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METHODIST

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Osmania University

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DEPARTMENT OF MECHANICAL ENGINEERING

IV SEMESTER - BE CO-PO Matrix FOR A.Y :2023-2024

S No	Code	subject	Faculty Name	CO No.	Course Outcomes	Taxonomy Level
1	6ES403CS	Python Programming	Dr. Fakhruddin H.N	CO1	How to be able to introduce core programming basics	Remembering
				CO2	Design program with functions using Python programming language.	Creating
				CO3	Summarize a range of Object-Oriented Programming.	Understanding
				CO4	Organize in-depth data and information processing techniques.	Applying
				CO5	Match the high-performance programs designed to strengthen the practical expertise	Remembering
2	6PC404ME	Applied Thermodynamics	Mr. Y.M.M Reddy	CO1	Understand the principles and types of air compressors, internal combustion engines, combustion in IC engines, steam boilers, steam power plants and nozzles	Understanding
				CO2	Demonstrate the safe operation and maintenance of air compressors, IC engines, steam power plants, boilers and nozzles	Applying
				CO3	Apply the principles of thermodynamics and fluid mechanics to analyze the thermodynamic cycles of IC engines and evaluate their	Applying
				CO4	Apply knowledge of IC engine design and operation to perform basic maintenance and repair tasks safely and effectively	Applying
				CO5	Analyze and evaluate the performance of different types of air compressors, types of steam boilers, nozzles, IC engines and factors affecting combustion in IC engines	Analyzing
3	6PC405ME	Manufacturing Processes	Dr. A. Rajasekhar	CO1	Describe the basic principle and working of various types of basic manufacturing processes.	Understanding
				CO2	Discuss the materials, equipment and tooling used in various manufacturing processes.	Understanding
				CO3	State the advantages and limitations of various manufacturing	Remembering
				CO4	Select appropriate manufacturing process based on the type of industrial use/application.	Understanding
				CO5	Demonstrate the knowledge in identifying the possible defects, their causes and remedies of various manufacturing processes.	Applying
4	6PC406ME	Fluid Mechanics & Hydraulic Machines	Dr. M. Uday Kumar	CO1	Explain the concepts of properties of fluids , Types of flows, flow through pipes, Hydraulic Turbines and pumps	Understanding
				CO2	Interpret the knowledge of pressure measurement devices, stream lines and pathlines, shear stress and pressure gradient relationship, pelton, Francis, Kaplan turbines.centrifugal and reciprocating pumps	Evaluating
				CO3	Analyze the pressure gauges and Manometrs, continuity, stream and velocity functions, total energy lines,.velocity triangles of turbines and pumps	Analyzing
				CO4	Develop the equations of motion, Darcy-Weisbach equation, workdone and efficiencies of turbines and pupms	Applying
				CO5	Estimate the coefficient of discharge of flow meters, friction factors, drag and lift coefficients,efficiencies, unit quantities and specific	Applying

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5	6PC407ME	Kinematics of Machines	Mr. Srikanth R	CO1	Recall & relate the theoretical terms, concepts used in Machine Kinematics; position, velocity & acceleration analysis; Friction & its	Understand
				CO2	Determine the velocity & acceleration of any point on planar mechanisms with simple revolute & prismatic joints as well as gears	Apply
				CO3	Apply the knowledge of friction to solve problems on Belts/rope drives, Brakes & Dynamometers.	Apply
				CO4	Analyse the effect of variation in dimensions of a mechanism on motion (position, velocity & acceleration) using CAD software like OnShape or Fusion 360.	Analyze
				CO5	Evaluate the given mechanism for potential problems in the view of requirements provided & eliminate them.	Evaluate
6	6MC402HS	Essence of Indian Traditional Knowledge	Ms. Deepthi	CO1	Understand the concepts of indian culture and traditions and their importance.	Understanding
				CO2	Distinguish Indian languages and literature.	Understanding
				CO3	Learn the philosophy of ancient,medieval and modern India.	Understanding and Applying
				CO4	Acquire the information about the fine arts of India.	Understanding and Applying
				CO5	Know the contribution of scientists of different eras,interpret the concepts and the importance to protect intellectual property of the	Understanding
7	6ES453CS	Python Programming Lab	Dr. Fakhruddin H.N	CO1	Develop solutions to simple computational problems using Python programs	Applying
				CO2	Solve problems using conditionals and loops in Python	Applying
				CO3	Develop Python programs by defining functions and calling them.	Applying
				CO4	Make use of Python lists, tuples and dictionaries for representing compound data.	Applying
				CO5	Develop Python programs for GUI applications	Applying
8	6PC453ME	Applied Thermodynamics Lab	Mr. Y.M.M Reddy	CO1	Determine volumetric efficiency and isothermal efficiency of a two stage reciprocating air compressor.	Evaluating
				CO2	Construct port timing diagram of two stroke engine, valve timing diagram of four stroke engine	Applying
				CO3	Evaluate the performance of internal combustion engines	Evaluating
				CO4	Develop heat balance sheet of internal combustion engine	Creating
				CO5	Determine the properties of (flash point, fire point, viscosity, etc---) given lubricating oil	Evaluating

