



**Vidya Vikas Education Trust's  
Universal College of Engineering, Kaman Road, Vasai-401212**

**DEPARTMENT OF CIVIL ENGINEERING**

**DESIGN AND DRAWING OF REINFORCED CONCRETE STRUCTURES**

At the end of the course students will be able to:

- CO1-** Understand the complete analysis and design of residential and industrial buildings using relevant IS codes.
- CO2-** Understand the complete analysis and design of different types of retaining walls.
- CO3-** Understand the complete analysis and design of different types of water tanks using relevant IS codes by working stress method.
- CO4-** Be well versed with concepts of civil engineering techniques and ability to use it in practice.

**CONSTRUCTION ENGINEERING**

At the end of the course students will be able to:

- CO1-** Understand the different types of standard/special equipment used in the construction industry and learn the different sources of equipment, economic life and depreciation cost of equipment.
- CO2-** Determine owning and operating costs, evaluate maintenance and repair costs.
- CO3-** Understand the various equipment related to earth moving, drilling and blasting, pile driving, pumping, stone crushing, air compressors, equipment for moving materials etc.
- CO4-** Understand the complex processes involved in the construction of tunnels.
- CO5-** Understand various soil stabilization techniques such as sand drains and stone columns, use of geotextiles and chemicals, diaphragm wall, rock anchors, foundation grouting, etc.
- CO6-** Understand the concept of mass concreting, vacuum concreting and modern slip forms and to understand different types of cladding and their arrangements.



**DEPARTMENT OF CIVIL ENGINEERING**

**CONSTRUCTION MANAGEMENT**

At the end of the course students will be able to:

- CO1-** Understand and apply Management principles, its significance to Construction Management and managing resources. They can also plan, schedule, execute and control projects effectively using resources.
- CO2-** Know the unique features, life cycle of project. Understanding the roles and responsibilities of the agencies involved. It gives an idea about organizing and mobilizing resources, design an effective layout etc.
- CO3-** Demonstrate capability for preparing project networks and work out best possible project duration. Students shall be able to draw bar charts, for different stages of Planning. Analyse Network to find Critical Path. Use PERT method for particular projects, deducing time estimates and finding slack. Finding, the probability of project completion time using statistical tools.
- CO4-** Implement Materials Management, the methods used for inventory control. They get an idea of Manpower planning, selection & recruitment, training, performance evaluation. Understand basics of Finance management, sources of funds, their pros & cons based on project economic appraisal. Students learn the method of Resource levelling and Resource smoothening. Students get a basic introduction to Project management software.
- CO5-** Understand various records to be maintained, writing progress reports and updating the network at regular intervals. Students are able to achieve Time Cost optimization using compression, decompression techniques. Understanding reasons for Time Over run and Cost overrun and corrective measures in such situation. Student understands the importance of Quality, checks to be performed, prepare Quality manual, use statistical quality control. Understanding IS 14000.
- CO6-** Implement the safety as well as quality aspects during the execution of civil engineering project. Students shall be able to identify causes of accidents, workout cost of accidents, identifying Occupational hazards. Health & safety campaign Understanding various legislation, their objectives, applicability and eligibility in projects.



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**TRANSPORTATION PLANNING AND ECONOMICS**

At the end of the course students will be able to:

- CO1-** Students will be able to understand and apply Land use transport models for transportation planning. They will also be able to understand travel forecasting principles and techniques in planning.
- CO2-** Students get to understand the various cost and benefit related to transport project. And they will also be able to compare feasibility of projects using net present value and rate of return from projects.
- CO3-** Students will be able to compare characteristics and application of various mass rapid transit system used in urban transportation.

**INDUSTRIAL WASTE TREATMENT**

At the end of the course students will be able to:

- CO1-** Understand and get the idea of various characteristics of different industrial wastewater, river and effluent standards and sampling and analysis of industrial waste.
- CO2-** Understand process of self-purification of streams, the significance of Streeter and Phelps' equation and Oxygen Sag Curve.
- CO3-** Get acquainted with unit process and unit operations like neutralization, equalization etc.
- CO4-** Identify effluent characteristics of Industrial waste on the basis of manufacturing process and effluent treatment of Industrial waste on the basis of manufacturing process.
- CO5-** Get acquainted with treatment processes with various acts pertaining to industrial wastes/effluents, process of EIA, EA and CETP.