



FIRST YEAR ENGINEERING

Department of CSE/IT/MECH

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T101- Mathematics - I) [Total no. of. Students: 148] [I/ODD Semester, Group 1]

Course Prerequisite: Knowledge of basic differentiation and integration

Course Objective:

1. To introduce the idea of applying calculus concepts to problems in Engineering.
2. To familiarize the student with functions of several variables.
3. To acquaint the student with mathematical tools needed in evaluating multiple integrals
4. To introduce effective mathematical tools for the solutions of differential equations that model physical processes

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Learn how to use beta and gamma functions to evaluate certain proper and improper integrals by being familiar with special functions.	L2
CO2	capable of resolving differentiation problems involving two variables and knowledgeable about maximizing and minimizing functions involving many variables.	L2
CO3	Learn how to calculate the area and volume using double and triple integration.	L3
CO4	Students are taught about order differential equations, including strategies for solving them and their transformations.	L3
CO5	Students are proficient in solving a variety of differential equations.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Recognize the ideas and applications of mathematics
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage		
PO6	Engineer and Society	PSO2	Manage the sophisticated mathematical approaches.
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work	PSO3	Utilize the principles of practical applications.
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	2	-	-	-	-	-	-	-	-	2	1	2
CO2	3	3	-	2	-	-	-	-	-	-	-	-	2	2	2
CO3	3	3	-	3	-	-	-	-	-	-	-	-	3	2	2
CO4	3	2	-	2	-	-	-	-	-	-	-	-	2	2	2
CO5	3	3	2	2	-	-	-	-	-	-	-	-	2	3	3
AVG	3	2.8	2	2.2	-	-	-	-	-	-	-	-	2.2	2	2.2


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FIRST YEAR ENGINEERING

Department of CSE / IT / MECH

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T102- Physics for Engineers) [Total no. of. Students: 148] [I / ODD Semester, Group 1]

Course Prerequisite: Knowledge of Basic Science

Course Objective:

- 1.To understand the concepts of physics and its significant contributions in the advancement of technology and invention of new products that dramatically transformed modern-day society.
- 2.To understand the concepts and applications of Ultrasonics, optics and some optical devices, Lasers and Fiber optics, nuclear energy sources and wave mechanics

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Explain the production of Ultrasonics and Analyze engineering applications of ultrasonics and Summarize the Acoustic and Doppler effect phenomenon.	L1&L3
CO2	To interpret the intensity variation of light due to Polarization, interference and diffraction	L3
CO3	To analyze working principle of lasers and to summarize its applications. study various types of lasers and to have basic idea of fiber optics communication.	L3&L4
CO4	Apply the knowledge of basic quantum mechanics, to set up one dimensional Schrodinger's wave equation and its application to matter wave system.	L1 & L3
CO5	Acquire basic knowledge about nuclear and particle physics for Developing future nuclear fission and fusion reactions for power production	L1&L3

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of basic science
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Foundation of mathematical concept
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Foundation of Software and Business technology
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3
CO2	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3
CO3	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3
CO4	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3
CO5	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3
AVG	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3

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ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T103- Chemistry) [Total no. of. Students: 148] [I / ODD Semester, Group 1]

Course Prerequisite: Knowledge of Basic Mathematics and General Science

Course Objective:

1. To Know the importance of Chemistry in Engineering Domain
2. To understand the chemistry background of industrial processes
3. To apply knowledge for engineering disciplines

COS	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Get an understanding of various theoretical principles for treatment of hard water	L2
CO2	Acquire Knowledge of the types and applications of plastics in day today life	L2
CO3	Get an understanding of the types and reactions of various batteries	L2
CO4	Gain Knowledge and understanding of various types of corrosion and its mechanisms and applying the same in various corrosion control techniques	L3
CO5	Can able to define the concepts of phase rule for one and two component alloy systems	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of maths and basic science concepts
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage	PSO2	Foundation of Electrochemistry and Corrosion
PO6	Engineer and Society		
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work	PSO3	Foundation of Water treatment and plastics
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	3	3	-	2	3	-	-	-	-	3	3	3	3
CO2	3	3	3	2	-	2	3	-	-	-	-	3	3	3	3
CO3	3	3	3	3	-	2	3	-	-	-	-	3	3	3	3
CO4	3	3	2	2	-	2	3	-	-	-	-	3	1	1	3
CO5	3	2	2	2	-	2	3	-	-	-	-	3	3	3	3
AVG	3	2.8	2.6	2.4	0	2	3	0	0	0	0	3	2.6	2.6	3


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ACADEMIC YEAR 2021-2022

COURSE OBJECTIVES

(T104 - Basic Electrical and Electronics Engineering) [Total no. of. Students: 148 [I/ODD Semester, Group 1]

Course Prerequisite: The necessary foundational knowledge to understand and engage with the concepts and principles taught in a basic electrical course

Course Objective:

1. To understand and gain basic knowledge about Magnetic and electrical circuits.
2. To learn the concept of single phase and three phase circuit with power measurement.
3. To study the operating principles of Static machines.
4. To understand the basic operation, function and application of PN junction diode, logic gates and flipflops.
5. To gain knowledge on various communication system and network models and the use of ISDN.

COS	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Understand and gain basic knowledge about Magnetic and electrical circuits.	L2
CO2	Understand the concept of single phase and three phase circuit with power measurement.	L2
CO3	Understand the operating principles of Static machines	L2
CO4	Understand the basic operation, function and application of PN junction diode, logic gates and flipflops.	L6
CO5	To gain knowledge on various communication system and network models and the use of ISDN.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Understanding of Basic Concepts, Circuit Analysis Skills, Practical Skills.
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Problem-Solving Abilities, Knowledge of Semiconductors, Digital Electronics.
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Communication Skills, Ethical and Professional Responsibility
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	-	3	-	2	3	1	2	1	-	1	3	3	2	-
CO2	3	2	3	-	-	3	1	2	1	-	-	3	2	3	1
CO3	3	2	3	-	-	3	1	2	1	-	1	3	3	-	1
CO4	3	3	3	-	2	3	1	3	1	2	3	3	3	-	2
CO5	3	3	3	-	-	3	1	3	1	2	2	3	-	2	1
AVG	3	2.5	3	0	2	3	1	2.4	1	0.4	0.6	3	2.75	2.3	1.25


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ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T105 - Engineering Thermodynamics.) [Total no. of. Students: 148] [1/ODD Semester, Group 1]

Course Prerequisite: Knowledge of basic matrix and vector concepts

Course Objective:

1. To understand the basic concepts and laws of thermodynamics.
2. To analyze energy conversion processes.
3. To apply thermodynamic principles to real-world engineering problems.
4. To performance of the thermodynamics cycle.
5. To develop skills in using thermodynamic tables and software tools.

COS	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Understand and explain the fundamental concepts and principles of thermodynamics.	L2
CO2	Apply the first law of thermodynamics to analyze energy conversion processes in closed and open systems.	L2
CO3	Apply the second law of thermodynamics to analyze energy and exergy of engineering systems and processes.	L3
CO4	Performance the thermodynamic cycles, including Otto, Diesel, Dual, and Brayton cycle to evaluate their performance and efficiency.	L2
CO5	Recognize how the air conditioning and refrigeration systems work.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	An ability to design develop, supervise and implement solutions in the areas related to construction industry
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	An ability to apply standard practices and strategies in identifying of quality output
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Apply the knowledge of mathematics, science and engineering fundamentals to the solution of complex mechanical engineering.
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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DEPARTMENT OF FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
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CO2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	-	-	3	3	-	-	-	-	-	-	-	-	-	-
CO4	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	2	-	1	3	-	-	-	-	-	-	-	-	-	-
AVG	3	2.7 5	3	2	3	-	-	-	-	-	-	-	-	-	-

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ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T106 Computer Programming) [Total no. of. Students: 148] [I / ODD Semester, Group 1]

Course Prerequisite: Knowledge of Basic C-Programming, Writing of C-Programming.

