



KRUPAJAL ENGINEERING COLLEGE

DEPARTMENT OF CIVIL ENGINEERING

BASIC CIVIL ENGINEERING	
((RBC2B002)) (2nd Sem)	
CO1	Understand and apply various Civil Engineering terminologies, and study various building materials, their use, and properties.
CO2	Study the basic Surveying and use of different modern surveying instruments.
CO3	Understand fundamental of soil and its classification, foundations, and fundamentals of Irrigation Engineering.
CO4	Study the concept of Transport, Traffic and Urban Engineering.

MECHANICS OF SOLIDS	
((RME3C001) (3rd sem)	
CO1	Able to understand the concept of stress, strain and strain energy and Analyze Various structural members subjected to Thermal Stress.
CO2	Understand plane stress and strain & Draw Mohr's Circle diagram. Apply thin pressure vessel formulas to determine various stress and strain.
CO3	Evaluate Shear force and bending moment of various beam subjected to different loading conditions.
CO4	Calculate slope and deflection of a beam by various methods, understand the behaviour of columns and circular shaft subjected to different loading conditions.

FLUID MECHANICS & HYDRAULICS MACHINES	
((RME3C002) (3rd Sem)	
CO1	Define fluid and Understand Fluid properties, Buoyancy, stability of submerged and floating bodies, Manometry, and static fluid forces on different surfaces.
CO2	Understand various types of flow, Mass Momentum and energy conservation and related equations.
CO3	Understand Bernoulli's equation and its applications and Determine major and minor losses in case of pipes and its power transmission.
CO4	Understand and classify different Turbines and pump, plot curves for various efficiencies and draw velocity triangles for the same.

SURVEYING	
((RCI4C001) (4th Sem)	
CO1	Able to understand the basic of survey engineering like chain surveying, Plane table surveying, levelling, counteracting etc.
CO2	Ability to formulate and solve various problems in leveling and appreciate the need for

	understanding various type of curves used in surveying.
CO3	To prepare topographical map and contour map on an area.
CO4	To learn the use of theodolite and modern surveying instruments.

TRANSPORTATION ENGINEERING	
(RCI4C002) (4th Sem)	
CO1	To learn the importance of highway transportation and Principle of highway planning.
CO2	Understand the Highway Materials and introduction to Traffic Engineering.
CO3	Learn the basics design of highway pavements.
CO4	Understand the concept of highway construction and maintenance.

CONCRETE TECHNOLOGY	
(RCI4D002) (4th Sem)	
CO1	Understand the theoretical concept and the physical & chemical properties of Concrete material which includes Cement, Admixtures and Aggregates.
CO2	Study the behavior of concrete at its fresh and hardened state, describe and carry out tests of Fresh concrete.
CO3	Understand the properties & tests of hardened concrete, factors affecting Elasticity, creep & Shrinkage in concrete.
CO4	Learn about different types of Special & No fines concrete and their uses, as well as the concept and factors influencing concrete mix design utilising various methods.

STRUCTURAL ANALYSIS-I	
(RCI4C003) (4th Sem)	
CO1	Ability to distinguish between determinate and indeterminate structures.
CO2	Learn different theorems and methods of analyzing a structure.
CO3	Ability to analyze indeterminate plane trusses.
CO4	Ability to use influence line diagrams as a valid tool for structural analysis.

DESIGN OF CONCRETE STRUCTURES	
(RCI5C001) (5th Sem)	
CO1	Analyze the strength of reinforced concrete beams at various support conditions as per limit state design.
CO2	Learn design of doubly reinforced beams, slabs and staircases.
CO3	Learn design of short and long columns and column footings.
CO4	Learn design of various retaining walls and water tanks.

WATER AND WASTE WATER ENGINEERING	
(RCI5C002) (5th Sem)	
CO1	Learn about different sources of water and its demand.
CO2	Understand water quality parameters.
CO3	Learn the engineered systems for water treatment.
CO4	Understand the qualities of wastewater and its treatment.

GEOTECHNICAL ENGINEERING	
(RCI5C003) (5th Sem)	
CO1	Understand different types of soils, basic properties and their importance in geotechnical engineering.
CO2	The students will learn the fundamentals and be able to deal with practical problems involving calculation of soil stresses, permeability, and seepage, as well as flow net diagrams.
CO3	Understanding of the basic concepts of soil compaction, factors that influence soil compaction, and field testing techniques.
CO4	Evaluate the shear strength & stress distribution of soil also solve practical problems related to consolidation settlement.

STRUCTURAL ANALYSIS-II	
(RCI5D001) (5th Sem)	
CO1	To know about different displacement methods of analysis of structures.
CO2	Able to analyse two hinged and fixed arches and suspension cables.
CO3	Learn to apply matrix methods of analysis.
CO4	Understand the concept of Plastic Analysis.

RAILWAY AND AIRPORT ENGINEERING	
(RCI5D004) (5th Sem)	
CO1	To expose the students to Railway engineering.
CO2	Students will also know the planning and design of airport and its components in layout.
CO3	The planning of harbor and docks.
CO4	To understand various Inland waterways in India and their characteristics.

DESIGN OF STEEL STRUCTURES	
(RCI6C001) (6th Sem)	
CO1	Gain knowledge about basic properties of steel and know about different connections.
CO2	Learn about tension and compression members and their design in steel structures.
CO3	Design of beams.
CO4	Learn about plate girders and roof trusses.
HYDROLOGY & IRRIGATION ENGINEERING	
(RCI6C002) (6th Sem)	
CO1	Learn about basic concepts of hydrology and integrate the physical hydrological processes.
CO2	Study various process, measurement and estimation of hydrological components: evaporation, infiltration, stream flow etc.
CO3	To know the basics of irrigation and apply them to design irrigation canals.
CO4	Study various types of Cross-Drainage (CD) Works and dams.

ENVIRONMENT GEO TECHNIQUE	
(RCS7E004) (6th Sem)	
CO1	Understand the concept of scope and importance waste generation.
CO2	Learn various forms of waste and their properties.
CO3	Learn selection of waste disposal sites and components of landfills.
CO4	Learn the basics of slurry deposition.

PRESTRESSED CONCRETE	
(RCI7D001) (7th Sem)	
CO1	The student will be able to understand the basic concepts about prestressed concrete and analyse the same.
CO2	The student will be able to design prestressed beams.
CO3	The student will be able to select the prestress concrete members and calculate the deflections.
CO4	Learn about different prestressed concrete sections.

WATER RESOURCE ENGINEERING**(RCI7D006) (7th Sem)**

CO1	Understand hydrologic cycle and methods to prepare different data related to water resources.
CO2	Learn various methods to estimate rainfall.
CO3	Learn the basics of drought.
CO4	Use concepts of Open Channel Flow to identify the most economical section of a channel.