Course Outcome(CO)

Semester-1	
Course Code	**Course Outcomes**
MA-2106 **Advanced Engineering Mathematics And Optimization**	**CO1:** Clear concept in the fundamental theories and their applications. **CO2:** To develop an idea about Optimization and different optimization techniques **CO3:** Ability to understand and solve Eigen value problems. **CO4:** Confidence in solving Linear and Non Linear Programming. **CO5:** Ability to understand Linear and non-linear regression and its application in Structural Engineering.
CE-2102 **Advanced Mechanics Of Solids**	**CO1:** To understand the concept of Analysis of Stress and strain in Cartesian and Polar Coordinates. **CO2:** Ability to understand 3-D stress-strain relation. **CO3:** To know different types of Theories of Failure. **CO4:** Confidence in solving a bar subjected to End Torsion. **CO5:** To understand the concept of Bending in Beams. **CO6:** To understand and analyse the Elastic Stability of column.
CE-2103 **Finite Element Method -I**	**CO1:** To obtain an understanding of the fundamental theory of the FEA method; **CO2:** To understand the use of the basic finite elements for structural applications using truss, beam, frame, and plane elements. **CO3:** Students are able to numerically solve for stresses, strains and deformation of a structure under either plane-stress or plane strain conditions.
CE-2104	**CO1:** Clear concepts in the fundamental theories of vibration mechanics.

Structural Dynamics	**CO2:** Developing a command in applied calculus with critical dynamics problems. **CO3:** Sound knowledge in application of numerical iterative processes. **CO4:** Developing confidence in solving numerical problems. **CO5:** Developing clear idea of responses of SDOF and MDOF systems under the action of different kinds of vibrations.
CE-2106 **Research Methodologies And Technical Communication**	**CO1:** To understand the experimental methods, sources of data and data collection **CO2:** to Solve problems understanding the nature of hypothesis, need for having a working hypothesis. **CO3:** To know various sampling methods and their application in data analysis **CO4:** To learn to write journals and conference papers, IEEE and Harvard styles of referencing.
Semester-2	
CE-2201 **Finite Element Method - II**	**CO1:** To apply FEM for three dimensional problems such as rigid jointed space frames and pin jointed space frames. **CO2:** To apply FEM for analysis of folded plates and shells and dome structures **CO3:** To apply FEM for dynamic analysis for pin jointed and plane frames under dynamic loads.

CE-2202 **Advanced** **Pre-Stressed Concrete**	**CO1:** To understand the concept of prestressing. **CO2:** To design prestressed beam, girder and portal frames. **CO3:** To analyse prestressed continuous members. **CO4:** To compare prestressed member with RCC members.
CE-2231 - Advanced Design Of RCC **Structures**	**CO1:** Analyse statically indeterminate beams, rigid jointed plane frames by matrix methods. **CO2:** Apply the basic requirements of Indian standard (IS:456:2000 code) for design of RCC continuous beams. **CO3:** Analyse statically multi storey frames by substitute frame method and portal method. **CO4:** Analysis and design of RCC portal frames. **CO5:** Prepare detailed working drawings and read the drawings for RC continuous beams, Portal frames, slab culvert and deck slab and T-beam bridges. **CO6:** Apply basic knowledge of engineering principles in the design of various components of bridges. **CO7:** Demonstrate the code provisions for the design of bridge components as per specifications of IRC: 6:2000 and IRC: 21: 2000. Design of RCC slab culvert and deck slab and T-beam bridges.
	CO1: To understand the concept of Plastic Analysis.

CE-2236: Advanced Design of Steel Structures	**CO2:** Application of Limit State Method to design tension member, compression member beams and beam-column. **CO3:** Design of Steel Bridges. **CO4:** Confidence in solving problems related with Fatigue Resistant design. **CO5:** Design of structural members subjected to torsion. **CO6:** Design of industrial building.
CE-2240 - Earthquake Resistant Design Of Structures	**CO1:** Clear concepts in the fundamental theories of structural dynamics. **CO2:** Developing application of mathematical techniques in dynamic analysis. **CO3:** Gaining sound knowledge of different seismic analysis procedure. **CO4:** Getting familiar with different ductile detailing provisions. **CO5:** Sound knowledge in design of shear walls. **CO6:** Thorough idea of using IS codes related to seismic analysis and ductility required for buildings. **CO7:** Clear concepts of performance based design.
CE – 2243 – Advanced Strength Of Materials	**CO1:** To understand the concept of torsion in non-circular cross sections and thin walled sections. **CO2:** Ability to solve the problems related to unsymmetrical bending of beams. **CO3:** To understand and analyse concepts shear centre and shear flow in thin walled beam sections. **CO4:** Ability to understand bending in curved beams. **CO5:** Understand and analyse the beams which are curved in plan