



GEETHANJALI INSTITUTE OF SCIENCE & TECHNOLOGY::NELLORE

Department of Mechanical Engineering

Course Outcomes Summary AY:2022-23

IV year I Semester

S.NO	COURSE OUTCOMES	TAXONOMY
Specific Learning Outcomes-Operations Research (19A03701)		
C411.1	Formulate the mathematical models and obtain optimum solution using graphical method and simplex method.	Understand
C411.2	Solve the Linear Programming Problem by Big-M, Two- Phase Techniques and in duality method.	Apply
C411.3	Determine the Optimal solution in Transportation Problems and Assignment Problems.	Apply
C411.4	Solve the n-jobs-2-machines,3-machines, Solve the games with Pure and Mixed Strategy	Apply
C411.5	Choose the best strategy for successfully face the competition and identifying the suitable Queuing Model.	Apply
C411.6	Solve complex problems by Dynamic Programming Techniques and explain various types of maintenance, economic replacement policies.	Apply
Specific Learning Outcomes-Metrology & Measurements (19A03702T)		
C412.1	Discuss the concept of limits, fits and jigs.	Understand
C412.2	Describe the concept of measuring standard measurands using comparators.	Understand
C412.3	Demonstrate the measurement of surface profiles.	Understand
C412.4	Explain the different types of machine tool alignment test.	Understand
C412.5	Demonstrate the dynamic quantities using transducers.	Understand
C412.6	Demonstrate the mechanical quantities using transducers.	Understand
Specific Learning Outcomes-Solar and Wind Energy (19A03703d)		
C413.1	Describe about solar radiation and its measurement	Understand
C413.2	summarize different solar collectors and solar energy conversion systems	Understand
C413.3	Demonstrate the performance of a solar cell array system	Apply
C413.4	Interpret the wind energy sources assessment	Understand
C413.5	Explain about different Wind Energy Conversion Systems	Understand
C413.6	Explain basics of designing of aerofoil to suit for different environmental conditions	Apply
Specific Learning Outcomes-Cyber Security (19A05704b)		
C414.1	Illustrate the broad set of technical, social & Political aspects of Cyber security and security management methods to maintain security protection.	Understand
C414.2	Assess the Vulenrabilities and threats posed by criminals,terrorist and nation states to national infrastructure	Evaluate
C414.3	Identify the nature of secure software development and operating systems	Remember

C414.4	Demonstrate the role security management in cyber security defense	Apply
C414.5	Modify the legal and social issues at play in developing Solutions	Apply
C414.6	Elaborate on the Emerging topics	Evaluate
Specific Learning Outcomes-Management Science (19A52701b)		
C415.1	Explain the basic concepts of management in modern contexts.	Understand
C415.2	Define organization structures and principles.	Remember
C415.3	Demonstrate production and marketing aspects.	Apply
C415.4	Outline the roles and responsibilities of Human Resource Manager.	Analyze
C415.5	Formulate strategies in the modern management.	Create
C415.6	Compare the modern management practices based on the requirement of the projects.	Evaluate
Specific Learning Outcomes-Metrology & Measurements Lab (19A03702P)		
C416.1	Demonstrate and measure the linear, angular and gear profiles	Apply
C416.2	Conduct the alignment test on machine tools.	Apply
C416.3	Measure the flatness of the surface by using leveling tools.	Apply
C416.4	Measure the temperature& displacement by using transducers.	Apply
C416.5	Measure the speed, pressure, and strain by using transducers.	Apply
C416.6	Measure the angular measurement &flow measurement by using transducers	Apply
Specific Learning Outcomes-CAD / CAM Lab (19A03602P)		
C417.1	Use CAD tools for 2D & 3D drawings of Mechanical Components.	Apply
C417.2	Show the 3D solid Models in to 2D drawing and orthographic views.	Apply
C417.3	Model the simple machine parts and assemble from part drawings using standard CAD packages	Apply
C417.4	Describe the CNC control in modern manufacturing system	Apply
C417.5	Describe CNC part Programming and apply in manufacturing on CNC Turning machine.	Apply
C417.6	Demonstrate the NC Codes for CNC machine.	Apply
Specific Learning Outcomes-IOT Lab (19A05406P)		
C418.1	Discuss the concept of Arduino or Raspberry controllers	Understand
C418.2	Describe the same board as in (1), read data from a sensor. Experiment with both analog and digital sensors.	Apply
C418.3	Control any two actuators connected to the development board using Bluetooth.	Apply
C418.4	Create any cloud platform account, explore IoT services and register a thing on the platform.	Apply
C418.5	Control an actuator through cloud.	Apply
C418.6	Create a mobile app to control an actuator.	Apply