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S No	Code	subject	Faculty Name	CO No.	Course Outcomes	Taxonomy Level
9	6PC454ME	Manufacturing Processes Lab	Mrs.Shazia Anwar	CO1	Explain the design of patterns, mould making procedures and testing the sand properties.	Understanding
				CO2	Apply the various joining techniques to fabricate different geometries.	Applying
				CO3	Demonstrate the blanking and piercing operations for simple components..	Remembering
				CO4	Classify the Applications of plastics and manufacture a simple component by using plastic injection moulding processes..	Applying
				CO5	Evaluate the mechanical properties of welded joints.	Applying
10	6PC455ME	Fluid Mechanics & Hydraulic Machines Lab	Dr. M. Uday Kumar	CO1	Determine the Coefficient of Discharge of Venturimeter and Orifice meter	Analyzing
				CO2	Evaluate the performance of Centrifugal, Reciprocating, Gear, Self priming pumps	Evaluating
				CO3	Evaluate the performance of Pelton ,Francis ,Kaplan Turbines	Evaluating
				CO4	Determine the coefficient of Jet on Vanes	Applying
				CO5	Explain the principles of Hydraulicand Pneumatic circuits and models	Understanding

Dept. Assessment Coordinator

Head of the Department

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S No	Code	subject	Faculty Name	CO No.	Course Outcomes	Taxonomy Level
1	PC 413 ME	Machine Design	Dr. M Prasad	CO1	State the function of springs, gears, Bearings, IC Engine parts and theory of bending of members with initial curvature	Remembering
				CO2	Summarize the Materials for springs, Gears, Bearings, IC Engine components , Rope and Chain drives	Understanding
				CO3	Select Various types of Springs ,Bearing, Gear drives and, drive systems for specific applications	Applying
				CO4	Analyze Helical coil springs , leaf springs Gear and Chain drives, IC Engine components for mechanical systems	Analyzing
				CO5	Determine the design procedure for Helical coil springs , leaf springs Gear and Chain drives, IC Engine components for various mechanical systems	Evaluating
2	PC 414 ME	Metal Cutting and Machine Tools	Dr. Prabhuraj	CO1	Explain cutting tool material, chip formation, source of heat distribution, cutting fluids, tool wear in metal cutting operation	Understanding
				CO2	Demonstrate the working principle of machine tool, grinding machine,abrasive, bonds used for grinding and selection of grinding wheel, threading applicationand jig and fixtures in work place.	Understanding
				CO3	Analyse the Tool Geometry and Nomenclature of single point cutting tool by ASA & ORS systems and Geometry of drilling, milling cutters for Optimum Cutting Speeds for maximum production rate and minimum cost in manufacturing industry. analyse the Gear shaping, Gear hobbing, Gear shaving and grinding in manufcturing industry.	Analyzing
				CO4	Make use of knowledge of Mechanics of metal cutting, Merchant 's analysis, Shear angle, Solutions of Merchant and Lee & Shafer in industry,Tool life & Machinability, Machinability index. Taylor's tool life equation in real time application	Applying
				CO5	Apply the knowledge of Drilling, Milling and Boring, Indexing methods , Quick return mechanisms in shaping industry,Broaching, Lapping, Honing, Polishing, Buffing, Super Finishing and Burnishing, Screws and Gear Manufacturing, Tapping, Jigs and Fixtures in work place and UCMP principles.	Applying
3	PC 415 ME	Finite Element Analysis	Mr. G Bhaskar	CO1	Formulating the local stiffness matrix into global stiffness matrix, Summarise the basic elasticity equations, analyse the one dimensional elements using minimum potential energy equation.	Creating
				CO2	Analyse the truss element, frames and beam elements along with transformation of local to global matrices	Analyzing
				CO3	Analyse the two-dimensional by using CST in natural coordinate system, Axi-symmetric bodies and	Analyzing
				CO4	Analyse the two -dimensional four nodel iso-parametric element, the heat transfer in one & two dimensional under the steady and unsteady state conditions and torsional circular shafts.	Analyzing
				CO5	Formulate the mass & stiffness matrices of one dimensional beam elements eigen values and eigen vectors using Langarangian and Hemilton principles	Creating

