Department of Mechanical Engineering

Program: B. Tech in Mechanical Engineering

Regulation: R19 **Course Outcomes** **No. of course: 61**

I-I.	**Course Code: C101** **Course Name:** Calculus & Differential Equations (M-I)
CO-1	utilize mean value theorems to real life problems
CO-2	solve the differential equations related to various engineering fields
CO-3	familiarize with functions of several variables which is useful in optimization
CO-4	Apply double integration techniques in evaluating areas bounded by region
CO-5	learn important tools of calculus in higher dimensions
I-I.	**Course Code: C102** **Course Name: Mathematics - II**
CO-1	develop the use of matrix algebra techniques that is needed by engineers for practical applications
CO-2	solve system of linear algebraic equations using Gauss elimination, Gauss Jordan, Gauss Seidel
CO-3	evaluate approximating the roots of polynomial and transcendental equations by different algorithms
CO-4	apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals
CO-5	apply different algorithms for approximating the solutions of ordinary differential equations to its analytical computations
I-I.	**Course Code: C103** **Course Name: Engineering Physics**
CO-1	able to Construction and working details of instruments, ie., Interferometer, Diffractometer and Polarimeter are learnt.
CO-2	able to Study EM-fields and .iconductors under th concepts of Quantum mechanics paves way for their optimal utility
CO-3	Able to the fundamental concepts of quantum mechanics.
CO-4	Able to the various electron theories.
CO-5	Able to the energy bands of .iconductors.

I-I.	**Course Code: C104Course Name: Programming for Problem Solving Using C**
CO-1	To write algorithms and to draw flowcharts for solving problems
CO-2	To convert flowcharts/algorithms to C Programs, compile and debug programs
CO-3	To use different operators, data types and write programs that use two-way/ multi-way selection
CO-4	To select the best loop construct for a given problem
CO-5	To design and implement programs to analyze the different pointer applications
I-I.	**Course Code: C105 Course Name : Engineering Drawing**
CO1	Use drawing instruments to draw polygons and Engineering Curves.
CO2	Construct scales and draw Orthographic projections
CO3	draw projections of points
CO4	draw projections of planes
CO5	Describe and draw projections of solids
I-I.	**Course Code: C106 Course Name : English Lab**
CO-1	Better pronunciation and accent
CO-2	Ability to use functional English
CO-3	Competency in analytical skills and problem-solving skills
I-I .	**Course Code: C107 Course Name: Engineering Physics Lab**
CO-1	Develop skills to impart practical knowledge in real time solution.
CO-2	Understand principle, concept, working and application of new technology and comparison of results with theoretical calculations.
CO-3	Understand measurement technology, usage of new instruments and real time applications in engineering studies
I-I.	**Course Code: C108Course Name: Programming For Problem Solving Using C Lab**
CO-1	Apply and practice logical ability to solve the problems.
CO-2	Understand C programming development environment, compiling, debugging, and linking and executing a program using the development environment

CO-3	Analyze the complexity of problems, Modularize the problems into small modules and then convert them into programs
I-II.	**Course Code: C109 Course Name: English**
CO-1	understand social or transactional dialogues spoken by native speakers of English and identify the context, topic, and pieces of specific information
CO-2	ask and answer general questions on familiar topics and introduce oneself/others
CO-3	employ suitable strategies for skimming and scanning to get the general idea of a text and locate specific information
CO-4	recognize paragraph structure and be able to match beginnings/endings/headings with paragraphs
CO-5	form sentences using proper grammatical structures and correct word forms
I-II.	**Course Code: C110 Course Name:Engineering Chemistry**
CO-1	Explain the theory of construction of battery and fuel cells.
CO-2	Understand the importance of materials like nano materials and fullerenes and their uses.
CO-3	Understand importance molecular machines
CO-4	Understand the principles of different analytical instruments.
CO-5	Explain the different applications of analytical instruments.
I-II.	**Course Code: C111 Course Name:Engineering mechanics**
CO1	Identify the significance of centroid/ center of gravity and find centroids of composite figures and bodies.
CO2	Understand the moment of inertia and method of finding moment of inertia of areas and bodies
CO3	Identify the type of frame and analyze for the forces in the members of the truss (frame) by method of joints and method of sections.
CO4	Interpret the simple given dynamic problems and solve them for positions, velocities and accelerations, etc.,
CO5	Understand the kinetics of the rigid bodies and solve simple problems using work-energy method.