Course Objective:

1. To introduce the basics of computers and information technology.
2. To educate problem solving techniques.
3. To impart programming skills in C language.
4. To practice structured programming to solve real life problems.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Understand basics of computers and information technology, concepts of C-Program as sequences and basics of computers.	L2
CO2	Understand different ways of program development cycle and I/O functions.	L2
CO3	Understand the basics of branching and looping and functions	L2
CO4	Understand arrays, structures and basics of Pointers.	L6
CO5	Understand the basic file operations and pre-processor.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of mathematical concept
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Foundation of computer system
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Foundation of software development
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	-	-	-	-	-	-	-	-	2	3	1	-
CO2	3	2	3	-	1	-	-	-	-	-	-	2	2	1	-
CO3	2	3	-	-	1	-	-	-	-	-	-	2	3	1	-
CO4	3	3	2	-	1	-	-	-	-	-	-	2	2	1	-
CO5	-	3	-	-	1	-	-	-	-	-	-	1	3	1	-
AVG	2.2	2.8	1	0	0.8	0	0	0	0	0	0	1.8	2.6	1	0

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ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(P101 Computer Programming Lab) [Total no. of. Students: 148] [I / ODD Semester, Group 1]

Course Prerequisite: Knowledge of Basic C-Programming, Writing of C-Programming.

Course Objective:

1. To introduce the basics of computers and information technology.
2. To educate problem solving techniques.
3. To impart programming skills in C language.
4. To practice structured programming to solve real life problems.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Understand basics of computers and information technology, concepts of C-Program as sequences and basics of computers.	L2
CO2	Understand different ways of program development cycle and I/O functions.	L2
CO3	Understand the basics of branching and looping and functions	L2
CO4	Understand arrays, structures and basics of Pointers.	L6
CO5	Understand the basic file operations and pre-processor.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of mathematical concept
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage		
PO6	Engineer and Society	PSO2	Foundation of computer system
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work	PSO3	Foundation of software development
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	-	-	-	-	-	-	-	-	2	3	1	-
CO2	3	2	3	-	1	-	-	-	-	-	-	2	2	1	-
CO3	2	3	-	-	1	-	-	-	-	-	-	2	3	1	-
CO4	3	3	2	-	1	-	-	-	-	-	-	2	2	1	-
CO5	-	3	-	-	1	-	-	-	-	-	-	1	3	1	-
AVG	2.2	2.8	1	0	0.8	0	0	0	0	0	0	1.8	2.6	1	0

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COURSE OBJECTIVES

(P-102 – Engineering Graphics.) [Total no.of.Students: 148] [1/ODD Semester, Group 1]

Course Prerequisite: Zeal to learn the subject

Course Objective:

1. To understand the fundamental concepts and importance of engineering graphics in the design process.
2. To develop skills in technical drawing, including geometric constructions, orthographic projections, and isometric views.
3. To become proficient in using CAD software for creating, modifying, and analyzing engineering drawings.
4. To apply engineering graphics principles to solve real-world design problems.
5. To understand Application of Engineering Graphics Principles.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Application of Engineering Graphics Principles.	L2
CO2	Create and interpret technical drawings, including geometric constructions, orthographic projections, isometric and oblique views, and sectional views.	L2
CO3	Implement standards and conventions for dimensioning and tolerance in engineering drawings.	L3
CO4	Utilize CAD software proficiently for creating, modifying, and analyzing 2D and 3D engineering drawings.	L2
CO5	Apply engineering graphics principles to develop comprehensive engineering drawing projects and solve real-world design problems.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Ability to create accurate technical drawings using standard drawing conventions, symbols, and notations.
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Competence in performing geometric constructions and generating views (orthographic, isometric, sectional) of engineering components.
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Ability to visualize and interpret complex 3D objects from 2D drawings and vice versa, ensuring accurate representation and communication of engineering designs.
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	2	3	2	-	3	-	-	-	-	-	-	-	-	-	-
CO5	3	3	3	-	3	2	-	-	3	2	3	3	3	-	-
AVG	3	2.7	2.6		3	2	-	-	3	2	3	3	3	-	-

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COURSE OBJECTIVES

(P103- Basic electrical and electronics Engineering Lab) [Total no. of. Students: 148] [I / ODD Semester, Group 1]

Course Prerequisite: Knowledge of Basic electrical and electronics Engineering

Course Objective:

- 1.To understanding and hands-on experience with fundamental concepts and techniques.
- 2.To Provide a solid foundation in the behavior and characteristics of electrical and electronic components.
3. To Enable students to build, test, and troubleshoot basic electrical and electronic circuits.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Gain a fundamental understanding of electrical and electronic components, circuits, and systems. Understand the principles of Ohm's Law, Kirchhoff's Laws, and basic network theorems.	L1&L3
CO2	Ability to analyze and construct basic electrical circuits. Develop skills to design simple electronic circuits using components like resistors, capacitors, inductors, diodes, and transistors.	L3
CO3	Proficiency in using electrical and electronic measuring instruments such as multimeters, oscilloscopes, function generators, and power supplies.	L3&L4
CO4	Develop hands-on skills in soldering, breadboarding, and creating circuit layouts. Conduct experiments to verify theoretical concepts learned in lectures	L1 & L3
CO5	Improve teamwork skills through collaborative lab work.	L1&L3

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Develop the ability to understand and apply fundamental principles of electrical and electronics engineering in practical scenarios
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Foundation of Accurately measure and interpret electrical quantities like voltage, current, resistance, and frequency
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Equip students with the necessary skills and knowledge to excel in industry or higher education programs
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of electrical and electronics engineering	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3
CO2	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3
CO3	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3
CO4	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3
CO5	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3
AVG	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3


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FIRST YEAR ENGINEERING

Department of ECE/BME/EEE

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T101- Mathematics - I) [Total no. of. Students: 64] [I/ODD Semester, Group 2]

Course Prerequisite: Knowledge of basic differentiation and integration

Course Objective:

1. To introduce the idea of applying calculus concepts to problems in Engineering.
2. To familiarize the student with functions of several variables.
3. To acquaint the student with mathematical tools needed in evaluating multiple integrals
4. To introduce effective mathematical tools for the solutions of differential equations that model physical processes

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Learn how to use beta and gamma functions to evaluate certain proper and improper integrals by being familiar with special functions.	L2
CO2	capable of resolving differentiation problems involving two variables and knowledgeable about maximizing and minimizing functions involving many variables.	L2
CO3	Learn how to calculate the area and volume using double and triple integration.	L3
CO4	Students are taught about order differential equations, including strategies for solving them and their transformations.	L3
CO5	Students are proficient in solving a variety of differential equations.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Recognize the ideas and applications of mathematics
PO2	Problem analysis		
PO3	Design / development of solutions	PSO2	Manage the sophisticated mathematical approaches.
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage		
PO6	Engineer and Society	PSO3	Utilize the principles of practical applications.
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	2	-	-	-	-	-	-	-	-	2	1	2
CO2	3	3	-	2	-	-	-	-	-	-	-	-	2	2	2
CO3	3	3	-	3	-	-	-	-	-	-	-	-	3	2	2
CO4	3	2	-	2	-	-	-	-	-	-	-	-	2	2	2
CO5	3	3	2	2	-	-	-	-	-	-	-	-	2	3	3
AVG	3	2.8	2	2.2	-	-	-	-	-	-	-	-	2.2	2	2.2


