



Mahavir Education Trust's
Shah & Anchor Kutchhi Engineering College,
Chembur, Mumbai 400 088
UG Program in Electronics Engineering

Academic Year 2019-20

Semester - I

Unique Course Number: FEC101

Course Name: Engineering Mathematics-I

Unique CO Number	Course Outcome (CO) Statement
1.FEC101.1	Apply De'Moivre's Theorem to obtain the powers and roots of a complex number.
1.FEC101.2	Use the relation between circular and hyperbolic functions to separate into real and imaginary parts of hyperbolic and logarithmic functions.
1.FEC101.3	Develop skills of successive Differentiation, expansion of functions in ascending power of variable and value of the function in neighbourhood of some points.
1.FEC101.4	Apply the concept of partial differentiation to find total derivative and maxima & minima of a function of two independent variables.
1.FEC101.5	Apply Numerical Techniques to solve Transcendental equations using Newton-Raphson and Regula-falsi methods.
1.FEC101.6	Calculate the rank of a matrix by reducing it to Echelon form, Normal form and use this concept to solve the system of linear equations.

Unique Course Number: FEC102

Course Name: Engineering Physics-I

Unique CO Number	Course Outcome (CO) Statement
1.FEC102.1	Recall the basic principles, methodologies and crystal structures.
1.FEC102.2	Understand and describe the concepts pertaining to quantum mechanics, crystallography and semiconductor physics.
1.FEC102.3	Discuss the principles of interference in thin films, superconductivity and engineering materials.
1.FEC102.4	Apply the theory of quantum mechanics, crystallography and semiconductor physics for explaining the structure and functionality of atoms, crystals and devices.
1.FEC102.5	Develop and utilize the concepts of interference in thin films, superconductivity and engineering materials for interpretation under varying conditions.
1.FEC102.6	Demonstrate the use of concepts learnt in practical applications.



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Unique Course Number: FEC103

Course Name: Engineering Chemistry-I

Unique CO Number	Course Outcome (CO) Statement
1.FEC103.1	Recall the basic concepts of engineering chemistry such as atomic and molecular structure, phases, industrial polymer
1.FEC103.2	Explain the concept of microscopic chemistry in terms of atomic and molecular orbital theory and relate it to molecular structure
1.FEC102.3	Illustrate the knowledge of various types of intermolecular forces and relate it to properties of materials
1.FEC103.4	Describe the concept of phase transformation of a given material
1.FEC103.5	Illustrate the knowledge of polymers, fabrication method, and conducting polymers in various industrial fields
1.FEC103.6	Analyze the quality of water and suggest method for treatment

Unique Course Number: FEC104

Course Name: Engineering Mechanics

Unique CO Number	Course Outcome (CO) Statement
1.FEC104.1	Illustrate the concept of force, moment and apply the same in determining resultant of coplanar and non-coplanar system
1.FEC104.2	Determine centroid of plane lamina.
1.FEC104.3	Apply the conditions of equilibrium in two-dimensional system with the help of FBD
1.FEC104.4	-Apply laws of friction on bodies lying on horizontal and inclined plane.
1.FEC104.5	Establish relation between velocity and acceleration of a particle and analyze the motion by plotting relation
1.FEC104.6	Illustrate different types of motion and establish kinematic relation for a rigid body and analyze particles in motion using force, acceleration, work-energy and impulse momentum principles



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Unique Course Number: FEC105

Course Name: Basic Electrical Engineering

Unique CO Number	Course Outcome (CO) Statement
1.FEC105.1	Recall methodologies, procedures and principles of basic electrical engineering.
1.FEC105.2	Understand the various electrical circuit theorems and principles.
1.FEC105.3	Understand the principle and working of static electrical machines.
1.FEC105.4	Understand the principle and working of rotating electrical machines.
1.FEC105.5	Apply network theorems to circuits to determine the circuit response.
1.FEC105.6	Analyze behavior of basic electrical circuits.

Unique Course Number: FEL101

Course Name: Engineering Physics-I

Unique CO Number	Course Outcome (CO) Statement
1.FEL101.1	To Plot Miller Indices
1.FEL101.2	To analyse the working of pn junction diode based on its IV characteristics.
1.FEL101.3	To study the use of zener diode as voltage regulator.
1.FEL101.4	To calculate the thickness of paper using wedge shaped thin film based on the concept of interference in thin films.
1.FEL101.5	To study charging and discharging of super capacitor
1.FEL101.6	To relate theoretical analysis with the experimental data obtained.

Unique Course Number: FEL102

Course Name: Engineering Chemistry-I

Unique CO Number	Course Outcome (CO) Statement
1.FEL102.1	Understand the significance of viscosity and viscosity index of material
1.FEL102.2	Understand importance of estimation of the Chloride in water.
1.FEL102.3	Determine hardness of water to decide treatment of water before use.
1.FEL102.4	Understand the importance of pH value in water quality measurement
1.FEL102.5	Understand the structure and properties of polymer for its engineering applications



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1.FEL102.6	Document their observations and interpretation after performing the experiment satisfactorily.
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Unique Course Number: FEL103

Course Name: Engineering Mechanics

Unique CO Number	Course Outcome (CO) Statement
1.FEL103.1	Illustrate law of moment with the help of physical model.
1.FEL103.2	Illustrate law of equilibrium with the help of physical model.
1.FEL103.3	Illustrate law of polygon of forces with the help of physical model.
1.FEL103.4	To estimate friction force between two surfaces.
1.FEL103.5	To calculate the acceleration due to gravity.
1.FEL103.6	To find coefficient of restitution between steel ball and glass ball.

Unique Course Number: FEL104

Course Name: Basic Electrical Engineering

Unique CO Number	Course Outcome (CO) Statement
1.FEL104.1	Recall and Implement Electric Circuits
1.FEL104.2	Understand the theoretical concept and relate with practical behavior of Electric Circuit
1.FEL104.3	Understand the construction and working of Electrical machine
1.FEL104.4	Demonstrate correct usage of a method or procedure of Electric Circuit
1.FEL104.5	Identify the assumptions and differentiate between theoretical and practical results within permissible limits of error in Electric Circuit
1.FEL104.6	Analyze the losses and efficiency of Static Electrical machine

Unique Course Number: FEL105

Course Name: Basic Workshop practice-I

Unique CO Number	Course Outcome (CO) Statement
1.FEL105.1	Study and use of hand tools and power tools.



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1.FEL105.2	Performing marking, punching, cutting, filling, drilling, tapping, and etc. operations on fitting job.
1.FEL105.3	Welding of two metal parts by using butt and lap joint.
1.FEL105.4	Identify different components of computer hardware & troubleshooting.
1.FEL105.5	Installation of OS, device drivers and application software.
1.FEL105.6	Identify network devices, network cables & crimping.