENEWABLE ENERGY	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	ADVANCED ELECTRIC DRIVES	0	0	0	0	4
	BASICS OF FINITE ELEMENT ANALYSIS -I	0	0	0	0	4
	BASICS OF FINITE ELEMENT ANALYSIS -II	0	0	0	0	4
	ELECTRICAL EQUIPMENT AND MACHINES: FINITE ELEMENT ANALYSIS	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4
	APPLIED ELECTROMAGNETICS FOR ENGINEERS	0	0	0	0	4
	E-MOBILITY AND CHARGING INFRASTRUCTURE	0	0	0	0	4
	INTRODUCTION TO EMBEDDED SYSTEM DESIGN	0	0	0	0	4
	SEMICONDUCTOR DEVICES AND CIRCUITS	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	INDUSTRIAL AUTOMATION AND CONTROL	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	ADVANCE POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES:TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	POWER MANAGEMENT INTEGRATED CIRCUITS	0	0	0	0	4
	ELECTRONIC MODULES FOR INDUSTRIAL APPLICATIONS USING OP-AMPS	0	0	0	0	4
	MODELLING AND SIMULATION OF DYNAMIC SYSTEMS	0	0	0	0	4
	HIGH POWER MULTILEVEL CONVERTERS - ANALYSIS, DESIGN AND OPERATIONAL ISSUES	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	INTEGRATED CIRCUITS,MOSFETS,OP-AMPS AND THEIR APPLICATIONS	0	0	0	0	4
	MICROELECTRONICS: DEVICES TO CIRCUITS	0	0	0	0	4
	OP-AMP PRACTICAL APPLICATIONS: DESIGN, SIMULATION AND IMPLEMENTATION	0	0	0	0	4
	ELECTRIC VEHICLES AND RENEWABLE ENERGY	0	0	0	0	4
	ADVANCED ELECTRIC DRIVES	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4
	DESIGN OF POWER ELECTRONIC CONVERTERS	0	0	0	0	4
	POWER SYSTEM DYNAMICS, CONTROL AND MONITORING	0	0	0	0	4
	ENERGY RESOURCES, ECONOMICS AND ENVIRONMENT	0	0	0	0	4
	POWER SYSTEM PROTECTION	0	0	0	0	4
	ELEMENTS OF SOLAR ENERGY CONVERSION	0	0	0	0	4
	NON-CONVENTIONAL ENERGY RESOURCES	0	0	0	0	4
	WASTE TO ENERGY CONVERSION	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	DC MICROGRID AND CONTROL SYSTEM	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	ELECTROCHEMICAL ENERGY STORAGE	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	ELECTRICAL DISTRIBUTION SYSTEM ANALYSIS	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	COMPUTER AIDED POWER SYSTEM ANALYSIS	0	0	0	0	4
	ADVANCES IN UHV TRANSMISSION AND DISTRIBUTION	0	0	0	0	4
	FACTS DEVICE	0	0	0	0	4
	POWER SYSTEM PROTECTION AND SWITCHGEAR	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	SOLAR PHOTOVOLTAICS FUNDAMENTALS, TECHNOLOGY AND APPLICATIONS	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4
	OPERATION AND PLANNING OF POWER DISTRIBUTION SYSTEMS	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	POWER PLANT ENGINEERING	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	INTRODUCTION TO SEMICONDUCTOR DEVICES	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC DRIVES	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
M	ELECTRICAL MACHINES	1	3	0	4	4
	ENERGY SYSTEMS	1	3	0	4	4
	PRINCIPLES OF INSTRUMENTATION	1	3	0	4	4
	FUNDAMENTALS OF POWER ELECTRONICS	0	0	0	0	4
	E-MOBILITY AND CHARGING INFRASTRUCTURE	0	0	0	0	4
	INTRODUCTION TO EMBEDDED SYSTEM DESIGN	0	0	0	0	4
	SEMICONDUCTOR DEVICES AND CIRCUITS	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	INDUSTRIAL AUTOMATION AND CONTROL	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	ADVANCE POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC DRIVES	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	POWER SYSTEM ENGINEERING	0	0	0	0	4
	POWER SYSTEM DYNAMICS, CONTROL	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	AND MONITORING					
	ENERGY RESOURCES, ECONOMICS AND ENVIRONMENT	0	0	0	0	4
	POWER MANAGEMENT INTEGRATED CIRCUITS	0	0	0	0	4
	NON-CONVENTIONAL ENERGY RESOURCES	0	0	0	0	4
	ELEMENTS OF SOLAR ENERGY CONVERSION	0	0	0	0	4
	WASTE TO ENERGY CONVERSION	0	0	0	0	4
	SOLAR PHOTOVOLTAICS: PRINCIPLES, TECHNOLOGIES AND MATERIALS	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	POWER SYSTEM PROTECTION AND SWITCHGEAR	0	0	0	0	4
	POWER SYSTEM PROTECTION	0	0	0	0	4
	POWER SYSTEM ENGINEERING	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	ADVANCES IN UHV TRANSMISSION AND DISTRIBUTION	0	0	0	0	4
	POWER QUALITY	0	0	0	0	4
	DESIGN OF PHOTOVOLTAIC SYSTEMS	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	CONTROL ENGINEERING	0	0	0	0	4
	POWER SYSTEM DYNAMICS,CONTROL AND MONITORING	0	0	0	0	4
	SENSORS AND ACTUATORS	0	0	0	0	4
	NONLINEAR SYSTEM ANALYSIS	0	0	0	0	4
	LINEAR DYNAMICAL SYSTEMS	0	0	0	0	4
	MODELLING AND SIMULATION OF DYAMIC SYSTEMS	0	0	0	0	4
	POWER PLANT ENGINEERING	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
S	ELECTRICAL MACHINES LAB I	0	0	3	3	2
T	DIGITAL ELECTRONICS LAB	0	0	3	3	2

