(An UGC Autonomous Institution)

METHODIST

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Osmania University

Accredited by NBA & NAAC with A+ Grade

DEPARTMENT OF MECHANICAL ENGINEERING

III-SEMESTER - BE CO-PO Matrix for ACADEMIC YEAR 2023-24

SNO	Code	subject	Name of the faculty	COs	Course Outcomes	Taxonomy
1	6PC301ME	Thermodynamics	Mr.G Bhasker	CO1	Apply concept of temperature and temperature scale	Apply
				CO2	Apply the first law of thermodynamics for simple open and closed systems under steady and unsteady conditions.	Apply
				CO3	Apply second law of thermodynamics to open and closed systems and calculate entropy and availability.	Apply
				CO4	Derive simple thermodynamic relations of ideal and real gases	Create
				CO5	Apply Rankine cycle to steam power plant and compare few cycle improvement methods	Apply
2	6PC302ME	Strength of material	Mr. Y mm REDDY	CO1	Define stresses and strains, explain stress-strain diagram and classify the beams, loads and springs.	Understand
				CO2	Apply basic concepts to find various types of stresses, strain energy and properties of beams and also to select suitable spring for the application	Apply
				CO3	Analyze stresses in cylinders, beams and springs for the given loading conditions	Analyze
				CO4	Measure stresses, torque, slope, deflection, shear force and bending moment for various types of beams under loading conditions	Apply
				CO5	Construct stress- strain diagram, Shear force and bending moment diagrams for the given material under given loading conditions.	Create
3	6PC303ME	Metallurgy and Material science	Dr.Arajasekhar	CO1	Discuss crystal structure, mechanical behaviour and heat treatment methods applied to ferrous and non ferrous materials.	Understand
				CO2	Analyse mechanical failure, crack growth and crack propagation in ductile and brittle materials under static and dynamic loading.	Understand
				CO3	Sketch and interpret Iron-Iron Carbide and other equilibrium diagrams.	Apply
				CO4	Compare and select suitable material and heat treatment process for a particular requirement.	Analyze
				CO5	Discuss properties and applications of ferrous and non ferrous alloys, polymers, ceramics and composite materials.	Understand
4	6PC301CS	Programming for Problem solving	Dr. Md Fakhruddin	CO1	Formulate algorithmsand learn fundamental program methodologies of C programming.	Creating
				CO2	Understand control statements and interpret derived data types with mathematical and engineering problems.	Understanding
				CO3	Develop modular programming techniques to solve searching, sorting and file system problems	Analysing
				CO4	Identify pre-processor directives and user defined usage.	Identifying
				CO5	Interpret Arrays (1-D, 2-D), Strings and its library functions	Evaluating

(An UGC Autonomous Institution)

METHODIST

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Osmania University

Accredited by NBA & NAAC with A+ Grade

DEPARTMENT OF MECHANICAL ENGINEERING

III-SEMESTER - BE CO-PO Matrix for ACADEMIC YEAR 2023-24

III SEM

SNO	Code	subject	Name of the faculty	COs	Course Outcomes	Taxonomy
5	6BS303HS	Numerical Methods and Partial differential Equation	Dr. Kalyani	CO1	Find the solution of algebraic and transcendental equations using numerical methods.	Understand
				CO2	Apply numerical techniques to solve ordinary differential equations and definite integrals.	Apply
				CO3	Apply numerical methods to interpolate values and fit different curves from given data	Apply
				CO4	Find solutions of first order linear and non linear partial differential equations	Apply
				CO5	Apply the solution of partial differential equations to physical problems	Apply
6	6HS303HS	Human Value and Professional Ethics	Mr. Murthy	CO1	Understand the Significance of value inputs in a classroom and start applying them in their life and profession	Understand
				CO2	Assess their own ethical values and the social context of problems.	Understand
				CO3	Distinguish between values and skills, happiness and accumulation of physical facilities, the Self and the Body, Intention and Competence of an individual, etc.	Understand
				CO4	Understand the role of a human being in ensuring harmony in society and nature.	Understand
				CO5	Distinguish between ethical and unethical practices and start working out the strategy to actualize a harmonious environment wherever they work.	Understand
7	6PC351ME	Metallurgy and Material Testing lab	Mrs I Sowjanya & Mr. YMM REDDY	CO1	Apply the procedure for preparing the sample for metallographic observation and Identify different materials by examining the phases in their microstructure	Apply
				CO2	Analyze the effects of various heat treatment by studying the grain structure	Analyze
				CO3	Determine the tensile, compressive and impact strength for various materials	Evaluate
				CO4	Measure hardness, shear strength for various materials	Evaluate
				CO5	Determine the shear force,bending moment and Young's modulus of different beams under various loading conditions.	Evaluate
8	6PC352ME	Computer Aided Machine Drawing	Dr.Ravichander	CO1	Develop the skills in drafting various machine components using Auto Cad software	Understand
				CO2	Interpret the conventions & symbols used in technical drawings into their physical meanings & vice versa	Understand
				CO3	Construct orthographic views of simple machine components	Apply
				CO4	Demonstrate the working knowledge in solidworks to model, assemble and generate orthographic views.	Understand
				CO5	Develop 3D models, assemble and generate drawings of components using Solidworks.Observe 3D interactive CAD models and determine the steps used in modelling them.	Evaluate

