

Course Outcomes (II Year) 2019-2020 II Sem		
CO.NO	COURSE OUTCOMES	Taxonomy
Specific learning outcomes –Probability and Statistics (15A54401)		
C221.1	Explain the axiomatic formulation of Probability Theory and random variables as an intrinsic need for the analysis of random phenomena.	Understand
C221.2	Apply probability distributions, Binomial, Poisson and Normal distributions to solve statistical problems.	Apply
C221.3	Analyze the problems of large samples using the techniques of testing of hypothesis.	Analyse
C221.4	Analyze the problems of small samples using the techniques of testing of significance.	Analyse
C221.5	Evaluate the control charts for describing the quality of a manufactured product.	Evaluate
C221.6	Apply the knowledge of queuing theory to find mean arrival and service rate.	Apply
Specific Learning Outcomes – Basic Electrical and Electronics Engineering (15A99301)		
C222.1	Explain the basics of Electrical Circuits, Network theorems, two port networks.	Understand
C222.2	Acquires knowledge on DC generators & motors	Apply
C222.3	Acquires knowledge on Transformers, Induction motors and Alternators	Apply
C222.4	Acquire the knowledge on the semiconductor basics, and their components	Apply
C222.5	Acquire the knowledge on the Three terminal semiconductor components and their utilization in designing the amplifiers.	Apply
C222.6	Understand and acquires knowledge on designing the Oscillators and about IC Components	Understand
Specific Learning Outcomes – Machine Drawing (15A03401)		
C223.1	Creating knowledge about the various practices with regard to dimensioning, selecting and development of views	Create
C223.2	Recognize the different parts of threads and joints which are used in industries	Understand
C223.3	Interpret the importance of the linking functional and visualization aspects in the preparation of the assembly or part drawing	Create
C223.4	Sketch the part or assembly drawing as per the conventions	Apply
C223.5	Develop new innovative methods for measuring product characteristics	Create
C223.6	Interpretation of machine drawing that help the students in the preparation of the production drawing	Create
Specific Learning Outcomes – Kinematics of Machines (15A03402)		
C224.1	Describe different mechanisms, inversions of different kinematic chains and also to find mobility of mechanisms	Understand
C224.2	Analyze the mechanism of Hooke's joint, steering mechanisms.	Analyse
C224.3	Explain various power transmission mechanisms and methodologies and working principles	Understand
C224.4	Predict velocity and acceleration diagrams of simple plane mechanisms by using relative velocity method and instantaneous centre method.	Apply
C224.5	Explain gears, power transmission through different types of gears including gear profiles and its efficiency.	Understand
C224.6	Illustrate displacement diagram and cam profile for different follower motions.	Apply
Specific Learning Outcomes – Thermal Engineering-I (15A03403)		

C225.1	Describe the working of S.I engines and C.I engines	Understand
C225.2	Explain the fuel supply systems, cooling systems, lubrication systems and ignition systems of IC engines	Understand
C225.3	Demonstrate the knocking and Detonation phenomenon in IC engines	Understand
C225.4	Predict the performance parameters of IC engines	Apply
C225.5	Predict the performance parameters of air compressors	Apply
C225.6	Summarize the latest developments in the fields of IC engines	Understand
Specific Learning Outcomes – Manufacturing Technology (15A03404)		
C226.1	Describe the preparation of moulds for various patterns.	Understand
C226.2	Perform the design of gating.	Apply
C226.3	Demonstrate the various types of casting process.	Apply
C226.4	Explain the different methods of melting process.	Understand
C226.5	Choose appropriate welding process for joining of metals.	Analyse
C226.6	Explain the various surface treatment processes	Understand
Specific Learning Outcomes – Thermal Engineering Laboratory (15A03405)		
C227.1	Sketch the valve and port timing diagrams for single cylinder Petrol and diesel engines.	Apply
C227.2	Asses the fuels characterization through experimentation.	Evaluate
C227.3	Predict the performance characteristics of 2-stroke and 4-stroke internal combustion engines.	Apply
C227.4	Predict the 2-stage air compressor performance characteristics.	Apply
C227.5	Evaluate the energy distribution in IC engines by conducting heat balance test.	Evaluate
C227.6	Differentiate the water tube and fire tube boilers.	Understand
Specific Learning Outcomes – Manufacturing Technology Laboratory (15A01306)		
C228.1	Develop a wooden pattern for a given casting	Create
C228.2	Determine the sand properties used in foundry.	Apply
C228.3	Demonstrate the Injection moulding process to produce bottle caps.	Apply
C228.4	Demonstrate the Blow moulding process to produce a bottle.	Apply
C228.5	Demonstrate Bending operations using hydraulic press.	Apply
C228.6	Prepare simple joints using arc, spot and gas welding.	Create