I-II.	**Course Code: C112Course Name:Basic Electrical & Electronics Engineering**
CO-I	Able to analyse the various electrical networks
CO-2	Able to understand the operation of DC generators,3-point starter and conduct the Swinburne's Test.
CO-3	Able to analyse the performance of transformer.
CO-4	Able to explain the operation of 3-phase alternator and 3-phase induction motors.
CO-5	Able to analyse the operation of half wave, full wave rectifiers and OP-AMPs.
I-II.	**Course Code: C113 Course Name : Computer Aided Engineering Drawing**
CO1	Use drawing instruments to draw polygons and Engineering Curves.
CO2	Construct scales and draw Orthographic projections
CO3	draw projections of points
CO4	draw projections of planes
CO5	Describe and draw projections of solids
I-II.	**Course Code: C114 Course Name: Communication Skills Lab**
CO-1	Better pronunciation and accent
CO-2	Ability to use functional English
CO-3	Competency in analytical skills and problem-solving skills
I-I.	**Course Code: C115 Course Name: Engineering Chemistry Lab**
CO-1	The students entering into the professional course have practically very little exposure to lab classes.
CO-2	The experiments introduce volumetric analysis; redox titrations with different indicators; EDTA titrations;
CO-3	Exposed to a few instrumental methods of chemical analysis.
I-II.	**Course Code: C116 Course Name:Basic Electrical & Electronics Engineering Lab**
CO-1	Determine and predetermine the performance of DC machines and transformers.
CO-2	Control the DC shunt machines.

CO-3	Compute the performance of 1-phasetransformer.
I-II	**Course Code: C117 Course Name :Engineering Workshop lab**
CO1	Design and model different prototypes in the carpentry trade such as Cross lap joint, Dove tail joint.
CO2	Design and model various basic prototypes in the trade of fitting such as Straight fit, V-fit.
CO3	Design various basic prototypes in the trade of Tin smithy such as rectangular tray, and open Cylinder.
I-II	**Course Code: C118 Course Name: Engineering Exploration Project**
CO1	Understand and apply the principles of Design Thinking and Human-Centered Design to identify and define real-world engineering problems.
CO2	Apply design thinking techniques such as empathizing, brainstorming and ideation to develop innovative and sustainable solutions to engineering challenges.
CO3	Develop, prototype, test and refine engineering solutions through teamwork, user feedback and effective project presentation.
II-I	**Course Code: C201 Course Name: Vector Calculus & Fourier Transforms**
C01	Explain techniques in Vector calculus
C02	Define techniques of Laplace Transforms
C03	Derive techniques of Fourier series and Fourier Transforms
C04	Identify techniques in PDE of first order
C05	Investigate Second order PDE and Applications
II-I.	**Course Code: C202 Course Name: Mechanics of Solids**
C01	Illustrate simple stresses & strains
C02	Draw shear force and bending moment
C03	Find flexural stresses
C04	Draw deflection of beams
C05	Solve thin and thick cylinders

II-I.	**Course Code: C203** **Course Name : Materials Science & Metallurgy**
C01	Explain crystalline structure of different metals and study the stability of phases in different alloy systems
C02	Outline behaviour of ferrous and non-ferrous metals and alloys and their application in different domains
C03	Derive the effect of heat treatment, addition of alloying elements on properties of ferrous metals
C04	Illustrate methods of making of metal powders and applications of powder metallurgy
C05	Discuss the properties and applications of ceramic, composites and other advanced methods
II-I.	**Course Code: C204** **Course Name: Production Technology**
C01	design the patterns and core boxes for metal casting processes
C02	design the gating system for different metallic components
C03	Teach the different types of manufacturing processes
C04	use forging, extrusion processes
C05	Teach the different types of welding processes used for special fabrication
II-I.	**Course Code: C205** **Course Name : Thermodynamics**
C01	Explain basic concepts of thermodynamics
C02	discuss Laws of thermodynamics
C03	Restate Concept of entropy
C04	explain Property evaluation of vapors and their depiction in tables and charts
C05	evaluate properties of perfect gas mixtures
II-I.	**Course Code: C206** **Course Name: Machine Drawing**
C01	Draw and represent standard dimensions of different mechanical fasteners and joints and Couplings
C02	Draw different types of bearings showing different components
C03	As.ble components of a machine part and draw the sectional as.bly drawing showing the dimensions of all the components of the as.bly as per bill of materials

