TERNA ENGINEERING COLLEGE

GENERAL ENGINEERING

	SUBJECT CODE	SUBJECT	CO/LO	CO / LO STATEMENT
SEM I	FEC101	Engineering Mathematics-I	CO1	Illustrate the basic concepts of Complex numbers.
			CO2	Apply the knowledge of complex numbersto solve problems in hyperbolic functions and logarithmic function.
			CO3	Illustrate the basic principles of Partial differentiation.
			CO4	Illustrate the knowledge of Maxima, Minima and Successive differentiation.
			CO5	Apply principles of basic operations of matrices, rank and echelon form of matrices to solve simultaneous equations.
			CO6	Illustrate SCILAB programming techniques to the solution oflinearand simultaneous algebraic equations.
	FEC102	Engineering Physics-I	CO1	Illustrate the fundamentals of quantum mechanics and its application.
			CO2	Explain peculiar properties of crystal structure and apply them in crystallography using X-ray diffraction techniques.
			CO3	Comprehend the concepts of semiconductor physics and applications of semiconductors in electronic devices.
			CO4	Employ the concept of interference in thin films in measurements.
			CO5	Discuss the properties of Superconductors and Supercapacitors to apply them in novel applications.
			CO6	Compare the properties of engineering materials for their current and futuristic frontier applications.
	FEC103	Engineering Chemistry-I	CO1	Explain the concept of microscopic chemistry in terms of atomic and molecular orbital theory and relate it to diatomic molecules.
			CO2	Describe the concept of aromaticity and interpret it with relation to specific aromatic systems.
			CO3	Illustrate the knowledge of various types of intermolecular forces and relate it to real gases.
			CO4	Interpret various phase transformations using thermodynamics.
			CO5	Illustrate the knowledge of polymers, fabrication methods, conducting polymers in various industrial fields.
			CO6	Analyze the quality of water and suggest suitable methods of treatment.
	FEC104	Engineering Mechanics	CO1	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.
			CO2	Demonstrate the understanding of Centroid and its significance and locate the same.
			CO3	Correlate real life application to specific type of friction and estimate required force to overcome friction.
			CO4	Establish relation between velocity and acceleration of a particle and analyze the motion by plotting the relation
			CO5	Illustrate different types of motions and establish Kinematic relations for a rigid body
			CO6	Analyze particles in motion using force and acceleration, work-energy and impulsemomentum principles
	FEC105	**Basic Electrical Engineering**	CO1	Apply various network theorems to determine the circuit response / behavior.
			CO2	Evaluate and analyze 1-Φ circuits.
			CO3	Evaluate and analyze 3-Φ AC circuits.
			CO4	Understand the constructional features and operation of 1-Φ transformer.
			CO5	Illustrate the working principle of 3-Φ machine.
			CO6	Illustrate the working principle of 1-Φ machines.
	FEL101	**Engineering Physics-I**	CO1	Illustrate the fundamentals of quantum mechanics and its application.
			CO2	Explain peculiar properties of crystal structure and apply them in crystallography using X-ray diffraction techniques.
			CO3	Comprehend the concepts of semiconductor physics and applications of semiconductors in electronic devices.
			CO4	Employ the concept of interference in thin films in measurements.
			CO5	Discuss the properties of Superconductors and Supercapacitors to apply them in novel applications.
			CO6	Compare the properties of engineering materials for their current and futuristic frontier applications.
	FEL102	**Engineering Chemistry-I**	CO1	Explain the concept of microscopic chemistry in terms of atomic and molecular orbital theory and relate it to diatomic molecules.
			CO2	Describe the concept of aromaticity and interpret it with relation to specific aromatic systems.
			CO3	Illustrate the knowledge of various types of intermolecular forces and relate it to real gases.
			CO4	Interpret various phase transformations using thermodynamics.
			CO5	Illustrate the knowledge of polymers, fabrication methods, conducting polymers in various industrial fields.
			CO6	Analyze the quality of water and suggest suitable methods of treatment.
	FEL103	**Engineering Mechanics**	CO1	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.
			CO2	Demonstrate the understanding of Centroid and its significance and locate the same.
			CO3	Correlate real life application to specific type of friction and estimate required force to overcome friction.
			CO4	Establish relation between velocity and acceleration of a particle and analyze the motion by plotting the relation
			CO5	Illustrate different types of motions and establish Kinematic relations for a rigid body
			CO6	Analyze particles in motion using force and acceleration, work-energy and impulsemomentum principles
	FEL104	**Basic Electrical Engineering**	CO1	Apply various network theorems to determine the circuit response / behavior.
			CO2	Evaluate and analyze 1-Φ circuits.
			CO3	Evaluate and analyze 3-Φ AC circuits.
			CO4	Understand the constructional features and operation of 1-Φ transformer.
			CO5	Illustrate the working principle of 3-Φ machine.
			CO6	Illustrate the working principle of 1-Φ machines.
	FEL105	Basic Workshop Practice-I	CO1	Develop the necessary skill required to handle/use different fitting tools.
			CO2	Develop skill required for hardware maintenance.
			CO3	Able to install an operating system and system drives.
			CO4	Able to identify the network components and perform basic networking and crimping.
			CO5	Able to prepare the edges of jobs and do simple arc welding.
			CO6	Develop the necessary skill required to handle/use different plumping tools.
	FEC201	**Engineering Mathematics-II**	CO1	Solve various types of First Order differential equation.
			CO2	Solve various types of Higher Order Differential equation.
			CO3	Illustrate the concepts of Beta and Gamma function,DUIS and rectification.
			CO4	Apply the concepts of Double integral
			CO5	Apply the concept of Triple integral.
			CO6	Apply the principles of Numerical Method for solving differential equation and numerical integration analytically and using Scilab also.
	FEC202	**Engineering Physics-II**	CO1	Describe the diffraction through slits and its applications.
			CO2	Apply the foundation of laser and fiber optics in development of modern communication technology.
			CO3	Relate the basics of electrodynamics which is prerequisite for satellite communications, antenna theory etc.
			CO4	Explain the fundamentals of relativity.
			CO5	Assimilate the wide scope of nanotechnology in modern developments and its role in emerging innovating applications.
			CO6	Interpret and explore basic sensing techniques for physical measurements in modern instrumentations.
	FEC203	**Engineering Chemistry-II**	CO1	Distinguish the ranges of the electromagnetic spectrum used for exciting different molecular energy levels in various spectroscopic techniques.
			CO2	Illustrate the concept of emission spectroscopy and describe the phenomena of fluorescence and phosphorescence in relation to it.
			CO3	Explain the concept of electrode potential and nernst theory and relate it to electrochemical cells.
			CO4	Identify different types of corrosion and suggest control measures in industries.
			CO5	Illustrate the principles of green chemistry and study environmental impact.
			CO6	Explain the knowledge of determining the quality of fuel and quantify the oxygen required for combustion of fuel.
	FEC204	**Engineering Graphics**	CO1	Apply the basic principles of projections in Projection of Lines and Planes
			CO2	Apply the basic principles of projections in Projection of Solids.
			CO3	Apply the basic principles of sectional views in Section of solids.
			CO4	Apply the basic principles of projections in converting 3D view to 2D drawing.
			CO5	Read a given drawing.
			CO6	Visualize an object from the given two views
	FEC205	C Programming	CO1	Formulate simple algorithms for arithmetic, logical problems and translate them to programs in C language
			CO2	Implement, test and execute programs comprising of control structures.
			CO3	Decompose a problem into functions and synthesize a complete program.

