



SRI INDU INSTITUTE OF ENGINEERING AND TECHNOLOGY

An UGC Autonomous Institution , Accredited by NAAC with A+ Grade

Recognized Under 2(f) of UGC Act 1956

Approved by AICTE, Affiliated to JNTU Hyderabad

Sheriguda(Vill), Ibrahimpatnam(Mdl), R. R. Dist – 501510

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COURSE OUTCOMES (COs)

Course Outcomes (COs) describe what students can able to do after completion of the course.

Program : B.Tech-Mechanical Engineering	Academic Year : 2021-22	Semester : I & II
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S.No	Year/ Sem	Course Code	Course Name	Course Outcomes (After completion of the course student can able to :)
1	III/I	ME501PC	Dynamics of Machinery	CO1: Assess the effect of Gyroscopic couple in a dynamic body such as aero plane, 4-wheeler etc.
				CO2: Perform static and dynamic analysis to attain equilibrium in mechanisms.
				CO3: Analyze friction clutches, brakes dynamometer and Governors.
				CO4: Determine balancing mass for rotating and reciprocating mass systems.
				CO5: Perform analysis of the response of one degree freedom system with free and forced vibrations.
2	III/I	ME502PC	Design of Machine Members-I	CO1: Apply fundamental design practices with regard to material selection, material properties, manufacturing considerations and standards and codes.
				CO2: Apply stress analysis theory, fatigue theory and appropriate criteria of failure to the design of machine elements.
				CO3: Design and analyze the temporary joints (bolted joints) and permanent joints (riveted and welded joints) under various load conditions.
				CO4: Design solid and hollow shafts under various load conditions.
				CO5: Analyze compression, tension and torsion springs under various load conditions.
3	III/I	ME503PC	Metrology & Machine Tools	CO1: Differentiate Understand working of lathe, shaper, planner, drilling, milling and grinding machines.
				CO2: Differentiate Comprehend speed and feed mechanisms of machine tools.
				CO3: Estimate machining times for machining operations on machine tools.
				CO4: Identify techniques to minimize the errors in measurement.



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				CO5: Identify methods and devices for measurement of length, angle, and gear& thread parameters, surface roughness and geometric features of parts. CO6: Handle the various measuring instruments in quality assurance department of industries.
4	III/I	SM504MS	Business Economics & Financial Analysis	CO1: Understand the various forms of Business and impact of economics. CO2: Analysis the demand, supply, production, cost. CO3: Analyze production, Types of production functions. CO4: Understand the market structure and pricing types. CO5: Describe the accounting concepts. CO6: Understand the ratio analysis.
5	III/I	ME505PC	Thermal Engineering- II	CO1: Develop state – space diagrams based on the schematic diagrams of process flow of steam and gas turbine plants. CO2 : Apply the laws of Thermodynamics to analyze thermodynamic cycles. CO3: Differentiate between vapour power cycles and gas power cycles. CO4: Infer from property charts and tables and to apply the data for the evaluation of performance parameters of the steam and gas turbine plants. CO5: Understand the functionality of major components of steam and gas turbine plants and to do the analysis of these components.
6	III/I	ME506PC	Operations Research	CO1: Understand operations research models. CO2: Understand the problem. CO3: Describe sequencing. CO4: Explain about replacement. CO5: Differentiate Theory of games and Inventory. CO6: Describe waiting lines and dynamic programming.
7	III/I	ME507PC	Thermal Engineering Lab	CO1: Mention working principles of different engines. CO2: Evaluate the performance of IC engines and compressors under the given operating conditions. CO3: Test the power in the engine cylinder. CO4: Find the efficiencies of different engines. CO5: Test the frictional power of the engine. CO6: Draw timing diagrams for SI/CI engines.
8	III/I	ME508PC	Metrology & Machine Tools Lab	CO1: Understand step turning, Taper turning on lathe machine. CO2: Measure cutting forces on lathe. CO3: Explain the measurement of lengths, heights by



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				venire callipers. CO4: Understand the thread measurement by 2-wire , 3-wire methods. CO5: Describe the measurement of gear cutting on milling machine. CO6: Understand the use of mechanical comparator.
9	III/I	ME509PC	Kinematics & Dynamics Lab	CO1: Understand types of motion. CO2: Analyze forces. CO3: Analyze torques of components in linkages. CO4: Differentiate static and dynamic balance. CO5: Understand forward and inverse kinematics of open loop mechanisms.
10	III/I	*MC510	Intellectual Property Rights	CO1: Analyze different types of intellectual property. CO2: Express function of trademarks. CO3: Understand law of copy rights. CO4: Understand law of patents. CO5: Explain trade secrets.
11	III/II	ME601PC	Design of Machine Members-II	CO1: Gain the Knowledge on journal bearing design using different empirical relations. CO2: Select and design a rolling contact bearing for different types of loads and estimate the life of rolling contact bearings. CO3: Design the various internal combustion engine components like connecting rod, piston. CO4: Design the helical coil springs for different applications under fatigue loading condition. CO5: Compare the belts and rope ways based on their power transmission and Application. CO6: Knowledge on the strength of gears and various places used different gears depend upon various applications.
12	III/II	ME602PC	Heat Transfer	CO1: Explain the basic modes and mechanisms of heat transfer. CO2: Analyze one dimensional steady state and unsteady state conduction heat transfer. CO3: Solve convective heat transfer problems of natural and forced convection heat transfer. CO4: Design the different heat exchanger for various industrial applications like Chemical industry, food processing and refrigeration plants. CO5: Compare the boiling, Condensation and radiation heat transfer. CO6: Apply the knowledge of heat transfer in aerospace industries.