III Year I Semester

S.NO	COURSE OUTCOMES	TAXONOMY
Specific Learning Outcomes- CAD/CAM (20A03501)		
C311.1	Describe the cycles in CAD, CAM and CAD/CAM systems which are used in the real time industry.	Understand
C311.2	Describe the tools used in Geometric modelling and various computer aided design considerations.	Understand
C311.3	Describe the NC tools, process held in the manufacturing units	Understand
C311.4	Demonstrate the Numerical Control programming in turning milling machines.	Understand
C311.5	Assess the quality of products using group technology technique.	Apply
C311.6	Describe the various process plans held in the industry and learning about MRP.	Understand
Specific Learning Outcomes- Design of Machine Members (20A03502)		
C312.1	Design curved beam machine elements like crane hooks, C-clamps, machine frames.	Apply
C312.2	Describe various concepts of design of power transmission elements.	Understand
C312.3	Design helical springs for two wheel vehicle and laminated springs for trucks.	Apply
C312.4	Design various types of rolling contact bearings and sliding contact bearings.	Apply
C312.5	Design spur and helical gears for different input conditions.	Apply
C312.6	Analyze the forces acting and the failure criteria to be adopted for various I C engine parts.	Analyse
Specific Learning Outcomes- Metrology and Measurements (20A03503T)		
C313.1	Explain the concept of limits, fits and tolerances	Understand
C313.2	Demonstrate the concept of measuring standard measurements using comparators.	Understand
C313.3	Demonstrate the measurement of surface profiles.	Understand
C313.4	Outline the principles of linear and angular measurement tools used for industrial applications	Apply
C313.5	Calibrate the dynamic quantities using transducers.	Apply
C313.6	Calibrate the mechanical quantities using transducers.	Apply
Specific Learning Outcomes- Automation & Robotics (20A03504a)		
C314.1	Classify the types of hardware components of automation and control system	Understand
C314.2	Design a simple material handling system for low cost manufacturing	Analyze
C314.3	Design a simple gripper for robot	Apply
C314.4	Compare the types of actuators used in robot manipulator	Understand
C314.5	Understand the requirements of features of robot programming	Apply
C314.6	Demonstrate the various applications of robots in manufacturing	Understand
Specific Learning Outcomes- Java Programming (20A05505a)		
C315.1	Understand the syntax, semantics of Java Programming Language and apply object-oriented programming principles to real world problems	Understand

C315.2	Apply code reusability through inheritance, packages and interfaces	Apply
C315.3	Develop User defined Exceptions in real world problems	Apply
C315.4	Develop applications by using parallel streams for better performance.	Remember
C315.5	Use multithreading and collection framework for real world problems	Apply
C315.6	Build GUI using applets, swings and access the database using JDBC	Apply
Specific Learning Outcomes- Metrology and Measurements Laboratory (20A03503P)		
C316.1	Demonstrate and measure the linear, angular and gear profiles	Apply
C316.2	Conduct the alignment test on machine tools.	Apply
C316.3	Measure the flatness of the surface by using leveling tools.	Apply
C316.4	Measure the temperature& displacement by using transducers.	Apply
C316.5	Measure the speed, pressure, and strain by using transducers.	Apply
C316.6	Measure the angular measurement &flow measurement by using transducers	Apply
Specific Learning Outcomes- Computer Aided Modeling Laboratory (20A03506)		
C317.1	Use CAD tools for 2D & 3D drawings of Mechanical Components.	Apply
C317.2	Show the 3D solid models into 2D drawing and orthographic views.	Apply
C317.3	Model the simple machine parts and assemble from part drawings using standard CAD packages.	Apply
C317.4	Describe the CNC control in modern manufacturing system.	Apply
C317.5	Describe CNC part programming and apply in manufacturing on CNC Turning machine.	Apply
C317.6	Demonstrate the NC Codes for CNC Machine.	Apply
Specific Learning Outcomes- Innovation through IoT (20A03507)		
C318.1	Introduction to Micro Controllers.	Analyze
C318.2	Introduction and applications of IoT , Cloud services & Software Agents.	Analyze
C318.3	Introduction to Design & Concepts of IoT: Using the concepts of IoT, Implement the 5 stages (Empathize, Define, Prototype, Ideate, Test)	Create
C318.4	Conduct survey and identify the problem on the above experiments, either individual/group and to avail problem statements for further development.	Create
C318.5	With the help of problem statement in experiment 6, draw product/system after applying CREATE (Combine, Rearrange, Enhance, Adapt, Turn around, Eliminate) Tool.	Create
C318.6	Story boarding of design ideas to transform , ‘information about needs’ into design concepts.	Create

