Course Outcomes

SEMESTER-I	
Course Name	**English (C22101)**
C22101.1	Formulate grammatically correct sentences.
C22101.2	Summarise comprehension passages.
C22101.3	Compose dialogues and paragraphs for different situations.
C22101.4	Use relevant words as per context.
C22101.5	Deliver prepared speeches to express ideas, thoughts and emotions.
Course Name	**Basic Science (C22102)**
C22102.1	Estimate errors in measurements of physical quantities.
C22102.2	Apply the principles of electricity and magnetism to solve engineering problems.
C22102.3	Use the principles of heat and optics in related engineering applications.
C22102.4	Apply the catalysis process in industries.
C22102.5	Use corrosion preventive measures in industry.
C22102.6	Use relevant engineering materials in industry.
Course Name	**Basic Mathematics (C22103)**
C22103.1	Apply the concepts of algebra to solve engineering related problems.
C22103.2	Utilize basic concepts of trigonometry to solve elementary engine.
C22103.3	Solve basic engineering problems under given conditions of straight lines.
C22103.4	Solve the problems based on measurement of regular closed figures and regular solids.
C22103.5	Use basic concepts of statistics to solve engineering related problems.
Course Name	**Fundamentals of ICT(C22001)**
C22001.1	Use computer system and its peripherals.
C22001.2	Prepare business document using word processing tool.
C22001.3	Interpret data and represent it graphically using spreadsheet

C22001.4	Prepare professional presentations.
C22001.5	Use different types of web browsers.
Course Name	**Engineering Graphics (C22002)**
C22002.1	Draw regular geometrical figures using engineering curves
C22002.2	Use drawing codes, conventions and symbols as per IS SP-46 in engineering drawing.
C22002.3	Draw the views of given object using principals of orthographic projections.
C22002.4	Draw isometric view of given component or from orthographic projections.
C22002.5	Draw free hand sketches of given engineering elements.
C22002.6	Use computer aided drafting approach to create engineering drawing.
Course Name	**Workshop Practice (C22004)**
C22004.1	Select tools & machinery according job.
C22004.2	Use hand tools in different shops for performing different operations.
C22004.3	Operate machinery & equipments in different shops.
C22004.4	Prepare job according to drawing.
C22004.5	Maintain workshop related tools, machinery & equipments
C22004.6	Follow safety rules & procedures
SEMESTER-II	
Course Name	**Applied Science (C22202)**
C22202.1	Select relevant material in industry by analyzing its physical properties
C22202.2	Apply laws of motion in various applications
C22202.3	Use LASERS, X-Rays and photo electric sensors.
C22202.4	Select the relevant metallurgical process related to industrial applications.
C22202.5	Use relevant water treatment process to solve industrial problems.
C22202.6	Use relevant fuel in relevant applications.
Course Name	**Applied Mechanics (C22203)**

C22203.1	Identify the force systems for given conditions by applying basics of mechanics
C22203.2	Select the relevant simple lifting machine for given purposes
C22203.3	Determine unknown force of different engineering systems
C22203.4	Check the stability of various force systems
C22203.5	Apply the principles of friction in various conditions for useful purposes
C22203.6	Find the centroid and centre of gravity of various components in engineering systems
Course Name	**Applied Mathematics (C22206)**
C22206.1	Calculate the equation of tangent, maxima, minima, radius of curvature by differentiation.
C22206.2	Solve the given problem(s) of integration using suitable methods_
C22206.3	Apply the concept of integration to find area and volume.
C22206.4	Solve the differential equation of first order and first degree using suitable methods.
C22206.5	Utilize basic concepts of probability distribution to solve elementary engineering problem
Course Name	**Engineering Drawing (C22207)**
C22207.1	Draw projections of lines and planes by first angle method of projection.
C22207.2	Draw projections of solids having axis inclined to one of the reference plane .
C22207.3	Draw section of solids having section plane inclined to one of the reference plane.
C22207.4	Draw sectional orthographic views of different machine components.
C22207.5	Draw missing views and auxiliary views of different machine component.
C22207.6	Prepare proportionate free hand sketches of basic machine elements.
Course Name	**Business Communication Using Computers (C22009)**
C22009.1	Communicate effectively by avoiding barriers in various formal and informal situations.
C22009.2	Communicate skillfully using non-verbal methods of communication
C22009.3	Give presentations by using audio- visual aids
C22009.4	Write reports using correct guidelines
C22009.5	Compose e-mail and formal business letters
Course Name	**Mechanical Engineering Workshop (C22010)**

