**Civil Engineering Department**

**COURSE OUTCOMES**

# U.G.Courses

# S.E Civil

**SEMESTER I**

| **Course Name:-Building Technology and Materials** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **201001.1** | Identify types of building and basic requirements of building components. |
| **201001.2** | Explain types of masonry, formwork, casting procedure and necessity of underpinning and scaffolding. |
| **201001.3** | Elucidate different types of flooring and roofing materials. |
| **201001.4** | Describe types of doors, windows, arches and lintel. |
| **201001.5** | Illuminate means of vertical circulation and protective coatings. |
| **201001.6** | Explain different materials especially eco-friendly materials and safety measures to |

| **Course Name:-Engineering Mathematics III** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **207001.1** | Solve higher order linear differential equations and apply to civil engineering problems such as bending of beams and whirling of shafts. |
| **207001.2** | Solve system of linear equations using direct and iterative numerical techniques and develop solutions to ordinary differential equations using single step and multistep methods applied to structural systems. |
| **207001.3** | Apply statistical methods like correlation, regression analysis in analyzing and interpreting experimental data and probability theory applied to construction management. |
| **207001.4** | Perform vector differentiation and integration, analyze the vector fields and apply to fluid flow problems. |
| **207001.5** | Solve various partial differential equations such as wave equation, one and twodimensional heat flow equations. |

| **Course Name:-Surveying** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **201006.1** | Operate and use surveying equipment. |
| **201006.2** | Draw plan or map of the existing permanent features on the ground. |

| | |
|---|---|
| **201006.3** | Classify the ground features from the map or plan. |
| **201006.4** | Analyze temporary adjustments and check permanent adjustments of the Theodolite. |

| **Course Name:- Strength of Materials(201002)** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **201002.1** | Compute different type of stresses in determinate, indeterminate, homogeneous and composite structures. |
| **201002.2** | Develop bending and shear stress diagram. |
| **201002.3** | Determine the torsional stresses and stresses due to strain energy for different loading conditions. |
| **201002.4** | circle) method. |
| **201002.5** | Plot loading diagram, Shear Force Diagram (SFD) and Bending Moment Diagram (BMD). |
| **201002.6** | Analyze axially and eccentrically loaded column |

| **Course Name:- Geotechnical Engineering** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **201003.1** | Differentiate the different types of soil and their engineering properties and classify them; |
| **201003.2** | Determine the soil properties in laboratory and develop a proficiency in handling experimental data; |
| **201003.3** | Understand of the concept of effective stress and its influence on soil behavior. |
| **201003.4** | Develop an understanding of the influence of water flow on the engineering behaviour of soils. |
| **201003.5** | Analyze engineering properties like compaction, permeability, soil shear strength. |
| **201003.6** | Compute the lateral thrust due to backfill on the retaining walls. |
| **201003.7** | Classify soil slopes and identify their modes of failure. |

| **Course Name:- Awareness to Civil Engineering Practices Audit Course** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| | Different types of civil engineering industries and their functioning. |
| | Applications of different documents, drawings, regulations in Civil Engineering Industries. |
| | Code of ethics to be practiced by a Civil Engineer and understand duties and responsibilities as a Civil Engineer |
| | Different safety practices on the site. |

| **Course Name:- Fluid Mechanics-I** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **201004.1** | Use fluid properties, dimensional analysis for solving problems of fluid flow. |

| | |
|---|---|
| **201004.2** | Solve fluid statics problems. |
| **201004.3** | Measure fluid pressure. |
| **201004.4** | Calibrate discharge measuring instrument like ventrurimeter, orifice meter. |
| **201004.5** | Distinguish between various types of fluid flows and find the fluid velocity using principles of Kinematics and Dynamics. |
| **201004.6** | Design pipes to carry particular amount of discharge. |