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FIRST YEAR ENGINEERING

Department of ECE / EEE / BME

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T102- Physics for Engineers) [Total no. of. Students: 64] [I / ODD Semester, Group 2]

Course Prerequisite: Knowledge of Basic Science

Course Objective:

- 1.To understand the concepts of physics and its significant contributions in the advancement of technology and invention of new products that dramatically transformed modern-day society.
- 2.To understand the concepts and applications of Ultrasonics, optics and some optical devices, Lasers and Fiber optics, nuclear energy sources and wave mechanics

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Explain the production of Ultrasonics and Analyze engineering applications of ultrasonics and Summarize the Acoustic and Doppler effect phenomenon.	L1&L3
CO2	To interpret the intensity variation of light due to Polarization, interference and diffraction	L3
CO3	To analyze working principle of lasers and to summarize its applications. study various types of lasers and to have basic idea of fiber optics communication.	L3&L4
CO4	Apply the knowledge of basic quantum mechanics, to set up one dimensional Schrodinger's wave equation and its application to matter wave system.	L1 & L3
CO5	Acquire basic knowledge about nuclear and particle physics for Developing future nuclear fission and fusion reactions for power production	L1&L3

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of basic science
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage		
PO6	Engineer and Society	PSO2	Foundation of mathematical concept
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work	PSO3	Foundation of Software and Business technology
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3
CO2	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3
CO3	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3
CO4	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3
CO5	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3
AVG	3	3	1	1	-	1	-	-	-	-	-	-	-	-	3


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FIRST YEAR ENGINEERING

Department of ECE/EEE/BME

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T103- Chemistry) [Total no. of. Students: 64] [I / ODD Semester, Group 2]

Course Prerequisite: Knowledge of Basic Mathematics and General Science

Course Objective:

1. To Know the importance of Chemistry in Engineering Domain
2. To understand the chemistry background of industrial processes
3. To apply knowledge for engineering disciplines

COS	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Get an understanding of various theoretical principles for treatment of hard water	L2
CO2	Acquire Knowledge of the types and applications of plastics in day today life	L2
CO3	Get an understanding of the types and reactions of various batteries	L2
CO4	Gain Knowledge and understanding of various types of corrosion and its mechanisms and applying the same in various corrosion control techniques	L3
CO5	Can able to define the concepts of phase rule for one and two component alloy systems	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of maths and basic science concepts
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Foundation of Electrochemistry and Corrosion
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Foundation of Water treatment and plastics
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	3	3	–	2	3	–	–	–	–	3	3	3	3
CO2	3	3	3	2	–	2	3	–	–	–	–	3	3	3	3
CO3	3	3	3	3	–	2	3	–	–	–	–	3	3	3	3
CO4	3	3	2	2	–	2	3	–	–	–	–	3	1	1	3
CO5	3	2	2	2	–	2	3	–	–	–	–	3	3	3	3
AVG	3	2.8	2.6	2.4	0	2	3	0	0	0	0	3	2.6	2.6	3


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DEPARTMENT OF FIRST YEAR ENGINEERING

Department of ECE/EEE/BME

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T110- Basic Civil and Mechanical Engg.) [Total no. of. Students: 64] [1/ODD Semester, Group 2]

Course Prerequisite: Knowledge of basic necessary foundational to understand and succeed in a basic mechanical engineering course.

Course Objective:

1. To be able to differentiate the type of buildings according to national building code.
2. To understand building components and their functions as well as different types of roads, bridges and dams.
3. To explain the concepts of thermal systems used in power plants and narrate the methods of harnessing renewable energies.
4. To explain the role of basic manufacturing processes.
5. To develop an intuitive understanding of underlying working principles of mechanical machines and systems..

COS	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Recognize the energy sources and power plant operating principles, then use this knowledge to diagnose and resolve engineering problems.	L2
CO2	Understand the working principle of IC Engines.	L2
CO3	Recognize how the air conditioning and refrigeration systems work.	L3
CO4	The capacity to recognize, formulate, and resolve engineering issues	L2
CO5	The capacity to comprehend how engineering solutions affect	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Ability to analyze and design various structural elements and systems considering safety, sustainability and compliance with standards.
PO2	Problem analysis		
PO3	Design / development of solutions	PSO2	Ability to understand, analyze, and apply various power generation technologies, including thermal, hydro, nuclear, and renewable energy sources.
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage		
PO6	Engineer and Society	PSO3	
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work		



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PO10	Communication		Understanding and application of various manufacturing processes, including machining, welding, casting, forging, and forming.
PO11	Project management and finance		
PO12	Life-long Learning		

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	2	2	1	2	1	1	2	-	-	-	3	2	2
CO2	3	3	2	2	2	3	2	2	1	-	-	-	3	2	2
CO3	3	3	2	3	2	2	2	1	1	-	-	-	3	2	3
CO4	3	3	2	2	1	2	1	2	2	-	-	-	2	2	2
CO5	3	3	2	2	2	2	1	2	2	-	-	-	2	3	3
AVG	3	3	2	2.2	1.6	2.2	1.4	1.6	1.6	-	-	-	2.8	2.2	2.4


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DEPARTMENT OF FIRST YEAR ENGINEERING

Department of ECE/EEE/BME

ACADEMIC YEAR 2020-21

COURSE OBJECTIVES

(T111 - Engineering Mechanics.) [Total no. of. Students: 64] [1/ODD Semester, Group 2]

Course Prerequisite: Knowledge of basic matrix and vector concepts

Course Objective:

1. To understanding of the basic principles of mechanics, including statics, dynamics, and the behavior of materials under different forces.
2. Apply mathematical and computational techniques to solve problems related to forces, moments, and equilibrium conditions in engineering systems.
3. Develop the ability to analyze and design various types of rigid bodies and structures, including beams, trusses,
4. To learn analyze dynamic systems, including the study of motion, acceleration, and the impact of forces over time on different engineering components and systems.
5. To evaluating different solutions, and applying theoretical concepts to practical scenarios.

COS	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Students will be able to demonstrate a thorough understanding of core concepts in statics, dynamics, and material mechanics.	L2
CO2	Students will apply theoretical principles to solve real-world engineering problems involving forces, moments, and equilibrium conditions.	L2, L1
CO3	Students will develop the skills to perform detailed analysis of engineering systems, including beams, trusses, and dynamic systems.	L3
CO4	Students will effectively use problem-solving strategies to address complex engineering scenarios and derive practical solutions.	L2, L3
CO5	Students will be able to clearly communicate their findings and document their solutions through written reports and oral presentations.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	An ability to design develop, supervise and implement solutions in the areas related to construction industry
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	An ability to apply standard practices and strategies in identifying of quality output
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Apply the knowledge of mathematics, science and engineering fundamentals
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		



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DEPARTMENT OF FIRST YEAR ENGINEERING

PO12	Life-long Learning			to the solution of complex mechanical engineering.
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CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-
CO2	2	3	3	2	2	-	-	-	-	-	-	-	-	-	-
CO3	2	2	3	3	2	-	-	-	-	-	-	-	-	-	-
CO4	2	3	2	3	2	-	-	-	-	-	-	-	-	-	-
CO5	1	2	2	2	3	-	-	-	-	-	-	-	-	-	-
AVG	2	2.6	2.6	2.4	2.2	-	-	-	-	-	-	-	-	-	-


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FIRST YEAR ENGINEERING

Department of BME / ECE / EEE
ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T112 – COMMUNICATIVE ENGLISH) [Total no. of. Students: 64] [I Year, ODD Semester] Group II

Course Prerequisite: To provide learning environment to practice listening, speaking, reading and writing skills and assist the students to carry on the tasks and activities through guided instructions and materials.