II Year I Semester

CO.NO	COURSE OUTCOMES	Taxonomy
Specific learning outcomes – Complex Variables, Transforms and PDE (20A54303)		
C211.1	Find the analytic functions using C-R equations, the image using conformal mapping and bi-linear transformation.	Apply
C211.2	Use Cauchy's theorem, Cauchy's integral formula and Cauchy's residues theorem to evaluate complex integrations and expansion of complex functions using Taylor's and Laurent's series.	Apply
C211.3	Define Laplace and inverse Laplace transforms of various functions and solve ordinary differential equations using Laplace transform.	Apply
C211.4	Determine Fourier series of periodic functions in a given interval and Parseval's formula- Complex form of Fourier series.	Apply
C211.5	Construct the partial differential equations and solve first order and second order PDEs by Lagrange's method and method of separation of variables respectively	Apply
C211.6	Solve one dimensional wave, heat and Laplace equations.	Apply
Specific Learning Outcomes –Fluid Mechanics & Hydraulic Machines 20A01302T		
C212.1	Describe the importance of various fluid properties which are at rest and in motion.	Understand
C212.2	Apply the general governing equations to estimate flow quantities.	Apply
C212.3	Design the pipe line network based on frictional loss estimate.	Apply
C212.4	Explain the Hydroelectric Power plant with the available water resources and requirement of power.	Understand
C212.5	Evaluate the performance characteristics of hydraulic turbines	Evaluate
C212.6	Evaluate the performance characteristics of Centrifugal Pumps	Evaluate
Specific Learning Outcomes – Manufacturing Processes (20A03301T)		
C213.1	Differentiate various metal casting processes by understanding its defects and remedies.	Understand
C213.2	Describe the nature of various plastic deformation techniques used in hot and cold working of metals.	Understand
C213.3	Explain the different welding processes for defect free joints.	Understand
C213.4	Explain the steps involved in making of ceramics, processing of plastics.	Understand
C213.5	Describe the principle and steps involved in powder metallurgy.	Understand
C213.6	Demonstrate the principle and working of unconventional machining processes.	Understand
Specific Learning Outcomes –Thermodynamics 20A03302		
C214.1	Explain the concepts of thermodynamic systems, state, properties, processes, work transfer and heat transfer	Understand
C214.2	Estimate the thermodynamic properties of substances at a given state using the tables or equations of state.	Apply
C214.3	Analyze systems using first law and second law of thermodynamics.	Analyze
C214.4	Quantify the performance of power generation systems and heat pumps based on cycles	Apply
C214.5	Estimate the quality of energy transferred through thermodynamic systems.	Analyze