C04	Select and represent fits and geometrical form of different mating parts in as.bly drawings
C05	prepare manufacturing drawings indicating fits, tolerances, surface finish and surface treatment requirements
II-I.	**Course Code: C207 Course : Metallurgy& Mechanics of Solids Lab**
C01	impart practical exposure on mechanics of solids lab
C02	impart practical exposure on metallurgy lab
II-I.	**Course Code: C208 Course Name: Production Technology Lab**
C01	impart hands-on practical exposure on design and making of pattern
C02	impart hands-on practical exposure on sand properties testing
C03	impart hands-on practical exposure on mould preparation
II-I.	**Course Code: C209 Course Name: Socially Relevant Project**
C01	produce a project document on Water Conservation Related Works
C02	produce a project document on Street light monitoring
C03	produce a project document on E- policing & cyber solution
C04	produce a project document on Any social related
II-II.	**Course Code: C210 Course Name: Complex Variables & Statistical Methods**
C01	apply Cauchy-Riemann equations to complex functions in order to determine whether a given continuous function is analytic (L3)
C02	find the differentiation and integration of complex functions used in engineering problems (L5)
C03	make use of the Cauchy residue theorem to evaluate certain integrals (L3)
C04	apply discrete and continuous probability distributions (L3)
C05	design the components of a classical hypothesis test (L6)
II-II.	**Course Code: C211 Course Name: Kinematics of Machinery**
C01	Contrive a mechanism for a given plane motion with single degree of freedom
C02	Suggest and analyse a mechanism for a given straight line motion and automobile steering

	motion
C03	Analyse the motion (velocity and acceleration) of a plane mechanism
C04	Suggest and analyse mechanisms for a prescribed intermittent motion like opening and closing of IC engine valves etc
C05	Select a power transmission system for a given application and analyze motion of different transmission systems
II-II.	**Course Code: C212 Course Name: Applied Thermodynamics**
C01	Assess the working of steam power cycles and also should be able to analyse and evaluate the performance of individual components
C02	Justify the principles of combustion, stoichiometry and flue gas analysis
C03	design the components and calculate the losses and efficiency of the boilers, nozzles and impulse turbines
C04	design the components and calculate the losses and efficiency of reactions turbines and condensers
C05	Compare various types of compressors, principles of working and their performance evaluation
II-II.	**Course Code: C213 Course Name: Fluid Mechanics & Hydraulic Machines**
CO1	Explain the basic concepts of fluid properties
C02	Discuss the mechanics of fluids in static and dynamic conditions
C03	Use boundary layer theory, flow separation and dimensional analysis
C04	Restate hydrodynamic forces of jet on vanes in different positions
C05	List hydrodynamic forces of jet on vanes in different positions
II-II.	**Course Code: C214 Course Name: Metal Cutting & Machine Tools**
C01	Explain the fundamental knowledge and principals in material removal process
C02	Acquire the knowledge on operations in conventional, automatic, Capstan and turret lathes
C03	Capable of understanding the working principles and operations of shaping, slotting, planning, drilling and boring machines

C04	make gear and keyway in milling machines and understand the indexing mechanisms
C05	Compare the different types of unconventional machining methods and principles of finishing processes
II-II.	**Course Code: C215 Course Name: Design Of Machine Members – I**
C01	Calculate different stresses in the machine components subjected to various static loads, failures and suitability of a material for an engineering application
C02	Calculate dynamic stresses in the machine components subjected to variable loads
C03	Design riveted, welded, bolted joints, keys, cotters and knuckle joints subjected to static loads and their failure modes
C04	Design the machine shafts and suggest suitable coupling for a given application
C05	Calculate stresses in different types of springs subjected to static loads and dynamic loads
II-II.	**Course Code: C216 Course Name: Fluid Mechanics & Hydraulic Machinery Lab**
C01	impart practical exposure on Impact of jets on Vanes
C02	impart practical exposure on Performance Test on Pelton Wheel, Performance Test on Francis Turbine, Performance Test on Kaplan Turbine, Performance Test on Single Stage Centrifugal Pump, Performance Test on Multi Stage Centrifugal Pump and Performance Test on Reciprocating Pump
C03	impart practical exposure on Calibration of Venturi meter, Calibration of Orifice meter, Determination of friction factor for a given pipe line, Determination of loss of head due to sudden contraction in a pipeline and Turbine flow meter
II-II.	**Course Code: C217 Course Name : Machine Tools Lab**
C01	Explain the parts of Lathe, drilling machine, Milling machine, Shaper, Planning machine, Slotting machine, cylindrical grinder, Surface grinder and Tool and cutter grinder
C02	Describe Operations on Lathe machines
C03	Discuss Operations on Drilling machine
III-I.	**Course Code: C301 Course Name: Dynamics Of Machinery**
C01	compute the frictional losses and transmission in clutches, brakes and dynamometers

