Vidya Vikas Education Trust's
Universal College of Engineering, Kaman Road, Vasai-401208
Accredited B+ Grade by NAAC

DEPARTMENT OF APPLIED SCIENCE AND HUMANITIES

Academic year: 2019-20 **Semester:** I **Branch:** ALL FIRST YEAR

Course Code	Course Name	COs
FEC101	ENGINEERING MATHEMATICS I	*Student will be able to* **CO 1.** Illustrate the basic concept of complex number. **CO 2.** Apply the knowledge of complex numbers to solve problems in hyperbolic function and logarithm function. **CO 3.** Illustrate the basic principal of partial differentiation. **CO 4.** Illustrate the knowledge of maxima, minima and successive differentiation. **CO 5.** Apply principals of basic operation of matrices, rank and echelon form of matrices to solve simultaneous equation. **CO 6.** Illustrate SCILAB programming technique to the solution of linear and simultaneous equation.
FEC102	ENGINEERING PHYSICS I	*Student will be able to* **CO 1.** Illustrate the fundamentals of quantum mechanics like De Broglie hypothesis, uncertainty principal, particle in box and its application. **CO 2.** Illustrate crystal structure and X-ray diffraction techniques for X-rays. **CO 3.** Understand direct and indirect band gap and can able to apply concept of Fermi energy levels and apply knowledge of Semiconductor to LED, Photovoltaic Cell. **CO 4.** Understand the Interference in thin films in measurements and can apply its application in daily life. **CO 5.** Discuss the properties of Superconductors and able to understand its applications like Maglev train, SQUID. **CO 6.** Understand types of Liquid crystals, function of LCD, magnetoresistance, GMR, CMR.
FEC103	ENGINEERING CHEMISTRY I	*Student will be able to* **CO 1.** Student will be able to understand different types of hardness of water. They will also learn to estimate hardness of water using soap and EDTA method **CO 2.** Student will get the idea about water treatments which is suitable for domestic and industry purpose. **CO 3.** Student will understand the concept of microscopic chemistry in terms of atomic and molecular orbital theory and relate it to diatomic molecules.

		CO 4. Student will get the idea about the concept of orbital theory, aromaticity and various types of intermolecular forces. **CO 5.** Student will get the idea about different types polymer with manufacturing process and uses. **CO 6.** Student will be able to Interpret various phase transformations using thermodynamics by Phase Rule.
FEC104	ENGINEERING MECHANICS	*Student will be able to* **CO 1.** Illustrate the concept of force, moment and apply the same along with the concept of equilibrium in two and three dimensional systems with the help of FBD **CO 2.** Demonstrate the understanding of Centroid and its significance and locate the same. **CO 3.** Correlate real life application to specific type of friction and estimate required force to overcome friction. **CO 4.** Establish relation between velocity and acceleration of a particle and analyze the motion by plotting the relation **CO 5.** Illustrate different types of motions and establish Kinematic relations for a rigid body. **CO 6.** Analyze particles in motion using force and acceleration, work-energy and impulse momentum principles
FEC105	BASIC ELECTRICAL ENGINEERING	*Student will be able to* **CO 1.** Apply various network theorems to determine the circuit response / behavior. **CO 2.** To evaluate and analyze 1-Φ AC circuits. **CO 3.** Understand the constructional features and operation of 1-Φ transformer. **CO 4.** To evaluate and analyze 3-Φ AC circuits. **CO 5.** To illustrate working principle of DC machines. **CO 6.** To conduct experiments on D.C. circuits and AC circuits.