## SEMESTER II

| **Course Name:- Architectural Planning and Design of Buildings** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **201005.1** | Make use of principles of planning and principles of architectural Planning. |
| **201005.2** | Analyze the available primary or secondary data and plan different types of structures considering futuristic need of an area. |
| **201005.3** | Improve the status of existing structures by proposing appropriate green measures. |
| **201005.4** | Plan effectively various types of buildings according to their utility with reference to different codes. |
| **201005.5** | Understand and resolve contemporary issues at multi-dimensional functional levels. |
| | |
| **Course Name:- Engineering Geology** | |
| **Course Code** | **Course Outcomes** |
| **207009.1** | The course of Engineering Geology enables Students to acquire basic knowledge of different types of Rocks and Minerals occurring at construction sites and at the foundations. |
| **207009.2** | Students can identify various structural features that are occurring in the rocks and can determine whether these features are favorable or unfavorable at the foundations of Civil Engineering structures. |
| **207009.3** | Students can understand nature of various land forms created by natural processes and their importance in Civil engineering activities. |
| **207009.4** | Engineering structures. |
| **207009.5** | They can acquire knowledge of site selection for construction of Dams and Excavation of Tunnels. |
| **207009.6** | Students can understand effects of various natural hazards on Civil engineering Structures and can suggest remedial measures. |

| **Course Name:- Structural Analysis I** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **201008.1** | Understand the basic concept of static and kinematic indeterminacy, slope and deflection of determinate and indeterminate beams for analysis of structures. |

| | |
|---|---|
| **201008.2** | Analyze indeterminate beams structures and frames. |
| **201008.3** | Evaluate determinate and indeterminate trusses and its application in the field. |
| **201008.4** | Apply influence line diagrams for the analysis of structures under moving load. |
| **201008.5** | Analyze two and three hinged arches and its application. |
| **201008.6** | Apply plastic analysis for indeterminate steel structures by limits state method. |

| **Course Name:- Concrete Technology** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **201007.1** | concrete. |
| **201007.2** | Prepare and test the fresh concrete |
| **201007.3** | Test hardened concrete with destructive and nondestructive testing instruments |
| **201007.4** | Get acquainted to concrete handling equipment and different special concrete types. |
| **201007.5** | Design concrete mix of desired grade |
| **201007.6** | Predict deteriorations in concrete and repair it with appropriate methods and techniques. |

| **Course Name:-Soft Skill** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **201010.1** | Make use of techniques for self-awareness and self-development. |
| **201010.2** | Apply the conceptual understanding of communication into everyday practice. |
| **201010.3** | Understand the importance of teamwork and group discussions skills. |
| **201010.4** | Develop time management and stress management. |
| **201010.5** | Apply business etiquette skills effectively an engineer requires. |
| | |

## T.E Civil

**SEMESTER I**

| **Course Name:-** | **Infrastructure Engineering and Construction Techniques** |
|---|---|
| **Course Code** | **Course Outcomes** |
| **301002.1** | Students should be able to recognize necessity, importance and provisions for Infrastructural Development |
| **301002.2** | Students should acquire the knowledge of Railway track |
| **301002.3** | Students should learn various dewatering techniques, construction forms, types of lifting devices |
| **301002.4** | They should gain knowledge of various types of tunnels and methods of Tunneling |

| | |
|---|---|
| **301002.5** | They should know different types of Harbors, ports and methods of construction of their components |
| **301002.6** | Students should acquire skill of selection, performance &economics of major construction equipment |
| | |
| **Course Name** | **Hydrology and water resources engineering** |
| **Course Code** | **Course Outcomes** |
| **301001.1** | Students should aquire detail knowledge of hydrological cycle and its application |
| **301001.2** | Students should have detailed information about irrigation methods and its neccessity. |
| **301001.3** | Students should be aware of ground water occurrence and its distribution. |
| **301001.4** | Student should be able to know surface runoff and flood frequency analysis. |
| **301001.5** | Student should be able to know about planning of reserviour |
| **301001.6** | They should have idea about water management. |

| **Course Name:- Structural Analysis II** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **301004.1** | Analyze statically indeterminate beams and frames using Slope &Deflection method. |
| **301004.2** | Analyze statically indeterminate beams and frames using Moment Distribution method. |
| **301004.3** | Ability to solve statically indeterminate structures using Flexibility method. |
| **301004.4** | An ability to solve statically indeterminate structures using matrix (stiffness) method. |
| **301004.5** | An ability to find deflection of beams and multi storied rigid jointed frames by approximate methods. |
| **301004.6** | Study of 1D, 2D, 3D elements and their shape function by using finite element methods |
| | |
| **Course Name:- Structural Design I** | |
| **Course Code** | **Course Outcomes** |
| **301003.1** | Student should be able to design tension and compression member. |
| **301003.2** | Student should be able to design axially loaded column. |
| **301003.3** | Student should be able to design eccentrically loaded column. |
| **301003.4** | Student should be able to design laterally supported beams |
| **301003.5** | Student should be able to design welded plate girder. |
| **301003.6** | Student should be able to design gantry girder. |