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Semester: 5

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	POWER SYSTEMS I	1	3	0	4	4
B	MICROPROCESSORS AND MICROCONTROLLERS	1	3	0	4	4
C	SIGNALS AND SYSTEMS	1	3	0	4	4
D	SYNCHRONOUS AND INDUCTION MACHINES	1	3	0	4	4
E	INDUSTRIAL ECONOMICS AND FOREIGN TRADE	0	3	0	3	3
	MANAGEMENT FOR ENGINEERS	0	3	0	3	3
F	DISASTER MANAGEMENT	0	2	0	2	0
H1	DIGITAL SIMULATION	1	3	0	4	4
	DIGITAL SIMULATION	1	3	0	4	4
	DIGITAL SIMULATION	1	3	0	4	4
	COMPUTATIONAL ELECTROMAGNETICS	0	0	0	0	4
	ELECTRIC VEHICLES AND RENEWABLE ENERGY	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	ADVANCED ELECTRIC DRIVES	0	0	0	0	4
	BASICS OF FINITE ELEMENT ANALYSIS -I	0	0	0	0	4
	BASICS OF FINITE ELEMENT ANALYSIS -II	0	0	0	0	4
	ELECTRICAL EQUIPMENT AND MACHINES: FINITE ELEMENT ANALYSIS	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4
	APPLIED ELECTROMAGNETICS FOR ENGINEERS	0	0	0	0	4
	E-MOBILITY AND CHARGING INFRASTRUCTURE	0	0	0	0	4
	INTRODUCTION TO EMBEDDED SYSTEM DESIGN	0	0	0	0	4
	SEMICONDUCTOR DEVICES AND CIRCUITS	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	INDUSTRIAL AUTOMATION AND CONTROL	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	ADVANCE POWER ELECTRONICS AND CONTROL	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	FUNDAMENTALS OF ELECTRIC VEHICLES:TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	POWER MANAGEMENT INTEGRATED CIRCUITS	0	0	0	0	4
	ELECTRONIC MODULES FOR INDUSTRIAL APPLICATIONS USING OP-AMPS	0	0	0	0	4
	MODELLING AND SIMULATION OF DYNAMIC SYSTEMS	0	0	0	0	4
	HIGH POWER MULTILEVEL CONVERTERS - ANALYSIS, DESIGN AND OPERATIONAL ISSUES	0	0	0	0	4
	INTEGRATED CIRCUITS,MOSFETS,OP-AMPS AND THEIR APPLICATIONS	0	0	0	0	4
	MICROELECTRONICS: DEVICES TO CIRCUITS	0	0	0	0	4
	OP-AMP PRACTICAL APPLICATIONS: DESIGN, SIMULATION AND IMPLEMENTATION	0	0	0	0	4
	ELECTRIC VEHICLES AND RENEWABLE ENERGY	0	0	0	0	4
	ADVANCED ELECTRIC DRIVES	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4
	DESIGN OF POWER ELECTRONIC CONVERTERS	0	0	0	0	4
	POWER SYSTEM DYNAMICS, CONTROL AND MONITORING	0	0	0	0	4
	ENERGY RESOURCES, ECONOMICS AND ENVIRONMENT	0	0	0	0	4
	POWER SYSTEM PROTECTION	0	0	0	0	4
	ELEMENTS OF SOLAR ENERGY CONVERSION	0	0	0	0	4
	NON-CONVENTIONAL ENERGY RESOURCES	0	0	0	0	4
	WASTE TO ENERGY CONVERSION	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	DC MICROGRID AND CONTROL SYSTEM	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	ELECTROCHEMICAL ENERGY STORAGE	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	ELECTRICAL DISTRIBUTION SYSTEM ANALYSIS	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	VEHICLES: TECHNOLOGY AND ECONOMICS					
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	COMPUTER AIDED POWER SYSTEM ANALYSIS	0	0	0	0	4
	ADVANCES IN UHV TRANSMISSION AND DISTRIBUTION	0	0	0	0	4
	FACTS DEVICE	0	0	0	0	4
	POWER SYSTEM PROTECTION AND SWITCHGEAR	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	SOLAR PHOTOVOLTAICS FUNDAMENTALS, TECHNOLOGY AND APPLICATIONS	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4
	OPERATION AND PLANNING OF POWER DISTRIBUTION SYSTEMS	0	0	0	0	4
	ADVANCED POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	POWER PLANT ENGINEERING	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	INTRODUCTION TO SEMICONDUCTOR DEVICES	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC DRIVES	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
M	SOLID STATE POWER CONVERSION	1	3	0	4	4
	SOLAR AND WINDENERGY CONVERSION SYSTEMS	1	3	0	4	4
	CONTROL SYSTEMS	1	3	0	4	4
	FUNDAMENTALS OF POWER ELECTRONICS	0	0	0	0	4
	E-MOBILITY AND CHARGING INFRASTRUCTURE	0	0	0	0	4
	INTRODUCTION TO EMBEDDED SYSTEM DESIGN	0	0	0	0	4
	SEMICONDUCTOR DEVICES AND CIRCUITS	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	INDUSTRIAL AUTOMATION AND	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	CONTROL					
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	ADVANCE POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC DRIVES	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	POWER SYSTEM ENGINEERING	0	0	0	0	4
	POWER SYSTEM DYNAMICS, CONTROL AND MONITORING	0	0	0	0	4
	ENERGY RESOURCES, ECONOMICS AND ENVIRONMENT	0	0	0	0	4
	POWER MANAGEMENT INTEGRATED CIRCUITS	0	0	0	0	4
	ELEMENTS OF SOLAR ENERGY CONVERSION	0	0	0	0	4
	NON-CONVENTIONAL ENERGY RESOURCES	0	0	0	0	4
	WASTE TO ENERGY CONVERSION	0	0	0	0	4
	SOLAR PHOTOVOLTAICS: PRINCIPLES, TECHNOLOGIES AND MATERIALS	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	POWER SYSTEM PROTECTION AND SWITCHGEAR	0	0	0	0	4
	POWER SYSTEM PROTECTION	0	0	0	0	4
	POWER SYSTEM ENGINEERING	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	ADVANCES IN UHV TRANSMISSION AND DISTRIBUTION	0	0	0	0	4
	POWER QUALITY	0	0	0	0	4
	DESIGN OF PHOTOVOLTAIC SYSTEMS	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	CONTROL ENGINEERING	0	0	0	0	4
	POWER SYSTEM DYNAMICS,CONTROL AND MONITORING	0	0	0	0	4
	SENSORS AND ACTUATORS	0	0	0	0	4
	NONLINEAR SYSTEM ANALYSIS	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	LINEAR DYNAMICAL SYSTEMS	0	0	0	0	4
	MODELLING AND SIMULATION OF DYAMIC SYSTEMS	0	0	0	0	4
	ADVANCED POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	POWER PLANT ENGINEERING	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
S	MICROPROCESSORS AND MICROCONTROLLERS LAB	0	0	3	3	2
T	ELECTRICAL MACHINES LAB II	0	0	3	3	2

Semester: 6

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	LINEAR CONTROL SYSTEMS	2	2	0	4	4
B	POWER SYSTEMS II	1	3	0	4	4
C	POWER ELECTRONICS	1	3	0	4	4
D	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	RENEWABLE ENERGY SYSTEMS	1	2	0	3	3
	COMPUTER ORGANIZATION	1	2	0	3	3
	HIGH VOLTAGE ENGINEERING	1	2	0	3	3
	OBJECT ORIENTED PROGRAMMING	1	2	0	3	3
	MATERIAL SCIENCE	1	2	0	3	3
	SOFT COMPUTING	1	2	0	3	3
E	INDUSTRIAL ECONOMICS AND FOREIGN TRADE	0	3	0	3	3
	MANAGEMENT FOR ENGINEERS	0	3	0	3	3
F	COMPREHENSIVE COURSE WORK	0	1	0	1	1
H1	GENERALISED MACHINE THEORY	1	3	0	4	4
	ANALYSIS OF POWER ELECTRONIC CIRCUITS	1	3	0	4	4
	OPERATION AND CONTROL OF POWER SYSTEMS	1	3	0	4	4
	COMPUTATIONAL ELECTROMAGNETICS	0	0	0	0	4
	ELECTRIC VEHICLES AND RENEWABLE ENERGY	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	ADVANCED ELECTRIC DRIVES	0	0	0	0	4
	BASICS OF FINITE ELEMENT ANALYSIS -I	0	0	0	0	4
	BASICS OF FINITE ELEMENT ANALYSIS -II	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	APPLIED ELECTROMAGNETICS FOR ENGINEERS	0	0	0	0	4
	E-MOBILITY AND CHARGING INFRASTRUCTURE	0	0	0	0	4
	INTRODUCTION TO EMBEDDED SYSTEM DESIGN	0	0	0	0	4
	SEMICONDUCTOR DEVICES AND CIRCUITS	0	0	0	0	4
	INDUSTRIAL AUTOMATION AND CONTROL	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	ADVANCE POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES:TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	POWER MANAGEMENT INTEGRATED CIRCUITS	0	0	0	0	4
	ELECTRONIC MODULES FOR INDUSTRIAL APPLICATIONS USING OP-AMPS	0	0	0	0	4
	MICROELECTRONICS: DEVICES TO CIRCUITS	0	0	0	0	4
	ELECTRIC VEHICLES AND RENEWABLE ENERGY	0	0	0	0	4
	ADVANCED ELECTRIC DRIVES	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4
	POWER SYSTEM DYNAMICS, CONTROL AND MONITORING	0	0	0	0	4
	ENERGY RESOURCES, ECONOMICS AND ENVIRONMENT	0	0	0	0	4
	POWER SYSTEM PROTECTION	0	0	0	0	4
	ELEMENTS OF SOLAR ENERGY CONVERSION	0	0	0	0	4
	NON-CONVENTIONAL ENERGY RESOURCES	0	0	0	0	4
	WASTE TO ENERGY CONVERSION	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	DC MICROGRID AND CONTROL SYSTEM	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	ELECTROCHEMICAL ENERGY STORAGE	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	ELECTRICAL DISTRIBUTION SYSTEM ANALYSIS	0	0	0	0	4

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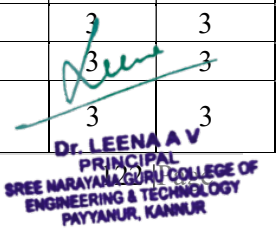
Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	COMPUTER AIDED POWER SYSTEM ANALYSIS	0	0	0	0	4
	ADVANCES IN UHV TRANSMISSION AND DISTRIBUTION	0	0	0	0	4
	FACTS DEVICE	0	0	0	0	4
	POWER SYSTEM PROTECTION AND SWITCHGEAR	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	SOLAR PHOTOVOLTAICS FUNDAMENTALS, TECHNOLOGY AND APPLICATIONS	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4
	OPERATION AND PLANNING OF POWER DISTRIBUTION SYSTEMS	0	0	0	0	4
	ELECTRICAL EQUIPMENT AND MACHINES: FINITE ELEMENT ANALYSIS	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	MODELLING AND SIMULATION OF DYNAMIC SYSTEMS	0	0	0	0	4
	HIGH POWER MULTILEVEL CONVERTERS - ANALYSIS, DESIGN AND OPERATIONAL ISSUES	0	0	0	0	4
	INTEGRATED CIRCUITS,MOSFETS,OP-AMPS AND THEIR APPLICATIONS	0	0	0	0	4
	OP-AMP PRACTICAL APPLICATIONS: DESIGN, SIMULATION AND IMPLEMENTATION	0	0	0	0	4
	DESIGN OF POWER ELECTRONIC CONVERTERS	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	POWER PLANT ENGINEERING	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	INTRODUCTION TO SEMICONDUCTOR DEVICES	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	FUNDAMENTALS OF ELECTRIC DRIVES	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	ADVANCED POWER ELECTRONICS AND CONTROL	0	0	0	0	4
M	POWER SEMICONDUCTOR DRIVES	1	3	0	4	4
	INSTRUMENTATION AND AUTOMATION OF POWER PLANTS	1	3	0	4	4
	DIGITAL CONTROL	1	3	0	4	4
	FUNDAMENTALS OF POWER ELECTRONICS	0	0	0	0	4
	E-MOBILITY AND CHARGING INFRASTRUCTURE	0	0	0	0	4
	INTRODUCTION TO EMBEDDED SYSTEM DESIGN	0	0	0	0	4
	SEMICONDUCTOR DEVICES AND CIRCUITS	0	0	0	0	4
	INDUSTRIAL AUTOMATION AND CONTROL	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	ADVANCE POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC DRIVES	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	POWER SYSTEM ENGINEERING	0	0	0	0	4
	POWER SYSTEM DYNAMICS, CONTROL AND MONITORING	0	0	0	0	4
	ENERGY RESOURCES, ECONOMICS AND ENVIRONMENT	0	0	0	0	4
	POWER MANAGEMENT INTEGRATED CIRCUITS	0	0	0	0	4
	ELEMENTS OF SOLAR ENERGY CONVERSION	0	0	0	0	4
	NON-CONVENTIONAL ENERGY RESOURCES	0	0	0	0	4
	WASTE TO ENERGY CONVERSION	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	POWER SYSTEM PROTECTION AND SWITCHGEAR	0	0	0	0	4
	POWER SYSTEM PROTECTION	0	0	0	0	4
	POWER SYSTEM ENGINEERING	0	0	0	0	4
	INTEGRATED CIRCUITS,MOSFETS,OP-	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	AMPS AND THEIR APPLICATIONS					
	POWER QUALITY	0	0	0	0	4
	DESIGN OF PHOTOVOLTAIC SYSTEMS	0	0	0	0	4
	CONTROL ENGINEERING	0	0	0	0	4
	POWER SYSTEM DYNAMICS,CONTROL AND MONITORING	0	0	0	0	4
	SENSORS AND ACTUATORS	0	0	0	0	4
	NONLINEAR SYSTEM ANALYSIS	0	0	0	0	4
	LINEAR DYNAMICAL SYSTEMS	0	0	0	0	4
	MODELLING AND SIMULATION OF DYAMIC SYSTEMS	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	SOLAR PHOTOVOLTAICS: PRINCIPLES, TECHNOLOGIES AND MATERIALS	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	ADVANCES IN UHV TRANSMISSION AND DISTRIBUTION	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	POWER PLANT ENGINEERING	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
S	POWER SYSTEMS LAB	0	0	3	3	2
T	POWER ELECTRONICS LAB	0	0	3	3	2