C02	determine the effect of gyroscopic couple in motor vehicles, ships and aeroplanes
C03	analyse the forces in four bar and slider crank mechanisms and design a flywheel
C04	determine the rotary unbalanced mass in reciprocating equipment
C05	determine the unbalanced forces and couples in reciprocating and radial engines
III-I.	**Course Code: C302 Course Name: Design Of Machine Members-II**
C01	Select the suitable bearing based on the application of the loads and predict the life of the bearing
C02	Design of IC Engines parts
C03	Design of power transmission elements such as gears, belts, chains, pulleys, ropes, levers and power screws
C04	Design spur & helical gear for different engineering applications
III-I.	**Course Code: C303 Course Name: Mechanical Measurements & Metrology**
C01	Describe the construction and working principles of measuring instruments for measurement of displacement and speed and select appropriate instrument for a given application
C02	Describe the construction and working principles of measuring instruments for strain, force, Torque, power, acceleration and Vibration and select appropriate instrument for a given application
C03	Explain shaft basis system and hole basis systems for fits and represent tolerances for a given fit as per the shaft basis system and hole basis system and design limit gauges based on the tolerances for quality check in mass production
C04	Explain methods for linear, angle and flatness measurements and select a suitable method and its relevant instrument for a given application
C05	measure the threads, gear tooth profiles, surface roughness and flatness using appropriate instruments and analyze the data
III-I.	**Course Code: C304 Course Name: Managerial Economics And Financial Accountancy**
C01	estimate the Demand and demand elasticities for a product

C02	Differentiate the Input-Output-Cost relationships and estimation of the least cost combination of inputs
C03	Discuss the nature of different markets and Price Output determination under various market conditions and also to have the knowledge of different Business Units
C04	prepare Financial Statements and the usage of various accounting tools for Analysis
C05	evaluate various investment project proposals with the help of capital budgeting techniques for decision making
III-I.	**Course Code: C305 Course Name: IC Engines & Gas Turbines**
C01	Derive the actual cycle from fuel-air cycle and air- standard cycle for all practical applications
C02	Explain working principle and various components of IC engine
C03	Explain combustion phenomenon of CI and SI engines and their impact on engine variables
C04	Analyse the performance of an IC engine based on the performance parameters
C05	Explain the cycles and systems of a gas turbine and determine the efficiency of gas turbine
III-I.	**Course Code: C306 Course Name: Thermal Engineering Lab**
C01	perform I.C. Engines valve and port timing diagrams
C02	perform I.C. Engine heat balance at different loads and show the heat distribution curve
C03	perform Study of boilers, mountings and accessories
III-I.	**Course Code: C307 Course Name: Theory Of Machines Lab**
C01	determine whirling speed of shaft theoretically and experimentally
C02	determine the frequency of damped force vibration of a spring mass system
C03	Teach simple and compound screw jack and determine the mechanical advantage, velocity ratio and efficiency
III-I.	**Course Code: C308 Course Name: Mechanical Measurements & Metrology Lab**
C01	Explain about Metrology Lab

