RISE KRISHNA SAI PRAKASAM GROUP OF INSTITUTIONS

DEPARTMENT OF MECHANICAL ENGINEERING

Course Outcomes Summary A.Y:2020-21

Year / Sem: II / I

At the end of the course student will be able to

Course Name: C211 Vector Calculus & Fourier Transforms		BT LEVEL
C211.1	Interpret the physical meaning of different operators such as gradient, curl and divergence	Applying
C211.2	Estimate the work done against a field, circulation and flux using vector calculus	Understanding
C211.3	Apply the Laplace transform for solving differential equations	Applying
C211.4	Find or compute the Fourier series of periodic signals	Understanding
C211.5	Know and be able to apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms	Applying

Course Name: C212 Mechanics of Solids		
C212.1	Model & Analyze the behavior of basic structural members subjected to various loading and support conditions based on principles of equilibrium.	Analyzing
C212.2	Understand the apply the concept of stress and strain to analyze and design structural members and machine parts under axial, shear and bending loads, moment and torsional moment.	Understanding
C212.3	Students will learn all the methods to analyze beams, columns, frames for normal, shear, and torsion stresses and to solve deflection problems in preparation for the design of such structural components. Students are able to analyse beams and draw correct and complete shear and bending moment diagrams for beams.	Analyzing
C212.4	Students attain a deeper understanding of the loads, stresses, and strains acting on a structure and their relations in the elastic behavior	Understanding
C212.5	Design and analysis of Industrial components like pressure vessels.	Analyzing

Course Name: C213 Material Science & Metallurgy		
C213.1	Understand the crystalline structure of different metals and study the stability of phases in different alloy systems	Understanding
C213.2	Study the behavior of ferrous and non ferrous metals and alloys and their application in different domains	Understanding

C213.3	Able to understand the effect of heat treatment, addition of alloying elements on properties of ferrous metals	Understanding
C213.4	Grasp the methods of making of metal powders and applications of powder metallurgy	Applying
C213.5	Comprehend the properties and applications of ceramic, composites and other advanced methods.	Applying

Course Name: C214 Production Technology		
C214.1	Able to design the patterns and core boxes for metal casting processes	Applying
C214.2	Able to design the gating system for different metallic components	Applying
C214.3	Know the different types of manufacturing processes	Understanding
C214.4	Be able to use forging, extrusion processes	Applying
C214.5	Learn about the different types of welding processes used for special fabrication.	Understanding

Course Name: C215 Thermodynamics		
C215.1	Basic concepts of thermodynamics	Understanding
C215.2	Laws of thermodynamics	Understanding
C215.3	Concept of entropy	Analyzing
C215.4	Property evaluation of vapors and their depiction in tables and charts	Analyzing
C215.5	Evaluation of properties of perfect gas mixtures.	Understanding

Course Name: C216 Machine Drawing		
C216.1	Draw and represent standard dimensions of different mechanical fasteners and joints and Couplings	Applying
C216.2	Draw different types of bearings showing different components.	Applying
C216.3	Assemble components of a machine part and draw the sectional assembly drawing showing the dimensions of all the components of the assembly as per bill of materials	Applying
C216.4	Select and represent fits and geometrical form of different mating parts in assembly drawings.	Applying
C216.5	To prepare manufacturing drawings indicating fits, tolerances, surface finish and surface treatment requirements.	Applying

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Course Outcomes Summary **A.Y:2020-21**

Year / Sem: II / I

At the end of the course student will be able to

Course Name: C217Production Technology Lab		
C217.1	Design a pattern for making metal casting	Creating
C217.2	Determine the strength and permeability of sand for mould preparation	Evaluating
C217.3	Perform joining of metals using different welding methods	Understanding
C217.4	Perform blanking and piercing operations and study about types of dies	Understanding
C217.5	Perform deep drawing, extrusion and bending operations	Understanding
C217.6	Perform injection moulding and blow moulding by processing of plastics	Understanding