Course Objective:

1. To improve the LSRW skill of B.Tech. students.
2. To instill confidence and enable the students to communicate with ease.
3. To equip the students with the necessary skills and develop their language prowess
4. Speaking ability in English both in terms of fluency and comprehensibility.
5. Oral presentations and receive feedback on their performance.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Students can understand the process of communication and the stages of communication. (UNDERSTAND)	L5
CO2	Students will be learning the techniques of reading and methods of comprehension analysis. (UNDERSTAND)	L5
CO3	Students will practically learn the writing methodologies and they can apply it in their own writing processes. (CREATE)	L1
CO4	Students will start writing their own style of creative writing. (APPLY)	L4
CO5	Students will gain confidence and competence in delivering speeches and presentations to an audience. (REMEMBER)	L6

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Learning of Basic Communication Theory
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	LSRW skills
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability		
PO8	Ethics	PSO3	Speaking Practices and Presentation skills
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
CO3	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
CO4	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
CO5	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-
AVG	-	-	-	-	-	-	-	-	3	3	-	-	-	-	-


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FIRST YEAR ENGINEERING

Department of ECE / BME
ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T104-Physics Lab for Engineers) [Total no. of. Students: 64] [I / ODD Semester, Group 2]

Course Prerequisite: Proficiency in basic laboratory skills and techniques is often required.

Course Objective:

- 1.To observe and study the diffraction pattern produced by a single slit.
- 2.To observe and study the interference pattern produced by double slits.
- 3.To verify the wave nature of light and measure the wavelength of light.
- 4.To measure the speed of light using a Michelson interferometer setup.
- 5.To measure the speed of light on a tabletop using the modulation technique

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	To understand the principles, concepts and comparison of results with theoretical calculations.	L4
CO2	To understand measurement technology, usage of new instruments and real time applications in engineering studies.	L2&L5
CO3	To state various laws which they have studied through experiments.	L2&L5
CO4	To describe principles of optical fibre communication.	L6&L4
CO5	To observe and study the diffraction pattern interference pattern & produced by a Newson's ring Air wedge & by using gratting	L6&L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of Optical concept
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage		
PO6	Engineer and Society	PSO2	Foundation of Experimental Skills
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work	PSO3	Foundation of Data Analysis
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
CO4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	-	-	-	-	3	-	-	-	-	-	-	-	-	-
AVG	2.2	0.2	-	-	-	1	-	-	-	-	-	-	-	-	-

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FIRST YEAR ENGINEERING

Department of ECE / BME / EEE

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(P 105 – Chemistry Laboratory) [Total no. of. Students: 64] [I / ODD Semester, Group 2]

Course Prerequisite: Knowledge of Basic Mathematics and General Science

Course Objective:

1. To Gain practical knowledge of Engineering chemistry in relevance to industrial applications.
2. To experiment various methods of volumetric analysis - Redox, Iodometric, Complexometric, Neutralization etc.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	To illustrate the principles of chemistry relevant to the study of water hardness and treatment	L3
CO2	To analyse the various types of reactions as a function of concentration	L3
CO3	To measure molecular/system properties such as viscosity, conductance of solutions, redox potentials, chloride content of water, etc.	L3
CO4	To understand the changes in matter and acquire scientific skills in the laboratory	L3
CO5	To calculate the DO, BOD, COD for waste water sample	L3

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of maths and basic science concepts
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Foundation of chemical principles in handling instruments/techniques
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Foundation of Water treatment basics
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	3	3	2	2	2	2	3	3	–	3	3	3	3
CO2	3	3	3	3	2	2	2	–	3	3	–	3	3	3	3
CO3	3	3	3	3	2	2	3	–	3	3	–	3	3	3	3
CO4	3	3	3	3	1	2	3	2	3	3	–	3	3	2	3
CO5	3	2	2	3	1	2	3	2	3	3	–	3	3	2	3
AVG	3	2.8	2.8	3	1.6	2	2.6	1.2	3	3	0	3	3	2.6	3

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COURSE OBJECTIVES

(P-106 – Workshop Practice. [Total no.of. Students: 64] [1/ODD Semester, Group 2])

Course Prerequisite: To effectively engage in hands-on activities and understand the principles behind various manufacturing processes

Course Objective:

1. Learn and adhere to safety protocols and procedures within a workshop setting.
2. Gain hands-on experience with a variety of hand tools, power tools, and machine tools.
3. Master fundamental manufacturing processes such as welding, casting, machining, and forming.
4. Master essential carpentry techniques such as cutting, shaping, joining, and finishing wood.
5. Acquire basic skills in the use of fitting tools and equipment, including files, hacksaws, chisels, and vices

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Develop fundamental skills in the use of various hand tools, power tools, and machine tools.	L2,L3
CO2	Understand the properties and appropriate applications of different engineering materials.	L2,L1
CO3	Implement safety standards and procedures in a workshop setting.	L3
CO4	Accurately interpret technical drawings and use precise measurement techniques.	L2,L1
CO5	Apply practical skills and theoretical knowledge to complete hands-on projects in fitting, carpentry, welding, and machining.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Ability to understand and perform fundamental manufacturing processes such as machining, welding, casting, forging, and forming
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Competence in operating, maintaining, and troubleshooting common workshop tools
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Knowledge of various materials used in manufacturing
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		

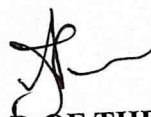


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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	-	-	-	3	-	-	-	-	-	-	-	-	-	-
CO2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	2	-	-	-	-	3	-	3	-	-	-	-	-	-	-
CO4	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	3	2	-	2	-	3	-	3	2	3	3	-	-	-
AVG	2.6	3	2	-	2.5	3	3	3	3	2	3	3	-	-	-


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FIRST YEAR ENGINEERING

Department of CSE/IT/MECH

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T107- Mathematics - II) [Total no. of. Students: 148] [I/EVEN Semester, Group 1]

Course Prerequisite: Knowledge of basic matrix and vector concepts

Course Objective:

1. To develop the use of matrix algebra techniques for practical applications.
2. To introduce the concepts of Curl, Divergence and integration of vectors in vector calculus which is needed for many application problems.
3. To introduce Laplace transform which is a useful technique in solving many application problems
4. To acquaint the students with Fourier transform techniques used in wide variety of situations in which the functions used are not periodic.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Determine a matrix's unique characteristics, such as its eigenvalue and eigenvector, then use orthogonal transformations to express it in diagonal, quadratic, and canonical forms.	L2
CO2	Learn about the qualitative uses of the Stoke, and Gauss theorems.	L3
CO3	Students gain knowledge of the Laplace Transform. Applications in mathematical model solving.	L3
CO4	Applications of Laplace Transform in mathematical model solving.	L3
CO5	Learn about the applications of the Fourier transforms.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Recognize the ideas and applications of mathematics
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Manage the sophisticated mathematical approaches.
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Utilize the principles of practical applications.
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	2	-	-	-	-	-	-	-	-	3	2	2
CO2	3	3	-	2	-	-	-	-	-	-	-	-	3	2	2
CO3	3	3	-	2	-	-	-	-	-	-	-	-	3	2	2
CO4	3	2	-	2	-	-	-	-	-	-	-	-	2	2	2
CO5	3	3	-	3	-	-	-	-	-	-	-	-	3	2	3
AVG	3	2	-	2	-	-	-	-	-	-	-	-	2	2	2


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FIRST YEAR ENGINEERING

Department of CSE / IT / MECH

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T108- Material science for Engineers) [Total no. of. Students: 148] [I / EVEN Semester, Group 1]

Course Prerequisite: Knowledge in Physics chemistry and mathematics, as well as introductory courses in material science and engineering.

