



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

**DEPARTMENT OF CIVIL ENGINEERING**

**APPLIED MATHEMATICS IV**

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

- CO1-** Use matrix algebra with its specific rules to solve the system of linear equations.
- CO2-** Understand and apply the concept of probability distribution and sampling theory to engineering problems.
- CO3-** Apply principles of vector differential and integral calculus to the analysis of engineering problems.
- CO4-** Identify, formulate and solve engineering problems

**CONCRETE TECHNOLOGY**

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

- CO1-** Study the ingredients of the concrete & Properties of cement & aggregate.
- CO2-** Study the details of concrete & concreting techniques and to differentiate between properties of fresh and hardened concrete.
- CO3-** Design concrete mix by I.S. method.
- CO4-** Study about the HPC, admixtures and their application.
- CO5-** Study various types of special concrete, its use and application.
- CO6-** Perform various NDT on concrete structures and to study crack repair and rehabilitation of concrete structures.



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**SURVEYING- II**

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

- CO1-** Understand the principle, uses and importance of tacheometry.
- CO2-** Learn and analysis various methods tacheometry and their application in practical work.
- CO3-** Understand the various types of curves and able to analysis setting out of horizontal curve.
- CO4-** Analysis of setting out of vertical curves & works with suitable methods.
- CO5-** Understand the modern surveying instrument and modern surveying method used now days in engineering work.
- CO6-** Plot contour maps and road section by field measurement.

**BUILDING DESIGN AND DRAWING- I**

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

- CO1-** Get an idea of load bearing, framed and Composite structure.
- CO2-** Understand the concept of footing, types of footing ,Doors, windows and stair-case
- CO3-** Plan the building as per the bye laws and sun path diagram and able to execute the plan onto the field.
- CO4-** Understand various terminologies of building drawing and local district rules and can draw the plan, elevation, section of the building.
- CO5-** Plan the bungalow as per the bye laws and principal of planning.
- CO6-** Draw the line diagram of water supply, sanitary and electrical layouts.



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**FLUID MECHANICS- II**

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

- CO1-** Familiar with concepts of major and minor losses due to various pipe fittings.
- CO2-** Solve pipe network problems by hardy cross method.
- CO3-** Evaluate pressure drop in pipe flow using hagen-poiseuille's equation for laminar flow in a pipe.
- CO4-** Understand the concept of Prandtl's mixing theory and solve turbulent flow problems.
- CO5-** Distinguish the types of compressible flow based on mach number.
- CO6-** Analyze and solve problems on stagnation properties.

**STRUCTURAL ANALYSIS- I**

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

- CO1-** Draw SFD, AFD and BMD of determinate frame with internal hinge.
- CO2-** Find the slope and deflection of beams using these methods
- CO3-** Find the deflection and slope in portal frames using Energy methods.
- CO4-** Get the concept of influence line diagram and can draw influence line for determinate structures.
- CO5-** Analyze the arches, suspension bridges and three hinged stiffness girder
- CO6-** Find the stresses in struts, unsymmetrical section and can find shear centre for various sections.