



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

DEPARTMENT OF CIVIL ENGINEERING

APPLIED MATHEMATICS III

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

- CO1-** Understand the basic concept of Laplace transform.
- CO2-** Apply linear transformation and conformal mapping.
- CO3-** Evaluate contour integral and solve equation using Fourier integral.
- CO4-** Solve initial and B.V.P using ordinary differential equation and will be able to understand the concept of co-relation regression.

SURVEYING I

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

- CO1-** Understand basic principles, objectives and classifications of surveying and will be able to perform linear measurements by chain surveying along with ranging, offsetting.
- CO2-** Get an idea about different bearings and shall analyse the traverse with corrections by compass surveying.
- CO3-** Get the knowledge of different levelling concepts and will be able to find reduced levels at any point using different levelling instruments.
- CO4-** Plot contour justifying various characteristics and shall plot traverse using plane table and compute area of survey plot and volume of earthwork using different computational methods.
- CO5-** Handle the theodolite operation and able to find reduced level and angular measurements using different methods and study various corrections.
- CO6-** Understand tacheometry methods and able to find linear and angular measurements in both vertical and horizontal direction.



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STRENGTH OF MATERIALS

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

- CO1-** Understand the concept of simple stress, strain and strain energy.
- CO2-** Calculate the shear force and bending moment for various types of flexural members.
- CO3-** Understand the principle planes, stresses and shear stresses in beam.
- CO4-** Understand the theory of simple bending in flexural members.
- CO5-** Students have understood with the concept of stresses in axially and eccentrically loaded vertical members.
- CO6-** Understand the thin cylindrical and spherical shell and torsion in circular shaft.

ENGINEERING GEOLOGY

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

- CO1-** Apply the core concepts of Geology with special focus in various Civil Engineering Projects.
- CO2-** Gain the knowledge and application of Tectonic plate theory, seismography & formation of various landforms existing on the Earth's Surface.
- CO3-** Identify various minerals and its classification through the mode of formation, texture etc. And understand their applications in Civil Engineering Projects.
- CO4-** Gain knowledge structural geology in order to understand the occurrence of various deformations on the surface of earth such as faults, folds, joints, etc, and the stratigraphy of India.
- CO5-** Apply their knowledge with respect to various Geological Investigations and its importance to achieve stability and safety in various structures like dams, tunnels and reservoirs.
- CO6-** Gain knowledge about Geological work of Ground water and various Geological Disasters such as Volcanoes, Landslides and Earthquakes, the information about the control measure of each phenomenon is also studied.



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FLUID MECHANICS-I

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

- CO1-** Understand Properties of fluid and basic concepts applicable to fluid mechanics
- CO2-** Solve problems on Pascal's law, hydrostatic law and determination of Hydrostatic pressure and Centre of pressure.
- CO3-** Apply the concepts of buoyancy, Metacenter, metacentric height and liquids in relative equilibrium.
- CO4-** Understand the concepts of ideal fluid flow and fluid kinematics.
- CO5-** Understand the concepts of fluid dynamics such as Bernoulli's theorem and its applications.
- CO6-** Understand visualize the flow through orifices, mouthpieces, notches and weirs.

BUILDING MATERIALS AND CONSTRUCTION

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

- CO1-** Understand various types of structure and foundation.
- CO2-** Study the classification, properties and manufacturing process of basic construction materials.
- CO3-** Study various types of masonry construction, finishes, paints and varnishes used in construction.
- CO4-** Understand types of formwork, flooring and roofs used in construction.
- CO5-** Know various materials like glass, timber, metal, alloys & their various types for uses in construction.
- CO6-** Study various building services, air conditioning and ventilation, acoustics and sound insulation, damp-proofing and water proofing techniques in construction.