(An UGC Autonomous Institution)

METHODIST

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Osmania University

Accredited by NBA & NAAC with A+ Grade

DEPARTMENT OF MECHANICAL ENGINEERING

III-SEMESTER - BE CO-PO Matrix for ACADEMIC YEAR 2023-24

SNO	Code	subject	Name of the faculty	COs	Course Outcomes	Taxonomy
9	6ES351CS	Programming for Problam solving Lab	Dr. Md Fakhruddin	CO1	Understand the fundamentals of programming in C Language.	Understanding
				CO2	Write, compile and debug programs in C.	Creating
				CO3	Formulate solution to problems and implement in C.	Creating
				CO4	Effectively choose programming components to solve computing problems	Applying
				CO5	Program illustrating using Command Line Arguments	Understanding
10	6MC351ME	Solid Edge certification course	Mr. Abdul Fazal	CO1	Make 3D mechanical part models in Solid Edge by employing ordered and synchronous modelling techniques.	Apply
				CO2	Use Solid Edge to assemble, identify interference, and analyze the motion of complicated equipment.	Analyze
				CO3	Adjust imported geometries in neutral formats such as IGES, STEP, and Para-solid in accordance with specifications.	Apply
				CO4	Use Solid Edge to analyze and optimize parts and assemblies through simulations.	Create
				CO5	Recognize how production drawings and tools are developed in order to create rendered pictures of products.	Understand

Dept. Assessment Coordinator

Head of the Department

H.O.D.
Mechanical Engineering Department
Methodist College of Engg & Tech
King Koti, Hyderabad-500 001.

(An UGC Autonomous Institution)

METHODIST

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Osmania University

Accredited by NBA & NAAC with A+ Grade

DEPARTMENT OF MECHANICAL ENGINEERING

V-SEMESTER - BE CO-PO Matrix for ACADEMIC YEAR 2023-24

SNO	Code	subject	Name of the faculty	COs	Course Outcomes	Taxonomy
1	6PC508ME	Computer aided design and Manufacturin	Mrs Shazia Anwar	CO1	Understand the fundamental concepts and principles of CAD and evaluate geometric transformations in both 2D & 3D design space.	Understand
				CO2	Apply the concepts and principles of wireframe modelling to create accurate representation of objects.	Apply
				CO3	Create realistic and funtional designs by combining surface, solid and assembly modelling techniques effectively.	Create
				CO4	Create Numerical Control (NC) programs using different methods of part programming bothy manual and computer asssisted programming tools.	Create
				CO5	Understand the basic concepts and components of Flexible Manufacturing Systems (FMS), and Automated Material Handling Systems.	Understand
2	6PC509ME	DME - Design of Machine Elements	Mr. Abdul Fazal	CO1	Recognize the norms, codes, theories of failure, power screws, joint design considerations, stress, stresses, and mechanical components such as couplings, shafts, keys, and joints.	Remember
				CO2	For a specific application, choose the right shafts, keys, couplings, and permanent and temporary joints.	Apply
				CO3	Demonstrate the ability to apply the fundamentals of stress analysis, theories of failure and material science in the design of Mechanical components of shafts, keys,	Apply
				CO4	Examine and assess power screws, joints, shafts, and important couplings that are subjected to both static and dynamic loads.	Analyze
				CO5	Using a variety of empirical relations, design keys, couplings, and permanent and temporary joints for a	Create
3	6PC510ME	Metrology and Machine Tool	Mrs. I Sowjanya	CO1	Evaluate metrological techniques and tools, including micrometers, sine bars, and limit gauge design, to analyze and solve engineering problems,	Evaluate
				CO2	Apply the knowledge to measure and assess geometric attributes such as straightness, flatness, and roundness using bench centers and talyronds, perform surface roughness measurements , apply thread metrology methods and conduct general geometric tests on machine tools	Apply
				CO3	Understand the constructional features and specifications of machine tools, includinglathes, drilling, boring, milling and grinding machines.	Understand
				CO4	Determine the cutting forces and machining time in lathe, , drilling operations.	Evaluate
				CO5	Applying the principles of indexing for milling machines, demonstrating their ability to synthesize complex machining operations	Apply