Course Objective:

1. To understand the importance of Material Science as a subject that revolutionized modern day technologies
2. To understand the significance of material science in the development of new materials and devices for all branches of Engineering
3. To impart knowledge to the Engineering students about some of the important areas of Materials Science so as to enable them perceive the significant contributions the subject in Engineering and Technology

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Understand and applying the knowledge of x-ray diffraction to analyze defects in the various crystalline solids	L2 L4 & L3
CO2	To learn about the effect of polarization in dielectric material and to explain the dielectric material suitable for different application.	L3&L4
CO3	The outcome of third unit makes the student to understand about different magnetic materials.	L1 L3&L4
CO4	Understand some of the basic concepts of semiconductor and to calculate the intrinsic carrier concentration.	L1 & L2
CO5	The knowledge to synthesis and characterize the various nano materials to known for industrial application in the new era of engineering	L1&L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of basic science
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage	PSO2	Foundation of mathematical concept
PO6	Engineer and Society		
PO7	Environment and sustainability		
PO8	Ethics	PSO3	Foundation of Behavior and Business technology
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3
CO2	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3
CO3	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3
CO4	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3
CO5	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3
AVG	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3

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FIRST YEAR ENGINEERING

Department of CSE / IT / MECH

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T109- Environmental Science) [Total no. of. Students: 148] [I / EVEN Semester, Group 1]

Course Prerequisite: Knowledge of Environment and Basic Science

Course Objective:

1. To Know about the environment
2. To understand about the environmental pollution
3. To apply knowledge in understanding various environmental issues and problems

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	To understand various natural resources and their importance	L2
CO2	To know the types of eco system and preserving it	L1 & L3
CO3	To make them understand the types, effects and control measures of air pollution	L2
CO4	To understand water and land pollution and solid waste management	L3
CO5	To define the concepts of pollution monitoring instruments and control techniques	L3

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of Environment
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Foundation of Environmental Pollution
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Foundation of Sustainable Development
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	2	2	2	2	3	3	2	-	-	3	1	-	-
CO2	3	3	2	2	2	2	3	3	2	-	-	3	1	-	-
CO3	3	3	2	3	2	3	3	3	2	-	-	3	3	3	3
CO4	3	3	2	3	2	3	3	3	2	-	-	3	3	3	3
CO5	3	3	2	3	2	3	3	3	2	-	-	3	3	3	3
AVG	3	3	2	2.6	2	2.6	3	3	2	0	0	3	2.2	1.8	1.8

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Department of CSE/IT/MECH

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T110- Basic Civil and Mechanical Engg.) [Total no. of. Students: 148] [1/EVEN Semester, Group 1]

Course Prerequisite: Knowledge of basic necessary foundational to understand and succeed in a basic mechanical engineering course.

Course Objective:

1. To be able to differentiate the type of buildings according to national building code.
2. To understand building components and their functions as well as different types of roads, bridges and dams.
3. To explain the concepts of thermal systems used in power plants and narrate the methods of harnessing renewable energies.
4. To explain the role of basic manufacturing processes.
5. To develop an intuitive understanding of underlying working principles of mechanical machines and systems..

COS	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Recognize the energy sources and power plant operating principles, then use this knowledge to diagnose and resolve engineering problems.	L2
CO2	Understand the working principle of IC Engines.	L2
CO3	Recognize how the air conditioning and refrigeration systems work.	L3
CO4	The capacity to recognize, formulate, and resolve engineering issues	L2
CO5	The capacity to comprehend how engineering solutions affect	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Ability to analyze and design various structural elements and systems considering safety, sustainability and compliance with standards.
PO2	Problem analysis		
PO3	Design / development of solutions	PSO2	Ability to understand, analyze, and apply various power generation technologies, including thermal, hydro, nuclear, and renewable energy sources.
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability		
PO8	Ethics		



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PO9	Individual and team work	PSO3	Understanding and application of various manufacturing processes, including machining, welding, casting, forging, and forming.
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	2	2	1	2	1	1	2	-	-	-	3	2	2
CO2	3	3	2	2	2	3	2	2	1	-	-	-	3	2	2
CO3	3	3	2	3	2	2	2	1	1	-	-	-	3	2	3
CO4	3	3	2	2	1	2	1	2	2	-	-	-	2	2	2
CO5	3	3	2	2	2	2	1	2	2	-	-	-	2	3	3
AVG	3	3	2	2.2	1.6	2.2	1.4	1.6	1.6	-	-	-	2.8	2.2	2.4

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DEPARTMENT OF FIRST YEAR ENGINEERING

Department of CSE/IT/MECH

ACADEMIC YEAR 2020-21

COURSE OBJECTIVES

(T111 - Engineering Mechanics.) [Total no. of. Students: 148] [1/EVEN Semester, Group 1]

Course Prerequisite: Knowledge of basic matrix and vector concepts

Course Objective:

1. To understanding of the basic principles of mechanics, including statics, dynamics, and the behavior of materials under different forces.
2. Apply mathematical and computational techniques to solve problems related to forces, moments, and equilibrium conditions in engineering systems.
3. Develop the ability to analyze and design various types of rigid bodies and structures, including beams, trusses,
4. To learn analyze dynamic systems, including the study of motion, acceleration, and the impact of forces over time on different engineering components and systems.
5. To evaluating different solutions, and applying theoretical concepts to practical scenarios.

COS	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Students will be able to demonstrate a thorough understanding of core concepts in statics, dynamics, and material mechanics.	L2
CO2	Students will apply theoretical principles to solve real-world engineering problems involving forces, moments, and equilibrium conditions.	L2, L1
CO3	Students will develop the skills to perform detailed analysis of engineering systems, including beams, trusses, and dynamic systems.	L3
CO4	Students will effectively use problem-solving strategies to address complex engineering scenarios and derive practical solutions.	L2, L3
CO5	Students will be able to clearly communicate their findings and document their solutions through written reports and oral presentations.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	An ability to design develop, supervise and implement solutions in the areas related to construction industry
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	An ability to apply standard practices and strategies in identifying of quality output
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Apply the knowledge of mathematics, science and engineering fundamentals
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		



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DEPARTMENT OF FIRST YEAR ENGINEERING

PO12	Life-long Learning			to the solution of complex mechanical engineering.
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CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	3	2	2	-	-	-	-	-	-	-	-	-	-
CO2	2	3	3	2	2	-	-	-	-	-	-	-	-	-	-
CO3	2	2	3	3	2	-	-	-	-	-	-	-	-	-	-
CO4	2	3	2	3	2	-	-	-	-	-	-	-	-	-	-
CO5	1	2	2	2	3	-	-	-	-	-	-	-	-	-	-
AVG	2	2.6	2.6	2.4	2.2	-	-	-	-	-	-	-	-	-	-


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FIRST YEAR ENGINEERING

Department of CSE / IT / MECH ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T112 – COMMUNICATIVE ENGLISH) [Total no. of. Students: 148] [I Year, EVEN Semester] Group I

Course Prerequisite: To provide learning environment to practice listening, speaking, reading and writing skills and assist the students to carry on the tasks and activities through guided instructions and materials.