C214.6	Solve problems on performance of air standard cycles using a systematic approach	Apply
Specific Learning Outcomes – 20A01305T Mechanics of Materials		
C215.1	Measure the strength of different kind of engineering materials based on the magnitudes of induced stress and strain values under the effect of axial and thermal loads.	UNDERSTAND
C215.2	Analyse the principal stresses and the components of stress on different planes, under the effect of different Loads in biaxial stress element, by using both the analytical and Mohr's circle method.	APPLY
C215.3	Estimate the maximum shear force and maximum bending moment induced in different types of beams for different lateral loadings conditions through the graphical representation shear force and bending moment at various lateral sections, additionally the shear stress and bending stress distribution in different cross sections of beams is also determined.	UNDERSTAND
C215.4	Compute the slope and deflection produced in beam under different lateral loading conditions, along with the strain energy and its allied parameters stored in the beams by applying the Castigliano's theorem.	APPLY
C215.5	Calculate the shear strength of the solid and hallow shafts which are subjected to torsional loading in power transmission, besides the stresses and deformations produced in the springs.	UNDERSTAND
C215.6	Analyse the columns through the estimation of buckling load, by using the Euler's concept of buckling. Calculate different stresses and strains in thin cylinders in the identification of safe design for boiler shells	APPLY
Specific Learning Outcomes – 20A01302P Fluid Mechanics &Hydraulic Machines Lab		
C216.1	Demonstrate the knowledge on various flow measuring instruments.	Apply
C216.2	Evaluate the coefficient of discharge of flow through pipes.	Evaluate
C216.3	Evaluate the major and minor losses for conduit flows.	Evaluate
C216.4	Analyse the performance characteristics of hydraulic turbines.	Analyse
C216.5	Analyse the performance characteristics of hydraulic pumps.	Analyse
C216.6	Analyse the percentage of error in discharge in flow through pipes.	Analyse
Specific Learning Outcomes – Manufacturing Processes Lab (20A03301P)		
C217.1	To calculate the pouring and solidification time during casting process.	Apply
C217.2	To illustrate the strength and permeability of sand used in moulding process.	Apply
C217.3	To produce defect free joints by applying TIG &MIG welding process.	Apply
C217.4	To produce defect free joints by applying special welding process.	Apply
C217.5	To model press working operations by using simple dies.	Apply
C217.6	To demonstrate the working principle of nontraditional manufacturing processes.	Understand
Specific Learning Outcomes – 20A01305P Mechanics of Materials Lab		
C218.1	Determine Young's Modulus of solids under tensile & compressive loads.	Apply
C218.2	Calculate the Young's Modulus of beams under bending loads.	Apply
C218.3	Determine the shear modulus of solids under torsional loads.	Apply

C218.4	Calculate the strength of solids under impact loads.	Apply
C218.5	Evaluate the behavior of helical springs under static loads.	Evaluate
C218.6	Estimate the hardness of solids under gradual loads.	Evaluate
Specific Learning Outcomes – Application Development with Python 20A05305		
C219.1	Apply the basic concepts, modular approach to solve the problems.	Apply
C219.2	Design the programs using conditional execution, recursion, built in functions, turtle	Create
C219.3	Design programs to manipulate strings	Create
C219.4	Apply python programs to read and write data from/to files.	Apply
C219.5	Design the programs by choosing appropriate data structures like lists, dictionaries, tuples.	Create
C219.6	Apply object oriented programming concepts	Apply
Specific Learning Outcomes – 20A99201 Environmental Science		
C2110.1	Describe the multidisciplinary nature of environmental studies and various renewable and non-renewable resources.	Understand
C2110.2	Understand flow and bio-geo- chemical cycles and ecological pyramids.	Understand
C2110.3	Understand various causes of pollution and solid waste management and related preventive measures.	Understand
C2110.4	Explain about the rainwater harvesting, watershed management, ozone layer depletion and waste land reclamation.	Understand
C2110.5	Demonstrate the casus of population explosion, value education	Understand
C2110.6	Explain various welfare programmes.	Understand