Semester: 7

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	ADVANCED CONTROL SYSTEMS	1	2	0	3	3
B	ELECTRIC DRIVES	1	2	0	3	3
	DIGITAL CONTROL SYSTEMS	1	2	0	3	3
	MODERN OPERATING SYSTEMS	1	2	0	3	3
	DATA STRUCTURES	1	2	0	3	3
	DIGITAL SIGNAL PROCESSING	1	2	0	3	3
	ILLUMINATION TECHNOLOGY	1	2	0	3	3
	DIGITAL PROTECTION OF POWER SYSTEMS	1	2	0	3	3
C	INTRODUCTION TO AERONAUTICS	1	2	0	3	3
	INTRODUCTION TO AERODYNAMICS	1	2	0	3	3
	FLIGHT AGAINST GRAVITY	1	2	0	3	3
	NUMERICAL METHODS AND PROGRAMMING	1	2	0	3	3



Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	INSTRUMENTATION SYSTEMS	1	2	0	3	3
	BIOMEDICAL ENGINEERING	1	2	0	3	3
	MEMS	1	2	0	3	3
	ROBOTICS AND INDUSTRIAL AUTOMATION	1	2	0	3	3
	MODERN AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	HYBRID AND ELECTRIC VEHICLES	1	2	0	3	3
	AUTOMOTIVE ERGONOMICS AND SAFETY	1	2	0	3	3
	AVG AND AUTONOMOUS VEHICLES	1	2	0	3	3
	COMPUTER SIMULATION AND ANALYSIS OF AUTOMOTIVE SYSTEMS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	MEDICAL IMAGING AND IMAGE PROCESSING	1	2	0	3	3
	ARTIFICIAL ORGANS AND IMPLANTS	1	2	0	3	3
	ASSISTIVE MEDICAL DEVICES	1	2	0	3	3
	INDUSTRIAL BIOTECHNOLOGY	1	2	0	3	3
	BASICS IN BIOINFORMATICS AND DRUG DESIGN	1	2	0	3	3
	SUSTAINABLE ENERGY PROCESS	1	2	0	3	3
	OCCUPATIONAL HEALTH AND GENERAL SAFETY	1	2	0	3	3
	WASTE WATER ENGINEERING	1	2	0	3	3
	ENERGY TECHNOLOGY AND ENERGY MANAGEMENT	1	2	0	3	3
	PETROLEUM RESOURCES AND PETROCHEMICALS	1	2	0	3	3
	PROCESS SAFETY ENGINEERING	1	2	0	3	3
	PIPING AND PIPELINE DESIGN FOR PROCESS INDUSTRIES	1	2	0	3	3
	ENVIRONMENTAL IMPACT ASSESSMENT	1	2	0	3	3
	APPLIED EARTH SYSTEMS	1	2	0	3	3
	INFORMATICS FOR INFRASTRUCTURE MANAGEMENT	1	2	0	3	3
	NATURAL DISASTERS AND MITIGATION	1	2	0	3	3
	ENVIRONMENTAL HEALTH AND SAFETY	1	2	0	3	3
	GEOINFORMATICS	1	2	0	3	3
	INTRODUCTION TO MOBILE COMPUTING	1	2	0	3	3
	INTRODUCTION TO DEEP LEARNING	1	2	0	3	3
	COMPUTER GRAPHICS	1	2	0	3	3
	PYTHON FOR ENGINEERS	1	2	0	3	3
	OBJECT ORIENTED CONCEPTS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	MEDICAL IMAGING AND IMAGE PROCESSING	1	2	0	3	3
	BIOSIGNALS AND SIGNAL PROCESSING	1	2	0	3	3
	BIOMATERIALS AND BIOMECHANICS	1	2	0	3	3
	MECHATRONICS	1	2	0	3	3

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	ELECTRONIC HARDWARE FOR ENGINEERS	1	2	0	3	3
	IOT AND APPLICATIONS	1	2	0	3	3
	ENTERTAINMENT ELECTRONICS	1	2	0	3	3
	FOOD PROCESS ENGINEERING	1	2	0	3	3
	INSTRUMENTAL METHODS IN FOOD ANALYSIS	1	2	0	3	3
	UNIT OPERATIONS IN FOOD TECHNOLOGY	1	2	0	3	3
	NON THERMAL PROCESSING	1	2	0	3	3
	TOTAL QUALITY MANAGEMENT	1	2	0	3	3
	MAINTENANCE ENGINEERING AND MANAGEMENT	1	2	0	3	3
	SYSTEM SIMULATION	1	2	0	3	3
	SUPPLY CHAIN MANAGEMENT	1	2	0	3	3
	FACILITIES PLANNING AND MATERIAL HANDLING	1	2	0	3	3
	WEB DESIGNING	1	2	0	3	3
	MULTIMEDIA TECHNIQUES	1	2	0	3	3
	FREE AND OPEN SOURCE SOFTWARE	1	2	0	3	3
	MOBILE APPLICATION DEVELOPMENT	1	2	0	3	3
	ENVIRONMENTAL INSTRUMENTATION	1	2	0	3	3
	INDUSTRIAL INSTRUMENTATION	1	2	0	3	3
	AUTOMOBILE INSTRUMENTATION	1	2	0	3	3
	INTRODUCTION TO BUSINESS ANALYTICS	1	2	0	3	3
	QUANTITATIVE TECHNIQUES FOR ENGINEERS	1	2	0	3	3
	AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	RENEWABLE ENERGY ENGINEERING	1	2	0	3	3
	QUALITY ENGINEERING AND MANAGEMENT	1	2	0	3	3
	BASICS OF ROBOTICS AND AUTOMATION	1	2	0	3	3
	INTRODUCTION TO QUALITY MANAGEMENT	1	2	0	3	3
	NON DESTRUCTIVE TESTING AND FAILURE ANALYSIS	1	2	0	3	3
	MATERIALS AND MANUFACTURING TECHNIQUES FOR INDUSTRIES	1	2	0	3	3
	FUNDAMENTALS OF NANO MATERIALS	1	2	0	3	3
	MODERN AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	HYBRID AND ELECTRIC VEHICLES	1	2	0	3	3
	AUTOMOTIVE ERGONOMICS AND SAFETY	1	2	0	3	3
	AVG AND AUTONOMOUS VEHICLES	1	2	0	3	3
	COMPUTER SIMULATION AND ANALYSIS OF AUTOMOTIVE SYSTEMS	1	2	0	3	3
	PRODUCT DEVELOPMENT AND DESIGN	1	2	0	3	3

