

COURSE: ENGINEERING MATHEMATICS-I**COURSE CODE: 17MAT11****COURSE OUTCOMES**

Upon completing the course, the student will be able to:

1. **Apply** the successive differentiation to analyze polar curves, evaluate radius of curvature, derivatives of arc length and obtain Taylor's & Maclurin series, expansion of function of single variable.
2. **Apply** the partial differentiation to find Total derivative and Jacobians of a given multivariable functions.
3. **Apply** the Vector differential operator on scalar and vector point functions.
4. **Apply** the reduction formula to evaluate definite integral. Apply various methods of the differential equation to solve first-order linear ODE and its applications to various fields.
5. **Apply** the matrix techniques to reduce the quadratic forms to canonical forms, finding solutions of systems of linear equations in the different areas of Linear Algebra.

MAPPING OF COs WITH POs OF ENGG. MATHEMAHEMATICS- I (17MAT11)

Course Outcomes	P O 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
C101.1	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C101.2	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C101.3	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C101.4	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C101.5	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C101 (Avg.)	3	3	-	1	-	-	-	-	-	-	-	1	-	-

COURSE OUTCOMES

Upon completing the course, the student will be able to:

1. Describe the principles of orthographic and isometric projections, sections and development of lateral surfaces of solids
2. Demonstrate the utility of CAD Software in obtaining engineering drawings
3. Analyze the basic geometrical entities in different positions and draw their orthographic views
4. Identify the positions of sectioned solids and draw the development of their lateral surfaces
5. Illustrate the isometric view of combination of solids by analyzing the relationships between the parts.

MAPPING OF COs WITH POs OF COMPUTER AIDED ENGINEERING DRAWING (17CED14)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C104.1	3	-	2	-	-	-	-	-	-	3	-	-	-	1
C104.2	-	-	-	-	3	-	-	-	-	2	-	2	-	1
C104.3	2	2	2	-	-	-	-	-	-	2	-	-	-	1
C104.4	2	2	2	-	-	-	-	-	-	2	-	-	-	-
C104.5	2	2	2	-	-	-	-	-	-	2	-	-	-	1
C104 (Avg.)	2.25	2	2	-	3	-	-	-	-	2.2	-	2	-	1

COURSE: COMPUTER PROGRAMMING LABORATORY**COURSE CODE: 17CPL16****COURSE OUTCOMES**

Upon completing the course, the student will be able to

1. Draw flowcharts and write algorithms for a given problem
2. Implement modular programming and parallel programming concepts
3. Design and develop a C program for the given problem
4. Trace and debug a C program

MAPPING OF COs WITH POs OF COMPUTER PROGRAMMING LABORATORY (17CPL16)

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C106.1	2	-	-	-	-	-	-	-	-	-	-	3	-	-
C106.2	-	-	2	-	-	-	-	-	-	-	-	3	-	-
C106.3	-	-	2	-	-	-	-	-	-	-	-	3	-	-
C106.4	-	2	-	-	-	-	-	-	-	-	-	3	-	-
C106 (Avg.)	2	2	2	-	-	-	-	-	-	-	-	3	-	-

COURSE: ENGINEERING CHEMISTRY LABORATORY**COURSE CODE: 17CHEL17****COURSE OUTCOMES**

Upon completing the course, the student will be able to

1. Demonstrate the basic techniques for quantitative analysis.
2. Interpret the application of instruments for chemical analysis.

MAPPING OF COs WITH POs OF ENGINEERING CHEMISTRY (17CHEL17)

Course Outcome s	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
C107.1	2	2							2	-	-	-	-	-
C107.2	2	2							2	-	-	-	-	-
C107 (Avg.)	2	2							2	-	-	-	-	-

COURSE: ENVIRONMENTAL STUDIES**COURSE CODE: 17CIV18****COURSE OUTCOMES**

Upon completing the course, the student will be able to

1. Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,
2. Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment,
3. Demonstrate ecology knowledge of a complex relationship between biotic and abiotic components
4. Apply their ecological knowledge to illustrate and graph a problem and Describe the realities that managers face when dealing with complex issues

MAPPING OF COs WITH POs OF ENVIRONMENTAL STUDIES (17CIV18)

