Course Outcomes (II Year) 2019-2020 I Sem		
CO.NO	**COURSE OUTCOMES**	**Taxonomy**
Specific learning outcomes – Mathematics-III (15A54301)		
C211.1	Solve linear system of equations and calculate the Eigen values and Eigen vectors of the given square matrices.	Apply
C211.2	Apply Cayley – Hamilton theorem to find the inverse and powers of a square matrix. Discuss the nature of the quadratic form.	Apply
C211.3	Use the numerical techniques find solution of algebraic and transcendental Equations.	Apply
C211.4	Estimate the interpolating value of the function using Numerical techniques.	Evaluate
C211.5	Construct the best fit of curves for the given data and Evaluate define integrals using Newton cotes Formula.	Apply
C211.6	Utilize numerical methods to find numerical solution of ordinary and partial differential equations.	Apply
Specific Learning Outcomes – Managerial Economics & Financial Analysis (15A52301)		
C212.1	Explain the role and responsibilities of a managerial economist in modern business scenario.	Understand
C212.2	Predict the demand of a product by using demand forecasting methods.	Apply
C212.3	Calculate the Break Even Point (BEP) with the help of production and cost analysis.	Apply
C212.4	Explain their learning about competitive markets and business economic environment.	Understand
C212.5	Prepare the financial statements and analyze financial position of the firm	Create
C212.6	Discuss the sources of capital and allocation of funds for business undertaking.	Understand
Specific Learning Outcomes – Mechanics of solids (15A01308)		
C213.1	Determinestrength of axial and/or thermal loaded solid members of various cross sections subjected to static deformation.	Apply
C213.2	Sketchtheshear force and bending moment diagrams for beams of different supports and lateral loadings conditions.	Apply
C213.3	Calculate the strength of the beams of various cross sections subjected to flexural loading.	Apply
C213.4	Estimate the strength of the power transmitted shafts of solid and hallow sections, subjected to torsional loading.	Evaluate
C213.5	Describe the methods of calculating the deflections of determinate beams for different loads.	Understand
C213.6	Identify the safe design procedure for thin and thick shells such as domestic cylinders, boilers, air compressors, high pressure vessels used in thermal plants through the principles of Solid mechanics.	Remember
Specific Learning Outcomes – Engineering Drawing for Mechanical Engineers (15A03301)		
C214.1	Sketch the sections of solids.	Apply
C214.2	Sketch the sectional true shapes of solids and its developments.	Apply
C214.3	Sketch the sectional isometric drawings.	Apply
C214.4	Sketch the orthographic views of pictorial views.	Apply
C214.5	Sketch the interpenetration of solids for industrial components.	Apply
C214.6	Sketch the perspective projections.	Apply

Specific Learning Outcomes – Engineering Mechanics (15A03302)		
C215.1	Describe the basic concepts of various types of system of forces and couple.	Understand
C215.2	Analyse free body diagrams and concurrent and non concurrent forces at equilibrium condition.	Analyse
C215.3	Solve different types of friction prolems.	Apply
C215.4	Determine the centroid , centre of gravity of composite figures and mass moment of inertia for solid bodies.	Apply
C215.5	Apply the principles of rectilinear and curvilinear motion to rigid bodies.	Apply
C215.6	Analyse the perfect frames and concepts of mechanical vibrations.	Analyse
Specific Learning Outcomes – Thermodynamics (15A03303)		
C216.1	Explain the concepts of thermodynamic systems, state, properties, processes, work transfer and heat transfer	Understand
C216.2	Estimate the thermodynamic properties of substances at a given state using the tables or equations of state.	Evaluate
C216.3	Analyze systems using first law and second law of thermodynamics	Analyse
C216.4	Predit the performance of power generation systems and heat pumps based on cycles.	Apply
C216.5	Estimate the quality of energy transferred through thermodynamic systems.	Evaluate
C216.6	Solve problems of air standard cycles for performance using a systematic approach	Apply
Specific Learning Outcomes – Mechanics of Solids Laboratory (15A01309)		
C217.1	Determine Young's Modulus of solids under tensile & compressive loads.	Apply
C217.2	Calculate the Young's Modulus of beams under bending loads.	Apply
C217.3	Determine the shear modulus of solids under torsional loads.	Apply
C217.4	Calculate the strength of solids under impact loads.	Apply
C217.5	Evaluate the behavior of helical springs under static loads.	Evaluate
C217.6	Estimate the hardness of solids under gradual loads.	Evaluate
Specific Learning Outcomes – Computer Aided Drafting Laboratory (15A01304)		
C218.1	Demonstrate CAD tools for 2D & 3D drawings of Mechanical Components by using drafting packages. (Apply)	Apply
C218.2	Describe the principles of computer aided designing, geometric modelling, solid modeling.(Understand)	Apply
C218.3	Sketch the 2D part drawings in the work bench.(Apply)	Apply
C218.4	Construct the 3D drawings and isometric views of machine components. (Create)	Create
C218.5	Model the 3D drawings into orthographic views of simple parts. (Apply)	Apply
C218.6	Model the perspective views of a 2D and 3D objects. (Apply)	Apply