C22010.1	Select tools & machinery according job.
C22010.2	Use hand tools in different shops for performing different operations.
C22010.3	Operate machinery & equipments in different shops.
C22010.4	Prepare job according to drawing.
C22010.5	Maintain workshop related tools, machinery & equipments
C22010.6	Follow safety rules & procedures
SEMESTER-III	
Course Name	**Strength of Materials (C22306)**
C22306.1	Compare moment of inertia of symmetric and asymmetric sections
C22306.2	Estimate simple stresses in machine components
C22306.3	Perform test to evaluate mechanical properties according to Indian standards
C22306.4	Compute shear force and bending moment and corresponding shear and bending stresses in beams subjected to point and uniformly distributed loads
C22306.5	Estimate stresses in shafts under twisting moments
C22306.6	Estimate stresses in shaft members subjected to eccentric loading
Course Name	**Basic Electrical & Electronics Engineering (C22310)**
C22310.1	Use principles of Electric and Magnetic circuit to solve engineering problems.
C22310.2	Determine voltage and current in AC circuits.
C22310.3	Connect transformer and electric motors for the specific requirements.
C22310.4	Identify electronic components in electric circuits.
C22310.5	Use relevant electronic components safely.
C22310.6	Use relevant electric /electronic protective devices safely.
Course Name	**Thermal Engineering (C22337)**
C22337.1	Apply laws of thermodynamics to devices based on thermodynamics
C22337.2	Use first law of thermodynamics for ideal gas in closed systems
C22337.3	Use relevant steam boilers
C22337.4	Use relevant steam nozzles and turbines
C22337.5	Use relevant steam condensers

C22337.6	Use suitable modes of heat transfer
Course Name	**Mechanical Working Drawing (C22341)**
C22341.1	Draw development of lateral surfaces of different solids.
C22341.2	Draw intersection curves of different solids.
C22341.3	Use various drawing codes, conventions and symbols as per IS SP 46.
C22341.4	Draw production drawings used to produce products.
C22341.5	Draw the assembly and detailed drawings of product.
Course Name	**Engineering Metrology (C22342)**
C22342.1	Select the relevant instruments for measurement
C22342.2	Use different types of comparators
C22342.3	Select gauges, fits and tolerances for machine components
C22342.4	Use relevant instruments to measure different parameters of screw threads and gears
C22342.5	Use linear and angular measuring instruments
C22342.6	Select relevant surface testing methods
Course Name	**Mechanical Engineering Materials (C22343)**
C22343.1	Identify properties of materials
C22343.2	Select relevant ferrous materials for mechanical components
C22343.3	Select relevant cast iron for engineering application
C22343.4	Use non- ferrous metals for metallic components
C22343.5	Suggest relevant advanced materials for mechanical components
C22343.6	Select relevant heat treatment process
SEMESTER-IV	
Course Name	**Theory of Machines (C22438)**
C22438.1	Identify various links in popular mechanisms and select suitable mechanism for various applications.
C22438.2	Draw velocity and acceleration diagrams of simple mechanisms for various configurations.
C22438.3	Interpret the motions of cams and followers.

C22438.4	Recommend the relevant belts, chains and drives for different applications.
C22438.5	Choose relevant brakes and clutches for various applications.
C22438.6	Select suitable flywheel and governor for various applications.
Course Name	**Mechanical Engineering Measurements (C22443)**
C22443.1	Use relevant instrument for measuring displacement.
C22443.2	Use relevant instrument for measuring force and torque.
C22443.3	Use relevant pressure and temperature measuring instruments.
C22443.4	Use relevant instruments for measurement of flow.
C22443.5	Select relevant instruments for measurement of vibration and strain.
C22443.6	Select relevant instruments for speed and sound measurement.
Course Name	**Fluid Mechanics and Machinery (C22445)**
C22445.1	Use manometers and Bourdon tube pressure gauge to measure pressure.
C22445.2	Use flow meters to measure rate of flow.
C22445.3	Estimate loss of head due to friction and minor losses in flow through pipes.
C22445.4	Calculate force exerted by jet of water on plates reference to turbines and pumps.
C22445.5	Select hydraulic turbines for relevant application.
C22445.6	Select hydraulic pumps for relevant application.
Course Name	**Manufacturing Processes (C22446)**
C22446.1	Produce jobs using lathe and drilling machines
C22446.2	Produce jobs using shaping and slotting operations
C22446.3	Prepare product using different casting processes
C22446.4	Prepare product using different forming processes
C22446.5	Use joining process to produce jobs
Course Name	**Environmental Studies (C22447)**
C22447.1	Develop public awareness about environment
C22447.2	Select alternative energy resources for engineering practice
C22447.3	Conserve ecosystem and biodiversity