Course Outcome s	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
C108.1	2	-	-	1	-	1		-	-	-	-	-	2	1
C108.2	1		-	-	-	2	1	-	-	-	-	-	1	
C108.3	1	1	-	-	-			-	-	-	-	-	1	
C108.4	2	1	-	1	-	1	1	-	-	-	-	-	1	1
C108 (Avg.)	1.5	1	-	1	-	1.3	1	-	-	-	-	-	1.25	1

COURSE: ENGINEERING MATHEMATICS-II

COURSE CODE: 17MAT21

COURSE OUTCOMES

Upon completing the course, the student will be able to:

1. **Apply** ordinary differential equations to model engineering phenomena such as electrical circuits, forced oscillation of mass spring and elementary heat transfer
2. **Identify** and **Evaluate** the non-linear D. E. to find solution of different non-linear systems.
3. **Apply** partial differential equations to model problems in fluid mechanics, electromagnetic theory and heat transfer
4. **Apply** multiple integrals to find area, volume, mass and moment of inertia of plane and solid region.
5. **Apply** Laplace transform to determine general or complete solutions to linear ODE

MAPPING OF COs WITH POs OF ENGINEERING MATHEMATICS II (17MAT21)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C109.1	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C109.2	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C109.3	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C109.4	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C109.5	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C109 (Avg.)	3	3	-	1	-	-	-	-	-	-	-	1	-	-

COURSE: ENGINEERING PHYSICS**COURSE CODE: 17PHY22****COURSE OUTCOMES**

Upon completing the course, the student will be able to:

1. Gain Knowledge about Modern physics and quantum mechanics and update the basic concepts.
2. Study of material properties and their applications to apply in engineering applications.
3. Study of laser and optical fibres are used to develop advanced instruments in Engineering.
4. Understand Crystal structure and its applications to enhance the technical skills of students.
5. Expose shock waves concept and its applications, to extend research oriented activity at higher semesters.
6. Understand basic concepts of nano science and technology to inculcate to the current research.

MAPPING OF COs WITH POs OF ENGINEERING PHYSICS (17PHY22)

Course Outcomes	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
C110.1	3	2	-	-	-	-	-	-	-	-	-	-	--	-
C110.2	2	3	-	-	-	-	-	-	-	-	-	1	-	-
C110.3	2	-	-	-	-	-	1	-	-	-	-	-	-	-
C110.4	3	2	-	-	-	-	-	-	-	-	-	-	-	-
C110.5	-	-	-	-	1	-	-	-	-	-	-	-	-	-
C110.6	3	2	-	2	-	-	-	-	-	-	-	-	-	-
C110 (Avg.)	3	3	-	2	1	-	1	-	-	-	-	1	-	-

COURSE OUTCOMES

Upon completing the course, the student will be able to:

1. Identify various energy sources and different energy conversion methods.
2. Analyze working principles of different types of prime movers.
3. Explain different operations in machine tools and applications of robotics and automation.
4. Comprehend the knowledge of engineering materials and its applications, nevertheless acquire the knowledge of joining processes and usage of various engineering materials.
5. Describe the working principle of Refrigeration and Air conditioning systems.

MAPPING OF COs WITH POs OF ELEMENTS OF MECHANICAL ENGINEERING (17EME24)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C112.1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
C112.2	2	2	-	-	-	-	-	-	-	-	-	-	-	-
C112.3	2	-	-	-	-	-	-	-	-	-	-	-	-	-
C112.4	2	-	-	-	-	-	-	-	-	-	-	-	-	-
C112.5	2	-	-	-	-	-	1	-	-	-	-	-	-	-
C112 (Avg.)	2	2	-	-	-	-	1	-	-	-	-	-	-	-

COURSE: WORKSHOP PRACTICE**COURSE CODE: 17WSL26****COURSE OUTCOMES**

Upon completing the course, the student will be able to:

1. Understand the basics of metal joining processes.
2. Demonstrate the knowledge of the principles of metal joining processes and function effectively as an individual to fabricate the components.
3. Identify appropriate techniques, tools and resources to fabricate the components.
4. Perform metal joining processes with due consideration to ethical principles and its impact on health, safety and environment.