Course Objective:

1. To improve the LSRW skill of B.Tech. students.
2. To instill confidence and enable the students to communicate with ease.
3. To equip the students with the necessary skills and develop their language prowess
4. Speaking ability in English both in terms of fluency and comprehensibility.
5. Oral presentations and receive feedback on their performance.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Students can understand the process of communication and the stages of communication. (UNDERSTAND)	L5
CO2	Students will be learning the techniques of reading and methods of comprehension analysis. (UNDERSTAND)	L5
CO3	Students will practically learn the writing methodologies and they can apply it in their own writing processes. (CREATE)	L1
CO4	Students will start writing their own style of creative writing. (APPLY)	L4
CO5	Students will gain confidence and competence in delivering speeches and presentations to an audience. (REMEMBER)	L6

PO AND PSO OVERVIEW


Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Learning of Basic Communication Theory
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage	PSO2	LSRW skills
PO6	Engineer and Society		
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work	PSO3	Speaking Practices and Presentation skills
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	-	-	-	-	-	-	-	2	-	3	-	-	-	-	-
CO2	-	-	-	-	-	-	-	-	2	3	-	-	-	-	-
CO3	-	-	-	-	-	-	-	2	-	3		-	-	-	-
CO4	-	-	-	-	-	-	-	3	-	3		-	-	-	-
CO5	-	-	-	-	-	-	-	2	2	3		-	-	-	-
AVG	-	-	-	-	-	-	-	2.25	2	3		-	-	-	-


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FIRST YEAR ENGINEERING

Department of CSE / IT / MECH
 ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T104-Physics Lab for Engineers) [Total no. of. Students: 148] [I / EVEN Semester, Group 1]

Course Prerequisite: Proficiency in basic laboratory skills and techniques is often required.

Course Objective:

- 1.To observe and study the diffraction pattern produced by a single slit.
- 2.To observe and study the interference pattern produced by double slits.
- 3.To verify the wave nature of light and measure the wavelength of light.
- 4.To measure the speed of light using a Michelson interferometer setup.
- 5.To measure the speed of light on a tabletop using the modulation technique

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	To understand the principles, concepts and comparison of results with theoretical calculations.	L4
CO2	To understand measurement technology, usage of new instruments and real time applications in engineering studies.	L2&L5
CO3	To state various laws which they have studied through experiments.	L2&L5
CO4	To describe principles of optical fibre communication.	L6&L4
CO5	To observe and study the diffraction pattern interference pattern & produced by a Newson's ring Air wedge & by using grating	L6&L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of Optical concept
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage		
PO6	Engineer and Society	PSO2	Foundation of Experimental Skills
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work	PSO3	Foundation of Data Analysis
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-
CO3	1	-	-	-	-	2	-	-	-	-	-	-	-	-	-
CO4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	-	-	-	-	3	-	-	-	-	-	-	-	-	-
AVG	2.2	0.2	-	-	-	1	-	-	-	-	-	-	-	-	-

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FIRST YEAR ENGINEERING

Department of CSE / IT / MECH

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(P 105- Chemistry Laboratory) [Total no. of. Students: 148] [I / EVEN Semester, Group 1]

Course Prerequisite: Knowledge of Basic Mathematics and General Science

Course Objective:

1. To Gain practical knowledge of Engineering chemistry in relevance to industrial applications
2. To experiment various methods of volumetric analysis - Redox, Iodometric, complexometric, Neutralization etc.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	To illustrate the principles of chemistry relevant to the study of water hardness and treatment	L3
CO2	To analyse the various types of reactions as a function of concentration	L3
CO3	To measure molecular/system properties such as viscosity, conductance of solutions, redox potentials, chloride content of water, etc.	L3
CO4	To understand the changes in matter and acquire scientific skills in the laboratory	L3
CO5	To calculate the DO, BOD, COD for waste water sample	L3

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of maths and basic science concepts
PO2	Problem analysis		
PO3	Design / development of solutions	PSO2	Foundation of chemical principles in handling instruments/techniques
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Foundation of Water treatment basics
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	3	3	2	2	2	2	3	3	–	3	3	3	3
CO2	3	3	3	3	2	2	2	–	3	3	–	3	3	3	3
CO3	3	3	3	3	2	2	3	–	3	3	–	3	3	3	3
CO4	3	3	3	3	1	2	3	2	3	3	–	3	3	2	3
CO5	3	2	2	3	1	2	3	2	3	3	–	3	3	2	3
AVG	3	2.8	2.8	3	1.6	2	2.6	1.2	3	3	0	3	3	2.6	3

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FIRST YEAR ENGINEERING

Department of CSE/ IT/MECH
ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(P-106 –Workshop Practice. [Total no.of. Students: 148] [1/EVEN Semester, Group 1])

Course Prerequisite: To effectively engage in hands-on activities and understand the principles behind various manufacturing processes

Course Objective:

1. Learn and adhere to safety protocols and procedures within a workshop setting.
2. Gain hands-on experience with a variety of hand tools, power tools, and machine tools.
3. Master fundamental manufacturing processes such as welding, casting, machining, and forming.
4. Master essential carpentry techniques such as cutting, shaping, joining, and finishing wood.
5. Acquire basic skills in the use of fitting tools and equipment, including files, hacksaws, chisels, and vices

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Develop fundamental skills in the use of various handtools, power tools, and machine tools.	L2,L3
CO2	Understand the properties and appropriate applications of different engineering materials.	L2,L1
CO3	Implement safety standards and procedures in a workshop setting.	L3
CO4	Accurately interpret technical drawings and use precise measurement techniques.	L2,L1
CO5	Apply practical skills and theoretical knowledge to complete hands-on projects in fitting, carpentry, welding, and machining.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Ability to understand and perform fundamental manufacturing processes such as machining, welding, casting, forging, and forming
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Competence in operating, maintaining, and troubleshooting common workshop tools
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Knowledge of various materials used in manufacturing
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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DEPARTMENT OF FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	-	-	3	3	-	-	-	-	-	-	-	-	-	-
CO4	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	2	-	1	3	-	-	-	-	-	-	-	-	-	-
AVG	3	2.7 5	3	2	3	-	-	-	-	-	-	-	-	-	-

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FIRST YEAR ENGINEERING

Department of ECE/BME/EEE

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T107- Mathematics - II) [Total no. of. Students: 64] [I/EVEN Semester, Group 2]

Course Prerequisite: Knowledge of basic matrix and vector concepts

Course Objective:

1. To develop the use of matrix algebra techniques for practical applications.
2. To introduce the concepts of Curl, Divergence and integration of vectors in vector calculus which is needed for many application problems.
3. To introduce Laplace transform which is a useful technique in solving many application problems
4. To acquaint the students with Fourier transform techniques used in wide variety of situations in which the functions used are not periodic.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Determine a matrix's unique characteristics, such as its eigenvalue and eigenvector, then use orthogonal transformations to express it in diagonal, quadratic, and canonical forms.	L2
CO2	Learn about the qualitative uses of the Stoke, and Gauss theorems.	L3
CO3	Students gain knowledge of the Laplace Transform. Applications in mathematical model solving.	L3
CO4	Applications of Laplace Transform in mathematical model solving.	L3
CO5	Learn about the applications of the Fourier transforms.	L2

PO AND PSO OVERVIEW


Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Recognize the ideas and applications of mathematics
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage		
PO6	Engineer and Society	PSO2	Manage the sophisticated mathematical approaches.
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work	PSO3	Utilize the principles of practical applications.
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	2	-	-	-	-	-	-	-	-	3	2	2
CO2	3	3	-	2	-	-	-	-	-	-	-	-	3	2	2
CO3	3	3	-	2	-	-	-	-	-	-	-	-	3	2	2
CO4	3	2	-	2	-	-	-	-	-	-	-	-	2	2	2
CO5	3	3	-	3	-	-	-	-	-	-	-	-	3	2	3
AVG	3	2	-	2	-	-	-	-	-	-	-	-	2	2	2


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FIRST YEAR ENGINEERING

Department EEE / ECE / BME

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T108- Material science for Engineers) [Total no. of. Students:64] [I / EVEN Semester, Group 2]

Course Prerequisite: Knowledge in Physics chemistry and mathematics, as well as introductory courses in material science and engineering.