| **Course Name:- Fluid Mechanics-II** | |
|---|---|
| **Course Code** | **Course Outcomes** |

| | |
|---|---|
| **301005.1** | Student should aquire knowledge of fluid flow around submerged objects. |
| **301005.2** | Student should able to solve problems of Open channel flow. |
| **301005.3** | Student should able to design most efficient channel section. |
| **301005.4** | Student should aquire knowledge of impact jet and centrifugal force. |
| **301005.5** | Student should aquire knowledge of Hydropower generation. |
| **301005.6** | Student should aquireknowledge of gradually varied flow in open channels. |

| **Course Name:- Employability Skills development** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **301006.1** | Student should be able to know what is employability and its skills. |
| **301006.2** | Student should be able to know interpersonal skills. |
| **301006.3** | Student should be able to know presentation skills. |
| **301006.4** | Student should be able to know communication skills |
| **301006.5** | Student should be able to know professional etiquettes and maners |
| **301006.6** | Student should be able to know personal skills. |

**SEMESTER II**

| **Course Name:- Advanced Surveying** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **301007.1** | Students should acquire detailed knowledge of Geodetic surveying and space based positioning system |
| **301007.2** | Students should be capable of performing sounding, shoreline survey and plotting of sounding during hydrographic survey |
| **301007.3** | Students should be able to determine elevation difference by trigonometric leveling and setting out bridge and tunnel alignment |
| **301007.4** | They should be capable of determining most probable values by triangulation adjustments Students should be conversant with Aerial photogrammetry. |
| **301007.5** | They should be aware of GIS and Remote sensing techniques in surveying |

| **Course Name:- Environmental Engineeering-I** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **301011.1** | Get Introduction to water supply scheme |
| **301011.2** | Imbibe Water intake structures |
| **301011.3** | Know Water treatment |

| | |
|---|---|
| **301011.4** | Learn Aeration , Filtration, Disinfection |
| **301011.5** | Aware of Water softening methods |
| **301011.6** | Study Water distribution system and Learn and implement of Rainwater harvesting |
| | |
| | |
| **Course Name:-** | **Structural Design II** |
| **Course Code:- Course Outcomes** | |
| **301010.1** | Student should know WSM and LSM. |
| **301010.2** | Student should be able to design one way and two way slab. |
| **301010.3** | Student should be able to design staircase. |
| **301010.4** | Student should be able to design flexural member. |
| **301010.5** | Student should know redistribution of moments in continuous reinforced concrete beam . |
| **301010.6** | Student should be able to design isolated column footing. |
| | |

| **Course Name:- Project Management and Engineering Economics** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **301008.1** | Student will aquire basic knowledge and imprtance of project management. |
| **301008.2** | Student will able to do the project planning with network and barcharts. |
| **301008.3** | Student will able to do the time and cost optimizationof project with resourse levelling and use of project management softwares. |
| **301008.4** | Student will aquire basic knowledge of economics and finance. |
| **301008.5** | Student will aquire skill of Inventory control and knowledge of safety management. |
| **301008.6** | Student will aquire knowledge of project appraisal and role of PMC |

| **Course Name:- Foundation Engineering** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **301009.1** | Student should know about subsurface investigations for foundation. |
| **301009.2** | Student should know about bearing capacity and shallow foundation. |
| **301009.3** | Student should aquire knowledge of settlement in foundation and consolidation. |
| **301009.4** | Student should know about deep foundation. |
| **301009.5** | Student should aquire knowledge of foundation of coffar dam on black cotton soil |
| **301009.6** | Student should know about soil reinforcement and Earthquake Geo techniques. |

# B.E Civil

**SEMESTER I**

| | |
|---|---|
| **Course Name:- Environmental Engineering-II** | |
| **Course Code** | **Course Outcomes** |
| **401001.1** | Study Sewage flow characteristics |
| **401001.2** | Learn Steam Sanitation |
| **401001.3** | Aware of Waste water treatment |
| **401001.4** | Know about Theory & design of treatment Plant |
| **401001.5** | Knowledge of Low cost treatment method and Anaerobic treatment Plant |
| **401001.6** | Learn various Industrial Waste water treatment methods |
| | |
| **Course Name:- Transportation Engineering** | |
| **Course Code** | **Course Outcomes** |
| **401002.1** | Students will acquire detail knowledge of Highways and Traffic engineering |
| **401002.2** | They will be able to prepare Geometric designs |
| **401002.3** | They will be capable of designing pavements |
| **401002.4** | They will acquire detail knowledge of airport Engineering |
| **401002.5** | Students will be able to construct different types of Bridges |
| **401002.6** | They will be able to work as maintenance Engineer for Bridges |