Course Outcomes (III Year) 2019-2020 II Sem		
CO.NO	COURSE OUTCOMES	Taxonomy
Specific Learning Outcomes – Operations Research (15A03601)		
C321.1	Formulate the mathematical models and obtain optimum solution using graphical method and simplex method.	Apply
C321.2	Solve the Linear Programming Problem by Big-M, Two- Phase Techniques and in duality method.	Apply
C321.3	Determine the Optimal solution in Transportation Problems and Assignment Problems.	Apply
C321.4	Choose the best strategy for successfully face the competition and identifying the suitable Queuing Model.	Apply
C321.5	Solve the n-jobs-2-machines,3-machines and estimate the project completion time by PERT & CPM Techniques.	Apply
C321.6	Solve complex problems by Dynamic Programming Techniques and explain various types of maintenance, economic replacement policies.	Apply
Specific Learning Outcomes – Design of Machine Members-II (15A03602)		
C322.1	Design curved beam machine elements like crane hooks, C-clamps, machine frames.	Apply
C322.2	Describe various concepts of design of power transmission elements.	Understand
C322.3	Design helical springs for two wheel vehicle and laminated springs for trucks.	Apply
C322.4	Design various types of rolling contact bearings and sliding contact bearings.	Apply
C322.5	Design spur and helical gears for different input conditions.	Apply
C322.6	Analyze the forces acting and the failure criteria to be adopted for various I C engine parts.	Analyse
Specific Learning Outcomes – Heat Transfer (15A03603)		
C323.1	Quantify the rate of heat transfer through simple geometries under steady and unsteady state conditions.	Apply
C323.2	Estimate the rate of heat transfer from finned surfaces and the time of cooling or heating in transient heat conductions.	Apply
C323.3	Compute the heat transfer coefficients for internal and external flows under free and forced convective conditions.	Apply
C323.4	Predict the heat transfer coefficients for boiling and condensation heat transfer.	Apply
C323.5	Design a heat exchanger using LMTD or NTU- ϵ methods.	Apply

C323.6	Calculate the radiation heat exchange between the surfaces and interpret the significance of radiation shields.	Apply
Specific Learning Outcomes – Finite Element Method (15A03604)		
C324.1	Explain the approaches for solving FEM problems in different fields.	Understand
C324.2	Formulate FEM model for bars and trusses to develop stiffness matrices and load vectors.	Apply
C324.3	Predict stresses in beams and frames using FEM.	Apply
C324.4	Write interpolation functions to higher order are oparametric elements.	Apply
C324.5	Solve the stress in Axis symmetric triangular elements and apply finite element applications in solid mechanics.	Apply
C324.6	Solve the 2D heat transfer and fluid mechanics problems using FEM.	Apply
Specific Learning Outcomes – Metal Forming Process (15A03605)		
C325.1	Describe the concept of yield criteria applicable to different material deformation processes.	Understand
C325.2	Analyse effect of parameters influencing metal forming and compare hot working and cold working with applications.	Analyze
C325.3	Explain characteristics of bulk metal forming processes and sheet metal work.	Understand
C325.4	List out the different types of defects, causes and remedial measures in metal forming processes.	Understand
C325.5	Analyze the variables influencing the manufacture of wires and rods	Analyze
C325.6	Explain the various techniques used in additive manufacturing.	Understand
Specific Learning Outcomes – Non Conventional Energy Resources (15A03606)		
C326.1	Explain the significance of renewable energy sources in the context of Indian requirement.	Understand
C326.2	Explain the principle of measuring the solar radiation and Sun shine.	Understand
C326.3	Explain the working of various solar collectors.	Understand
C326.4	Demonstrates the methods of solar energy storage.	Understand
C326.5	Describe the principles of conversion of Bio-mass and geothermal energy for power generation.	Understand
C326.6	Explain the methods of direct energy conversion systems.	Understand