C02	Explain about Mechanical Measurements Lab
C03	Measurements of different Parameteres
III-I.	**Course Code: C309 Course Name: Socially Relevant Project**
C01	Formulate and apply mathematical, science and engineering principles to solve real time engineering problems
C02	Test the existing data, communicate and conduct research on complex problems using modern tools
C03	Validate the obtained results on contemprory issues related to society and environment
III-II.	**Course Code: C310 Course Name: Operations Research**
C01	Formulate the resource management problems and identify appropriate methods to solve them
C02	Apply LPP, transportation and assignment models to optimize the industrial resources
C03	Solve decision theory problems through the application of game theory
C04	Apply the replacement and queuing models to increase the efficiency of the system
C05	Model the project management problems through CPM and PERT
III-II.	**Course Code: C311 Course Name: Heat Transfer**
C01	Compute rate of heat transfer for 1D, steady state composite systems without heat generation
C02	Analyze the system with heat generation, variable thermal conductivity, fins and 1D transient conduction heat transfer problems
C03	Develop the empirical equations for forced convection problems by using Buckingham's pi theorem
C04	Compute the rate of heat transfer for natural convection systems and design and analysis of heat exchangers
C05	Solve the heat transfer systems with phase change and radiation
III-II.	**Course Code: C312 Course Name: CAD/CAM**
C01	Describe the mathematical basis in the technique of representation of geometric entities including points, lines, and parametric curves, surfaces and solid, and the technique of

	transformation of geometric entities using transformation matrix
C02	Describe the use of GT and CAPP for the product development
C03	Identify the various elements and their activities in the Computer Integrated Manufacturing Systems
III-II.	**Course Code: C313 Course Name: Unconventional Machining Processes**
C01	Explain the characteristics and importance of different types of unconventional machining processes
C02	Identify the appropriate unconventional machining process for the implementation in a typical industrial scenario based on the applications
C03	discuss the significance of tools and resources used for machining the components in unconventional machining
C04	Machine the components through ECM / EDM and other machining processes
C05	Perform experiments in the advanced unconventional machining processes such as laser beam machining and electron beam machining
III-II.	**Course Code: C314 Course Name: Automobile Engineering**
C01	Describe the basic lay-out of an automobile and its components and enlist the emission standards of an automobile
C02	Describe different engine cooling, lubrication, ignition, electrical and air conditioning systems and suggest suitable systems for a given application
C03	Explain the principles of transmission, suspension, steering and braking systems
C04	Describe various fuel supply systems in SI and CI engines
III-II.	**Course Code: C315 Course Name: Simulation of Mechanical Systems Lab**
C01	perform Mass-Spring-Damper with controller
C02	perform Double Mass-Spring- Damper
C03	perform Simple Mechanical System
III-II.	**Course Code: C316 Course Name: Heat Transfer Lab**
C01	Determine of overall heat transfer co-efficient of a composite slab

C02	Determine of efficiency of a pin-fin
C03	Determine of critical heat flux
III-II.	**Course Code: C317** **Course Name: CAD/CAM Lab**
C01	draw the modelling tools in creating 2D and 3D drawings
C02	use tools for any engineering and real time applications
C03	impart knowledge on utilizing these tools for a better project
III-II.	**Course Code: C318** **Course Name:Summer Internship**
C01	Formulate., and apply mathematical, science and engineering principles to solve real time engineering problems
C02	Test the existing data, communicate and conduct research on complex problems using modern tools
C03	Validate the obtained results on contemprory issues related to society and environment
IV-I.	**Course Code: C401** **Course Name: Industrial Management**
C01	design and conduct experiments, analyse, interpret data and synthesize valid conclusions
C02	design a system, component, or process, and synthesize solutions to achieve desired needs
C03	use the techniques, skills, and modern engineering tools necessary for engineering practice with appropriate considerations for public health and safety, cultural, societal, and environmental constraints
C04	function effectively within multi-disciplinary teams and understand the fundamental precepts of effective project management
IV-I.	**Course Code: C402** **Course Name: Finite Element Methods**
C01	Explain the concepts behind variational methods and weighted residual methods in FEM
C02	Identify the application and characteristics of FEA elements such as bars, beams, plane and isoparametric elements, and 3-D element
C03	Develop element characteristic equation procedure and generate global equations
C04	apply Suitable boundary conditions to global equations, and reduce it to a solvable form
C05	apply the FE procedure to field problems like heat transfer