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DEPARTMENT OF MECHANICAL ENGINEERING

Course Outcomes Summary **A.Y:2020-21**

Year / Sem: II / II

At the end of the course student will be able to

Course Name: C221 Kinematics of Machinery		**BT LEVEL**
C221.1	Visualize a four bar mechanisms and their inversions.	Understanding
C221.2	Describe various types of straight line motion mechanisms and their applications.	Understanding
C221.3	Determine velocity and accelerations of various mechanisms using graphical and Instantaneous methods.	Evaluating
C221.4	Construct cam profiles for various types of follower motions.	Applying
C221.5	Explain the principle of higher pairs used for power transmission.	Understanding
C221.6	Analyze various power transmission mechanisms like belts, chains, ropes and gear trains and apply them appropriately.	Analyzing
Course Name: C222 Thermal Engineering -I		
C222.1	Differentiate realistic and unrealistic thermodynamic cycles and their efficiencies.	Analyzing
C222.2	Understand the working principles of different types of internal combustion engines.	Understanding
C222.3	Understand the combustion processes and methods to improve the combustion processes in different types of internal combustion engines	Understanding
C222.4	Calculate efficiency and power developed in internal combustion engine with a given set of operational parameters.	Applying
C222.5	Understand the working principles of different types of compressors and its minimum work requirement.	Understanding
C222.6	Calculate efficiency and power requirement of compressors with a given set of operational parameters.	Applying
Course Name: C223 Production Technology		
C223.1	Overall process of casting and different methods in casting & applications.	Understanding
C223.2	Concept of different methods in casting & applications, Methods of melting and types of furnaces.	Remembering
C223.3	Concept of welding & different welding methods such as gas welding and arc welding	Remembering
C223.4	Advanced welding processes and their Applications.	Understanding
C223.5	Different forming process such as Forging, Rolling and Extrusion.	Understanding

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C223.6	Different types of sheet metal forming and processing of plastics.	Understanding
Course Name: C224 Design of Machine Members-I		
C224.1	Understand the knowledge on combined stress and strain on mechanical members and understand theories of failures	Remembering
C224.2	Understand the concept of stress concentration, notch sensitivity, fatigue analysis to develop safety factors, failures and calculation of endurance strength	Creating
C224.3	Design different machine elements such as fasteners like riveted, bolted and welded joints	Creating
C224.4	Design keys, shafts, cotters and knuckle joints	Creating
C224.5	Design various couplings using used in fastening	Creating
C224.6	Design various springs used in suspension systems	Creating
Course Name: C225 Machine Drawing		
C225.1	Familiarize drawing practice of various joints, simple mechanical parts selection of views. Draw various joints, keys, nuts and threads, shaft couplings. Draw the journal, pivot, collar and footstep bearing. Pivot, collar and footstep bearing.	Understanding
C225.2	Construct an assembly drawing using part drawings of machine parts, engine parts and Valves	Applying
Course Name: C226 Industrial Engineering and Management		
C226.1	Explain basic concept of industrial engineering and various theories of scientific management.	Remembering
C226.2	Explain the Concept Of Plant Layout, Optimal Design Of Layouts, Plant Maintenance	Understanding
C226.3	Discuss concept of operations management, learn method study and time study	Applying
C226.4	Explain concept of statistical quality control, various control charts and their applications	Applying
C226.5	Explain concept of Concept of human resource management quantitative methods, wage incentive plans.	Applying
C226.6	Discuss concept and design of Value engineering, project management (PERT/CPM)	Analyzing

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Course Outcomes Summary **A.Y:2020-21**

Year / Sem: II / II

At the end of the course student will be able to

Course Name: C221 Complex Variables & Statistical Methods		**BT LEVEL**
C221.1	Apply Cauchy-Riemann equations to complex functions in order to determine whether a given continuous function is analytic	Applying
C221.2	Find the differentiation and integration of complex functions used in engineering problems	Applying
C221.3	Make use of the Cauchy residue theorem to evaluate certain integrals	Applying
C221.4	Apply discrete and continuous probability distributions	Applying
C221.5	Design the components of a classical hypothesis test	Understanding
C221.6	Infer the statistical inferential methods based on small and large sampling tests	Understanding