| | |
|---|---|
| **Course Name:- Structural Design III** | |
| **Course Code** | **Course Outcomes** |
| **401003.1** | Student should able to know Prestressed analysis. |
| **401003.2** | Student should able to Design of prestressed concrete element |
| **401003.3** | Student should able to Design of Flat Slab. |
| **401003.4** | Student should able to Design of Earth retaining Structure. |
| **401003.5** | Student should able to Design of Liquid retaining Structure. |
| **401003.6** | Student should able to know about vibration and earthquake analysis. |

| Course Name:- Structural Design of Bridges (Elective I) | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **401004.1** | Learn Types of Bridges |
| **401001.2** | Aware of Standard specification of bridge, T-Type Bridge |
| **400998.3** | Knowledge of Prestressed concrete design |
| **400995.4** | Study of types of railway steel bridge, Truss Bridge, Bracing System. |
| | |

| | |
|---|---|
| **Course Name:-** | **Advanced Engineering geology with rock mechanics (Elective I)** |
| **Course Code** | **Course Outcomes** |
| **401004.1** | Student should know about indian stratigraphy and geology applied to civil engineering practices. |
| **401004.2** | Student should aquire knowledge of sub-surface exploration for water retaining structure. |
| **401004.3** | Student should know about geological process of soil formation. |
| **401004.4** | Student should aquire knowledge of rock mechanics and geophysical techniques. |
| **401004.5** | Student should aquire knowledge of engineering geological investigation for tunnels and bridges. |
| **401004.6** | Student should know about role of geology in planning and development. |
| | |
| **Course Name:- TQM and MIS (Elective II)** | |
| **Course Code** | **Course Outcomes** |
| **401005.1** | Studnts will realize the awareness about importance of quality for construction project. |
| **401005.2** | Studnts will gain the knowledge of management information system. |
| **401005.3** | Studnts will learn modern tool of six sigma. |
| **401005.4** | Studnts will aquire knowledge of Quality system standard-ISO9000 and utilization of check list, quality manual. |
| **401005.5** | Studnts will aquire knowledge of modern tools of management control-kizen,Benchmarking and cost of quality. |

**SEMESTER II**

| Course Name:- Dams & Hydraulic Structure | |
|---|---|
| **Course Code** | **Course Outcomes** |

| | |
|---|---|
| **401007.1** | Student should acquire knowledge of different types of dams, safety and instrumentation |
| **401007.2** | Students should be capable of design and construction of gravity dam and introduction to arch dam |
| **401007.3** | They should have detailed knowledge of design of spillways and gates |
| **401007.4** | Students should be capable of design and construction of earth dam |
| **401007.5** | Students should be aware of classification of canal and able to design canal, canal structure. |
| **401007.6** | They should have knowledge of cross drainage work and river training structure. |
| | |
| **Course Name:- Quantity surveying, contracts and tenders** | |
| **Course Code** | **Course Outcomes** |
| **401008.1** | To learn type of estimates |
| **401008.2** | Students sholud be able to take out quantities and detailed estimate |
| **401008.3** | They should learn to calculate detailed estimation and valuation of structure. |
| **401008.4** | they should learn rate analysis |
| **401008.5** | They should have knowledge of tendering and execution of work |
| **401008.6** | They should have knowledge of contracts and arbitration. |
| | |
| | |
| **Course Name:- Air Pollution (Elective III)** | |
| **Course Code** | **Course Outcomes** |
| **401009.1** | Student should know metrological aspects and stack height determination per CPCB norms. |
| **401009.2** | student should know ambient air samplintg and analysis as per CPCB |
| **401009.3** | Students should know thecauses,effects,sources and control of indoor air pollution. |
| **401009.4** | students should be aware about air pollution control |
| **401009.5** | students should have knowledge of land use planning |
| **401009.6** | students should have knowledge of EIA and management. |

| | |
|---|---|
| **Course Name:- Construction Management (Elective IV)** | |
| **Course Code** | **Course Outcomes** |
| **401010.1** | Learn to manage various Resources |
| **401010.2** | Aware of Project Appraisal and development techniques. |
| **401010.3** | Study of various Disaster management skills. |
| **401010.4** | Inculcate Legal Aspects and Laws |