C22447.4	Apply techniques to reduce environmental pollution
C22447.5	Manage social issues and environmental ethics as life long learning
Course Name	**Computer Aided Drafting (C22042)**
C22042.1	Use file management techniques in a CAD software
C22042.2	Draw complex 2D geometric figures using a CAD software
C22042.3	Modify complex 2D geometric figures using a CAD software
C22042.4	Use software to dimension and write text on existing 2D geometric entities
C22042.5	Use software to plot existing drawing with desired plot parameters
C22042.6	Create isometric drawings using a CAD software
C22042.7	Use layers and blocks to create digital drawings using relevant software
Course Name	**Fundamentals of Mechatronics (C22048)**
C22048.1	Identify different instruments, sensors actuators, microprocessor, software and mechanical components in mechatronic based systems
C22048.2	Use sensor for different mechatronic applications
C22048.3	Use transducers for different mechatronic applications
C22048.4	Use actuators for different mechatronic based applications
C22048.5	Programme PLC for various applications
C22048.6	Use microprocessor and microcontroller for different mechatronic based applications
SEMESTER-V	
Course Name	**Management (C22509)**
C22509.1	Use basic management principles to execute daily activities.
C22509.2	Use principles of planning and organizing for accomplishment of tasks.
C22509.3	Use principles of directing and controlling for implementing the plans.
C22509.4	Apply principles of safety management in all activities.
C22509.5	Understand various provisions of industrial acts.
Course Name	**Power Engineering and Refrigeration (C22562)**
C22562.1	Identify different components of IC engine and its auxiliaries.
C22562.2	Test the performance of IC engine.

C22562.3	Maintain Reciprocating air compressor.
C22562.4	Identify different components of gas turbine and Jet engine.
C22562.5	Test the performance of refrigeration and air conditioning system.
C22562.6	Identify different components of IC engine and its auxiliaries.
Course Name	**Advanced Manufacturing Processes (22563)**
C22563.1	Maintain the non-conventional machining process to produce complex and hard to machine components
C22563.2	Produce components using milling machine
C22563.3	Choose relevant machining process to produce gears
C22563.4	Maintain CNC machine to produce components effectively
C22563.5	Prepare CNC part programs for simple component
C22563.6	Maintain the functioning of automated equipment
Course Name	**Elements of Machine Design (C22564)**
C22564.1	Select suitable materials for designing machine elements.
C22564.2	Design joints and levers for various applications.
C22564.3	Design power transmission elements like shaft, keys and coupling
C22564.4	Recommend power screws and suitable fasteners for different applications
C22564.5	Design and choose spring for various applications
C22564.6	Select standard bearing with their specification from manufacturer's catalogue for various applications
Course Name	**Tool Engineering (C22565)**
C22565.1	Interpret geometries of various cutting tools
C22565.2	Used relevant cutting tool insert and tool holders for different machining processes
C22565.3	Use relevant locating and clamping devices for components
C22565.4	Use relevant jig and fixture for components and machining operations
C22565.5	Use relevant press tools and press tools operations
C22565.6	Use relevant die for bending and forging components
Course Name	**Power plant Engineering (C22566)**