Course Name: C222 Kinematics of Machinery		
C222.1	Contrive a mechanism for a given plane motion with single degree of freedom.	Understanding
C222.2	Suggest and analyze a mechanism for a given straight line motion and automobile steering motion.	Analyzing
C222.3	Analyze the motion (velocity and acceleration) of a plane mechanism	Analyzing
C222.4	Suggest and analyze mechanisms for a prescribed intermittent motion like opening and closing of IC engine valves etc.	Analyzing
C222.5	Select a power transmission system for a given application and analyze motion of different transmission systems	Understanding

Course Name: C223 Applied Thermodynamics		
C223.1	Expected to learn the working of steam power cycles and also should be able to analyze and evaluate the performance of individual components	Understanding
C223.2	Student is able to learn the principles of combustion , stochiometry and flue gas analysis	Understanding
C223.4	Students will be able to design the components and calculate the losses and efficiency of reactions turbines and condensers.	Understanding
C223.5	Student is able to learn various types of compressors, principles of working and their performance evaluation.	Applying

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Course Name: C224 Fluid Mechanics & Hydraulic Machines		
C224.1	The basic concepts of fluid properties.	Understanding
C224.2	The mechanics of fluids in static and dynamic conditions.	Understanding
C224.3	Boundary layer theory, flow separation and dimensional analysis.	Applying
C224.4	Hydrodynamic forces of jet on vanes in different positions.	Applying
C224.5	Working Principles and performance evaluation of hydraulic pump and turbines	Understanding

Course Name: C225 Metal Cutting & Machine Tool		
C225.1	Learned the fundamental knowledge and principals in material removal process.	Understanding
C225.2	Acquire the knowledge on operations in conventional, automatic, Capstan and turret lathes	Understanding
C225.3	capable of understanding the working principles and operations of shaping, slotting, planning , drilling and boring machines.	Understanding
C225.4	able to make gear and keyway in milling machines and understand the indexing mechanisms	Applying
C225.5	Understand the different types of unconventional machining methods and principles of finishing processes.	Understanding

Course Name: C226 Design of Machine Members-I		
C226.1	Calculate different stresses in the machine components subjected to various static loads, failures and suitability of a material for an engineering application.	Understanding
C226.2.	Calculate dynamic stresses in the machine components subjected to variable loads.	Understanding
C226.3	Design riveted, welded, bolted joints, keys, cotters and knuckle joints subjected to static loads and their failure modes	Applying
C226.4	Design the machine shafts and suggest suitable coupling for a given application.	Applying
C226.5	Calculate stresses in different types of springs subjected to static loads and dynamic loads.	Applying

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Course Outcomes Summary **A.Y:2020-21**

Year / Sem: II / II

At the end of the course student will be able to

Course Name: C227 Fluid Mechanics and Hydraulic Machines Lab		**BT LEVEL**
C227.1	Evaluate the force exerted by a jet on different vane	Evaluating
C227.2	Evaluate the performance of turbines	Evaluating
C227.3	Evaluate the performance of pumps	Evaluating
C227.4	Determine the coefficient of discharge of Venturi-meter and Orifice-meter	Evaluating
C227.5	Determine friction losses in a pipe line	Evaluating
C227.6	Determine the flow in a pipe using turbine flow meter	Evaluating

Course Name: C228 Machine Tools Lab		
C228.1	Identify and know the general purpose of machines.	Understanding
C228.2	Perform turning, knurling and thread cutting on lathe.	Understanding
C228.3	Perform drilling and tapping operations.	Understanding
C228.4	Perform shaping, planning, slotting operations on different machines	Understanding
C228.5	Work with indexing plate and produce groves using milling machines	Understanding
C228.6	Perform cylindrical surface grinding and grinding of tool angles	Understanding