	FEL203		CO4	Demonstrate the use of arrays, strings and structures in C language.
			CO5	Understand the concept of pointers
			CO6	
	FEC206	**Professional**	CO1	Eliminate barriers and use verbal/non-verbal cues at social and workplace situations.
		Communicatio n	CO2	Employ listening strategies to comprehend wide-ranging vocabulary, grammatical structures, tone and pronunciation.
		and Ethics- I	CO3	Prepare effectively for speaking at social, academic and business situations.
			CO4	Use reading strategies for faster comprehension, summarization and evaluation of texts.
			CO5	Acquire effective writing skills for drafting academic, business and technical documents.
			CO6	Successfully interact in all kinds of settings, displaying refined grooming and social skills.
SEM II	**FEL201**	**Engineering**	CO1	Perform the experiments based on diffraction through slitsusing Laser source and analyze the results.
		Physics-II	CO2	Perform the experiments using optical fibre to measure numerical aperture of a given fibre.
			CO3	Perform the experiments on various sensors and analyze the result.
			CO4	
			CO5	
			CO6	
	FEL202	Engineering	CO1	Determine moisture and ash content of coal
		Chemistry-II	CO2	Analyze flue gas
			CO3	Determine saponification and acid value of oil
			CO4	Determine flash point of a lubricating oil
			CO5	Synthesize a drug and a biofuel.
			CO6	Determine na/k and emf of cu-zn system
	FEL203	Engineering	CO1	Apply the basic principles of projections in 2D drawings using a CAD software.
		Graphics	CO2	Create, Annotate, Edit and Plot drawings using basic AutoCAD commands and features.
			CO3	Apply the concepts of layers to create drawing.
			CO4	Apply basic AutoCAD skills to draw different views of a 3D object.
			CO5	Apply basic AutoCAD skills to draw the isometric view from the given two views.
			CO6	
	FEL204	C programming	CO1	Translate given algorithms to a program.
			CO2	Correct syntax and logical errors.
			CO3	Write iterative as well as recursive programs.
			CO4	Represent data in arrays, strings and structures and manipulate them through a program.
			CO5	Declare pointers and demonstrate call by reference concept.
			CO6	
	FEL205	**Professional**	CO1	Active listening with focus on content, purpose, main idea, tone and pronunciation.
		Communicatio n	CO2	Fluent speaking and presentation skills in social, academic and professional situations.
		and Ethics- I	CO3	Faster reading skills for effective comprehension in a variety of texts.
			CO4	Drafting effective written discourse in academics, business and technology.
			CO5	Grooming and projecting impressive persona in all interactions
			CO6	
	FEL206	**Basic Workshop**	CO1	Develop the necessary skill required to handle/use different carpentry tools.
		Practice-II	CO2	Identify and understand the safe practices to adopt in electrical environment.
			CO3	Demonstrate the wiring practices for the connection of simple electrical load/ equipment.
			CO4	Design, fabricate and assemble pcb.
			CO5	Develop the necessary skill required to handle/use different masons tools.
			CO6	Develop the necessary skill required to use different sheet metal and brazing tools.
			CO7	Able to demonstrate the operation, forging with the help of a simple job.