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S No	Code	subject	Faculty Name	CO No.	Course Outcomes	Taxonomy Level
4	PE 522 ME	Production and Operations Management	Mrs. I. Sowjanya	CO1	Understand the different types of production systems and their characteristics, as well as the factors that influence plant location and layout decisions.	Understanding
				CO2	Understand of the principles of work study, including method study and work measurement. Apply standard time calculations, select appropriate methods of rating, and use work sampling to improve work processes.	Understanding
				CO3	Apply various forecasting techniques to predict demand patterns using both qualitative and quantitative methods.	Applying
				CO4	Understand of Materials Requirement Planning (MRP), including its importance, inputs, outputs, and calculations and also gain knowledge of Manufacturing Resource Planning (MRP 2) and Enterprise Resource Planning (ERP)	Understanding
				CO5	Apply the principles of project management to develop network diagrams, differentiate between PERT and CPM, schedule activities using review technique	Applying
5	PE 533 ME	Power Plant Engg.	Dr. MD. Fakhruddin H.N	CO1	Identify the various sources of energy for power generation and explain the working of various sub systems such as coal handling, ash handling in a steam power plant.	Apply(2)
				CO2	Combustion process descriptions and the various sub systems in air and gas circuit, feed water and cooling water circuit and the working of gas turbine power plants.	Understand(1)
				CO3	Descriptions of the working of a hydro power plant & Nuclear power plant	Understand(1)
				CO4	Describe the working of a nuclear power plant and hazard involved	Understand(1)
				CO5	Estimate the cost of power generation and the environmental effects of various power plants.	Evaluate(3)
6	OE 601 CE	Disaster Mitigation	Ms. P. Jyotsna	CO1	Explain the terms and concepts of disaster management	Remembering & Understanding
				CO2	Summarize the catergories of disasters and their characteristics, mitigative measures	Understanding
				CO3	Discuss the framework and measures of pre-disaster , during disaster, post- disaster measures	Understanding
				CO4	Interpret the Indian Disaster Management acts and it's framework	Understanding
				CO5	Describe the application of various technologies to disaster management.	Understanding

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S No	Code	subject	Faculty Name	CO No.	Course Outcomes	Taxonomy Level
7	OE61	Principles of Artificial Intelligence	Mrs. Shaziya Jabeen	CO1	Introduction to Artificial Intelligence, its applications and Problem solving techniques. Also the knowledge representation methods, Planning, Expert systems and their algorithms in AI	Understanding
				CO2	Analyzing different searching algorithms and game playing programs to solve given problems.	Analyzing
				CO3	Apply basic principles of AI in solutions that require problem solving, inference, perception, planning, knowledge representation, and learning.	Analyzing
				CO4	Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, probability, artificial neural networks and other machine learning models.	Evaluating
				CO5	To explore the understanding of agent based AI Planning ,logical based agents and Expert systems	Creating
8	PC 458 ME	Metrology and Machine Tools Lab	Mrs. I. Sowjanya / Dr. Prabhuraj	CO1	Identify and use various instruments for external, internal and angular measurements	Applying
				CO2	Apply the principles of optical measurements in measuring the screw .	Applying
				CO3	Identify and use various types of force and temperature measurement instruments/tools.	Applying
				CO4	Apply the knowledge of metal cutting principles to perform various machine tool operations.	Applying
				CO5	Determine Shear angle, cutting forces, temperatures and tool life in metal cutting processes	Evaluating
9	PC 459 ME	Computer Aided Engineering Lab	Mr. G. Bhaskar	CO1	classify different types of beams and truss element to perform static analysis	analyzing
				CO2	classify different types of meshing	analyzing
				CO3	analyze the stress and deformations of axi-symmetric bodies and connecting rod	analyzing
				CO4	predict natural frequencies in case of critical load condition.	Creating
				CO5	simulate coupled analysis using static structural and steady state thermal	analyzing
10	PW 701 ME	Summer Internship	Dr. A. Rajasekhar	CO1	Explain and identify various materials, processes, products and their applications and limitations.	Understand
				CO2	Apply the fundamental and advanced Technical / Engineering knowledge in real industrial situations.	Apply
				CO3	Explain the importance and learn through experience professional ethics, communication and adaptability skills to work in teams to solve real life problems.	Evaluate
				CO4	Explain the social, economic and administrative considerations that influence the working environment of industrial organizations.	Evaluate
				CO5	Explain and sharpen the real time technical / managerial skills required to meet the industry needs.	Understand