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Course Outcomes Summary **A.Y:2020-21**

Year / Sem: III / I

At the end of the course student will be able to

Course Name: C311 Dynamics of Machinery		
C311.1	Analyze the effect of gyroscopic couple on sea vehicles, aircrafts and two and four wheelers	Analyzing
C311.2	Apply the concept of friction on clutches, brakes and dynamometers	Applying
C311.3	Compute the fluctuation of flywheels, inertia torque, velocity and acceleration of connecting rod	Applying
C311.4	Discuss the function of governors and its principle	Understanding
C311.5	Explain the concept of balancing of reciprocating and rotary masses	Understanding
C311.6	Discuss to determine the natural frequencies of continuous systems starting from the general equation of displacement	Understanding
Course Name: C312 Metal Cutting & Machine Tools		
C312.1	Analyze cutting forces acting on the work piece and cutting tool. Also will gain knowledge on tool life, tool materials and coolants.	Analyzing
C312.2	Illustrate and categorize the lathe machines its principles and its operations.	Understanding
C312.3	Select a specified machine among shaping, slotting, and planning, drilling and boring machines for a specific type of metal removal operation depending upon shape, size, and material speed.	Understanding
C312.4	Perform milling operation using indexing plate and various types of miller cutters to produce slots (Gear teeth).	Applying
C312.5	Do surface grinding operation in various methods using types of abrasive tools and will know about the other similar operations.	Understanding
C312.6	Execute a simple program for the motion controls in CNC Machine or for machining a component and can design jigs and fixtures,	Applying
Course Name: C313 Design of Machine Members-II		
C313.1	Select the suitable bearing based on the Application of the loads and predict the life of the bearing.	Remembering
C313.2	Design of engine parts such as connecting rod, piston, crank shafts, cylinder, cylinder line, pins	Creating
C313.3	Design of curved beams like, rectangular, circular, trapezoidal and 'T' sections , crane hooks, and 'C' clamps	Creating
C313.4	Design power transmission elements such as gears, belts, chains, Pulleys, ropes, levers and power screws	Creating

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C313.5	Capable to design of gear drives, dynamic load factor, compressive strength, bending strength, estimation of center distance, module and face width, wear conditions of spur gear, helical gear. Design of screws such as square buttress, design of nut, compound screw and differential screw.	Creating
C313.6	Design of levers, brackets and stresses in Wire ropes	Creating
Course Name: C314 Operation Research		
C314.1	Solve the linear programming problems.	Applying
C314.2	Solve transportation and assignment problems.	Applying
C314.3	Solve replacement problems.	Applying
C314.4	Solve game theory, queuing problems.	Applying
C314.5	Solve inventory problems.	Applying
C314.6	Discuss about dynamic programming and simulation to LPP and inventory problems.	Understanding
Course Name: C315 Thermal Engineering-II		
C315.1	Calculate the efficiency of the Rankine vapor power cycle and effect of operating variables on efficiency of Rankine Cycle.	Applying
C315.2	Understand the construction details and working of boilers, mountings and accessories of boilers.	Applying
C315.3	Identify & apply fundamentals to solve problems involving nozzles	Applying
C315.4	Analyze the velocity diagrams and efficiency of Impulse and Reaction turbines.	Analyzing
C315.5	Understand the functionality of major components of gas turbine plants	Applying
C315.6	Understand the functionality of major components of gas turbine plants.	Applying

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Course Outcomes Summary **A.Y:2020-21**