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	PLANT ENGINEERING AND MAINTENANCE	1	2	0	3	3
	INDUSTRIAL PSYCHOLOGY AND ORGANISATIONAL BEHAVIOUR	1	2	0	3	3
	DREDGERS AND HARBOUR CRAFTS	1	2	0	3	3
	SHIPBUILDING TECHNOLOGY	1	2	0	3	3
	MARINE MATERIALS AND CORROSION	1	2	0	3	3
	INTEGRATED PRODUCT DEVELOPMENT	1	2	0	3	3
	CONTEMPORARY MATERIALS	1	2	0	3	3
	FLIGHT AGAINST GRAVITY	1	2	0	3	3
	TQM	1	2	0	3	3
	ADDITIVE MANUFACTURING	1	2	0	3	3
	FUNDAMENTALS OF ROBOTICS	1	2	0	3	3
	BASICS OF MOBILE ROBOTICS	1	2	0	3	3
	INDUSTRIAL AUTOMATION	1	2	0	3	3
	AI FOR ROBOTICS	1	2	0	3	3
	RESPONSIBLE ENGINEERING	1	2	0	3	3
	SAFETY IN CONSTRUCTION INDUSTRY	1	2	0	3	3
D	INDUSTRIAL SAFETY ENGINEERING	1	2	0	3	0
H1	OPERATION AND CONTROL OF GENERATORS	1	3	0	4	4
	DYNAMICS OF POWER CONVERTERS	1	3	0	4	4
	CONTROL AND DYNAMICS OF MICROGRIDS	1	3	0	4	4
	COMPUTATIONAL ELECTROMAGNETICS	0	0	0	0	4
	ELECTRIC VEHICLES AND RENEWABLE ENERGY	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	ADVANCED ELECTRIC DRIVES	0	0	0	0	4
	BASICS OF FINITE ELEMENT ANALYSIS -I	0	0	0	0	4
	BASICS OF FINITE ELEMENT ANALYSIS -II	0	0	0	0	4
	ELECTRICAL EQUIPMENT AND MACHINES: FINITE ELEMENT ANALYSIS	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4
	ADVANCED POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	APPLIED ELECTROMAGNETICS FOR ENGINEERS	0	0	0	0	4
	E-MOBILITY AND CHARGING INFRASTRUCTURE	0	0	0	0	4
	INTRODUCTION TO EMBEDDED SYSTEM DESIGN	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	SEMICONDUCTOR DEVICES AND CIRCUITS	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	INDUSTRIAL AUTOMATION AND CONTROL	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	ADVANCE POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES:TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	POWER MANAGEMENT INTEGRATED CIRCUITS	0	0	0	0	4
	ELECTRONIC MODULES FOR INDUSTRIAL APPLICATIONS USING OP-AMPS	0	0	0	0	4
	MODELLING AND SIMULATION OF DYNAMIC SYSTEMS	0	0	0	0	4
	HIGH POWER MULTILEVEL CONVERTERS - ANALYSIS, DESIGN AND OPERATIONAL ISSUES	0	0	0	0	4
	INTEGRATED CIRCUITS,MOSFETS,OP-AMPS AND THEIR APPLICATIONS	0	0	0	0	4
	MICROELECTRONICS: DEVICES TO CIRCUITS	0	0	0	0	4
	OP-AMP PRACTICAL APPLICATIONS: DESIGN, SIMULATION AND IMPLEMENTATION	0	0	0	0	4
	ELECTRIC VEHICLES AND RENEWABLE ENERGY	0	0	0	0	4
	ADVANCED ELECTRIC DRIVES	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4
	DESIGN OF POWER ELECTRONIC CONVERTERS	0	0	0	0	4
	POWER SYSTEM DYNAMICS, CONTROL AND MONITORING	0	0	0	0	4
	ENERGY RESOURCES, ECONOMICS AND ENVIRONMENT	0	0	0	0	4
	POWER SYSTEM PROTECTION	0	0	0	0	4
	ELEMENTS OF SOLAR ENERGY CONVERSION	0	0	0	0	4
	NON-CONVENTIONAL ENERGY RESOURCES	0	0	0	0	4
	WASTE TO ENERGY CONVERSION	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING:	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	SOLAR, WIND AND BIOMASS ENERGY SYSTEMS					
	DC MICROGRID AND CONTROL SYSTEM	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	ELECTROCHEMICAL ENERGY STORAGE	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	ELECTRICAL DISTRIBUTION SYSTEM ANALYSIS	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	COMPUTER AIDED POWER SYSTEM ANALYSIS	0	0	0	0	4
	ADVANCES IN UHV TRANSMISSION AND DISTRIBUTION	0	0	0	0	4
	FACTS DEVICE	0	0	0	0	4
	POWER SYSTEM PROTECTION AND SWITCHGEAR	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	SOLAR PHOTOVOLTAICS FUNDAMENTALS, TECHNOLOGY AND APPLICATIONS	0	0	0	0	4
	SCIENTIFIC COMPUTING USING MATLAB	0	0	0	0	4
	OPERATION AND PLANNING OF POWER DISTRIBUTION SYSTEMS	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	POWER PLANT ENGINEERING	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	INTRODUCTION TO SEMICONDUCTOR DEVICES	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC DRIVES	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
M	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	FUNDAMENTALS OF POWER ELECTRONICS	0	0	0	0	4
	E-MOBILITY AND CHARGING INFRASTRUCTURE	0	0	0	0	4

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	INTRODUCTION TO EMBEDDED SYSTEM DESIGN	0	0	0	0	4
	SEMICONDUCTOR DEVICES AND CIRCUITS	0	0	0	0	4
	FUZZY SETS, LOGIC AND SYSTEMS AND APPLICATIONS	0	0	0	0	4
	INDUSTRIAL AUTOMATION AND CONTROL	0	0	0	0	4
	INTRODUCTION TO INDUSTRY 4.0 AND INDUSTRIAL INTERNET OF THINGS	0	0	0	0	4
	ADVANCE POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC DRIVES	0	0	0	0	4
	FUNDAMENTALS OF ELECTRIC VEHICLES: TECHNOLOGY AND ECONOMICS	0	0	0	0	4
	ADVANCED POWER ELECTRONICS AND CONTROL	0	0	0	0	4
	POWER SYSTEM ENGINEERING	0	0	0	0	4
	POWER SYSTEM DYNAMICS, CONTROL AND MONITORING	0	0	0	0	4
	ENERGY RESOURCES, ECONOMICS AND ENVIRONMENT	0	0	0	0	4
	POWER MANAGEMENT INTEGRATED CIRCUITS	0	0	0	0	4
	ELEMENTS OF SOLAR ENERGY CONVERSION	0	0	0	0	4
	NON-CONVENTIONAL ENERGY RESOURCES	0	0	0	0	4
	WASTE TO ENERGY CONVERSION	0	0	0	0	4
	SOLAR PHOTOVOLTAICS: PRINCIPLES, TECHNOLOGIES AND MATERIALS	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	POWER SYSTEM PROTECTION AND SWITCHGEAR	0	0	0	0	4
	POWER SYSTEM PROTECTION	0	0	0	0	4
	POWER SYSTEM ENGINEERING	0	0	0	0	4
	POWER QUALITY IMPROVEMENT TECHNIQUE	0	0	0	0	4
	ADVANCES IN UHV TRANSMISSION AND DISTRIBUTION	0	0	0	0	4
	POWER QUALITY	0	0	0	0	4
	DESIGN OF PHOTOVOLTAIC SYSTEMS	0	0	0	0	4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	RENEWABLE ENERGY ENGINEERING: SOLAR, WIND AND BIOMASS ENERGY SYSTEMS	0	0	0	0	4
	CONTROL ENGINEERING	0	0	0	0	4
	POWER SYSTEM DYNAMICS,CONTROL AND MONITORING	0	0	0	0	4
	SENSORS AND ACTUATORS	0	0	0	0	4
	NONLINEAR SYSTEM ANALYSIS	0	0	0	0	4
	LINEAR DYNAMICAL SYSTEMS	0	0	0	0	4
	MODELLING AND SIMULATION OF DYAMIC SYSTEMS	0	0	0	0	4
	POWER PLANT ENGINEERING	0	0	0	0	4
	INTRODUCTION TO SMART GRID	0	0	0	0	4
	SOLAR ENERGY ENGINEERING AND TECHNOLOGY	0	0	0	0	4
S	CONTROL SYSTEMS LAB	0	0	3	3	2
T	SEMINAR	0	0	3	3	2
U	PROJECT PHASE I	0	0	6	6	2

Semester: 8

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	ELECTRICAL SYSTEM DESIGN AND ESTIMATION	1	2	0	3	3
B	ROBOTICS	1	2	0	3	3
	ENERGY MANAGEMENT	1	2	0	3	3
	SMART GRID TECHNOLOGIES	1	2	0	3	3
	ELECTRICAL MACHINE DESIGN	1	2	0	3	3
	SWITCHED MODE POWER CONVERTERS	1	2	0	3	3
	COMPUTER AIDED POWER SYSTEM ANALYSIS	1	2	0	3	3
	MACHINE LEARNING	1	2	0	3	3
C	NONLINEAR SYSTEMS	1	2	0	3	3
	SPECIAL ELECTRIC MACHINES	1	2	0	3	3
	POWER QUALITY	1	2	0	3	3
	COMPUTER NETWORKS	1	2	0	3	3
	DESIGN OF POWER ELECTRONIC SYSTEMS	1	2	0	3	3
	HVDC AND FACTS	1	2	0	3	3
	ADVANCED ELECTRONIC DESIGN	1	2	0	3	3
D	ELECTRIC AND HYBRID VEHICLES	1	2	0	3	3
	INTERNET OF THINGS	1	2	0	3	3
	ENERGY STORAGE SYSTEMS	1	2	0	3	3
	ROBUST AND ADAPTIVE CONTROL	1	2	0	3	3
	SOLAR PV SYSTEMS	1	2	0	3	3
	INDUSTRIAL INSTRUMENTATION AND	1	2	0	3	3