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13	III/II	ME603PC	CAD & CAM	CO1: Development Of Part Drawings For Various Components In The Form Of Orthographic And Isometric. Representation Of Dimensioning And Tolerances.
				CO2: Generation Of Various 3D Models Through Protrusion, Revolve, Sweep Creation Of Various Features Study Of Boolean Based Modeling And Assembly Modeling. Study Of Various Standard Translators. Design Of Simple Components, Differentiate Surfaces And Curves.
				CO3: Apply G- Codes and M-Codes for various applications.
				CO4: Able To Study Of Various Post Processors Used In NC Machines. Development Of NC Code For Free Form And Sculptured Surfaces Using CAM Software.
				CO5: Able To Study Of Group Technology And Machining Operations Flexible Manufacturing.
				CO6: Able To Study Of Computer Integrated Technology And Quality Of Control.
14	III/II	ME613PE	Production Planning & Control (Professional Elective – I)	CO1: Understand production systems and their characteristics.
				CO2: Evaluate MRP and JIT systems against the traditional inventory control systems.
				CO3: Understand basics of variability and its role in the performance of a production system.
				CO4: Analyze aggregate planning strategies.
				CO5: Apply forecasting and scheduling techniques to production systems.
				CO6: Understand theory of constraints for effective management of production systems.
15	III/II	CE600OE	Disaster Preparedness & Planning Management (Open Elective – I)	CO1: Understand the application of Disaster Concepts to Management
				CO2: Analyzing Relationship between Development and Disasters.
				CO3: Ability to understand Categories of Disasters
				CO4: Realization of the responsibilities to society.
				CO5: Understand the disaster impacts.
				CO6: Analyze disaster risk reduction.
16	III/II	ME604PC	Finite Element Methods	CO1: Apply finite element method to solve problems in solid mechanics.
				CO2: Formulate and solve the problems in one dimensional structures including trusses , beams and frames.



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				<p>CO3: Formulate FE characteristic equations for 2D elements and analyze plain stress , plain strain , axi symmetric and plate bending problems.</p> <p>CO4: Understand the basics of finite element analysis.</p> <p>CO5: Understand the basics of dynamic analysis.</p>
17	III/II	ME605PC	Heat Transfer Lab	<p>CO1: Perform steady state conduction experiments to estimate thermal conductivity of different materials.</p> <p>CO2: Perform transient heat conduction experiment.</p> <p>CO3: Estimate heat transfer coefficients in forced convection, free convection, condensation and correlate with theoretical values.</p> <p>CO4: Obtain variation of temperature along the length of the pin fin under forced and free convection.</p> <p>CO5: Perform radiation experiments: Determine surface emissivity of a test plate and Stefan-Boltzmann's constant and compare with theoretical value.</p> <p>CO6: Study of heat pipe and its demonstration.</p>
18	III/II	ME606PC	CAD & CAM Lab	<p>CO1 : Find out the different between CAD and CAM</p> <p>CO2: Learn the modified and zoom commands under the given design conditions.</p> <p>CO3: Design different components of automobile.</p> <p>CO4: Test the part program in the CNC machine.</p> <p>CO5: Observe the group technology.</p> <p>CO6: Test the quality of SI /CI engines parts.</p>
19	III/II	EN608HS	Advanced Communication Skills lab	<p>CO1: Speak effectively.</p> <p>CO2: Express and communicate fluently and appropriately in social professional contexts.</p> <p>CO3: Develop the comprehensive ability through English language enables the students in understanding and assimilating other engineering subjects.</p> <p>CO4: The awareness of English lab enriches their communication and soft skills contributing to their overall development and success.</p> <p>CO5: Draft various letters and reports for all official purpose.</p> <p>CO6: Take part in social and professional communication.</p>