Year / Sem: III / I

At the end of the course student will be able to

Course Name: C316 Theory of Machines Lab		
C316.1	Determine whirling speed of a shaft theoretically and experimentally, frequency of damped force vibration, un-damped free vibration of a spring mass system	Analyzing
C316.2	Determine the position of sleeve and plot the characteristic curve of a Hartnell governor at different speeds and radius of rotation	Analyzing
C316.3	Analyse the motion of gyroscope when the couple is applied at the axis of spin	Analyzing
C316.4	Determine the moment of inertia of flywheel and coefficient of friction between belt and pulley	Analyzing
C316.5	Demonstrate the function of simple and compound screw jack, static and dynamic balancing using rigid blocks and various types of gears- Spur, Helical, Worm and Bevel Gears	Understand
C316.6	Plot slider displacement, velocity and acceleration against crank rotation for single slider crank mechanism/Four bar mechanism and follower displacement vs cam rotation for various Cam Follower systems	Analyzing
Course Name: C317 Machine Tools Lab		
C317.1	Identify and know the general purpose of machines.	Understanding
C317.2	Perform turning, knurling and thread cutting on lathe.	Understanding
C317.3	Perform drilling and tapping operations.	Understanding
C317.4	Perform shaping, planning, slotting operations on different machines	Understanding
C317.5	Work with indexing plate and produce groves using milling machines	Understanding
C317.6	Perform cylindrical surface grinding and grinding of tool angles	Understanding
Course Name: C318 Thermal Engineering Lab		
C318.1	Plot the valve timing and port timing diagrams for 2 stroke and 4 stroke IC engines.	Remembering
C318.2	Conduct constant speed and variable speed tests on IC engines and interpret their Performances and estimate fuels viscosity.	Evaluating
C318.3	Estimate energy distribution by conducting heat balance test on IC engines.	Evaluating

C318.4	Conduct the performance test on reciprocating air compressor.	Evaluating
C318.5	Demonstrate the procedure for assembly & dis-assembly of 2 stroke and 4 stroke IC engines.	Remembering
C318.6	Demonstrate about boilers, mountings and accessories.	Remembering

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Course Outcomes Summary **A.Y:2020-21**

Year / Sem: III / II

At the end of the course student will be able to

Course Name: C321 Metrology		
C321.1	Design tolerances and fits for selected product quality.	Creating
C321.2	Explain various linear, angle, taper measurements instruments and different gauges.	Understanding
C321.3	Explain the principles of optical measuring instruments and Interferometer.	Understanding
C321.4	Differentiate surface roughness and surface waviness and various methods of measurement of surface roughness and comparators.	Analyzing
C321.5	Describe various gear measurement and screw thread measurement instruments.	Understanding
C321.6	Use various tools in aligning lathe, drilling and milling machines and explain various flatness measurement instruments	Understanding
Course Name: C322 Instrumentation & Control Systems		
C322.1	Explain concept of the generalized configuration of measurements, errors, and various potentiometers	Remembering
C322.2	Explain the construction working of various temperature and pressure measurement instruments	Understanding
C322.3	Discuss the construction & working of instruments measures level speed & flow.	Applying
C322.4	Discuss the construction & working. of various strain gauges & strain gauge rosettes.	Applying
C322.5	Explain the construction & working of instruments measures humidity, force, torque & power.	Applying
C322.6	Discuss the elements of control system & speed ,position control systems	Analyzing
Course Name: C323 Refrigeration & Air-conditioning		
C323.1	Explain the terminology associated with Refrigeration and understand the different applications of Refrigeration.	Understanding
C323.2	Explain Working principle and essential components of the VCR system and understand different methods to improve COP of VCR system.	Understanding
C323.3	Describe about different types of refrigerants and VCR system components.	Remembering
C323.4	Demonstrate working principle and basic components of VAR system and Steam jet refrigeration	Understanding
C323.5	Apply the basic principles of psychrometry and applied psychrometrics	Applying
C323.6	Describe heating and cooling load conditions for humidified space and dehumidified space.	Remembering