(An UGC Autonomous Institution)

METHODIST

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Osmania University

Accredited by NBA & NAAC with A+ Grade

DEPARTMENT OF MECHANICAL ENGINEERING

V-SEMESTER - BE CO-PO Matrix for ACADEMIC YEAR 2023-24

V SEM

SNO	Code	subject	Name of the faculty	COs	Course Outcomes	Taxonomy
4	6PE501ME	Automobile Engineering	Dr. P Ravichander	CO1	Understand the diverse components and construction details of automobile engines	Understand
				CO2	Understand the operations of various systems, including the engine lubrication system and cooling system, as well as comprehend the types of ignition systems and diverse batteries utilized in automobiles.	Understand
				CO3	Apply knowledge to analyze the working principles of steering and suspension systems, along with examining the constructional details of automobile wheels and tires.	Apply
				CO4	Comprehend the construction and functioning of the braking system in automobile engines and understand the transmission of power from the engine to wheels through clutch plates and the differential gearbox.	Understand
				CO5	Identify the environmental implications of automobile emissions and strong base for understanding future developments in the automobile industry.	Apply
5	6HS502HS	Management Economics and Finacial Account	Mrs. Brundavani	CO1	Apply economic principles to management decisions and understand the nature&scope of managerial economics ,its relationship with other disciplines.	Apply
				CO2	Describe how changes in demand and price affects market,estimate demand and forecasting of demand in the market.	Understand
				CO3	Understanding the basic concepts of accounting,Classify various books of accounts	Understand
				CO4	Analyze and Interpret financial statements by applying ratios	Analyze
				CO5	Apply traditional and modern techniques of capital budgeting in longterm investments,to test whether to	Apply
6	6HS503HS	Effective Technical Communucation	Ms.Jayashree	CO1	Handle Technical communication effectively by overcoming barriers of communication.	Remember
				CO2	Use different types of Professional correspondence to	Understand
				CO3	Use different types of business and Interoffice	Analyze
				CO4	Aquire adequate skills to draft reports efficiently.	Evaluate
				CO5	Enhance their skills of information transfer.	Apply
7	OE	Disaster Mitigation	Ms Jyotsna	CO1	Demonstrate the concepts of Disaster Management, Role of NDMA in Disaster Management	Rememberin g &
				CO2	Identify different types of disasters, Mitigation measures of each disaster, case studies of disasters	Understanding
				CO3	Explain the disaster management cycle and disaster response,use of technology in disaster mitigation	Understanding
				CO4	Illustrate the acts and policies of disaster management in India	Understanding
				CO5	Explain the concepts of communication and public	Understanding

(An UGC Autonomous Institution)

