



Unique Course Number: FEC101 **Course Name: Engineering Mathematics-I**

| Unique CO Number | Course Outcome (CO) Statement |
|------------------|---|
| | Students will be able to, |
| FEC1011 | Apply De Moivre's Theorem to obtain the powers and roots of a complex number. |
| FEC1012 | Use the relation between circular and hyperbolic functions to separate into real and imaginary parts of hyperbolic and logarithmic functions. |
| FEC1013 | Apply the concept of partial differentiation to find total derivative and maxima & minima of a function of two independent variables. |
| FEC1014 | Apply Euler's Theorem and corollaries to Homogenous and Non-Homogenous functions. |
| FEC1015 | 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. |
| FEC1016 | Determine the nth derivative of function/product of function. |

Unique Course Number: FEC102 **Course Name: Engineering Physics-I**

| Unique CO Number | Course Outcome (CO) Statement |
|------------------|---|
| | Students will be able to, |
| FEC1021 | Recall the basic principles, methodologies and crystal structures. |
| FEC1022 | Describe the concepts pertaining to quantum mechanics, crystallography and semiconductor physics. |
| FEC1023 | Explain the principles of interference in thin films, superconductivity and engineering materials. |
| FEC1024 | Apply the theory of quantum mechanics, crystallography and semiconductor physics for explaining the structure and functionality of atoms, crystals and devices. |
| FEC1025 | Utilize the concepts of interference in thin films, superconductivity and engineering materials for interpretation under varying conditions. |
| FEC1026 | Demonstrate the use of concepts learnt in practical applications. |

Unique Course Number: FEC103 **Course Name: Engineering Chemistry -I**

| Unique CO Number | Course Outcome (CO) Statement |
|------------------|---|
| | Students will be able to, |
| FEC1031 | Discuss the basic concepts of engineering chemistry such as atomic and molecular structure, inter-molecular forces, phases, polymers and hardness of water. |
| FEC1032 | Apply the concept of microscopic chemistry in terms of atomic and molecular orbital theory and relate it to molecular structure |
| FEC1033 | Illustrate the knowledge of various types of intermolecular forces and relate it to properties of materials |
| FEC1034 | Interpret phase transformation of a given material with the concept of Phase Rule. |
| FEC1035 | Select polymers and its fabrication method in various industrial fields. |
| FEC1036 | Analyze the quality of water and suggest methods for treatment. |



Unique Course Number: FEC104

Course Name: Engineering Mechanics

| Unique CO Number | Course Outcome (CO) Statement |
|------------------|---|
| | Students will be able to, |
| FEC1041 | Illustrate the concept of force, moment and apply the same in determining resultant of coplanar and non-coplanar system |
| FEC1042 | Determine centroid of plane lamina. |
| FEC1043 | Apply the conditions of equilibrium in two-dimensional system with the help of FBD |
| FEC1044 | Apply laws of friction on bodies lying on horizontal and inclined plane. |
| FEC1045 | Establish relation between velocity and acceleration of a particle and analyze the motion by plotting relation |
| FEC1046 | 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 |

Unique Course Number: FEC105

Course Name: Basic Electrical Engineering

| Unique CO Number | Course Outcome (CO) Statement |
|------------------|---|
| | Students will be able to, |
| FEC1051 | Recall methodologies, procedures and principles of basic electrical engineering |
| FEC1052 | Understand the various electrical circuit theorems and principles. |
| FEC1053 | Understand the principle and working of static electrical machines. |
| FEC1054 | Understand the principle and working of rotating electrical machines. |
| FEC1055 | Apply network theorems to circuits to determine the circuit response |
| FEC1056 | Analyze behavior of basic electrical circuits. |

Unique Course Number: FEL101

Course Name: Engineering Physics-I

| Unique CO Number | Course Outcome (CO) Statement |
|------------------|---|
| | Students will be able to, |
| FEL1011 | Plot Miller Indices |
| FEL1012 | Analyze the working of pn junction diode based on its IV characteristics. |
| FEL1013 | Study the use of zener diode as voltage regulator. |
| FEL1014 | Calculate the thickness of paper using wedge shaped thin film based on the concept of interference in thin films. |
| FEL1015 | Study charging and discharging of supercapacitor |
| FEL1016 | Relate theoretical analysis with the experimental data obtained. |

Unique Course Number: FEL102

Course Name: Engineering Chemistry-I

| Unique CO Number | Course Outcome (CO) Statement |
|------------------|---|
| | Students will be able to, |
| FEL1021 | Understand the significance of viscosity and viscosity index of material |
| FEL1032 | Understand the importance of estimation of the Chloride in water |
| FEL1033 | Determine hardness of water to decide treatment of water before use |
| FEL1034 | Understand the importance of pH value in water quality measurement |
| FEL1035 | Understand the structure and properties of polymer for its engineering applications |
| FEL1036 | Document their observations and interpretation after performing the experiment satisfactorily |



Unique Course Number: FEL103 Course Name: Engineering Mechanics

| Unique CO Number | Course Outcome (CO) Statement |
|------------------|--|
| | Students will be able to, |
| FEL1031 | Illustrate the law of moment, with the help of physical models |
| FEL1032 | Illustrate the law of equilibrium with the help of physical models |
| FEL1033 | Designed to law of polygon of forces with the help of physical models |
| FEL1034 | Designed to estimate the friction force between two surfaces |
| FEL1035 | Designed to calculate acceleration due to gravity |
| FEL1036 | Designed to find coefficient of restitution between steel ball & glass ball. |

Unique Course Number: FEL104 Course Name: Basic Electrical Engineering

| Unique CO Number | Course Outcome (CO) Statement |
|------------------|--|
| | Students will be able to, |
| FEL1041 | Recall and implement circuits |
| FEL1042 | Understand the theoretical concept and relate it with practical behavior. |
| FEL1043 | Understand the construction and working of electrical machines. |
| FEL1044 | Demonstrate correct usage of a method or procedure. |
| FEL1045 | Identify the assumptions and differentiate between theoretical and practical results, within permissible limits of errors. |
| FEL1046 | 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 |
|------------------|--|
| | Students will be able to, |
| FEL1051 | Study and use of hand tools and power tools |
| FEL1052 | Performing marking, punching, cutting, filling, drilling, tapping etc. operations on fitting job |
| FEL1053 | Welding of two metal parts by using butt and lap joint |
| FEL1054 | Identify different components of computer hardware & troubleshooting |
| FEL1055 | Installation of OS, device drivers and application software |
| FEL1056 | Identify network devices, network cables & crimping |