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Course Name: C324 Heat Transfer		
C324.1	Understand the modes and of mechanisms of heat transfer.	Applying
C324.2	Explain The significance of Biot and Fourier numbers and to know the fin efficiency.	Applying
C324.3	Understand the use of non dimensional numbers in choosing the right empirical formulae for calculating the heat transfer from a object.	Applying
C324.4	Use the empirical correlations for convective heat transfer for various cross sections.	Understanding
C324.5	Calculate the efficiency and effectiveness of different types of heat exchangers	Applying
C324.6	Understand the basics and laws of radiation heat transfer.	Understanding
Course Name: C325 Green Engineering Systems		
C325.1	Explain concept of solar radiation, design and concept of solar collectors.	Understanding
C325.2	Discuss the concept of solar energy storage ,its applications and basics of wind energy	Understanding
C325.3	Describe concept of bio mass energy ,geothermal energy and ocean energy	Understanding
C325.4	Explain concept of Energy efficient systems of mechanical and electrical	Understanding
C325.5	Explain concept of Energy efficient systems	Understanding
C325.6	Explain concept and design of green building.	Understanding

Faculty Coordinator

Head of the Department

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Course Outcomes Summary **A.Y:2020-21**

Year / Sem: III / II

At the end of the course student will be able to

Course Name: C326 Heat Transfer Lab		**BT LEVEL**
C326.1	Understand the modes and of mechanisms of heat transfer.	Applying
C326.2	Explain The significance of Biot and Fourier numbers and to know the fin efficiency.	Applying
C326.3	Understand the use of non dimensional numbers in choosing the right empirical formulae for calculating the heat transfer from a object.	Applying
C326.4	Use the empirical correlations for convective heat transfer for various cross sections.	Understanding
C326.5	Calculate the efficiency and effectiveness of different types of heat exchangers	Applying
C326.6	Understand the basics and laws of radiation heat transfer.	Understanding
Course Name: C327 Metrology and Instrumentation Lab		
C327.1	Students will be able to design tolerances and fits for selected product quality. Identify the basic concepts of new measurement systems and various calibration processes	Applying
C327.2	Understand the standards of length, angles and also design gauges for measurements of different products. Classify the various processes in temperature and pressure measurement system.	Understanding
C327.3	Understand the optical principles, and its applications for measurements of the small components. Apply different methods to measure the level, flow, speed, acceleration and vibration etc.	Understanding
C327.4	Understand the evaluation of surface finish and measure the parts with various comparators. Analyze various types of components in stress, strain measuring system.	Understanding
C327.5	Choose appropriate method and instruments for inspection of various gear elements and thread elements. Design an appropriate device for the measurement of parameters like humidity, force, power and torque and justify its use through characteristics	Evaluating
C327.6	Evaluate the quality of the machine tool with the help of alignment test. Evaluate and interpret the results of measuring systems	Evaluating
Course Name: C328 Computational Fluid Dynamics Lab		

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C328.1	Understand the program structure of differentiation, Integration, various algebraic equations using C and MATLAB.	Understanding
C328.2	Understand the program structure of partial differential equations using C and MATLAB.	Understanding
C328.3	Understand the program structure of 1D and 2D heat conduction using C and MATLAB.	Understanding
C328.4	Understand the program structure of Incompressible and Inviscid fluid flowing using C and MATLAB.	Understanding
C328.5	Perform various heat transfer modes, Lumped heat transfer, Steady state conduction heat transfer using ANSYS.	Analyzing