IV year II Semester

CO.NO	COURSE OUTCOMES	Taxonomy
Specific learning outcomes –Disaster Management (19A01802a)		
C421.1	Recite the the natural hazards and its management.	Remember
C421.2	Explain the fire hazards and solid waste management	Understand
C421.3	Interpret the regulations of building codes and land use planning related to risk and vulnerability.	Understand
C421.4	Explain the technological aspects of disaster management	Understand
C421.5	Describe the education related to risk reduction in schools and communities	Remember
C421.6	Understand about the factors for disaster reduction	Understand
Specific Learning Outcomes – Total Quality Management (19a03801d)		
C422.1	Understand the basic concepts of Total quality Management	Understand
C422.2	Explain the quality council its importance in real time application	Understand
C422.3	Apply the Quality control techniques in organization towards quality improvement	Apply
C422.4	Understanding the quality principle in measuring the performance	Understand
C422.5	Apply the quality tools in improving the process of production	Apply
C422.6	Understand the importance of quality standards in production	Understand
Specific Learning Outcomes – Project Work (19A03803)		
C423.1	Prepare the abstract represents showing prospective solution of problem	Understand
C423.2	Refer the literature from various sources to arrive at the problem	Understand
C423.3	Design the required module of the selected project as per specifications	Apply
C423.4	Attain and analyse the results of the designed module	Apply
C423.5	Develop a prototype of the project with the distribution of tasks among the team	Analyze
C423.6	Prepare the project report as per guidelines and present before the panel of experts	Understand

III Year II Semester

CO.NO	COURSE OUTCOMES	Taxonomy
Specific learning outcomes – Dynamics of Machinery (20A03601)		
C321.1	Explain the concepts of friction and its pivotal role in the functioning of collars, pivots, brakes, clutches and dynamometers.	Understand
C321.2	Apply gyroscopic principles on the motion of aeroplane, ship, four wheel and two wheel vehicles.	Apply
C321.3	Design a flywheel and also develop turning moment diagram for an IC engine.	Apply
C321.4	Analyze the working characteristics of distinguished governors.	Analyze
C321.5	Analyze the balancing of rotating and reciprocating masses	Analyze
C321.6	Estimate the natural frequency of vibrating system.	Apply
Specific Learning Outcomes – Finite Element Methods (FEM) (20A03602)		
C322.1	Explain the approaches for solving FEM problems in different fields.	Understand
C322.2	Formulate FEM model for bars and trusses to develop stiffness matrices and load vectors.	Apply
C322.3	Predict stresses in beams and frames using FEM.	Apply
C322.4	Write interpolation functions to higher order are parametric elements.	Apply
C322.5	Solve the stress in Axis symmetric triangular elements and apply finite element applications in solid mechanics.	Apply
C322.6	Solve the 2D heat transfer and fluid mechanics problems using FEM.	Apply
Specific Learning Outcomes – Heat Transfer (20A03603T)		
C323.1	Understand the basic modes of heat transfer and their practical relevance	Understand
C323.2	Analyze one dimensional steady and unsteady state heat transfer problems in solids	Analyze
C323.3	Solve free and forced convection problems for external and internal flows.	Apply
C323.4	Estimate the rate of heat transfer in boiling and condensation applications.	Apply
C323.5	Predict the emission characteristics and rate of heat transfer for systems under thermal radiation.	Apply
C323.6	Design the heat transfer equipment for engineering applications	Apply
Specific Learning Outcomes – Professional Elective – II Total Quality Management (TQM) (20A03604c)		
C324.1	Understand the basic concepts of Total quality Management	Understand
C324.2	Explain the quality council its importance in real time application	Understand
C324.3	Apply the Quality control techniques in organization towards quality improvement	Apply
C324.4	Understanding the quality principle in measuring the performance	Understand
C324.5	Apply the quality tools in improving the process of production	Apply
C324.6	Understand the importance of quality standards in production	Understand
Specific Learning Outcomes – Open Elective Course – II Introduction to Internet of Things (20A04701b)		
C325.1	Understand the concepts of Internet of Things	Understand
C325.2	Identify hardware , software components and basic communication protocols of Internet of Things	Remember