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	AUTOMATION					
	BIG DATA ANALYTICS	1	2	0	3	3
H1	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
M	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
	MINI PROJECT	1	3	0	4	4
T	COMPREHENSIVE VIVA VOCE	0	1	0	1	1
U	PROJECT PHASE II	0	0	12	12	4

Curriculam Details -MECHANICAL ENGINEERING (AUTO)

Semester: 1

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	LINEAR ALGEBRA AND CALCULUS	1	3	0	4	4
B	ENGINEERING PHYSICS B	1	3	0	4	4
	ENGINEERING CHEMISTRY	1	3	0	4	4
C	ENGINEERING MECHANICS	1	2	0	3	3
	ENGINEERING GRAPHICS	0	2	2	4	3
D	BASICS OF CIVIL AND MECHANICAL ENGINEERING	0	4	0	4	4
	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	0	4	0	4	4
E	LIFE SKILLS	0	2	2	4	0
S	ENGINEERING PHYSICS LAB	0	0	2	2	1
	ENGINEERING CHEMISTRY LAB	0	0	2	2	1
T	CIVIL AND MECHANICAL WORKSHOP	0	0	2	2	1
	ELECTRICAL AND ELECTRONICS WORKSHOP	0	0	2	2	1

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Semester: 2

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	VECTOR CALCULUS, DIFFERENTIAL EQUATIONS AND TRANSFORMS	1	3	0	4	4
B	ENGINEERING PHYSICS B	1	3	0	4	4
	ENGINEERING CHEMISTRY	1	3	0	4	4
C	ENGINEERING MECHANICS	1	2	0	3	3
	ENGINEERING GRAPHICS	0	2	2	4	3
D	BASICS OF CIVIL AND MECHANICAL ENGINEERING	0	4	0	4	4
	BASICS OF ELECTRICAL AND ELECTRONICS ENGINEERING	0	4	0	4	4
E	PROFESSIONAL COMMUNICATION	0	2	2	4	0
F	PROGRAMMING IN C	1	2	2	5	4
S	ENGINEERING PHYSICS LAB	0	0	2	2	1
	ENGINEERING CHEMISTRY LAB	0	0	2	2	1
T	CIVIL AND MECHANICAL WORKSHOP	0	0	2	2	1
	ELECTRICAL AND ELECTRONICS WORKSHOP	0	0	2	2	1

Semester: 3

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	PARTIAL DIFFERENTIAL EQUATION AND COMPLEX ANALYSIS	1	3	0	4	4
B	FLUID MECHANICS AND MACHINERY	1	3	0	4	4
C	AUTO CHASSIS	0	4	0	4	4
D	METALLURGY AND MATERIAL SCIENCE	1	3	0	4	4
E	DESIGN AND ENGINEERING	0	2	0	2	2
	PROFESSIONAL ETHICS	0	2	0	2	2
F	SUSTAINABLE ENGINEERING	0	2	0	2	0
M	FUNDAMENTALS OF AUTOMOBILE ENGINEERING	0	4	0	4	4
S	COMPUTER AIDED MACHINE DRAWING	0	0	3	3	2
T	FM AND HM LAB	0	0	3	3	2

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Semester: 4

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	PROBABILITY, STATISTICS AND NUMERICAL METHODS	1	3	0	4	4
B	ENGINEERING THERMODYNAMICS	1	3	0	4	4
C	AUTO POWER PLANT	1	3	0	4	4
D	MECHANICS OF SOLIDS	1	3	0	4	4
E	DESIGN AND ENGINEERING	0	2	0	2	2
	PROFESSIONAL ETHICS	0	2	0	2	2
F	CONSTITUTION OF INDIA	0	2	0	2	0
H1	INCOMPRESSIBLE AND COMPRESSIBLE FLOWS	1	3	0	4	4
M	AUTOMOTIVE CHASSIS AND ENGINE COMPONENTS	1	3	0	4	4
S	MATERIALS TESTING LAB	0	0	3	3	2
T	VEHICLE SYSTEMS LAB	0	0	3	3	2

Semester: 5

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	AUTO ELECTRICAL AND ELECTRONICS	1	3	0	4	4
B	MANUFACTURING PROCESS	1	3	0	4	4
C	VEHICLE DYNAMICS	1	3	0	4	4
D	AUTO TRANSMISSION	1	3	0	4	4
E	INDUSTRIAL ECONOMICS AND FOREIGN TRADE	0	3	0	3	3
	MANAGEMENT FOR ENGINEERS	0	3	0	3	3
F	DISASTER MANAGEMENT	0	2	0	2	0
H1	ADVANCED THEORY OF VIBRATIONS	1	3	0	4	4
	ADVANCED THERMODYNAMICS AND COMBUSTION	0	0	0	0	4
M	DYNAMICS OF AUTOMOBILES	1	3	0	4	4
	ADVANCED THERMODYNAMICS AND COMBUSTION	0	0	0	0	4
S	PRODUCTION ENGINEERING LAB	0	0	3	3	2
T	THERMAL ENGINEERING LAB - I	0	0	3	3	2

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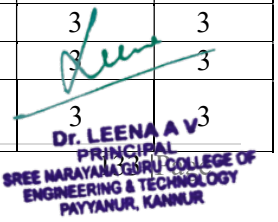
Semester: 6

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	MECHANICS OF MACHINERY	1	3	0	4	4
B	ADVANCED IC ENGINES	1	3	0	4	4
C	AUTO COMPONENT DESIGN	1	3	0	4	4
D	VEHICLE MAINTENANCE	1	2	0	3	3
	NONDESTRUCTIVE TESTING	1	2	0	3	3
	VEHICLE BODY ENGINEERING	1	2	0	3	3
	HEATING VENTILATION AND AIR CONDITIONING	1	2	0	3	3
	ELECTRIC VEHICLE TECHNOLOGY	1	2	0	3	3
	PRODUCT LIFE CYCLE MANAGEMENT	1	2	0	3	3
	NUCLEAR ENGINEERING	1	2	0	3	3
E	INDUSTRIAL ECONOMICS AND FOREIGN TRADE	0	3	0	3	3
	MANAGEMENT FOR ENGINEERS	0	3	0	3	3
F	COMPREHENSIVE COURSE WORK	0	1	0	1	1
H1	IC ENGINES AND ADVANCED COMBUSTION STRATEGIES	1	3	0	4	4
M	MODERN AUTOMOTIVE TECHNOLOGY	1	3	0	4	4
S	COMPUTER AIDED DESIGN AND ANALYSIS LAB	0	0	3	3	2
T	ELECTRICAL SYSTEMS LAB	0	0	3	3	2

Semester: 7

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	HEAT AND MASS TRANSFER	1	2	0	3	3
B	FINITE ELEMENT METHODS	1	2	0	3	3
	VEHICLE PERFORMANCE AND TESTING	1	2	0	3	3
	TRACTORS AND FARM EQUIPMENTS	1	2	0	3	3
	TOTAL QUALITY MANAGEMENT	1	2	0	3	3
	OPTIMIZATION TECHNIQUES AND APPLICATIONS	1	2	0	3	3
	AUTOMOTIVE TESTING EQUIPMENTS	1	2	0	3	3
	AUTOMOTIVE AERODYNAMICS	1	2	0	3	3
C	INTRODUCTION TO AERONAUTICS	1	2	0	3	3
	INTRODUCTION TO AERODYNAMICS	1	2	0	3	3
	FLIGHT AGAINST GRAVITY	1	2	0	3	3
	NUMERICAL METHODS AND PROGRAMMING	1	2	0	3	3
	INSTRUMENTATION SYSTEMS	1	2	0	3	3
	BIOMEDICAL ENGINEERING	1	2	0	3	3
	MEMS	1	2	0	3	3
	ROBOTICS AND INDUSTRIAL AUTOMATION	1	2	0	3	3



Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	MODERN AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	HYBRID AND ELECTRIC VEHICLES	1	2	0	3	3
	AUTOMOTIVE ERGONOMICS AND SAFETY	1	2	0	3	3
	AVG AND AUTONOMOUS VEHICLES	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	MEDICAL IMAGING AND IMAGE PROCESSING	1	2	0	3	3
	ARTIFICIAL ORGANS AND IMPLANTS	1	2	0	3	3
	ASSISTIVE MEDICAL DEVICES	1	2	0	3	3
	INDUSTRIAL BIOTECHNOLOGY	1	2	0	3	3
	BASICS IN BIOINFORMATICS AND DRUG DESIGN	1	2	0	3	3
	SUSTAINABLE ENERGY PROCESS	1	2	0	3	3
	OCCUPATIONAL HEALTH AND GENERAL SAFETY	1	2	0	3	3
	WASTE WATER ENGINEERING	1	2	0	3	3
	ENERGY TECHNOLOGY AND ENERGY MANAGEMENT	1	2	0	3	3
	PETROLEUM RESOURCES AND PETROCHEMICALS	1	2	0	3	3
	PROCESS SAFETY ENGINEERING	1	2	0	3	3
	PIPING AND PIPELINE DESIGN FOR PROCESS INDUSTRIES	1	2	0	3	3
	ENVIRONMENTAL IMPACT ASSESSMENT	1	2	0	3	3
	APPLIED EARTH SYSTEMS	1	2	0	3	3
	INFORMATICS FOR INFRASTRUCTURE MANAGEMENT	1	2	0	3	3
	NATURAL DISASTERS AND MITIGATION	1	2	0	3	3
	ENVIRONMENTAL HEALTH AND SAFETY	1	2	0	3	3
	GEOINFORMATICS	1	2	0	3	3
	INTRODUCTION TO MOBILE COMPUTING	1	2	0	3	3
	INTRODUCTION TO DEEP LEARNING	1	2	0	3	3
	COMPUTER GRAPHICS	1	2	0	3	3
	PYTHON FOR ENGINEERS	1	2	0	3	3
	OBJECT ORIENTED CONCEPTS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	MEDICAL IMAGING AND IMAGE PROCESSING	1	2	0	3	3
	BIOSIGNALS AND SIGNAL PROCESSING	1	2	0	3	3
	BIOMATERIALS AND BIOMECHANICS	1	2	0	3	3
	MECHATRONICS	1	2	0	3	3
	BIOMEDICAL INSTRUMENTATION	1	2	0	3	3
	ELECTRONIC HARDWARE FOR ENGINEERS	1	2	0	3	3
	IOT AND APPLICATIONS	1	2	0	3	3
	ENTERTAINMENT ELECTRONICS	1	2	0	3	3
	COMPUTER SIMULATION AND ANALYSIS	1	2	0	3	3

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	OF AUTOMOTIVE SYSTEMS					
	CONTROL SYSTEMS ENGINEERING	1	2	0	3	3
	INTRODUCTION TO POWER PROCESSING	1	2	0	3	3
	RENEWABLE ENERGY SYSTEMS	1	2	0	3	3
	ELECTRIC VEHICLES	1	2	0	3	3
	ENERGY MANAGEMENT	1	2	0	3	3
	FOOD PROCESS ENGINEERING	1	2	0	3	3
	INSTRUMENTAL METHODS IN FOOD ANALYSIS	1	2	0	3	3
	UNIT OPERATIONS IN FOOD TECHNOLOGY	1	2	0	3	3
	NON THERMAL PROCESSING	1	2	0	3	3
	TOTAL QUALITY MANAGEMENT	1	2	0	3	3
	MAINTENANCE ENGINEERING AND MANAGEMENT	1	2	0	3	3
	SYSTEM SIMULATION	1	2	0	3	3
	SUPPLY CHAIN MANAGEMENT	1	2	0	3	3
	FACILITIES PLANNING AND MATERIAL HANDLING	1	2	0	3	3
	WEB DESIGNING	1	2	0	3	3
	MULTIMEDIA TECHNIQUES	1	2	0	3	3
	FREE AND OPEN SOURCE SOFTWARE	1	2	0	3	3
	MOBILE APPLICATION DEVELOPMENT	1	2	0	3	3
	ENVIRONMENTAL INSTRUMENTATION	1	2	0	3	3
	INDUSTRIAL INSTRUMENTATION	1	2	0	3	3
	AUTOMOBILE INSTRUMENTATION	1	2	0	3	3
	INTRODUCTION TO BUSINESS ANALYTICS	1	2	0	3	3
	QUANTITATIVE TECHNIQUES FOR ENGINEERS	1	2	0	3	3
	AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
	RENEWABLE ENERGY ENGINEERING	1	2	0	3	3
	QUALITY ENGINEERING AND MANAGEMENT	1	2	0	3	3
	BASICS OF ROBOTICS AND AUTOMATION	1	2	0	3	3
	INTRODUCTION TO QUALITY MANAGEMENT	1	2	0	3	3
	NON DESTRUCTIVE TESTING AND FAILURE ANALYSIS	1	2	0	3	3
	MATERIALS AND MANUFACTURING TECHNIQUES FOR INDUSTRIES	1	2	0	3	3
	FUNDAMENTALS OF NANO MATERIALS	1	2	0	3	3
	PRODUCT DEVELOPMENT AND DESIGN	1	2	0	3	3
	PLANT ENGINEERING AND MAINTENANCE	1	2	0	3	3
	INDUSTRIAL PSYCHOLOGY AND ORGANISATIONAL BEHAVIOUR	1	2	0	3	3
	DREDGERS AND HARBOUR CRAFTS	1	2	0	3	3

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Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	SHIPBUILDING TECHNOLOGY	1	2	0	3	3
	MARINE MATERIALS AND CORROSION	1	2	0	3	3
	INTEGRATED PRODUCT DEVELOPMENT	1	2	0	3	3
	CONTEMPORARY MATERIALS	1	2	0	3	3
	FLIGHT AGAINST GRAVITY	1	2	0	3	3
	TQM	1	2	0	3	3
	ADDITIVE MANUFACTURING	1	2	0	3	3
	FUNDAMENTALS OF ROBOTICS	1	2	0	3	3
	BASICS OF MOBILE ROBOTICS	1	2	0	3	3
	INDUSTRIAL AUTOMATION	1	2	0	3	3
	AI FOR ROBOTICS	1	2	0	3	3
	RESPONSIBLE ENGINEERING	1	2	0	3	3
	SAFETY IN CONSTRUCTION INDUSTRY	1	2	0	3	3
D	INDUSTRIAL SAFETY ENGINEERING	1	2	0	3	0
H1	SIMULATION AND ANALYSIS OF IC ENGINE PROCESS	1	3	0	4	4
	ADVANCED THERMODYNAMICS AND COMBUSTION	0	0	0	0	4
M	MINI PROJECT	1	3	0	4	4
S	AUTOTRONICS AND VEHICLE TESTING LAB	0	0	3	3	2
T	SEMINAR	0	0	3	3	2
U	PROJECT PHASE I	0	0	6	6	2

Semester: 8

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
A	HYBRID AND ELECTRIC VEHICLES	1	2	0	3	3
B	EMBEDDED SYSTEM IN AUTOMOBILES	1	2	0	3	3
	PRESSURE VESSEL AND PIPING DESIGN	1	2	0	3	3
	AVG AND AUTONOMOUS VEHICLES	1	2	0	3	3
	HUMAN RELATIONS MANAGEMENT	1	2	0	3	3
	MICRO AND NANO MANUFACTURING	1	2	0	3	3
	OFF ROAD VEHICLES	1	2	0	3	3
	MODERN AUTOMOTIVE TECHNOLOGY	1	2	0	3	3
C	AUTOMOTIVE AIR CONDITIONING	1	2	0	3	3
	OPERATIONS RESEARCH	1	2	0	3	3
	AUTOMOTIVE MECHATRONICS	1	2	0	3	3
	MARKETING MANAGEMENT	1	2	0	3	3
	THEORY OF VIBRATIONS	1	2	0	3	3
	AUTOMOTIVE ERGONOMICS AND SAFETY	1	2	0	3	3
	NVH IN AUTOMOBILES	1	2	0	3	3
D	ADDITIVE MANUFACTURING	1	2	0	3	3
	METROLOGY AND INSTRUMENTATION	1	2	0	3	3

Slot	Course	Tutorial Hours	Lecture Hours	Practical Hours	Total Hours	Credits
	HYDROGEN FUELLED VEHICLES	1	2	0	3	3
	ADVANCED METAL JOINING TECHNIQUES	1	2	0	3	3
	COMPUTER SIMULATION AND ANALYSIS OF AUTOMOTIVE SYSTEMS	1	2	0	3	3
	AUTOMOTIVE NAVIGATION AND CONTROLS	1	2	0	3	3
	ADVANCED ENERGY ENGINEERING	1	2	0	3	3
H1	MINI PROJECT	1	3	0	4	4
M	MINI PROJECT	1	3	0	4	4
T	COMPREHENSIVE VIVA VOCE	0	1	0	1	1
U	PROJECT PHASE II	0	0	12	12	4

INDUCTION PROGRAM

There will be three weeks induction program for first semester students. It is a unique three-week immersion Foundation Programme designed especially for the fresher's which includes a wide range of activities right from workshops, lectures and seminars to sports tournaments, social work and much more. The programme is designed to mould students into well groomed individuals, aware and sensitized to local and global conditions and foster their creativity, inculcate values and ethics, and help students to discover their passion. Foundation Programme also serves as a platform for the fresher's to interact with their batch mates and seniors and start working as a team with them. The program is structured around the following five themes:

The programme is designed keeping in mind the following objectives:

- **Values and Ethics**: Focus on fostering a strong sense of ethical judgment and moral fortitude.
- **Creativity**: Provide channels to exhibit and develop individual creativity by expressing themselves through art, craft, music, singing, media, dramatics, and other creative activities.
- **Leadership, Communication and Teamwork**: Develop a culture of teamwork and group communication.
- **Social Awareness:** Nurture deeper understanding of the local and global world and our place in at as concerned citizens of the world.
- **Physical Activities & Sports**: Engage students in sports and physical activity to ensure healthy physical and mental growth.