METHODIST

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Osmania University

Accredited by NBA & NAAC with A+ Grade

DEPARTMENT OF MECHANICAL ENGINEERING

V-SEMESTER - BE CO-PO Matrix for ACADEMIC YEAR 2023-24

SNO	Code	subject	Name of the faculty	COs	Course Outcomes	Taxonomy
8	OE	Artificial Intelligence	Dr. Shruthi	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.	Applying
				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
9	6PC556ME	Metrology and Machine Tool Lab	Mr. Abdul Faal &Dr.P.Prabhuraj	CO1	Use Vernier callipers, height gauges, inside, outside, and depth micrometers to apply measurement principles and techniques.	Apply
				CO2	Make use of the concepts and methods for calculating ovality and roundness errors using dial bore gauges and V-blocks.	Apply
				CO3	Use a sine bar and a bevel protractor to precisely calculate the angles. Using a Tool Maker's Microscope, measure linear and angular dimensions accurately.	Analyze
				CO4	Accurately and successfully apply shaping, drilling, gear cutting, thread cutting, and lathe machine operations to work parts	Apply
				CO5	Use a lathe tool dynamo meter to analyze the cutting force during machining operations.	Analyze
10	6PC557ME	CAD/CAM Lab	Mrs. Shazia Anwar	CO1	Create the models of the components using solid modelling package.	Create
				CO2	Demonstrate proficiency in generating 3D part models from assembly drawings using a solid modeling package.	Understand
				CO3	Understand and effectively apply geometric dimensioning, tolerance representation on part drawings as well apply the conventional practices to indicate dimensional, form, and position tolerances on engineering drawings.	Understand
				CO4	Interpret and calculate limits, suggest suitable fits for mating parts, and detect interference in assemblies.	Understand
				CO5	Compile the simple part programs to perform machining on a CNC machine and to create various machine components by performing different machining operations.	Create

(An UGC Autonomous Institution)

METHODIST

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Osmania University

Accredited by NBA & NAAC with A+ Grade

DEPARTMENT OF MECHANICAL ENGINEERING

V-SEMESTER - BE CO-PO Matrix for ACADEMIC YEAR 2023-24

SNO	Code	subject	Name of the faculty	COs	Course Outcomes	Taxonomy
11	6PW551ME	Internship	Mr. Abdul Fazal	CO1	To improve and develop technical abilities.	Apply
				CO2	To put into practice the theoretical knowledge they have learned in their classes.	Apply
				CO3	To acquire practical abilities pertinent to their academic programs.	Apply
				CO4	To acquire knowledge relevant to their academic courses that is industry-specific.	Understand
				CO5	To cooperate and communicate professionally with co-workers, managers, and business associates.	Evaluate
12.0	6MC552	Skill Development Lab -2	Dr. Md Fakhruddin	CO1	Recall & Gain insights into the professional aspects of mechanical engineering.	Rememberin g
				CO2	Hands-on experience experimenting with tools, equipment, and software used in the industry.	Analysing
				CO3	Collaborate, communicate & Illustrate ideas, and work effectively as part of a team.	Understandin g
				CO4	Improve the critical thinking abilities and adapt to the evolving demands of the industry.	Creating
				CO5	Solve complex problems, and make informed decisions.	Applying

Dept. Assessment Coordinator

Head of the Department

H.O.D.
Mechanical Engineering Department
Methodist College of Engg & Tech
King Koti, Hyderabad-500 001.

(An UGC Autonomous Institution)

METHODIST

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Osmania University

Accredited by NBA & NAAC with A+ Grade

DEPARTMENT OF MECHANICAL ENGINEERING

VII-SEMESTER - BE CO-PO Matrix for ACADEMIC YEAR 2023-24

SNO	Code	subject	Name of the faculty	COs	Course Outcomes	Taxonomy
1	HS104ME	Operations Research	Mr.G Basker	CO1	The students to have the knowledge of Linear Programming Problem in operations Research and would be able to understand the concept and develop the models for different applications.	Create
				CO2	The students to have the knowledge of conversion of Linear Programming Problem into Dual problems in operations Research and would be able to solve the solution for different applications.	Analyze
				CO3	The students to have the knowledge of solving trasportation problems using LPP/OR models and able to analyse the problems associate to job assign in real life scenario	Analyze
				CO4	The students understand the concept Replacement models and theory of game in OR at the end students would able to explain various features and applications of replacement models in real time scenario and explain Game theory in decision making for a conflict.	Understand
				CO5	The students to have the knowledge of Sequencing model, Queuing Theory and Optimum techniques at the end student would able to develop optimum model for job scheduling and waiting line cases.	Apply
2	PC417ME	Refrigiration and Air Conditioning	Dr. M P rasad	CO1	List various types of refrigerants, refrigeration cycles, Psychometric properties and Air Conditioning Systems	Remember
				CO2	Summarize refrigerants CFC and HFC types, refrigeration cycles, Psychometric properties and Air Conditioning Systems	Understand
				CO3	Choose refrigerants, refrigeration cycles, Psychometric properties and Air Conditioning Systems systems based on applications	Apply
				CO4	Analyze various problems on psychometric processes, refrigeration cycles, and Air Conditioning Systems know the construction and application of Psychometric chart	Analyze
				CO5	Design an air conditioning system based on given inside and outside conditions. Evaluate cooling and heating loads in an air-conditioning system	Evaluate
3	PC416ME	Automation in manufacturin	Mrs. I Sowjanya	CO1	Understand the importance of automation in the field of manufacturing.	Understand
				CO2	Apply the various concepts of CAD and Numerical control machines.	Apply
				CO3	Apply the concepts of CAM and CNC machining.	Apply
				CO4	Understand the concepts of Additive Manufacturing Technologies.	Understand
				CO5	Understand the concepts of pneumatics & hydraulics systems and controls, and various elements of Flexible Manufacturing System.	Understand

