COURSE OUTCOMES (COS)

Course Name: C221 Business Economics and Financial Analysis (U21MB401) Year: II-II Sem A.Y: 2022-23

C221.1	Apply the concepts of business and economics during his professional and personal life
C221.2	Understand the elasticity of the demand of the product, different types, and measurement of elasticity of demand and factors influencing on elasticity of demand.
C221.3	Recognize the Production function, features of Iso-Quants and Iso-Costs, different types of internal economies, external economies and law of returns with appropriate examples
C221.4	Prepare the financial statements of the firm.
C221.5	Analyze the financial statements using ratio analysis and cash flow techniques.

Course Name: C222 Metallurgy and Material Science (U21ME402) Year: II-II Sem A.Y: 2022-23

C222.1	Identify the different types of Bonds, Crystals, and their properties.
C222.2	Find the types of Crack Propagations and types of creep deformations.
C222.3	Determine the structure alloys with respect to Time Temperature and Transformation diagram and their Characteristics.
C222.4	Recognize alloy steels with respect to Alloying Elements.
C222.5	Explain about Heat Treatment Process and the effects caused by Heating the Metals and Alloys.
C222.6	Apply the knowledge of Materials Properties, Alloy Steels and their Characteristics by the Internal Structure and with Heat Treatment Process.

Course Name: C223 Mechanics of Solid (U21ME403) Year: II-II Sem A.Y: 2022-23

C223.1	Apply the basic concepts of stresses and strain their relationship for different sections and identify the behavior of the solid bodies, composite bars, and thermal stresses and strain energy, subjected to various types of loading.
C223.2	Apply the concepts of S.F and B.M for drawings of S.F and B.M diagrams for different beams with different loads and locate the maximum B.M and point of contra flexure and also analyses deflection of beams.
C223.3	Analyze Bending stresses and shear stress distribution in different sections of beams.
C223.4	Analyze compound stresses, determine longitudinal and circumferential stresses of thin cylinder and spheres.
C223.5	Analyze the torsional stresses developed in the shafts and also the behavior of the Columns and Struts under different loading

Course Name: C224 Applied Thermodynamics (U21ME404) Year: II-II Sem A.Y: 2022-23

C224.1	Apply the knowledge of Reciprocating Air Compressor Ideal and actual P-V diagrams. Find the efficiency of single and multi-stage compressor.
C224.2	Analyze the functions of major components of IC engines such as Spark Ignition and Compression ignition engines and perform the analysis of heat balance.
C224.3	Distinguish between combustion phenomena in S.I. and C.I. Engines.
C224.4	Analize the boilers and condensers.
C224.5	Interpret and apply tables and charts for solving problems related nozzles, and performance test of steam turbines.

Course Name: C225 Kinematics of Machines (U21ME405) Year: II-II Sem A.Y: 2022-23

C225.1	Demonstrate the basic components and layout of linkages in the assembly of a system / machine & mobility of planar mechanism for finding D.O.F of mechanism & know the applications of mechanisms.
C225.2	Perform synthesis of different mechanism by graphical methods.
C225.3	Develop the steering gearing mechanism & Hooke's joint & can be able to determine correct steering angle, and can be able to analyze the shafts velocities in Hooke's joint.
C225.4	Draw the displacement diagram and cam profile diagram for follower executing different types of motions and various configurations of followers
C225.5	Draw the displacement diagram and cam profile diagram for follower executing different types of motions and various configurations of followers.
C225.6	Demonstrate the basic concepts of toothed gearing and kinematics of gear trains and the effects of friction in motion transmission and in machine components.

Course Name: C226 Metallurgy and Material Testing Lab (U21ME4L1 Year: II-II, Sem A.Y:2022-23

C226.1	Study of Microstructure Metallurgical Microscope.
C226.2	Study of Microstructure Iron-Iron Carbide diagram.
C226.3	Procedure for specimen preparation and of low carbon steel, medium carbon steel, high carbon steel.
C226.4	Prepare and study microstructure of copper, Brass and Bronze, cast iron.
C226.5	Prepare and study microstructure of white cast iron, and to find, harden ability
C226.6	Prepare and study microstructure of white cast iron on Jominy End quench Test.

Course Name: C227 Thermal Engineering Lab (U21ME4L2) Year: II-II Sem A.Y: 2022-23

C227.1	Draw the port timing and valve timing diagrams for two stroke petrol engine & four stroke diesel engine.
C227.2	Conduct performance test and economical speed on two stroke petrol engine and morse test on four stroke multi cylinder petrol.
C227.3	Conduct performance test and perform heat balance test on a four- stroke single cylinder diesel engine.
C227.4	Conduct performance test on variable compression ratio on the four-stroke single cylinder diesel engine.
C227.5	Evaluate the volumetric and mechanical efficiencies of an air compressor and determine the flash, fire point and viscosity of oil.

Course Name: C228 Programming Language - II Year: II-II Sem A.Y: 2022-23

C228.1	Develop Python Programs using Library Modules
C228.2	Implement Python Programs
C228.3	Implement python programs using Pandas
C228.4	Develop python programs using Matplotlib Module
C228.5	Write, test, Debug Python Library Modules

COURSE OUTCOMES (COS)

Course Name: C321 Machine Design (PC413ME) Year: III-II Sem A.Y: 2022-23

C321.1	Illustrate the design, development and use of Different types of Springs
C321.2	Exhibit the fundamental understanding in the creation, selecting the optimal substances for Spur gear, helical gear, worm gears for varying operational temperature, velocity, and duration of operation.
C321.3	Utilize the fundamental understanding in choosing materials and lubricants to create sliding contact bearings suitable for varying operational loads, temperatures, and velocities.
C321.4	Design and identify the use of various ball and roller bearings for axial and radial stresses in relation to operating speed.
C321.5	Apply the principles of piston design, material selection, fin shape, and standard parameters to withstand the buckling, tension, and compressive loads for the piston and connecting rod.
C321.6	Analyze and distinguish between curved and straight beams with regard to load distribution across the section of various shaped parts.