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20	III/II	*MC609	Environmental Science	<p>CO1: Get the information about ecosystem and also about its functions like Food chain, Ecological pyramids etc.,</p> <p>CO2: Get the knowledge about the different types of resources like land, water, mineral and energy and also about the effects of environment by the usage of these resources.</p> <p>CO3: Gain the knowledge about the ecosystem diversity, its values and also about the importance of the endemic species and different techniques involved in its conservation</p> <p>CO4: Gain the knowledge about the different types of pollutions and their control technologies, Waste water treatment, Bio medical waste management etc.,</p> <p>CO5: Get the complete information about EIA-Environmental Impact Assessment,</p> <p>CO6: Gain the knowledge about environmental policies and regulations.</p>
21	IV/I	ME701PC	Refrigeration & Air Conditioning	<p>CO1: Differentiate between different types of refrigeration systems with respect to application as well as conventional and unconventional refrigeration systems.</p> <p>CO2: Thermodynamically analyse refrigeration and air conditioning systems and evaluate performance parameters.</p> <p>CO3: Apply the principles of Psychometrics to design the air conditioning loads for the industrial applications.</p> <p>CO4: Understand the concept of Vapour compression refrigeration.</p> <p>CO5: Analyze Vapour compression refrigeration.</p> <p>CO6: Understand Air Conditioning System.</p>
22	IV/I	ME711PE	Additive Manufacturing (Professional Elective – II)	<p>CO1: Describe various CAD issues for 3D printing and rapid prototyping and related operations for STL model manipulation.</p> <p>CO2: Formulate and solve typical problems on reverse engineering for surface reconstruction from physical prototype models through digitizing and spline-based surface fitting.</p> <p>CO3: Formulate and solve typical problems on reverse engineering for surface reconstruction from digitized mesh models through topological modelling and subdivision surface fitting.</p> <p>CO4: Explain and summarize the principles and key characteristics of additive manufacturing technologies and commonly used 3D printing and additive manufacturing systems.</p>



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				CO5: Explain and summarize typical rapid tooling processes for quick batch production of plastic and metal parts.
23	IV/I	ME721PE	Power Plant Engineering (Professional Elective – III)	CO1: Understand the concept of Rankine cycle.
				CO2: Understand working of boilers including water tube, fire tube and high pressure boilers and determine efficiencies.
				CO3: Analyze the flow of steam through nozzles
				CO4: Evaluate the performance of condensers and steam turbines
				CO5: Evaluate the performance of gas turbines
24	IV/I	ME732PE	Turbo Machinery (Professional Elective – IV)	CO1: Design different parameters for turbo machines.
				CO2: Calculate different parameters for turbo machines.
				CO3: Prerequisite to CFD and Industrial fluid power courses.
				CO4: Formulate design criteria.
				CO5: Understand thermodynamics and kinematics behind turbo machines.
25	IV/I	CE700OE	Remote Sensing & GIS (Open Elective – II)	CO1: Describe different concepts and terms used in Remote Sensing and its data.
				CO2: Understand the Data conversion and Process in different coordinate systems of GIS interface.
				CO3: Evaluate the accuracy of Data and implementing a GIS.
				CO4: Understand the applicability of RS and GIS for various applications.
				CO5: Understand the implementation of GIS.
26	IV/I	ME702PC	Industrial Oriented Mini Project	CO1: Able to collaborate with others as they work on intellectual projects.
				CO2: Plan, analyze, design and implement using different tools.
				CO3: Learn to work as a team and to focus on getting a working project done within a stipulated period of time.
27	IV/I	ME703PC	Seminar	CO1: Learn public speaking skills by presentations.
				CO2: Understand new technologies in all engineering fields.
				CO3: Improve problem solving skills.
28	IV/I	ME704PC	Project Stage - I	CO1: Apply fundamental concepts of areas of study to solve a problem.
				CO2: Use effectively oral, written and visual communication.



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				CO3: Work with teams to meet the requirement and to reach the targets.
29	IV/II	MM813PE	Composite Materials (Professional Elective – V)	CO1: Understand the Definition and classification of Composite materials.
				CO2: Analyze types of reinforcements and their properties.
				CO3: Describe the fabrication of Polymeric Matrix Composites.
				CO4: Explain fabrication of Metal matrix composites.
				CO5: Understand properties and Applications of Metal matrix composites.
				CO6: Describe Micromechanics of Composites
30	IV/II	ME821PE	Industrial Management (Professional Elective – VI)	CO1: Apply principles of management
				CO2: Design the organization structure
				CO3: Design plant layout and value analysis
				CO4: Carry out work study to find the best method for doing the work and establish standard time for a given method
				CO5: Apply various quality control techniques and sampling plans
				CO6: Do job evaluation and network analysis
31	IV/II	MT802OE	Total Quality Management (Open Elective – III)	CO1: Understand what is Total Quality Management
				CO2: Analyze the concept of customer focus and Satisfaction.
				CO3: Analyze TQM organization.
				CO4: Explain seven tools of TQM.
				CO5: Understand the cost of quality.
				CO6: Understand the ISO 9000 Standard.
32	IV/II	ME801PC	Project Stage - II	CO1: Apply fundamental concepts of areas of study to solve a problem.
				CO2: Use effectively oral, written and visual communication.
				CO3: Work with teams to meet the requirement and to reach the targets.


HOD/MECH


PRINCIPAL