AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER
Department of Civil Engineering
Course Outcomes

Second Year- 2019 Course			
Semester - I			
Course Code	**Course Name**	**Course Outcomes**	
At the end of the course, the learners will be able to			
201001	Building Technology and Architectural Planning	CO1	Identify types of building and basic requirements of building components.
		CO2	Make use of Architectural Principles and Building byelaws for building construction.
		CO3	Plan effectively various types of Residential Building forms according to their utility, Functions with reference to National Building Code.
		CO4	Plan effectively various types of Public Buildings according to their utility functions with Reference to National Building Code.
		CO5	Make use of Principles of Planning in Town Planning, Different Villages and Safety aspects.
		CO6	Understand different services and safety aspects
201002	Mechanics of structure	CO1	Understand concept of stress-strain and determine different types of stress, strain in determinate, indeterminate homogeneous and composite structures.
		CO2	Calculate shear force and bending moment in determinate beams for different loading conditions and illustrate shear force and bending moment diagram.
		CO3	Explain the concept of shear and bending stresses in beams and demonstrate shear and bending stress distribution diagram.
		CO4	Use theory of torsion to determine the stresses in circular shaft and understand concept of Principal stresses and strains.
		CO5	Analyze axially loaded and eccentrically loaded column.
		CO6	Determine the slopes and deflection of determinate beams and trusses.
201003	Fluid Mechanics	CO1	Understand the use of Fluid Properties, concept of Fluid statics, basic equation of Hydrostatics, measurement of fluid pressure, buoyancy & floatation and its application for solving practical problems.
		CO2	Understand the concept of fluid kinematics with reference to Continuity equation and fluid dynamics with reference to Modified Bernoulli's equation and its application to practical problems of fluid flow

		CO3	Understand the concept of Dimensional analysis using Buckingham's π theorem, Similarity & Model Laws and boundary layer theory and apply it for solving practical problems of fluid flow.	
		CO4	Understand the concept of laminar and turbulent flow and flow through pipes and its application to determine major and minor losses and analyze pipe network using Hardy Cross method.	
		CO5	Understand the concept of open channel flow, uniform flow and depth-Energy relationships in open channel flow and make the use of Chezy's and Manning's formulae for uniform flow computation and design of most economical channel section.	
		CO6	Understand the concept of gradually varied flow in open channel and fluid flow around submerged objects, compute GVF profile and calculate drag and lift force on fully submerged body**.**	
207001	Engineering Mathematics III	CO1	Solve Higher order linear differential equations and its applications to modelling and analysing Civil engineering problems such as bending of beams, whirling of shafts and mass spring systems.	
		CO2	Solve System of linear equations using direct & iterative numerical techniques and develop solutions for ordinary differential equations using single step & multistep methods applied to hydraulics, geotechnics and structural systems.	
		CO3	Apply Statistical methods like correlation, regression and probability theory in data analysis and predictions in civil engineering.	
		CO4	Perform Vector differentiation &integration, analyze the vector fields and apply to fluid flow problems.	
		CO5	Solve Partial differential equations such as wave equation, one and two dimensional heat flow equations.	
207003	Engineering Geology	CO1	Explain about the basic concepts of engineering geology, various rocks, and minerals both in lab and on the fields and their inherent characteristics and their uses in civil engineering constructions.	
		CO2	Exploring the importance of mass wasting processes and various tectonic processes that hampers the design of civil engineering projects and its implications on environment and sustainability.	
		CO3	Recognize effect of plate tectonics, structural geology and their significance and utility in civil engineering activities.	
		CO4	Incorporate the various methods of survey, to evaluate and interpret geological nature of the rocks present at the foundations of the dams, percolation tanks, tunnels and to infer site / alignment/ level free from geological defects.	
		CO5	Assess the Importance of geological nature of the site, precautions and treatments to improve the site conditions for dams, reservoirs, and tunnels.	
		CO6	Explain geological hazards and importance of ground water and uses of common building stones.	

Semester- II			
201008	Geotechnical Engineering	CO1	Identify and classify the soil based on the index properties and its formation process
		CO2	Explain permeability and seepage analysis of soil by construction of flow net.
		CO3	Illustrate the effect of compaction on soil and understand the basics of stress distribution.
		CO4	Express shear strength of soil and its measurement under various drainage conditions.
		CO5	Evaluate the earth pressure due to backfill on retaining structures by using different theories.
		CO6	Analysis of stability of slopes for different types of soils.
201009	Survey	CO1	Define and Explain basics of plane surveying and differentiate the instruments used for it.
		CO2	Express proficiency in handling surveying equipment and analyse the surveying data from these equipment.
		CO3	Describe different methods of surveying and find relative positions of points on the surface of earth.
		CO4	Execute curve setting for civil engineering projects such as roads, railways etc.
		CO5	Articulate advancements in surveying such as space based positioning systems
		CO6	Differentiate map and aerial photographs, also interpret aerial photographs.
201010	Concrete Technology	CO1	Able to select the various ingredients of concrete and its suitable proportion to achieved desired strength.
		CO2	Able to check the properties of concrete in fresh and hardened state.
		CO3	Get acquainted to concreting equipment's, techniques and different types of special concrete.
		CO4	Able to predict deteriorations in concrete and get acquainted to various repairing methods and techniques.
201011	Structural Analysis	CO1	Understand the basic concept of static and kinematic indeterminacy and analysis of indeterminate beams.
		CO2	Analyze redundant trusses and able to perform approximate analysis of multi-story multi-bay frames.

		CO3	Implement application of the slope deflection method to beams and portal frames.
		CO4	Analyze beams and portal frames using moment distribution method.
		CO5	Determine response of beams and portal frames using structure approach of stiffness matrix method.
		CO6	Apply the concepts of plastic analysis in the analysis of steel structures.
201012	Project management	CO1	Describe project life cycle and the domains of Project Management.
		CO2	Explain networking methods and their applications in planning and management
		CO3	Categorize the materials as per their annual usage and also Calculate production rate of construction equipment
		CO4	Demonstrates resource allocation techniques and apply it for manpower planning.
		CO5	Understand economical terms and different laws associated with project management
		CO6	Apply the methods of project selection and recommend the best economical project.