C325.3	Understand different types of sensors and actuators	Understand
C325.4	Describe IoT applications in different domain and be able to analyze their performance	Understand
C325.5	Understand how to analyze and organize the data	Understand
C325.6	Explain different IOT Applications in real world.	Understand
Specific Learning Outcomes – Computer Aided Design Laboratory (20A03606)		
C326.1	Demonstrate the knowledge on various simulation software's.	Understand
C326.2	Analyse the structural components of various bars and beams.	Analyse
C326.3	Illustrate the thermal analysis of 2D components and composite wall.	Analyse
C326.4	Illustrate the couple field analysis of 2D components and composite wall.	Analyse
C326.5	Solve the fluid flow problems by using computational fluid dynamics.	Apply
C326.6	Evaluate the various research problems in all the fields of engineering by using FEA.	Evaluate
Specific Learning Outcomes – 20A03607		
Computer Aided Manufacturing Laboratory		
C327.1	Describe the CNC control in modern manufacturing system.	Understand
C327.2	Generate a CNC program of given diagram using CNC lathe	Apply
C327.3	Generate a CNC program of given diagram using CNC Milling	Apply
C327.4	Generate a CNC program of given diagram using CNC Drilling	Apply
C327.5	Apply mathematical methods to calculate Joint coordinates in robotics.	Apply
C327.6	Apply the programming concepts of Robots for simple applications in material handling and assembly	Apply
Specific Learning Outcomes – 20A03603P		
Heat Transfer Laboratory		
C328.1	Estimate the Heat Transfer coefficient for conductive mode of Heat Transfer.	Apply
C328.2	Estimate the Heat Transfer coefficient for convective mode of Heat Transfer.	Apply
C328.3	Evaluate the emission characteristics of grey bodies.	Evaluate
C328.4	Determine the Stefan Boltzmann constant for radiation Heat Transfer.	Apply
C328.5	Estimate the performance characteristics of heat exchangers.	Apply
C328.6	Predict the heat transfer coefficient for drop wise and film wise condensation.	Apply
Specific Learning Outcomes – Skill oriented course – IV 3D Printing practice (20A03608)		
C329.1	Explain different types of 3d Printing techniques	Understand
C329.2	Identify parameters for powder binding and jetting process	Understand
C329.3	Determine effective use of ABS material for 3D Printing	Apply
C329.4	Apply principles of mathematics to evaluate the volume of material require.	Apply

Specific Learning Outcomes – Mandatory Non-credit Course Intellectual Property Rights & Patents (20A99601)		
C3210.1	Distinguish and explain various forms of IPR	Understand
C3210.2	Identify criteria's to fit one's own intellectual work in particular form & IPR	Understand
C3210.3	Apply statutory provisions to protect particular form of IPR	Apply

II Year II Semester

SNO	COURSE OUTCOME	Bloom Taxonomy
Specific learning outcomes – Numerical Methods and Probability Theory (20A54402)		
C221.1	Use the numerical techniques find solution of algebraic and transcendental Equations.	Apply
C221.2	Determine the interpolating value of the function using Numerical techniques.	Apply
C221.3	Evaluate definite integrals using Newton cotes Formula.	Remember
C221.4	Utilize numerical methods to find numerical solution of ordinary and partial differential equations.	Apply
C221.5	Explain the basic concepts of probability, random variables and solve real time problems using Baye's theorem.	Understand
C221.6	Apply probability distributions like Bionomial, Poisson and Normal distributions to solve statistical problems	Apply
Specific Learning Outcomes – Applied Thermodynamics (20A03401T)		
C222.1	Understand the working principles of I.C. Engines, estimate engine performance through various tests and learn about combustion processes in SI and CI engines and identify the effects due to abnormal combustion	Understand
C222.2	Classify different types of compressors, learn about their working principles and uses and compare their individual performances.	Understand
C222.3	Explain the concepts of vapour power cycles used in steam power plants in terms of their efficiencies and work output, also study about gas turbine cycles and evaluate their performance improvement methods and also outline about the working principles of jet propulsion systems.	Evaluate
C222.4	Know about nozzles, their discharges and uses in turbnes, Classify steam turbines and analyze their performances and efficiencies through compounding and governing	Understand