Course Outcomes (III Year) 2019-2020 I Sem		
CO.NO	**COURSE OUTCOMES**	**Taxonomy**
Specific learning outcomes – Fluid Mechanics & Hydraulic Machines (15A01510)		
C311.1	Describe the importance of various fluid properties which are at rest and in motion.	Understand
C311.2	Apply the governing equations to estimate flow quantities.	Apply
C311.3	Design the pipe line network based on frictional loss estimate.	Apply
C311.4	Explain the Hydroelectric Power plant with the available water resources and requirement of power.	Understand
C311.5	Evaluate the performance characteristics of hydraulic turbines.	Evaluate
C311.6	Evaluate the performance characteristics of Centrifugal Pumps.	Evaluate
Specific Learning Outcomes – Thermal Engineering-II (15A03501)		
C312.1	Quantify the performance of Rankine cycles and combined cycles based on thermodynamic analysis.	Apply
C312.2	Demonstrate the selection of boilers used in power plants.	Understand
C312.3	Design a chimney required for a power plant using systematic approach.	Apply
C312.4	Analyze the nozzles and condensers for different steam flow conditions. (Understand)	Understand
C312.5	Estimate the performance of steam turbines using flow velocity triangles.	Apply
C312.6	Analyze the gas turbines based on cycles.	Analyse
Specific Learning Outcomes – Dynamics of Machinery (15A03502)		
C313.1	Explain the concepts of friction and its pivotal role in the functioning of collars, pivots, brakes, clutches and dynamometers.	Understand
C313.2	Apply gyroscopic principles on the motion of aeroplane, ship, four wheel and two wheel vehicles.	Apply
C313.3	Design a flywheel and also develop turning moment diagram for an IC engine.	Apply
C313.4	Describe the constructional and working characteristics of distinguished governors.	Understand
C313.5	Explain the means of balancing of rotating and reciprocating masses, in an IC engine, V-engine, multi cylinder engine and locomotives.	Understand
C313.6	Evaluate the response of a vibratory system instigated from either one or more of free, forced and damped vibrations with diverse nature.	Evaluate

Specific Learning Outcomes – Machine Tools (15A03503)		
C314.1	Interpret the tool geometry on chip formation and cutting processes.	Evaluate
C314.2	Identify the basic parts and operations performed on conventional machine tools.	Understand
C314.3	Estimate the machining parameters for machine tools.	Apply
C314.4	Select the type of machine tool and corresponding cutting tool required for a given geometry.	Understand
C314.5	Demonstrate the design features of jigs and fixtures.	Understand
C314.6	Use most advanced machine tools used in industrial automation.	Apply
Specific Learning Outcomes – Design of Machine Members – I (15A03504)		
C315.1	Design the machine elements using theories of failure.	Apply
C315.2	Design simple components under cyclic loading using Goodman's and Soderberg equation.	Apply
C315.3	Design riveted joints with different configuration, boiler shell joint design and eccentric loading design of riveted joints.	Apply
C315.4	Design bolted joints with direct loading and eccentric loading	Apply
C315.5	Design cotter joint, knuckle joint and shafts	Apply
C315.6	Design various types of keys, rigid and flexible shaft couplings.	Apply
Specific Learning Outcomes – Entrepreneurship (15A03505)		
C316.1	Explain the role and responsibilities of an entrepreneur in modern business scenario.	Understand
C316.2	Model and start the new venture.	Apply
C316.3	Prepare and implement the business plan.	Create
C316.4	Discuss the sources of finance and managing the venture.	Understand
C316.5	Demonstrate the new venture expansion strategies and issues.	Apply
C316.6	Discuss production and marketing aspects of entrepreneurship.	Understand
Specific Learning Outcomes – FM & HM Laboratory (15A01511)		
C317.1	Demonstrate the knowledge on various flow measuring instruments.	Apply
C317.2	Evaluate the coefficient of discharge of flow through pipes.	Evaluate

C317.3	Evaluate the major and minor losses for conduit flows.	Evaluate
C317.4	Analyse the performance characteristics of hydraulic turbines.	Analyse
C317.5	Analyse the performance characteristics of hydraulic pumps.	Analyse
C317.6	Analyse the percentage of error in discharge in flow through pipes.	Analyse
Specific Learning Outcomes – Machine Tools Laboratory (15A03508)		
C318.1	Explain the working of various parts of machine tools.	Evaluate
C318.2	Operate step turning, thread cutting and Knurling operations on lathe.	Apply
C318.3	Operate drilling and tapping operations using drilling machine.	Apply
C318.4	Operate keyway cut using Slotting Machines.	Apply
C318.5	Operate gear cutting using milling machine.	Apply
C318.6	Model the tool angles on single point cutting tool.	Apply
Specific Learning Outcomes – Audit course- Social Values & Ethics (15A99501)		
C319.1	Assess their own ethical values and social context of problems.	Evaluate
C319.2	Determine the professional ethics which includes moral issues and virtues, social responsibilities of an engineer, right, and qualities of Moral Leadership.	Apply
C319.3	Explain about philosophy of Life and Individual qualities.	Understand
C319.4	Identify the core values that shape the ethical behaviour of an engineer and to create awareness on Engineers responsibilities and rights.	Remember
C319.5	Describe appropriate technologies and management patterns to create harmony in professional and personal life.	Understand
C319.6	Explain their learning's about environment conservation, enrichment and Sustainability.	Understand