Course Objective:

1. To understand the importance of Material Science as a subject that revolutionized modern day technologies
2. To understand the significance of material science in the development of new materials and devices for all branches of Engineering
3. To impart knowledge to the Engineering students about some of the important areas of Materials Science so as to enable them perceive the significant contributions the subject in Engineering and Technology

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Understand and applying the knowledge of x-ray diffraction to analyze defects in the various crystalline solids	L2 L4 & L3
CO2	To learn about the effect of polarization in dielectric material and to explain the dielectric material suitable for different application.	L3&L4
CO3	The outcome of third unit makes the student to understand about different magnetic materials.	L1 L3&L4
CO4	Understand some of the basic concepts of semiconductor and to calculate the intrinsic carrier concentration.	L1 & L2
CO5	The knowledge to synthesis and characterize the various nano materials to known for industrial application in the new era of engineering	L1&L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of basic science
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage	PSO2	Foundation of mathematical concept
PO6	Engineer and Society		
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work	PSO3	Foundation of Behavior and Business technology
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3
CO2	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3
CO3	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3
CO4	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3
CO5	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3
AVG	3	3	3	-	-	2	2	-	-	-	-	-	-	-	3


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FIRST YEAR ENGINEERING

Department of ECE / BME / EEE

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T109- Environmental Science) [Total no. of. Students: 64] [I / EVEN Semester, Group 2]

Course Prerequisite: Knowledge of Environment and Basic Science

Course Objective:

1. To Know about the environment
2. To understand about the environmental pollution
3. To apply knowledge in understanding various environmental issues and problems

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	To understand various natural resources and their importance	L2
CO2	To know the types of eco system and preserving it	L1 & L3
CO3	To make them understand the types, effects and control measures of air pollution	L2
CO4	To understand water and land pollution and solid waste management	L3
CO5	To define the concepts of pollution monitoring instruments and control techniques	L3

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of Environment
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Foundation of Environmental Pollution
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Foundation of Sustainable Development
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	2	2	2	2	3	3	2	-	-	3	1	-	-
CO2	3	3	2	2	2	2	3	3	2	-	-	3	1	-	-
CO3	3	3	2	3	2	3	3	3	2	-	-	3	3	3	3
CO4	3	3	2	3	2	3	3	3	2	-	-	3	3	3	3
CO5	3	3	2	3	2	3	3	3	2	-	-	3	3	3	3
AVG	3	3	2	2.6	2	2.6	3	3	2	0	0	3	2.2	1.8	1.8

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FIRST YEAR ENGINEERING

Department of ECE / BME/EEE

ACADEMIC YEAR 2021-2022

COURSE OBJECTIVES

(T104 - Basic Electrical and Electronics Engineering) [Total no. of. Students: 64 [I/EVEN SEMESTER, Group 2]

Course Prerequisite: The necessary foundational knowledge to understand and engage with the concepts and principles taught in a basic electrical course

Course Objective:

1. To understand and gain basic knowledge about Magnetic and electrical circuits.
2. To learn the concept of single phase and three phase circuit with power measurement.
3. To study the operating principles of Static machines.
4. To understand the basic operation, function and application of PN junction diode, logic gates and flipflops.
5. To gain knowledge on various communication system and network models and the use of ISDN.

COS	Upon successful completion of this course, students should be able to:	LEVEL
CO1	understand and gain basic knowledge about Magnetic and electrical circuits.	L2
CO2	Understand the concept of single phase and three phase circuit with power measurement.	L2
CO3	Understand the operating principles of Static machines	L2
CO4	Understand the basic operation, function and application of PN junction diode, logic gates and flipflops.	L6
CO5	To gain knowledge on various communication system and network models and the use of ISDN.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Understanding of Basic Concepts, Circuit Analysis Skills, Practical Skills.
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Problem-Solving Abilities, Knowledge of Semiconductors, Digital Electronics.
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Communication Skills, Ethical and Professional Responsibility
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	–	3	–	2	3	1	2	1	–	1	3	3	2	–
CO2	3	2	3	–	–	3	1	2	1	–	–	3	2	3	1
CO3	3	2	3	–	–	3	1	2	1	–	1	3	3	–	1
CO4	3	3	3	–	2	3	1	3	1	2	3	3	3	–	2
CO5	3	3	3	–	–	3	1	3	1	2	2	3	–	2	1
AVG	3	2.5	3	0	2	3	1	2.4	1	0.4	0.6	3	2.75	2.3	1.25


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DEPARTMENT OF FIRST YEAR ENGINEERING

Department of ECE/EEE/BME

ACADEMIC YEAR 2020-21

COURSE OBJECTIVES

(T105 - Engineering Thermodynamics.) [Total no. of. Students: 64] [1/EVEN Semester, Group 1]

Course Prerequisite: Knowledge of basic matrix and vector concepts

Course Objective:

1. To understand the basic concepts and laws of thermodynamics.
2. To analyze energy conversion processes.
3. To apply thermodynamic principles to real-world engineering problems.
4. To performance of the thermodynamics cycle.
5. To develop skills in using thermodynamic tables and software tools.

COS	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Understand and explain the fundamental concepts and principles of thermodynamics.	L2
CO2	Apply the first law of thermodynamics to analyze energy conversion processes in closed and open systems.	L2
CO3	Apply the second law of thermodynamics to analyze energy and exergy of engineering systems and processes.	L3
CO4	Performance the thermodynamic cycles, including Otto, Diesel, Dual, and Brayton cycle to evaluate their performance and efficiency.	L2
CO5	Recognize how the air conditioning and refrigeration systems work.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	An ability to design develop, supervise and implement solutions in the areas related to construction industry
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	An ability to apply standard practices and strategies in identifying of quality output
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Apply the knowledge of mathematics, science and engineering fundamentals to the solution of complex mechanical engineering.
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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DEPARTMENT OF FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO3	3	-	-	3	3	-	-	-	-	-	-	-	-	-	-
CO4	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO5	3	2	-	1	3	-	-	-	-	-	-	-	-	-	-
AVG	3	2.7 5	3	2	3	-	-	-	-	-	-	-	-	-	-


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FIRST YEAR ENGINEERING

Department of ECE / EEE / BME

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T106 Computer Programming) [Total no. of. Students: 64] [I / EVEN Semester, Group 2]

Course Prerequisite: Knowledge of Basic C-Programming, Writing of C-Programming.