C222.5	Learn about different refrigeration cycles, identify refrigerants and analyze their properties and applications	Understand
C222.6	Use properties of moist air in calculations for air conditioning systems	Apply
Specific Learning Outcomes – Kinematics of Machinery (20A03402)		
C223.1	Describe different mechanisms, inversions of different kinematic chains and also to find mobility of mechanisms	Understand
C223.2	Apply the mechanism of Hooke's joint, steering mechanisms	Apply
C223.3	Explain the working principle of different straight line motion mechanisms.	Understand
C223.4	Predict velocity and acceleration diagrams of simple plane mechanisms by using relative velocity method and instantaneous centre method.	Apply
C223.5	Explain gears, power transmission through different types of gears including gear profiles and its efficiency.	Understand
C223.6	Illustrate displacement diagram and cam profile for different follower motions.	Apply
Specific Learning Outcomes – Manufacturing Technology (20A03403T)		
C224.1	Interpret the tool geometry on chip formation and cutting processes.	Understand
C224.2	Identify the basic parts and operations performed on conventional machine tools.	Understand
C224.3	Estimate the machining parameters for machine tools.	Understand
C224.4	Select the type of machine tool and corresponding cutting tool required for a given geometry.	Understand
C224.5	Demonstrate the design features of jigs and fixtures.	Understand
C224.6	Use most advanced machine tools used in industrial automation.	Understand
Specific Learning Outcomes – Managerial Economics & Financial Analysis (20A52301)		
C225.1	To inculcate the basic knowledge of micro economics and financial accounting	Understand
C225.2	To make the students learn how demand is estimated for different products, input-output relationship for optimizing production and cost	Apply
C225.3	To know the various types of Market Structures & pricing methods and its strategies	Analyze

C225.4	To give an overview on investment appraisal methods to promote the students to learn how to plan long-term investment decisions.	Understand
C225.5	To provide fundamental skills on Accounting and to explain the process of preparing Financial statements	Apply
C225.6	To outline the different types of business organizations and provide a framework for analyzing money in its functions as a medium of exchange.	Apply
Specific Learning Outcomes – Applied Thermodynamic Lab (20A03401P)		
C226.1	Outline the valve timing diagram and port timing diagram of IC engines	Understand
C226.2	Compute the performance of IC engine	Apply
C226.3	Compute the performance of multi stage reciprocating air compressors	Apply
C226.4	Compute the performance of Refrigeration and Air-conditioning systems	Apply
C226.5	Compute the performance of Heat Pipes and Heat Pumps	Apply
C226.6	Determine the nozzle characteristics	Apply
C226.7	Analyze the exhaust gases using ORSAT apparatus	Analyze
Specific Learning Outcomes – Manufacturing Technology Lab (20A03403P)		
C227.1	Explain the working of various parts of machine tools.	Understand
C227.2	Operate step turning, thread cutting and Knurling operations on lathe.	Apply
C227.3	Operate drilling and tapping operations using drilling machine.	Apply
C227.4	Operate keyway cut using Slotting Machines.	Apply
C227.5	Operate gear cutting using milling machine.	Apply
C227.6	Model the tool angles on single point cutting tool.	Apply
Specific Learning Outcomes – Computer Aided Machine Drawing (20A03404)		
C228.1	Demonstrate the conventional representations of materials and machine components.	Understand

C228.2	Model riveted, welded and key joints using CAD system.	Apply
C228.3	Create solid models and sectional views of machine components.	Analyze
C228.4	Generate solid models of machine parts and assemble them.	Apply
C228.5	Translate 3D assemblies into 2D drawings.	Analyze
C228.6	Create manufacturing drawing with dimensional and geometric tolerances.	Apply
Specific Learning Outcomes-soft skills (20A52401)		
C229.1	Memorize various elements of effective communicative skills	Understand
C229.2	Interpret people at the emotional level through emotional intelligence	Understand
C229.3	Apply critical thinking skills in problem solving	Apply
C229.4	Analyze the needs of an organization for team building	Analyze
C229.5	Judge the situation and take necessary decisions as a leader	Analyze
C229.6	Develop social and work- life skills as well as personal and emotional well-being	Analyze
Specific Learning Outcomes – Design Thinking for innovation (20A99401)		
C2210.1	Summarize the importance of basic sciences in product development	Understand
C2210.2	Explain the historical developments in mechanical, electrical, communications and computational engineering	Understand
C2210.3	Apply systematic approach to innovative designs	Understand
C2210.4	Identify new materials and manufacturing methods in design	Understand
C2210.5	Develop simple electrical gadgets.	Create
C2210.6	Understand reverse engineering methods in product development.	Understand