| | |
|---|---|
| **401010.5** | Develop Risk management techniques. |

## P.G.Courses

## M.E First Year (Civil)

| **Course Name:- Quantity surveying, contracts and Tenders** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **401008.1** | Students should aquire knowledge of different types of Contracts. |
| **401008.2** | Students should able to find various items of quantity upto plinth level. |
| **401008.3** | Students should able to find various items of quantity above plinth level. |
| **401008.4** | Student should able to know Rate analysis. |
| **401008.5** | Student should able to know about Tendering. |
| **401008.6** | Student should able to know about Contracts and its method of distribution. |

| **Course Name:- AdvancedMechanics of Solids** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **501001.1** | students should be able to Analyze of Stresses and Strains |
| **501001.2** | student should know about Stress-Strain Relationship |
| **501001.3** | student should gain knowledge about Polar Coordinate System |
| **501001.4** | Student should be able to analyze Stress concentration problems |
| **501001.5** | They should gain knowledge about Beams Curved in Plan |
| **501001.6** | They should gain knowledge about Beams Curved in Elevation |
| **501001.7** | Student should understand concept of Torsion |
| **501001.8** | They should gain knowledge about beams on Elastic Foundation |
| | |
| | |
| **Course Name:- Structural Dynamics** | |
| **Course Code** | **Course Outcomes** |
| **501002.1** | An ability to apply knowledge of mathematics, science, and engineering by developing the equations of motion for vibratory systems and solving for the free and forced response. |

| | |
|---|---|
| **501002.2** | Ability to identify, formulate and solve engineering problems. This will be accomplished by having students model, analyze and modify a vibratory structure order to achieve specified requirements. |
| **501002.3** | Understanding professional and ethical responsibilities. This will be accomplished by emphasizing the importance of understanding how structural vibrations may affect safety and reliability of engineering systems. |
| **501002.4** | An ability to communicate effectively will be accomplished by having students prepare a written report on their design/analysis project. |
| **501002.5** | An ability to use the techniques, skill and modern engineering tools necessary for engineering practice will be accomplished by giving students realistic problems which will require MatLab for solutions. |
| **501002.6** | An understanding of space structures by discussing vibration problems unique to large flexible structures |
| | |
| | |
| **Course Name:-** | **Advanced Design of Steel Structures** |
| **Course Code** | **Course Outcomes** |
| **501003.1** | Students should be able to analyze and design of hoarding structures under dead, live and wind load conditions |
| **501003.2** | Student gain knowledge about fabrication of the castellated beam from rolled steel section, design of castellated beam for bending and shear |
| **501003.3** | Students should have knoeledge of Microwave Towers and Transmission Towers |
| **501003.4** | Ttudents should be able to design tubular Trusses and scaffoldings using circular hollow, rectangular hollow sections |
| **501003.5** | They should know about Cold form light gauge section |
| **501003.6** | Students should be able to design chimneys |
| **501003.7** | They should know design of base plate, anchor bolt and foundation, stability of steel chimneys |

| | |
|---|---|
| **Course Name:-** | **Research Methodology** |
| **Course Code** | **Course Outcomes** |
| **501004.1** | Students should have knowledge about research |
| **501004.2** | Student should be able to develop a Research Proposal |
| **501004.3** | Students should have knowledge about literature survey |
| **501004.4** | Student should be able to do data collection ,Measuring,Sampling and Scaling. |
| **501004.5** | Students should have knowledge about preliminary data analysis |
| **501004.6** | Students should have knowledge advanced data analysis techniques |
| **501004.7** | Student should be able to writing report |
| **501004.8** | Student should be able to Present research. |

| Course Name:- Optimization Technique (Elective I) | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **501005.1** | Applications of numerical methods like bisection method, false position method,etc |
| **501005.2** | Applications of numerical methods like newton Raphson,Gauss Quadrature,etc |
| **501005.3** | Applications of methods like Gauss legendre, jordan, siedel |
| **501005.4** | Concepts of standard deviation, types of data and importance of statistics |
| **501005.5** | Concepts of probability distributions like normal, poisson, binomial, etc |
| **501005.6** | Concepts and applications of corelation regression, test of hypothesis, inerpolation and extrapolation |
| | |
| | |