Course Outcomes (IV Year) 2019-2020 I Sem		
S.NO	**COURSE OUTCOMES**	**Taxonomy**
Specific learning outcomes – Management Science (15A52601)		
C411.1	Explain the basic concepts of management in modern contexts.	Understand
C411.2	Define organization structures and principles.	Understand
C411.3	Demonstrate production and marketing aspects.	Understand
C411.4	Outline the roles and responsibilities of Human Resource Manager.	Understand
C411.5	Formulate strategies in the modern management.	Apply
C411.6	Compare the modern management practices based on the requirement of the projects.	Understand
Specific Learning Outcomes – Automobile Engineering (15A03701)		
C412.1	Describe the functions of components in automobile.	Understand
C412.2	Demonstrate the working of transmission system use in automobile	Understand
C412.3	Explain the methods of steering system and their applications.	Understand
C412.4	Demonstrate the suspension systems in automobile.	Understand
C412.5	Summarize the functions of automobile breaking systems.	Understand
C412.6	Explain emission control techniques and electrical systems adopted in automobiles.	Understand
Specific Learning Outcomes – CAD/CAM (15A03702)		
C413.1	Describe the cycles in CAD, CAM and CAD/CAM systems which are used in the real time industry.	Understand
C413.2	Describe the tools used in Geometric modelling and various computer aided design considerations.	Understand
C413.3	Describe the NC tools, process held in the manufacturing units	Understand
C413.4	Demonstrate the Numerical Control programming in turning milling machines.	Understand
C413.5	Assess the quality of products using group technology technique.	Apply

C413.6	Describe the various process plans held in the industry and learning about MRP.	Understand
Specific Learning Outcomes – Metrology & Measurements (15A03703)		
C414.1	Explain the concept of limits, fits and jigs.	Understand
C414.2	Demonstrate the concept of measuring standard measurements using comparators. (	Understand
C414.3	Demonstrate the measurement of surface profiles.	Understand
C414.4	Use the machine tool alignment test to prepare the acceptance charts.	Apply
C414.5	Calibrate the dynamic quantities using transducers.	Apply
C414.6	Calibrate the mechanical quantities using transducers.	Apply
Specific Learning Outcomes – Modern Manufacturing Methods (15A03706)		
C415.1	Understand the principles of a range of modern manufacturing technologies, apply subtractive and additive manufacturing for rapid prototyping.	Understand
C415.2	Describe the specific process characteristics of various modern manufacturing technologies and identify their possible applications and metal removal rate	Understand
C415.3	Students can able to know the fundamentals of electrochemical machining, its economical concepts and basics of chemical marching.	Understand
C415.4	Able to study the principles of EDM, EDG, PM, its applications	Understand
C415.5	Able to know the applications and limitations of Electron Beam machining and laser Beam Marching.	Understand
C415.6	Understand the fusion deposition modeling and solid ground curing	Understand
Specific Learning Outcomes – Production and Operations Management (15A03709)		
C416.1	Function effectively as a team providing leadership, create a good environment, establish goals and plan production.	Understand
C416.2	Develop appropriate experimentation and interpret data for Aggregate planning using operation research models.	Apply
C416.3	Design plant layout to facilitate material flow and processing of a product efficiently.	Analyse
C416.4	Describe the essential of Material requirement planning in the manufacturing firm.	Understand
C416.5	Select effective plant location and scheduling method to optimise production.	Understand
C416.6	Develop a lean enterprise and improve the quality using Six sigma and Jit concepts.	Apply

Specific Learning Outcomes – CAD/CAM Laboratory (15A03710)		
C417.1	Use CAD tools for 2D & 3D drawings of Mechanical Components.	Apply
C417.2	Show the 3D solid models into 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 – Metrology & Measurements Laboratory (15A03711)		
C418.1	Demonstrate and measure the linear, angular and gear profiles.	Understand
C418.2	Conduct the alignment test on machine tools.	Apply
C418.3	Measure the flatness of the surface by using leveling tools.	Apply
C418.4	Measure the temperature& displacement by using transducers.	Apply
C418.5	Measure the speed, pressure, and strain by using transducers.	Apply
C418.6	Measure the angular measurement &flow measurement by using transducers.	Apply