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Year / Sem: IV / I

At the end of the course student will be able to

Course Name: C411 Mechatronics		
C411.1	Design a mechatronic system using micro processor based controllers and sensors	Creating
C411.2	Gain knowledge on solid state devices, signal conditioning and amplifiers	Understanding
C411.3	Identify the elements and apply the basic principles of actuating systems	Applying
C411.4	Gain knowledge on digital electronics, its applications and will be able to work on PLC	Applying
C411.5	Apply their knowledge to convert the signals by data acquisition and interfacing	Applying
C411.6	Design mechatronic systems as per the requirement of future trends using various types of controllers	Creating
Course Name: C412 CAD/CAM		
C412.1	Learn computer application in various design techniques as required in manufacturing industries.	Evaluating
C412.2	Lines, parametric curves, surfaces and solid, and the technique of transformation of geometric entities using transformation matrix	Understanding
C412.3	Learn various part programming for Computer aided design and manufacturing	Evaluating
C412.4	Describe the use of GT , production flow analysis and CAPP	Remembering
C412.5	Identify the CAQC using contact and non contact inspection methods.	Analyzing
C412.6	Illustrates concepts of integrated manufacturing system.	Applying
Course Name: C413 Finite Element Methods		
C413.1	Correlate a differential equation and its equivalent integral form.	Creating
C413.2	Develop the element stiffness matrix characteristic equation procedure and generation of global stiffness equation will be applied able to numerically solve for stresses, strains and deformation of a structural component.	Creating
C413.3	Identify the application and demonstrate the ability to create models for different components such as trusses, bars, beams, plane isoperimetric elements, and 3-D element etc..using ANSYS general-purpose software.	Applying
C413.4	Implement the formulation techniques to solve two-dimensional problems using triangle and quadrilateral elements	Applying

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C413.5	Formulate and solve Higher order and isoparametric elements.	Analyzing
C413.6	Finite element methods and modeling two dimensional analysis for solving dynamic, Eigen values , Eigen vectors, and free vibration analysis problems using ANSYS general-purpose software.	Analyzing
Course Name: C414 Power Plant Engineering		
C414.1	Understand the working and efficiency calculations of steam power plant.	Understanding
C414.2	Understand the working & efficiency calculations of internal combustion and gas turbine power plants.	Understanding
C414.3	Analyze the working & efficiency calculations of hydro electric power plants.	Analyzing
C414.4	Explain the working & operations on nuclear power plants.	Analyzing
C414.5	Discuss the working & operations of combined power plants and power plants instrumentation & control	Understanding
C414.6	Analyze the power plant economics & environmental considerations	Analyzing
Course Name: C415 Additive Manufacturing		
C415.1	Understand The fundamentals of Additive manufacturing and the working principles of SLA and SGC processes	Understanding
C415.2	Explain the working principle LOM and FDM processes	Understanding
C415.3	Explain the working principle of SLS and Three Dimensional Printing Machine.	Understanding
C415.4	Understand the various techniques of Rapid Tooling	Understanding
C415.5	Understand the data formats and system software's of various Rapid manufacturing machines.	Understanding
C415.6	Understand the applications of Rapid manufacturing processes	Understanding
Course Name: C416 Advanced Materials		
C416.1	To classification different types of materials.	Applying
C416.2	Manufacturing thermoplastic, thermosetting PMC,MMC,CCC	Remembering
C416.3	Different types of manufacturing methods for RTM	Analyzing
C416.4	Applying the hook's law for orthographic lamina-laminated code	Applying
C416.5	Applying graded material and classification of graded material	Applying
C416.6	Introduction of Nano materials and advantages and disadvantages	Evaluating

Faculty coordinator

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DEPARTMENT OF MECHANICAL ENGINEERING

Course Outcomes Summary **A.Y:2020-21**

Year / Sem: IV / I

At the end of the course student will be able to

Course Name: C417 CAD/CAM Lab		
C417.1	Draw complex geometries of machine components in sketcher mode	Remembering
C417.2	Write programs to generate analytical and synthetic curves used in engineering practice.	Remembering
C417.3	Generate freeform shapes in part mode to visualize components	Creating
C417.4	Create complex engineering assemblies using appropriate assembly constraints	Creating
C417.5	Develop G and M codes for turning and milling components. Generate automated tool paths for a given engineering component	Creating
C417.6	Generate automated tool paths for a given engineering component.	Creating
Course Name: C418 Mechatronics Lab		
C418.1	Measure Load, Temperature and Displacement using Analog & Digital Sensors	Applying
C418.2	Develop PLC program to control Traffic lights, water levels, lifts and conveyor belts	Creating
C418.3	Develop or create pneumatic, Hydraulic and electrical circuit using automation studio software	Creating
C418.4	Simulate & analyze PID controllers for a physical system using MATLAB	Analyzing