Specific Learning Outcomes – Heat Transfer Laboratory (15A03609)		
C327.1	Estimate the Heat Transfer coefficient for conductive mode of Heat Transfer.	Apply
C327.2	Estimate the Heat Transfer coefficient for convective mode of Heat Transfer.	Apply
C327.3	Evaluate the emission characteristics of grey bodies.	Evaluate
C327.4	Determine the Stefan Boltzmann constant for radiation Heat Transfer.	Apply
C327.5	Estimate the performance characteristics of heat exchangers.	Analyze
C327.6	Predict the heat transfer coefficient for drop wise and film wise condensation.	Apply
Specific Learning Outcomes – Computer Aided Engineering Laboratory (15A03610)		
C328.1	Demonstrate the knowledge on various simulation software's.	Understand
C328.2	Analyse the structural components of various bars and beams.	Analyse
C328.3	Illustrate the thermal analysis of 2D components and composite wall.	Analyse
C328.4	Illustrate the couple field analysis of 2D components and composite wall.	Analyse
C328.5	Solve the fluid flow problems by using computational fluid dynamics.	Apply
C328.6	Evaluate the various research problems in all the fields of engineering by using FEA.	Evaluate

<u>Course Outcomes (IV Year) 2019-2020 II Sem</u>		
CO.NO	COURSE OUTCOME	TAXONOMY
Specific Learning Outcomes-Industrial Engineering(15A03801)		
C421.1	Define management functions and organizational structures	Understand
C421.2	Use the knowledge of management tools to assess the quality of technical organizations	Understand
C421.3	Evaluate productivity improvement based on work study techniques	Evaluate
C421.4	Manage the inventory controlling in an organization using appropriate inventory techniques	Apply
C421.5	Evaluate the effectiveness of a production process based on sampling plan	Evaluate
C421.6	Apply TQM circles for continuous improvement of industrial process	Apply
Specific Learning Outcomes-Power Plant Engineering (15A03804)		
C422.1	Explain the working of various components of power plant	Understand
C422.2	Quantify the efficiencies of steam power cycles	Apply
C422.3	Discuss the working principles of gas turbine and diesel engine power plants	Understand
C422.4	Explain the working of hydro electric and nuclear power plants	Understand
C422.5	Identify the different nonconventional energy sources and their utilization	Understand
C422.6	Explain the impact of power plant effluents on the environment	Understand
Specific Learning Outcomes-Comprehensive Viva Voce (15A03807)		
C423.1	Recite the fundamentals of engineering mathematics, applied physics and engineering chemistry	Understand
C423.2	Understand and comprehend any given problem related to the mechanical engineering field	Understand
C423.3	Describe the characteristics of engineering materials, manufacturing and optimization	Apply
C423.4	Understand the design of mechanical engineering systems	Understand

C423.5	Explain the governing laws of Thermodynamics, Heat transfer and Refrigeration & Air conditioning principles to develop thermo fluid systems	Apply
C423.6	Analyze the advanced manufacturing systems and robotics	Apply
Specific Learning Outcomes-Technical Seminar (15A03808)		
C424.1	Define the various existing technological developments currently in use	Understand
C424.2	Select the specialized topic of the existing or proposed technology	Analyze
C424.3	Summarize the information gathered from various resources	Understand
C424.4	Prepare a technical report on the selected specialized topic	Create
C424.5	Explain the topic using appropriate presentation tools	Understand
C424.6	Show the inert personal, Professional and work with team skills	Apply
Specific Learning Outcomes-Project Work (15A03809)		
C425.1	Prepare the abstract represents the outline of the project	Understand
C425.2	Understand the literature collected in relevant to the project	Understand
C425.3	Design the required components of the prototype as per the specifications	Apply
C425.4	Develop a prototype of the project with the distribution of tasks among the team	Apply
C425.5	Analyze the movements and functioning of the developed module	Analyze
C425.6	Prepare the project report as per guidelines and the present before the panel of experts	Understand