Course Objective:

1. To introduce the basics of computers and information technology.
2. To educate problem solving techniques.
3. To impart programming skills in C language.
4. To practice structured programming to solve real life problems.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Understand basics of computers and information technology, concepts of C-Program as sequences and basics of computers.	L2
CO2	Understand different ways of program development cycle and I/O functions.	L2
CO3	Understand the basics of branching and looping and functions	L2
CO4	Understand arrays, structures and basics of Pointers.	L6
CO5	Understand the basic file operations and pre-processor.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of mathematical concept
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem		
PO5	Modern tool usage	PSO2	Foundation of computer system
PO6	Engineer and Society		
PO7	Environment and sustainability		
PO8	Ethics		
PO9	Individual and team work	PSO3	Foundation of software development
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	-	-	-	-	-	-	-	-	2	3	1	-
CO2	3	2	3	-	1	-	-	-	-	-	-	2	2	1	-
CO3	2	3	-	-	1	-	-	-	-	-	-	2	3	1	-
CO4	3	3	2	-	1	-	-	-	-	-	-	2	2	1	-
CO5	-	3	-	-	1	-	-	-	-	-	-	1	3	1	-
AVG	2.2	2.8	1	0	0.8	0	0	0	0	0	0	1.8	2.6	1	0

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FIRST YEAR ENGINEERING

Department of ECE / EEE / BME

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(P101 Computer Programming Lab) [Total no. of. Students: 64] [I / EVEN Semester, Group 2]

Course Prerequisite: Knowledge of Basic C-Programming, Writing of C-Programming.

Course Objective:

1. To introduce the basics of computers and information technology.
2. To educate problem solving techniques.
3. To impart programming skills in C language.
4. To practice structured programming to solve real life problems.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Understand basics of computers and information technology, concepts of C-Program as sequences and basics of computers.	L2
CO2	Understand different ways of program development cycle and I/O functions.	L2
CO3	Understand the basics of branching and looping and functions	L2
CO4	Understand arrays, structures and basics of Pointers.	L6
CO5	Understand the basic file operations and pre-processor.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Foundation of mathematical concept
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Foundation of computer system
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability		
PO8	Ethics	PSO3	Foundation of software development
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



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FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	-	-	-	-	-	-	-	-	2	3	1	-
CO2	3	2	3	-	1	-	-	-	-	-	-	2	2	1	-
CO3	2	3	-	-	1	-	-	-	-	-	-	2	3	1	-
CO4	3	3	2	-	1	-	-	-	-	-	-	2	2	1	-
CO5	-	3	-	-	1	-	-	-	-	-	-	1	3	1	-
AVG	2.2	2.8	1	0	0.8	0	0	0	0	0	0	1.8	2.6	1	0

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FIRST YEAR ENGINEERING

Department of ECE/EEE/BME
ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(P-102 – Engineering Graphics.) [Total no.of.Students: 64] [1/EVEN Semester, Group 2]

Course Prerequisite: Zeal to learn the subject

Course Objective:

1. To understand the fundamental concepts and importance of engineering graphics in the design process.
2. To develop skills in technical drawing, including geometric constructions, orthographic projections, and isometric views.
3. To become proficient in using CAD software for creating, modifying, and analyzing engineering drawings.
4. To apply engineering graphics principles to solve real-world design problems.
5. To understand Application of Engineering Graphics Principles.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Application of Engineering Graphics Principles.	L2
CO2	Create and interpret technical drawings, including geometric constructions, orthographic projections, isometric and oblique views, and sectional views.	L2
CO3	Implement standards and conventions for dimensioning and tolerance in engineering drawings.	L3
CO4	Utilize CAD software proficiently for creating, modifying, and analyzing 2D and 3D engineering drawings.	L2
CO5	Apply engineering graphics principles to develop comprehensive engineering drawing projects and solve real-world design problems.	L2

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Ability to create accurate technical drawings using standard drawing conventions, symbols, and notations.
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Competence in performing geometric constructions and generating views (orthographic, isometric, sectional) of engineering components.
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Ability to visualize and interpret complex 3D objects from 2D drawings and vice versa, ensuring accurate representation and communication of engineering designs.
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



RAJIV GANDHI COLLEGE OF ENGINEERING AND TECHNOLOGY
 Pondy Cuddalore Main Road, Kirumampakkam, Puducherry – 607 403.
 Affiliated to Pondicherry University and Approved by AICTE, New Delhi

FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of mathematical concept	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO3	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-
CO4	2	3	2	-	3	-	-	-	-	-	-	-	-	-	-
CO5	3	3	3	-	3	2	-	-	3	2	3	3	3	-	-
AVG	3	2.7	2.6		3	2	-	-	3	2	3	3	3	-	-


HEAD OF THE DEPARTMENT

Coordinator
Dept. of First Year Engineering
Rajiv Gandhi College of
Engineering and Technology
Puducherry-607403.



FIRST YEAR ENGINEERING

Department of BME/ECE/EEE

ACADEMIC YEAR 2021-22

COURSE OBJECTIVES

(T102- Basic Electrical and Electronics Engineering Lab) [Total no. of. Students: 64] [I / EVEN Semester, Group 2]

Course Prerequisite: Knowledge of Basic electrical and electronics Engineering

Course Objective:

- 1.To understanding and hands-on experience with fundamental concepts and techniques.
- 2.To Provide a solid foundation in the behavior and characteristics of electrical and electronic components.
3. To Enable students to build, test, and troubleshoot basic electrical and electronic circuits.

COs	Upon successful completion of this course, students should be able to:	LEVEL
CO1	Gain a fundamental understanding of electrical and electronic components, circuits, and systems. Understand the principles of Ohm's Law, Kirchhoff's Laws, and basic network theorems.	L1&L3
CO2	Ability to analyze and construct basic electrical circuits. Develop skills to design simple electronic circuits using components like resistors, capacitors, inductors, diodes, and transistors.	L3
CO3	Proficiency in using electrical and electronic measuring instruments such as multimeters, oscilloscopes, function generators, and power supplies.	L3&L4
CO4	Develop hands-on skills in soldering, breadboarding, and creating circuit layouts. Conduct experiments to verify theoretical concepts learned in lectures	L1& L3
CO5	Improve teamwork skills through collaborative lab work.	L1&L3

PO AND PSO OVERVIEW

Programme Outcomes		Program Specific Outcomes	
PO1	Engineering knowledge	PSO1	Develop the ability to understand and apply fundamental principles of electrical and electronics engineering in practical scenarios
PO2	Problem analysis		
PO3	Design / development of solutions		
PO4	Conduct investigations of complex problem	PSO2	Foundation of Accurately measure and interpret electrical quantities like voltage, current, resistance, and frequency
PO5	Modern tool usage		
PO6	Engineer and Society		
PO7	Environment and sustainability	PSO3	Equip students with the necessary skills and knowledge to excel in industry or higher education programs
PO8	Ethics		
PO9	Individual and team work		
PO10	Communication		
PO11	Project management and finance		
PO12	Life-long Learning		



FIRST YEAR ENGINEERING

CO Mapping with PO and PSO

	Engineering knowledge	Problem analysis	Design/development of solutions	Conduct investigations of complex problems	Modern tool usage	The engineer and society	Environment and sustainability	Ethics	Individual and team work	Communication	Project management and finance	Life-long learning	Foundation of electrical and electronics engineering	Foundation of computer system	Foundation of software development
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO1	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3
CO2	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3
CO3	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3
CO4	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3
CO5	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3
AVG	3	-	1	-	-	1	-	-	3	-	-	-	-	-	3


 HEAD OF THE DEPARTMENT

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