

Course Outcomes (II Year) Odd Sem 2018-19		
Course Name: Probability and Statistics		
CO	Course Outcome	Taxonomy
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
Course Name: Basic Electrical and Electronics Engineering		
CO	Course Outcome	Taxonomy
C222.1	Explain the basics of Electrical Circuits, Network theorems, two port networks.	Understand
C222.2	Acquires knowledge on DC generators & motors	Understand
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	Apply
Course Name: Machine Drawing		
CO	Course Outcome	Taxonomy
C223.1	Creating knowledge about the various practices with regard to dimensioning, selecting and development of views	Apply
C223.2	Recognize the different parts of threads and joints which are used in industries	Apply
C223.3	Interpret the importance of the linking functional and visualization aspects in the preparation of the assembly or part drawing	Apply
C223.4	Sketch the part or assembly drawing as per the conventions	Apply
C223.5	Develop new innovative methods for measuring product characteristics	Apply
C223.6	Interpretation of machine drawing that help the students in the preparation of the production drawing	Apply
Course Name: Kinematics of Machines		
CO	Course Outcome	Taxonomy
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
Course Name: Thermal Engineering-I		
CO	Course Outcome	Taxonomy
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	Apply
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
Course Name: Manufacturing Technology		
CO	Course Outcome	Taxonomy
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
Course Name: Thermal Engineering Laboratory		
CO	Course Outcome	Taxonomy
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
Course Name: Manufacturing Technology Laboratory		
CO	Course Outcome	Taxonomy
C228.1	Develop a wooden pattern for a given casting.	Apply
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.	Apply

Course Outcomes (III Year) Odd Sem 2018-19		
Course Name: Fluid Mechanics & Hydraulic Machines		
CO	Course Outcome	Taxonomy
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
Course Name: Thermal Engineering-II		
CO	Course Outcome	Taxonomy
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
C312.5	Estimate the performance of steam turbines using flow velocity triangles.	Apply
C312.6	Analyze the gas turbines based on cycles.	Analyse
Course Name: Dynamics of Machinery		
CO	Course Outcome	Taxonomy
C313.1	Understand the concept of friction applied to various dynamic systems	Apply
C313.2	Estimate the effect gyroscopic couple on the stability of moving vehicles.	Apply
C313.3	Design a flywheel for an IC engine based turning moment diagram	Apply
C313.4	Analyze the characteristics of governors.	Apply
C313.5	Analyze the balancing problems in rotary and reciprocating machinery.	Apply
C313.6	Evaluate the vibratory systems for natural frequencies.	Apply
Course Name: Machine Tools		
CO	Course Outcome	Taxonomy
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
Course Name: Design of Machine Members – I		
CO	Course Outcome	Taxonomy
C315.1	Understand the manufacturing and design consideration in machine elements	Apply
C315.2	Design the machine elements using theories of failure.	Apply
C315.3	Design simple components under cyclic loading using Goodman's and	Apply

	soderberg equation.	
C315.4	Design riveted joints and 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
Course Name: Entrepreneurship		
CO	Course Outcome	Taxonomy
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.	Apply
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
Course Name: FM & HM Laboratory		
CO	Course Outcome	Taxonomy
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
Course Name: Machine Tools Laboratory		
CO	Course Outcome	Taxonomy
C318.1	Explain the working of various parts of machine tools.	Understand
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
Course Name: Audit course- Social Values & Ethics		
CO	Course Outcome	Taxonomy
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) Odd Sem 2018-19		
Course Name: Management Science		
CO	Course Outcome	Taxonomy
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
Course Name: Automobile Engineering		
CO	Course Outcome	Taxonomy
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
Course Name: CAD/CAM		
CO	Course Outcome	Taxonomy
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
Course Name: Metrology & Measurements		
CO	Course Outcome	Taxonomy
C414.1	Explain the concept of limits, fits and jigs.	Understand
C414.2	Demonstrate the concept of measuring standard measurands 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
Course Name: Modern Manufacturing Methods		
CO	Course Outcome	Taxonomy
C415.1	Use the basic manufacturing methods, measurements and apply 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	Apply
C415.3	Students can able to know the fundamentals of electrochemical machining, its economical concepts and basics of chemical marching.	Apply
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.	Apply
C415.6	Understand the fusion deposition modeling and solid ground curing	Apply
Course Name: Production and Operations Management		
CO	Course Outcome	Taxonomy
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.	Apply
C416.3	Design plant layout to facilitate material flow and processing of a product efficiently	Analyse
C416.4	Describe the essentiality of Material requirement planning in the manufacturing firm	Apply
C416.5	Select effective plant location and scheduling method to optimise production	Analyse
C416.6	Develop a lean enterprise and improve the quality using Six sigma and Jit concepts	Apply
Course Name: CAD/CAM Laboratory		
CO	Course Outcome	Taxonomy
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.	Understand
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
Course Name: Metrology & Measurements Laboratory		
CO	Course Outcome	Taxonomy
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 levelling 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