



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

DEPARTMENT OF CIVIL ENGINEERING

QUANTITY SURVEY, ESTIMATION & VALUATION

At the end of the course students will be able to

- CO1-** To read, understand and interpret plans, sections, detailed drawings and specifications for a construction project. To study the various methods of detailed and approximate estimates.
- CO2-** To emphasize the importance of relevant IS: 1200- 1964 codes and relevant Indian Standard specifications, taking out quantities from the given requirements of the work, and drafting specifications.
- CO3-** To conduct a material and labour survey to understand the current market rates for the various materials required for construction and the different categories of labour required. To prepare specifications of various types, prepare specifications for various items as a part of tender documents. Understanding the importance and use of specification.
- CO4-** To perform the rate analysis for various items: standard and non-standard and the use of DSR in this process.
- CO5-** To study the process of tendering and its various stages, various types of contracts, its suitability and validity as per the Indian Contract Act of 1872 and draft various clauses and conditions of a contract. Will be able to understand the arbitration process.
- CO6-** To study assessment of the value of a property with or without structure. Study the Valuation table and formulas for assessing different types of properties.



DEPARTMENT OF CIVIL ENGINEERING

ENVIRONMENTAL ENGINEERING II

At the end of the course students will be able to

- CO1-** Determine quantity of waste water and also design the sewer line for a population of particular city
- CO2-** Analyse waste water sample and suggest a suitable solution to remove the impurities from water.
- CO3-** Get the idea about working and design of secondary treatment units and sludge disposal standards.
- CO4-** Get the idea about advanced water treatment used for removal of nutrients from waste water and how to calculate oxygen deficit.
- CO5-** Give plumbing layout and improve the sanitation by providing modern plumbing systems with water efficient fixtures.
- CO6-** Students shall be able to carry out analysis of air quality and understand how it affects human health. They will also learn about pollution controlling measures .

IRRIGATION ENGINEERING

At the end of the course students will be able to

- CO1-** Collect data and calculate the demand of water for agricultural land.
- CO2-** Derive hydrographs and predict yield of catchment.
- CO3-** Apply their knowledge on ground water, well hydraulics to estimate safe yield.
- CO4-** Investigate and control level of sedimentation in reservoir.
- CO5-** Perform stability analysis and design various hydraulic structures.
- CO6-** Analyse and carry out design of water resource distribution system.



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LIMIT STATE METHOD FOR REINFORCED CONCRETE STRUCTURE

At the end of the course students will be able to

- CO1-** Develop the clear understanding of the concepts of the design of reinforced concrete structure using ULM and LSM.
- CO2-** Understand the concept of ULM and apply it in analysis and design of beams.
- CO3-** Understand the various clauses of IS: 456-2000 and its significance in the RCC design.
- CO4-** Independently or as a member of the team design structural member like beam, column, slab and footing by using LSM.

TRAFFIC ENGINEERING & CONTROL

At the end of the course students will be able to

- CO1-** Understand all the traffic characteristics such as speed, journey time, hydrodynamic analogies, queuing theory and entropy in traffic engineering.
- CO2-** Understand all the traffic surveys such as O&D, Parking, Accident etc. required for effective traffic management system and to correlate the concepts related to highway capacity.
- CO3-** Understand, plan and design all the important elements on the roads like signal, rotary, traffic management systems and street lighting.
- CO4-** Apply statistical analysis in traffic engineering



DEPARTMENT OF CIVIL ENGINEERING

SOLID WASTE MANAGEMENT

At the end of the course students will be able to

- CO1-** To understand generation, characteristics and functional elements of municipal solid waste.
- CO2-** To study segregation of municipal solid waste and collection, storage and transportation methods of waste
- CO3-** To be able to distinguish different types of waste processing techniques and disposal methods
- CO4-** To study different types of solid waste including its generation, classification, collection, storage, transportation and disposal

ADVANCE STRUCTURAL ANALYSIS

At the end of the course students will be able to

- CO1-** Understand stiffness matrix method.
- CO2-** Analyse various types of structures by conventional form of stiffness method, Modified Moment Method, Kani's Method.
- CO3-** Understand Flexibility Method in Matrix form.
- CO4-** Analyse the indeterminate structure by conventional form of flexibility method.
- CO5-** Analyse the indeterminate structure by Approximate Methods.
- CO6-** Understand Influence line diagram for indeterminate structure & Plastic Analysis of Steel Structure.