| Course Name:- Finite Element Method | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **501007.1** | To obtain an understanding of the fundamental theory of the FEA method |
| **501007.2** | To develop the ability to generate the governing FE equations for systems governed by partial differential equations |
| **501007.3** | To understand the use of the basic finite elements for structural applications using truss, beam, frame, and plane elements |
| **501007.4** | To demonstrate the ability to create models for trusses, frames, plate structures, machine parts, and components using ANSYS general-p |
| **501007.5** | To model multi-dimensional heat transfer problems using ANSYS; |
| **501007.6** | To demonstrate the ability to evaluate and interpret FEA analysis results for design and evaluation purposes |

| Course Name:- Theory of Plates and shells | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **501008.1** | students are able to Understand the Simple bending of Plates and Different Boundary Conditions for plates |
| **501008.2** | students are able to Understand the limitations and differences of plate/shell theories within the context of the theory of elasticity. |
| **501008.3** | students are able to Understand and Analyze circular plates subjected to different kinds of loads. |
| **501008.4** | students are able to Understand and analyse and design thin shell structures including domes, hyperbolic, paraboloid, elliptic and cylindrical shells |
| **501008.5** | students are able to Understand and Design various types of shells structures and folded pipes |
| **501008.6** | students are able to Understand Beam theory of cylindrical shells: |

| Course Name:- Advanced Design of Concrete Structures | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **501009.1** | Student should know Yield line theory for analysis of slabs. |
| **501009.2** | Student should be able to design of various slabs. |

| | |
|---|---|
| **501009.3** | Student should be able to design grid and flat slab. |
| **501009.4** | Student should be able to design elevated service reservoir. |
| **501009.5** | Student should be able to design Bunkers, Silos, and chimney. |
| **501009.6** | Student should be able to design raft foundations, Pile foundations, single pile, group of piles, Pile cap. |
| **501009.7** | Student should be able to design of Shear wall, design of form work for slabs, girders, columns. |

| **Course Name:- Elective II** | |
|---|---|
| **Course Code** | **Course Outcomes** |
| **501010.1** | To develop an understanding of and appreciation for basic concepts in proportioning and design of bridges in terms of aesthetics, geographical location and functionality. |
| **501010.2** | To help the student develop an intuitive feeling about the sizing of bridge elements, ie. Develop a clear understanding of conceptual design. |
| **501010.3** | To understand the load flow mechanism and identify loads on bridges. |
| **501010.4** | To carry out a design of bridge starting from conceptual design, selecting suitable bridge,geometry to sizing of its elements |

## M.E Second Year (Civil)

| **Course Name:-** | **Earthquake Engineering and Disaster Management** |
|---|---|
| **Course Code** | **Course Outcomes** |
| **601013.1** | Student should gain knowledge about disaster and its Management |
| **601013.2** | Student should be able to design of RCC Structures |
| **601013.3** | Student should be able to design of Steel Structures |
| **601013.4** | Students should have knowledge about blast Loading |
| **601013.5** | Learn analysis of steel structure subjected to fire |
| **601013.6** | To understant Post Disaster Measures |

| **Course Name:-** | **Structural Design of Concrete and Prestressed Bridges** |
|---|---|
| **Course Code** | **Course Outcomes** |
| **601014.1** | To obtain an understanding of bridge engineering |
| **601014.2** | To carry out a design of slab culvert, box culvert and skew bridge. |
| **601014.3** | To learn about Courbon’s method, Henry-Jaegar method and Guyon-Massonet method |
| **601014.4** | To learn about Structural classification of Rigid Frame bridge |
| **601014.5** | To understand classification and design of bearings |

| | |
|---|---|
| **601014.6** | Analysis and design, types and design of wing walls |
| **601014.7** | To carry out a design of Bridge foundations, design of open well, pile and caisson foundation. |

| **Course Name:-** | **Elective –III** |
|---|---|
| **Course Code** | **Course Outcomes** |
| **601015.1** | To carry out a design of flat and concave plate circular in shape resting on ring beam |
| **601015.2** | To carry out a design of Multiple bay cylindrical shell, North light cylindrical shell, continuous cylindrical shell, hyperbolic paraboloid shell, Pre-stressed cylindrical shell and dome |
| **601015.3** | To understand Construction Safety And Safety Technology- |
| **601015.4** | To learn about Safety training, safety policy, safety committees, safety inspection, safety audit reporting accidents and dangerous occurrences. |