MAPPING OF COs WITH POs OF WORKSHOP PRACTICE (17WSL26)

Course Outcomes	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
C114.1	2	-	-	-	-	-	-	-	-	-	-	-	1	1
C114.2	2	-	-	-	-	-	-	-	2	-	1	-	1	1
C114.3	2	-	-	-	2	-	-	-	-	-	-	1	1	1
C114.4	2	-	-	-	-	2	1	1	-	-	-	1	1	1
C114 (Avg.)	2	-	-	-	2	2	1	1	2	-	1	1	1	1

COURSE: ENGINEERING PHYSICS LAB.**COURSE CODE: 17PHYL27****COURSE OUTCOMES**

Upon completing the course, the student will be able to:

1. Develop skills to impart practical knowledge in real time solution.
2. Understand principle, concept, working and application of new technology.
3. Comparison of results with theoretical calculations.
4. Design new instruments with practical knowledge.
5. Gain knowledge of new concept in the solution of practical oriented problems and to understand more deep knowledge about the solution to theoretical problems.
6. Understand measurement technology, usage of new instruments and real time applications in engineering studies.

MAPPING COs WITH POs OF ENGINEERING PHYSICS LAB. (17PHYL27)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C115.1	3	2	2	2	3	1	-	1	-	3	-	-	--	-
C115.2	3	2	3	1	-	3	1	-	-	-	3	1	-	-
C115.3	3	3	3	3	-	-	-	-	-	2	2	2	-	-
C115.4	3	2	3	3	3	3	2	1	2	3	2	2	-	-
C115.5	3	3	3	3	3	3	3	2	-	2	-	-	-	-
C115.6	3	3	3	2	2	2	1	-	-	-	2	2	-	-
C115 (Avg.)	3	3	3	3	3	3	3	2	2	3	3	2	-	-

COURSE: ENGINEERING MATHEMATICS-III

COURSE CODE: 17MAT31

COURSE OUTCOMES

Upon completing the course, the student will be able to:

1. **Apply** ordinary differential equations to model engineering phenomena such as electrical circuits, forced oscillation of mass spring and elementary heat transfer
2. **Identify** and **Evaluate** the non-linear D. E. to find solution of different non-linear systems.
3. **Apply** partial differential equations to model problems in fluid mechanics, electromagnetic theory and heat transfer
4. **Apply** multiple integrals to find area, volume, mass and moment of inertia of plane and solid region.
5. **Apply** Laplace transform to determine general or complete solutions to linear ODE

MAPPING OF COs WITH POs OF ENGINEERING MATHEMATICS III (17MAT31)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C201.1	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C201.2	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C201.3	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C201.4	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C201.5	3	3	-	1	-	-	-	-	-	-	-	1	-	-
C201 (Avg.)	3	3	-	1	-	-	-	-	-	-	-	1	-	-

COURSE: STRENGTH OF MATERIALS

COURSE CODE: 17CV32

COURSE OUTCOMES

Upon completing the course, the student will be able to,

1. To evaluate the strength of various structural elements subjected to compressive, tensile, shear, bending and torsional forces.
2. To specify suitable material from available sources for use in the field of construction and manufacturing.
3. To evaluate the behavior of structural elements under the action of compound stresses and thus, understand failure concepts.
4. To understand the basic concepts of analysis of circular shafts subjected to torsion.
5. To understand the basic concepts of analysis and design of columns and struts.

MAPPING OF COs WITH POs OF STRENGTH OF MATERIALS (17MAT32)

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C202.1	3	3	-	-	-	-	-	-	-	-	-	-	-	1
C202.2	1	-	-	-	-	2	1	1	-	-	-	-	2	-
C202.3	3	3	-	-	-	-	-	-	-	-	-	-	-	2
C202.4	3	3	-	-	-	-	-	-	-	-	-	-	-	2
C202.5	3	3	1	-	-	-	-	-	-	-	-	-	-	2
C202 (Avg.)	2.5	3	1			2	1	1					2	1.75