C22566.1	Identify various components of hydro, steam, gas power plants.
C22566.2	Select high pressure boiler for power plants
C22566.3	Identify components of Hydro, steam. Gas, Diesel power plants
C22566.4	Measure waste heat recovery in a typical thermal power plant.
C22566.5	Identify components of Nuclear plants.
C22566.6	Estimate economic parameters of power plants
Course Name	**Solid Modeling and Additive Manufacturing (C22053)**
C22053.1	Prepare 2D drawing using sketcher workbench of any parametric CAD software
C22053.2	Generate 3D solid models from 2D sketch using Part workbench of any parametric CAD software
C22053.3	Prepare assembly of part models using assembly workbench of any parametric CAD software
C22053.4	Generate orthographic views of 3D solid models/assemblies using drafting workbench of any parametric CAD software
C22053.5	Plot a drawing for given Part model/ assembly
C22053.6	Print components using 3D printers/ Rapid prototyping machine
Course Name	**Capstone Project Planning (C22058)**
C22058.1	Write the problem specification in existing system related to occupation.
C22058.2	Select, collect and use required information to solve the problem.
C22058.3	Logically choose relevant possible solution.
C22058.4	Consider the ethical issues related to project.
C22058.5	Assess the impact of the project on society.
C22058.6	Prepare project proposal with action plan and time duration scientifically before beginning of the project.
SEMESTER-VI	
Course Name	**Emerging Trends in Mechanical Engineering (C22652)**
C22652.1	Identify different new systems available in automobile
C22652.2	Apply heat engineering principles in process boilers and waste heat recovery systems used in process industry
C22652.3	Cite examples of Modern manufacturing Technology in Industry
C22652.4	Use different standards for energy management and Audit of a given system

C22652.5	Select recent agricultural equipment for pre and post harvesting
Course Name	**Industrial Hydraulics and Pneumatics (C22655)**
C22655.1	Identify various components of hydraulic & pneumatic systems.
C22655.2	Select pump and actuators for given fluid operated system.
C22655.3	Select appropriate control valves for given fluid operated system.
C22655.4	Select compressor and appropriate accessories for given fluid operated system.
C22655.5	Develop different hydraulic circuits for given simple application.
C22655.6	Develop different pneumatic circuits for given simple application.
Course Name	**Automobile Engineering (C22656)**
C22656.1	Prepare Vehicle layouts with chassis specification
C22656.2	Interpret power flow diagrams of transmission systems
C22656.3	Select suitable braking and steering systems for different applications
C22656.4	Select suspension systems for different applications
C22656.5	Prepare simple electrical-electronic circuits for automobile systems
C22656.6	Select service tools for relevant service operation in automobile shops
Course Name	**Industrial Engineering and Quality Control (C22657)**
C22657.1	Apply work study techniques to optimize manufacturing processes
C22657.2	Prepare the detailed sequence of operations for manufacturing of components
C22657.3	Apply ergonomic principles for designing simple mechanical component
C22657.4	Interpret the data obtained from different quality control processes
C22657.5	Interpret control charts for variable and attribute data
Course Name	**Refrigeration and Air Conditioning (C22660)**
C22660.1	Use refrigeration systems for given applications
C22660.2	Use relevant refrigerants for different applications
C22660.3	Select different refrigeration components for given refrigeration systems
C22660.4	Determine cooling loads for air conditioning systems.
C22660.5	Select relevant tools for maintaining air conditioning systems

Course Name	Renewable Energy Technology (C22661)
C22661.1	Maintain mechanical components of solar thermal systems.
C22661.2	Maintain mechanical components of solar PV systems.
C22661.3	Maintain mechanical components of wind turbines.
C22661.4	Maintain mechanical components of micro hydro turbines.
C22661.5	Maintain mechanical components of Biomass plants.
C22661.6	Maintain mechanical components of hybrid renewable energy system.
Course Name	**Entrepreneurship Development (C22032)**
C22032.1	Identify your entrepreneurial traits
C22032.2	Identify the business opportunities that suits you
C22032.3	Use the support systems to zero down your business idea
C22032.4	Develop comprehensive business plans
C22032.5	Prepare plans to manage the enterprise effectively
Course Name	**Capstone Project Execution & Report Writing (C22060)**
C22060.1	Implement the planned activity individually or as a team.
C22060.2	Select, collect and use required information to solve the identified problem.
C22060.3	Take appropriate decisions based on collected and analyzed information.
C22060.4	Ensure quality in product.
C22060.5	Incorporate energy and environment conservation principles.
C22060.6	Consider the ethical issues related to project.
C22060.7	Assess the impact of the project on society.