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VIII SEMESTER - BE CO-PO Matrix FOR A.Y :2023-2024

	S No	Code	subject	Name of the faculty	CO No.	Course Outcomes	Taxonomy Level
VIII SEM	1	PE 813 ME	Power Plant Engineering	G. Bhaskar	CO1	Demonstrate the working principle, steam power plant layout, types of coals, coal & ash handling system.	Understanding
					CO2	Illustrate feeding and burning of coal, comprehend the basic working principle of steam power plant and gas turbine power plant	Understanding
					CO3	Identify types of dams & spillways, working principle of hydro power plant, hydrology	Applying
					CO4	Explain the working principle of nuclear fission, types of power plants & reactors	Understanding
					CO5	solve the power plant economy factors, load factors, illustrate the methods to control of pollutants emitted by fossile fuel used in power plants and its safety aspects of power plant operation	Applying
	2	PE823ME	Entreprenuership Development	Dr. Prabhu Raj	CO1	Explain the Indian industrial environment, opportunities and challenges of women entrepreneur in enterprise, first-generation entrepreneur, project financing in india and Motivational aspects.	Understanding
					CO2	Identify the characteristics of entrepreneurs, importance of linkage among small- medium and heavy industry, collaborative interaction for technology development and Human aspects of project management	Applying
					CO3	Demonstrate the principle of project formulation, market demand, Financial, profitability analysis, Project Management during construction phase in organization and behavioral aspects of entrepreneurs.	Analyzing
					CO4	Evaluate the technical feasibility of a project management, conception and evaluation of ideas and their sources, CPM & PERT techniques and explain the tax assessment burden.	Evaluating
					CO5	Make use of Knowledge of Personality determinants, attributes, Leadership concepts and models, values and attitudes and motivation aspects and Time Management principles.	Applying
	3	OE801CE	RSE- Road Safety Engineering	D. BHARATH NAIK	CO1	Explain scenario of road safety in world, accident characteristics, causes, investigation techniques, data collection, analysis and preventive measures	Understanding
					CO2	Explain Traffic Engineering studies, Characteristics, management measures and their influence on road safety	Understanding
					CO3	Explain road safety in planning, designing, equipments used for construction during construction, at construction site and devices used for protection	Understanding
					CO4	Explain Functioning and factors affecting the traffic Signals, road signs and pavement markings	Understanding
					CO5	Expalin road safety audit process, strategies and ITS	Understanding

4	PW703ME	Project Work- II	Dr. MD. FAKHRUDDIN H.N	CO1	Demonstrate the ability to synthesize the knowledge and skills acquired in the academic program to the real-world problems	Understanding
				CO2	Apply the knowledge and skills acquired in the academic program to the real-world problems	Applying
				CO3	Evaluate different solutions based on economic and technical feasibility	Evaluating
				CO4	Effectively plan a project and confidently perform all aspects of project management	Applying
				CO5	Demonstrate effective written and oral communication skills	Understanding
5	OE701EE	Non Conventional Energy Sources	Mr.Jarapala Ramesh Babu	CO1	List and Compare the various forms of non conventional energy resources and analyze the different Fuel cells with applications of fuel cells	Analyze
				CO2	Explain the solar energy applications and calculations of solar energy	Analyze
				CO3	Analyzing how wind energy can be tapped from the nature and its calculations	Analyze
				CO4	Illustrate the concepts of Geothermal ,Wave, Tidal energy & OTEC	Understand
				CO5	Outline the Biogas & Biomass, its mechanism of production of energy and its applications	Understand

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