COURSE OUTCOMES

Upon completing the course, the student will be able to,

1. Possess a sound knowledge of fundamental properties of fluids, fluid continuum and measurement of pressure using suitable measuring devices.
2. Compute and solve problems on hydrostatics, including practical applications
3. Apply principles of mathematics to represent kinematic concepts related to fluid flow
4. Apply fundamental laws of fluid mechanics and the Bernoulli's principle for practical applications
5. Computation of discharge through pipes, notches and weirs

MAPPING OF COs WITH POs OF FLUID MECHANICS(17CV33)

Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO9	PO10	PO11	PO12	PSO1	PSO2
C203.1	3	2	-	1	-	-	-	-	-	-	-	1	1	2
C203.2	3	3	2	-	-	-	-	-	-	-	-	-	1	1
C203.3	3	2	-	-	-	-	-	-	-	-	-	-	1	-
C203.4	2	2	-	-	-	-	-	-	-	-	-	-	1	-
C203.5	3	2	-	-	-	-	-	-	-	-	-	-	1	1
C203 (Avg)	2.8	2.2	2	1	-	-	-	-	-	-	-	1	1	1.33

COURSE: ENGG. GEOLOGY**COURSE CODE: 17CV35****COURSE OUTCOMES**

Upon completing the course, the student will be able to,

1. Apply the knowledge of geology and its role in Civil Engineering
2. Utilize effectively earthy materials such as mineral, rocks and water in civil engineering practices.
3. Analyze the natural disasters and its mitigation.
4. Assess various structural features and geological tools in ground water exploration, Natural resource estimation and solving civil engineering problems
5. Assess the feasibility of using G I S and Remote sensing techniques in civil engineering practice and impact of quarrying, mining and dams on environment

MAPPING OF COs WITH POs OF ENGINEERING GEOLOGY. (17CV35)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C 205.1	3	1	1	1	-	-	1	-	-	-	-	-	3	-
C205.2	3	-	-	-	-	-	2	-	-	-	-	-	2	1
C205.3	2	2	-	1	-	1	2	-	-	-	-	-	-	2
C205.4	2	1	-	1	-	-	2	-	-	-	-	-	1	1
C205.5	2	1	-	1	1	-	2	-	-	-	-	-	2	2
C205 (Avg)	2.4	1.25	-	1	1	1	1.8	-	-	-	-	-	2	1.5

COURSE: BUILDING MATERIALS AND CONSTRUCTION**COURSE CODE: 17CV36****COURSE OUTCOMES**

Upon completing the course, the student will be able to

1. Select suitable materials for buildings.
2. Choose the type of foundation based on site/soil conditions
3. Adopt suitable construction techniques.
4. Adopt suitable repair and maintenance work to enhance durability of buildings.

MAPPING OF COs WITH POs OF BUILDING MATERIALS AND CONSTRUCTION (17CV36)

Course Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C 206.1	3	1	1	-	-	1	1	1	-	-	-	-	3	1
C206.2	3	1	1	-	-	1	1	-	-	-	-	-	1	2
C206.3	3	2	2	-	-	1	-	-	-	-	-	-	2	1
C206.4	3	2	-	1	-	2	-	-	-	-	-	-	2	1
C206 (Avg)	3	1.5	1.33	1	-	1.25	1	1		-			2	1.25

COURSE: MATERIAL TESTING LABORATORY**COURSE CODE: 17CVL37****COURSE OUTCOMES**

Upon completing the course, the student will be able to ,

1. Reproduce the basic knowledge of mathematics and engineering in finding the strength in tension, compression, shear and torsion
2. Identify, formulate and solve engineering problems of structural elements subjected to flexure
3. Evaluate the impact of engineering solutions on the society and also will be aware of contemporary issues regarding failure of structures due to unsuitable materials

MAPPING OF COs WITH POs OF MATERIAL TESTING LABORATORY (17CVL37)

Course Outcomes	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO 1	PSO 2
C207.1	2	-	-	1	-	-	-	-	2	2	1	1	1	1
C207.2	1	1	-	1	-	-	-	-	1	2	1	1	1	-
C207.3	1	1	-	1	2	-	-	-	2	2	1	1	1	1
C207 (Avg.)	1.3	1	-	1	2	-	-	-	1.6	2	1	1	1	1