JANUARY 2024

Days	Date	Academic Activities		Class
Mon	**1**	New Year Day		
Tue	**2**	MannamJayanthi		
Wed	3		Academic Council Meeting	
Thu	4			
Fri	5		Department Staff Meeting	
Sat	6			
Sun	7			
Mon	**8**		Time Table Committee Meeting	
Tue	9			
Wed	10		HODs Meeting	
Thu	11			
Fri	12	Commencement of University Valuation Camp-1	Staff Meeting	
Sat	13			
Sun	**14**			
Mon	**15**			
Tue	16		Library Meeting	
Wed	17		Academic Council Meeting	
Thu	18		Course Team Meeting of S8	

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Fri	19		Release of Newsletter SNGCET Times – Newsletter Committee Department Staff Meeting	
Sat	20		Submission of CPS	
Sun	21			
Mon	**22**	Commencement of S8 B.Tech and S2 MTech Classes		**1**
Tue	23	Semester Enrollment Begins for M.Tech S2		**2**
Wed	24			**3**
Thu	25	End of Valuation Camp-1	Submission of Notes for Module 1 to HOD Course Team Meeting of S6/S4/S2	**4**
Fri	**26**	Republic Day		
Sat	27			**5**
Sun	28			
Mon	**29**	Commencement of S2/S4/S6 B.Tech Classes and S4 MTech Classes	Hostel Committee Meeting	**6**
Tue	30	Semester Enrollment Begins for M.Tech S4	Canteen Committee Meeting	**7**
Wed	31	Semester Enrollment Ends for M.Tech S2	Transport Committee Meeting	**8**

FEBRUARY 2024

Days	Date	AcademicActivities		Class
Thu	**1**	Semester Enrollment Begins for S2/S4/S6/S8	SC ST Committee Meeting	**9**
Fri	**2**		Student Grievance and Redressal Committee Meeting	**10**
Sat	3		Program by Hobby Club	**11**
Sun	4			
Mon	5	Semester Enrollment Ends for S2/S4/S6/S8 Semester B.Tech and M.Tech S4	Program by IEDC	**12**
Tue	6		First Advisory Meeting/CC Meeting for S8/S6/S4/S2 and First DLAC Meeting to be completed	**13**
Wed	7	Last date for First Advisory Meeting and First DLAC Meeting.	Academic Council Meeting	**14**
Thu	8		Program by Anti Ragging Cell	**15**
Fri	9	Course Selection and Mapping Begins for B. Tech S2/S4/S6/S8	First Mentorship Report	**16**
			Department Staff Meeting	
Sat	10			
Sun	11			

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Mon	12	Course Selection and Mapping Begins for M.Tech S2/S4	Program by IIC	**17**
Tue	13		Staff Welfare Committee Meeting	**18**
Wed	**14**		HODs Meeting	**19**
Thu	**15**	Course Selection and Mapping Ends for B. Tech S2/S4/S6/S8	Publishing of attendance	**20**
Fri	16	Commencement of University Valuation Camp-2, KTU TECH FEST & KETCON	Staff Meeting	**21**
Sat	17	Course Selection and Mapping Ends for M.Tech S2/S4. KTU TECHFEST & KETCON	Program by ECE Department	**22**
Sun	18			
Mon	19		Program by LED Unit EEE Department	**23**
Tue	20			**24**
Wed	21	End of University Valuation Camp-2	Academic Council Meeting	**25**
Thu	**22**	Zeroth project evaluation for M. Tech S4 to be completed.	Program by NSS	**26**
Fri	23	KTU Annual Athletic Meet	Department Staff Meeting	**27**
Sat	24	KTU Annual Athletic Meet	Module 1 completion	**28**
Sun	25	KTU Annual Athletic Meet		**29**
Mon	**26**			
Tue	27			**30**
Wed	28	Last date for corrections related to course selection and mapping on KTU portal		**31**
Thu	**29**		Publishing of attendance	**32**

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MARCH 2024

Days	Date	AcademicActivities		Class
Fri	1	Exam Registration begins for B. Tech S2/S4/S6/S8 and M.Tech S2/S4	IQAC Meeting	33
Sat	2	Regular Class for S2/S4/S6	SATVI	34
Sun	3		SATVI	
Mon	4			35
Tue	5	Exam Registration ends for B. Tech S2/S4/S6/S8 (Student Level) and for M.Tech S2/S4 (student level)	Module 2 completion Remedial Classes Submission of Notes for Module 2&3 to HOD	36
Wed	6		Submission of Question Papers /scheme for Series I Academic Council Meeting	37
Thu	7		Department Staff Meeting Program by Womens Cell	38
Fri	8	Shivarathri		
Sat	9			
Sun	10			
Mon	11	Exam Registration (B. Tech S2/S4/S6/S8)- College Level Submission and for M.Tech S2/S4 (College level submission)	Program by MSME	39
Tue	12		Internal Examination Committee Meeting	40
Wed	13		Series Test 1	41

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			HODs Meeting	
Thu	14		Series Test 1	**42**
Fri	15		Series Test 1	**43**
			Publishing of attendance	
			Staff Meeting	
Sat	16	First Series test to be completed for B. Tech S2/S4/S6/S8	Program by Nature Club	**44**
Sun	17			
Mon	**18**			**45**
Tue	**19**	KTU Mid Term Survey- Syllabus Coverage	Program by Mechanical Department	**46**
Wed	20		Result Publication of Series Test1	**47**
			Academic Council Meeting	
Thu	21		Peer Evaluation	**48**
Fri	22		Module 3 completion	**49**
			Department Staff Meeting	
Sat	23		PTA Meeting of S8/S6/S4/S2	**50**
Sun	24			
Mon	25		Review of Results of First Series/ Department Action Plan	**51**
			Remedial Classes	
			PAC Meeting	
Tue	**26**		Second Advisory Meeting/ CC Meeting for S8/S6/S4/S2 and Second DLAC Meeting to be completed	**52**
Wed	27	Last date for Second Advisory Meeting and for Second DLAC Meeting	Program by Drug Abuse Prevention Cell	**53**

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Thu	28	Maundy Thursday.		
Fri	29	Good Friday		
Sat	30			**54**
Sun	31	Easter		

APRIL 2024

Days	Date	AcademicActivities		Class
Mon	1	Last date for the completion of First Internal Audit by College level IQAC	Publishing of attendance	**55**
			First Internal Audit to be completed	
Tue	2			**56**
Wed	3		Submission of Notes for Module 4&5 to HOD	**57**
			Academic Council Meeting	
Thu	4			**58**
Fri	**5**		Second Mentorship Report	**59**
			Module 4 completion	
			Department Staff Meeting	
Sat	6	Regular Class for S2/S4/S6	Program by Sports Club	**60**
		M.Tech S4 Interim project evaluation (CIA) to be completed.		
Sun	7			
Mon	8		Program by R&D Cell	**61**

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Tue	9		Program by Civil Department	**62**
Wed	10	Eid UlFitr		
Thu	**11**		HODs Meeting	**63**
Fri	**12**		Submission of Question Papers /scheme for Series II	**64**
			Staff Meeting	
Sat	13			
Sun	14	Vishu , Ambedkar's Birthday		
Mon	15		Publishing of attendance	**65**
Tue	16		Internal Examination Committee Meeting	**66**
Wed	17		Series Test II	**67**
			Academic Council Meeting	
Thu	18		Series Test II	**68**
Fri	**19**		Series Test II	**69**
			Department Staff Meeting	
Sat	20	Second Series test to be completed for B. Tech S2/S4/S6/S8	Program by Music Club	**70**
		Test paper to be completed for M.Tech S2		
Sun	21			
Mon	22	KTU Survey(2)- Syllabus Coverage	Program by SIC CSE Department	**71**
Tue	23		Internal Workshop/Lab Exams for S2/S4 and S6	**72**
			Project Phase II Internal Presentation	
Wed	24			**73**
Thu	25		Result Publication of Series Test II	**74**

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Fri	**26**		Review of Results of Second Series/ Department Action Plan	**75**
			PAC Meeting	
Sat	27	Last date for Third DLAC Meeting.	Staff Welfare Committee Meeting	**76**
Sun	28			
Mon	29	End Semester Students Feedback(Mandatory)	Remedial Classes	**77**
			Retest for S8/S6/S4/S2	
Tue	30	Class Ends. Publish Attendance and IA Marks for B. Tech S2/S4/S6/S8 and for M. Tech S2	Retest for S8/S6/S4/S2	**78**
			Module 5 completion	
			Third CC Meeting for S8/S6/S4 to be completed	

Est. 2003

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Managed by Sree Bhakthi Samvardhini Yogam, Talap, Kannur.