Faculty coordinator

RISE KRISHNA SAI PRAKASAM GROUP OF INSTITUTIONS VALLUR

Head of the Department
Head of the Department
Mechanical Engineering
RISE Krishna Sai Prakasam
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Ongole-523 272

RISE KRISHNA SAI PRAKASAM GROUP OF INSTITUTIONS
DEPARTMENT OF MECHANICAL ENGINEERING

Course Outcomes Summary **A.Y:2020-21**

Year / Sem: IV / II

At the end of the course student will be able to

Course Name: C421 Production Planning and Control		**BT LEVEL**
C421.1	Apply the systems concept for the design of production and service systems.	Applying
C421.2	Make forecasts in the manufacturing and service sectors using selected quantitative and qualitative techniques.	Applying
C421.3	Apply the principles and techniques for planning and control of the production and service systems to optimize/make best use of resources.	Applying
C421.4	Understand the importance and function of routing and to be able to apply selected methods for preparing route sheets.	Applying
C421.5	Identify different strategies employed in Scheduling techniques and methods used in industries.	Remembering
C421.6	Measure the effectiveness, identify likely areas for improvement, develop and implement improved planning and control methods for dispatching.	Remembering
Course Name: C422 Unconventional Machining Process		
C422.1	Compare Conventional and Non-Conventional machining and analyze the different elements of Ultrasonic Machining and its applications	Understanding
C422.2	Explain the different elements of Chemical and Electro chemical Machining and its applications.	Understanding
C422.3	Illustrate different parameters of Electrical Discharge Machining, electric discharge grinding	Applying
C422.4	Analyze the different elements of Laser and Electronic Beam machining.	Analyzing
C422.5	Explain the process and mechanism in Plasma Arc Machining.	Understanding
C422.6	Illustrate the variables in Abrasive Jet Machining, magnetic abrasives finishing, abrasives flow finishing.	Applying
Course Name: C423 Automobile Engineering		
C423.1	Explain the constructional, working principle of various sub system of an automobile.	Understanding
C423.2	Explain the constructional, working principle of various types of manual and automotive transmission of an automobile.	Understanding
C423.3	Explain different steering mechanisms and their working principles.	Understanding
C423.4	Describe all the theoretical information of suspension, braking and electrical components used in a vehicle.	Understanding
C423.5	Discuss the detailed concept, construction and principle of operation of engine and various engine components, combustion,	Understanding

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	cooling, lubrication systems and safety systems will be taught to the students.	
C423.6	Describe the various techniques to avoid the pollution formation from automobiles and engine service.	Understanding
Course Name: C424 Non Destructive Evaluation		
C424.1	Obtain knowledge on the source of light and electromagnetic rays like x-rays and gamma rays also usage of radiography in industries.	Applying
C424.2	Define principles of wave propagation and working of ultrasonic testing.	Remembering
C424.3	Gain knowledge on liquid Penetration testing on materials or welded parts.	Understanding
C424.4	Describe principles and procedure of magnetic testing, Standardization and Calibration, Interpretation and Evaluation.	Applying
C424.5	Identify defects in the work piece or weld joint using eddy current testing.	Remembering
C424.6	Compare NDE techniques and its application in industries.	Understanding

Faculty Coordinator

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DEPARTMENT OF MECHANICAL ENGINEERING

Course Outcomes Summary **A.Y:2020-21**

Year / Sem: IV / II

At the end of the course student will be able to

Course Name: C425 Project		**BT LEVEL**
C425.1	Identify a topic in advanced areas of Mechanical Engineering	Understanding
C425.2	Review literature to identify gaps and define objectives & scope of the work.	Understanding
C425.3	Develop a prototypes/models, experimental set-up and software systems necessary to meet the objectives.	Creating
C425.4	Analyze and discuss the results to draw valid conclusions.	Analyzing
C425.5	Prepare a report as per recommended format and defend the work.	Understanding
C425.6	Understand advanced technological solutions to engineering problems.	Understanding

Faculty coordinator

Head of the Department

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