(An UGC Autonomous Institution)

METHODIST COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Osmania University

Accredited by NBA & NAAC with A+ Grade

Estd : 2008

DEPARTMENT OF MECHANICAL ENGINEERING

VII-SEMESTER - BE CO-PO Matrix for ACADEMIC YEAR 2023-24

VII Sem	4	PE541ME	3D Printing Technology	Mrs Shazia Anwar	CO1	Interpret the features of 3D printing technology, its advantages, disadvantages , its applications and comparision with conventional manufacturing methods.	Understand
					CO2	Illustrate the operating principles ,capabilities and limitations of liquid, solid and powder based3D printing technologies.	Understand
					CO3	Categorize different data formats, softwares used for 3D printing technology and list the errors in STL format.	Analyze
					CO4	Applying the capabilities of3D printing in different industrial sectors.	Apply
					CO5	Exploring the knowledge of3D printing technologies for developing innovative applications.	Apply
	5	PE520CE	GBT- Green Building Technology	R. Srikanth	CO1	Comprehend core principles of green building and sustainable development.	Understand
					CO2	Apply strategies to minimize environmental impact through site planning.	Apply
					CO3	Implement conservation techniques for water and energy.	Apply
					CO4	Choose materials for construction with low embodied energy and sustainable sourcing.	Apply
					CO5	Apply strategies for improving indoor environmental quality.	Apply
	6	OE	Non Conventional Energy Sources	Mr.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
	8	PE551ME	Non Destructive Testing	Dr.Md.Fakruddin	CO1	Clear understanding of liquid penetrant inspection and magnetic particle inspection.	Creating
					CO2	View and interpret radiographs, utilize the various principles of radiography for different components of different shapes.	Understanding
					CO3	Knowledge of acoustic emission for NDT and the instrumentation used for NDT.	Analysing
					CO4	Ability to analyze quality control and prepare a technical report.	Identifying
					CO5	Knowledge of latest research, developments and trends in NDT.	Evaluating

(An UGC Autonomous Institution)

METHODIST

COLLEGE OF ENGINEERING & TECHNOLOGY

Approved by AICTE, New Delhi & Affiliated to Osmania University

Accredited by NBA & NAAC with A+ Grade

DEPARTMENT OF MECHANICAL ENGINEERING

VII-SEMESTER - BE CO-PO Matrix for ACADEMIC YEAR 2023-24

	9	PC460ME	CAM and Automation Lab	Mrs. Sowjanya	CO1	Develop tool path simulations for a given step turning and face turning scenario using computer-aided design (CAD) software.	Apply
					CO2	Apply knowledge of drilling depths and lathe controls to execute a combined drilling and grooving operation.	Apply
					CO3	Generate tool path simulations for a given scenario involving multiple machining operations using CNC programming.	Apply
					CO4	Generate a robot program for pick & place operations using appropriate programming tools and software.	Apply
					CO5	Attain the working knowledge in simulation of Pneumatic Hydraulic and PLC simulation	Understand
	10	PW702ME	Project Work I	Dr. Udayakumar	CO1	Adapt the attitude of writing reviews on the literature	Create
					CO2	Develop practical & professional skills	Apply
					CO3	Apply the tools and technicals of documentations	Apply
					CO4	Make use of the Team work	Apply
					CO5	Develop to the industrial practice and Research Practices,Innovative and entrapranuer ideas	Apply

Dept. Assessment Coordinator

Head of the Department

H.O.D.
Mechanical Engineering Department
Methodist College of Engg & Tech
King Koti, Hyderabad-500 001.