MAY 2024

Days	Date	AcademicActivities		
Wed	1	May Day, Commencement of Summer Vacation		
Thu	**2**	Commencement of S8 Comprehensive Course Viva and Project Phase II Final Evaluation	.	**79**
			Retest for S8/S6/S4/S2	
			Third Mentorship Report	
Fri	3	Last date for Entering Attendance and IA Marks (M.Tech. S2) on KTU Portal.	Commencement of Study camp	**80**
Sat	4		Program by Staff Club	**81**
Sun	5			

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Mon	**6**	Last date for Entering Attendance and IA Marks(S2/S4/S6) on KTU Portal (Regular/Honours/Minor		**82**
Tue	**7**	Last Date for Attendance and Internal Mark Corrections without Fine (M.Tech S2)		**83**
Wed	**8**	Last Date for Attendance and Internal Mark Corrections (S2/S4/S6) without Fine	Academic Council Meeting	**84**
Thu	**9**		External Examination Committee Meeting	**85**
Fri	10	Last date for Entering Attendance and IA Marks(S8) on KTU Portal (Regular/Honours/Minor)	Department Staff Meeting	**86**
Sat	11	Commencement of Lab Examinations for S5		
Sun	12			
Mon	13	Last Date for Attendance and Internal Mark Corrections (S8) without Fine Commencement of M.Tech S2 Examination		**87**
Tue	**14**			**88**
Wed	**15**		HODs Meeting	**89**
Thu	**16**			**90**
Fri	17	Last date for the completion of Second Internal Audit by College level IQAC	Staff Meeting	**91**
Sat	18		Program by SNAAP	**92**
Sun	19			
Mon	20	Commencement of S8/S2 Examination		**93**

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Tue	**21**	Commencement of S6 Examination		**94**
Wed	22	Commencement of S4 Examination. Final Internal Project evaluation (CIA) of S4 to be completed	Academic Council Meeting	**95**
Thu	**23**			**96**
Fri	24		Department Staff Meeting	**97**
Sat	25			**98**
Sun	26			
Mon	27	Class ends. Publish Attendance and IA Marks for MTech S4		**99**
Tue	28			**100**
Wed	29	Last date for Entering Attendance and IA Marks(M.Tech. S4) on		**101**
Thu	**30**			**102**
Fri	**31**	Last date for Attendance and IA Marks corrections (M.Tech. S4) on KTU Portal without fine.		**103**

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JUNE 2024

Days	Date	Academic Activities		
Sat	1	Internship for S3 MTech begins		
Sun	2			
Mon	3	M.Tech S4 end semester project evaluation (ESE) begins	IQAC Meeting	
Tue	4			
Wed	5		Academic Council Meeting Program by Nature Club	
Thu	6			
Fri	7		Department Staff Meeting	
Sat	8			
Sun	9			
Mon	10	Commencement of University Valuation Camp-1		
Tue	11			
Wed	12		HODs Meeting	
Thu	13			
Fri	14		Staff Meeting	
Sat	15			
Sun	16			
	17	Bakrid		

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	18		
	19	Academic Council Meeting	
	20		
	21	Department Staff Meeting	
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		

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JULY 2024

Days	Date	AcademicActivities		
Mon	**1**	Commencement of University Valuation Camp-2		
Tue	**2**			

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Wed	3		Academic Council Meeting	
Thu	4			
Fri	5	Last Date for the completion of External Audit	Department Staff Meeting	
Sat	6			
Sun	**7**			
Mon	8	Commencement of Lab Examinations for S6		
Tue	9			
Wed	10		HODs Meeting	
Thu	11	Commencement of Lab Examinations for S4		
Fri	12		Staff Meeting	
Sat	**13**			
Sun	**14**			
Mon	15			
Tue	16	Muharam		
Wed	17	Commencement of S3/S7 Classes	Academic Council Meeting	
Thu	18			
Fri	19		Department Staff Meeting	
Sat	20			
Sun	**21**			
Mon	22	Commencement of S5 Classes		

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Tue	23			
Wed	24			
Thu	25			
Fri	26			
Sat	27			
Sun	**28**			
Mon	29			
Tue	30			
Wed	31	Internship of S3 Mtech ends		

Dr. LEENA A V
PRINCIPAL
SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY
PAYYANUR, KANNUR

TRANSPORATION FACILITY

The Sree Narayana Guru College of Engineering &Technology provides bus facilities to students and staff. Our robust transportation facilities are designed to provide a seamless and convenient journey, ensuring that everyone can focus on what matters most – their education.

Our dedicated fleet of buses operates on well-planned routes, covering key residential areas and connecting them directly to the campus. With timely schedules and reliable services. College has buses. Plying in Kannur, Thaliparamba, Pazhayangadi, Kanhangad, Payyanurroutes.

There is a bus committee constituted by the principal to decide the matters related to the timings. The Principal formed a bus committee to take decisions regarding times, route, fees, and so on. The bus incharge handles day-to-day administrative issues related to the bus.

COLLEGE BUS TIMING

KANNUR

KANNUR TALUK OFFICE – 7.20 AM

THALIPARAMBA- 7.50 AM

PAZHAYANGADI -7.50 AM

PERUMBA -8.15 AM

KOTHAYIMUKK – 8.20 AM

KANHANGAD

KANHANGAD – 7.40 AM

NILESHWARAM – 7.55 AM

CHERUVATHUR – 8.10 AM

KALIKKADAVU-8.15 AM

NADAKKAVU-8.17 AM

THANKAYAM MUKKU- 8.20 AM

BKM –PAYYANUR -8.30 AM

All College Buses leave the campus at 4.10 P M

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AMENITIES:

Meeting hall and seminar halls:

Our institution's SreeBodhanandha Hall and Mahakavi KumaranesanHall are meticulously designed for academics, professional and innovation needs. The halls have a flexible layout and furniture arrangements to suit for diverse meeting formats, facilitating brainstorming sessions, board meetings and collaborative discussions, equipped with essential presentation tools, internet connectivity offers a professional yet comfortable ambiance conducive to productive discussions. The state-of-the-art college MahakaviKumaranesan Hallis a hub for academic, cultural, and professional discourse, which is centrally located within our institution, providing ease of access for both internal and external attendees, with configurable seating arrangements to accommodate varying audience sizes, providing flexibility for academics, professional and cultural events, equipped with audio-visual systems, high quality sound equipment's and large projection In addition, the individual departments have their own dedicated seminar halls, tailored to suit the requirements of each department equipped with necessary technological and subject-specific resources enabling focused and enriching academic discussions and interactive learning experiences. These halls are conducive to departmental seminars, projects, workshops and focused academic gatherings.

HOSTEL:

The college offers separate hostel facilities for both male and female students, ensuring a safe and conducive living environment.The ladies hostel is named as Jhansi Rani block and gents hostel as Swami Vivekananda Block respectively. These hostels are equipped with modern amenities, spacious rooms, and communal areas for study and recreation. The segregation of hostels is in line with the college's commitment to providing a comfortable and secure living space that respects the privacy and well-being of all students. This arrangement also contributes to fostering a positive and focused academic atmosphere within the campus.

ARTSFEST:

The college day (SATVI), arts fest and other cultural activities are organised in the college campus from time to time as per academic schedule. Various On-stage and Off-stage competitions are conducted in different categories in connection with these events yearly. Students compete in these competitions and the winners are awarded with certificates in various categories of the competition on the last day of these events. Apart from the competitions the students also display their talent through performing arts, visual arts and fine arts.

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SPORTS:

In the four-year bachelor degree program, students learn how important it is to live a healthy lifestyle. Learn the newest skills that will help you succeed in the fast-paced world of sports along with opening a broad career opportunities. We have a sports complex with several indoor activities such as Badminton, Chess, Carrom, Table Tennis, space for practicing Yoga and an outdoor multipurpose playground with 200m athletes track, facilities for playing and practicing Football, Cricket, Volley Ball, Kabaddi, Handball, Kho-Kho,etc.

NATIONAL SERVICE SCHEME

The National Service Scheme (NSS) is a Central Sector Scheme of Government of India, Ministry of Youth Affairs & Sports. The primary objective of developing the personality and character of the student youth through voluntary community service. 'Education through Service' is the purpose of the NSS. The motto of National Service Scheme is **NOT ME BUT YOU.** It is a noble experiment in academic extension. It inculcates the spirit of voluntary work among students and teachers through sustained community interaction. It brings our academic institutions closer to the society. It is a link between the campus and community, the college and village, knowledge and action. The overall aim of NSS is the Personality Development of students through community service. It gives an extension dimension to Higher Education system and orients the student youth to community service.National service scheme started its SNGCET unit (Unit No.610) from 2017 onwards under APJ KTU NSS CELL. NSS unit of SNGCEThad conducted several community reach programs like blood donation camps, Kanayikanam Cleaning etc. The volunteers of the unit also have completed several voluntary Blood Donations as per the emergency requirement. NSS unit conducted 7 days residential camp to serve the localities of Thalavil in 2023. The NSS SNGCETis motivated to continue its service to society.

HOBBY CLUB

In recognition to the importance of hobby activities and its role in the bringing out the talents hidden in students, the college Students' Hobby Club has been formed with a view to promote the cultural, sporting, social and scientific activities of the college. The Students' Hobby Club in the College collaborates through various committees and Faculties in supervising the extra- curricular hobby activities.

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