IV-I.	**Course Code: C403 Course Name: Production Planning & Control**
C01	Apply the systems concept for the design of production and service systems
C02	Make forecasts in the manufacturing and service sectors using selected quantitative and qualitative techniques
C03	Apply the principles and techniques for planning and control of the production and service systems to optimize/make best use of resources
C04	Discuss importance and function of inventory and to be able to apply selected techniques for its control and management under dependent and independent demand circumstances
IV-I.	**Course Code: C404 Course Name: Power Plant Engineering**
C01	Compare various conventional methods of power generation
C02	Discuss the principle of operation and performance of respective prime movers along with their economics and their impact on environment
C03	Teach the power plant instrumentation and control
IV-I.	**Course Code: C405 Course Name:Nano Technology**
C01	Explain the basic concepts of nanotechnology
C02	Teach the synthesis of nanomaterials and their application
C03	Apply their learned knowledge to develop Nanomaterial's
IV-I.	**Course Code: C406 Course Name: Finite Element Simulation Lab**
C01	Determine deflection and stresses in 2D and 3D trusses and beams
C02	Determine deflections component and principal and Von-mises stresses in plane
C03	Derive stress, plane strain and Axisymmetric components
IV-I.	**Course Code: C407Course Name: Project-I**
C01	Identify and analyse real-world problems related to electronics, robotics, IoT and sensor technologies.
C02	Design and develop innovative solutions by integrating electronic components, sensors, robotics and IoT technologies.
C03	Demonstrate practical skills, teamwork and problem-solving abilities through prototype

	development, testing and project presentation.
IV-II.	**Course Code: C408 Course Name: Additive Manufacturing**
C01	Outline LIQUID-BASED RAPID PROTOTYPING SYSTEMS
C02	Outline SOLID-BASED RAPID PROTOTYPING SYSTEMS
C03	Outline POWDER BASED RAPID PROTOTYPING SYSTEMS
C04	Outline RAPID TOOLING
C05	Outline RAPID PROTOTYPING DATA FORMATS
IV-II.	**Course Code: C409 Course Name: Non-Destructive Evaluation**
C01	Explain the fundamentals, industrial applications, principles, equipment, procedures, and safety aspects of radiographic testing used in non-destructive evaluation.
C02	Apply the principles of ultrasonic testing to inspect engineering materials and interpret defects based on ultrasonic testing procedures and acceptance criteria.
C03	Analyze liquid penetrant testing and eddy current testing techniques by selecting appropriate inspection methods and evaluating their effectiveness and limitations.
C04	Evaluate magnetic particle testing procedures, equipment, calibration methods, inspection results, and suitability for defect detection in engineering components.
C05	Evaluate infrared and thermal testing techniques for non-destructive inspection of engineering components by selecting appropriate thermal inspection methods for industrial applications.
IV-II.	**Course Code: C410 Course Name: Green Energy Systems**
C01	Explain the principles, potential, and environmental significance of solar, wind, biomass, geothermal, ocean, and other renewable energy sources.
C02	Apply the principles of solar radiation, photovoltaic systems, solar collectors, energy storage, wind energy, and biomass conversion for renewable energy applications.
C03	Analyze geothermal, ocean, tidal, wave, and other renewable energy conversion systems based on their operating principles and performance characteristics.
C04	Evaluate energy-efficient electrical and mechanical systems, including efficient motors, lighting, HVAC systems, fuel cells, compressors, and pumps.

C05	Develop sustainable green manufacturing strategies by selecting environmentally friendly materials, processes, energy-efficient technologies, and zero-waste manufacturing practices.
IV-II.	**Course Code: C411 Course Name: Total Quality Management**
C01	Explain the principles, philosophies, dimensions, and fundamental concepts of Total Quality Management and quality management systems.
C02	Apply quality improvement tools, statistical process control techniques, and basic quality control methods to manufacturing and service processes.
C03	Analyze process capability, control charts, quality costs, and performance data to identify causes of quality problems and opportunities for improvement.
C04	Evaluate quality management practices such as customer focus, supplier quality, benchmarking, continuous improvement, and quality awards for organizational performance.
C05	Develop suitable TQM strategies by integrating quality planning, statistical tools, continuous improvement, and quality management principles for sustainable organizational performance.
IV. -II	**Course Code: C410 Course Name: Project**
CO-1	Formulate., and apply mathematical, science and engineering principles to solve real time engineering problems
CO-2	Test the existing data, communicate and conduct research on complex problems using modern tools
CO-3	Validate the obtained results on contemporary issues related to society and environment
CO-4	Determine effectively the engineering principles used in their project individually and as a team as per the norms of engineering practice
CO-5	Structure future work to promote lifelong learning in the context of technological adaptation.