Course Name: C322 Metal Cutting and machine tools (PC414ME) Year: III-II Sem A.Y: 2022-23

C322.1	Analyze the cutting tool geometry, mechanism of chip removal and orthogonal cutting mechanics.
C322.2	Analyze the thermal aspects of metal cutting, influence of tool wear on tool life and machinability.
C322.3	Identify the basic part and operation of machine tools and apply indexing methods for machining.
C322.4	Recognize various finishing and super finishing operations, screws and gear manufacturing processes.
C322.5	Apply principles for location and clamping of jigs and fixtures and its applications.
C322.6	Classify the various unconventional machining processes and their applications.

Course Name: C323 Finite Element Analysis (PC415ME) Year: III-II Sem A.Y: 2022-23

C323.1	Summarize basic equations of elasticity and formulate finite element modelling of one-dimensional element using Potential energy approach.
C323.2	Formulate finite element modelling of truss and frame elements along with the concepts of transformation from local to global matrices
C323.3	Interpolate Hermitian shape function of beam element in natural coordinate system.
C323.4	Develop stiffness matrix for a plane stress & plane strain conditions on a CST, Axi-symmetric elements by interpolating shape functions in natural coordinate system
C323.5	Formulate finite element model to steady state heat transfer analysis using one- & two-dimensional elements.
C323.6	Formulate mass and stiffness matrices of 1D & beam elements to establish Eigen values &Eigen vectors using Lagarangian and Hamilton principles

Course Name: C324 Production and Operations Management (PE522ME) Year: III-II Sem A.Y: 2022 23

C324.1	Gain knowledge on core features of the operations and production management function at the operational and strategic levels, specifically the relationships between people, process, technology, productivity and quality and how it contributes to the competitiveness of firms.
C324.2	Integrated framework for strategic thinking and decision making to analyse the enterprise as a whole with a specific focus on production delivery processes
C324.3	Interpolate the roles of inventories and basics of managing inventories in various demand settings.
C324.4	Develop importance of product and service design decisions and its impact other design decisions and operations.
C324.5	Obtain the quality management practice in organizations and how total quality management and six-sigma facilitate organizational effectiveness.
C324.6	Identify the roles of inventories and basics of managing inventories in various demand settings.

Course Name: C325 Power Plant Engineering (PE533ME) Year: III-II Sem A.Y: 2022-23

C325.1	Analyze the sources of energy, layout, working of different circuits
C325.2	Discuss the types, construction and plant layout with auxiliaries.
C325.3	Describe the principles of working of closed and open cycle gas turbine.
C325.4	Classify the hydroelectric power plant, dams and spillways.
C325.5	Analyze the different forms of non-conventional energy sources
C325.6	Determine the effluents from the power plants and input on environment pollutions.

Course Name: C326 Disaster Mitigation (OE601CE) Year: III-II Sem A.Y: 2022-23

C326.1	Explain the terms and concepts related to disaster management.
C326.2	Describe the various categories of disasters and their specific characteristics.
C326.3	Explain the pre-disaster, during disaster and post-disaster measures and framework
C326.4	Explain the risk mapping and zonation.
C326.5	Describe the disaster management acts and frameworks specific to India.
C326.6	List and explain the various technological applications to aid disaster management.

Course Name: C327 Metrology and Machine Tools Lab (PC458ME) Year: III-II Sem A.Y: 2022-23

C327.1	Demonstrate and evaluate various precision measuring instruments.
C327.2	Familiarize machining and metal cutting operations.
C327.3	Select and apply the knowledge of measuring tools for external, internal and angular measurements for promoting the qualitative production management
C327.4	Practice and classify calibration principles for maintaining the required precision of instruments / tools.
C327.5	Select cutting tool materials and tool geometries along with appropriate cutting conditions for different work materials and grind the cutting tools to the required geometry.
C327.6	Recognize and evaluate the features and applications of various machine tools lik Milling, Drilling, Grinding, Shaping, Slotting etc.

Course Name: C328 Computer Aided Engineering Lab (PC459ME) Year: III-II Sem A.Y: 2022-23

C328.1	Classify the types of Trusses (Plane Truss & Spatial Truss) and Beams (2D & 3D) with various cross sections to determine Stress, Strains and deflections under static, thermal and combined loading.
C328.2	Generalized Plane stress, plane strain conditions & axi-symmetric loading on in plane members to predicting the failure behavior and finding the SCF.
C328.3	Analyse connecting rod with tetrahedron and brick elements, performing static analysis on flat & curved shells to determine stresses, strains with different boundary conditions.
C328.4	Predict the natural frequencies and modes shapes using Modal, Harmonic analysis. Also finding the critical load using Buckling analysis.
C328.5	Simulate steady state heat transfer analysis of chimney, Transient heat transfer of castings, Non-linear, Buckling analysis of shells CFD analysis.
C328.6	Evaluate the stiffness matrix, B matrix and loading matrices of beam in plane/solid elements using MATLAB / Python software.

LORDS INSTITUTE OF ENGINEERING & TECHNOLOGY

Hyderabad-500091, TS.

Department of Mechanical Engineering

COURSE OUTCOMES (COS)

Course Name: C421 Power Plant Engineering **Year: IV-II Sem A.Y: 2022-23**

C421.1	Analyze the sources of energy, layout, working of different circuits.
C421.2	Discuss the types, construction and plant layout with auxiliaries.
C421.3	Classify and principles of working of closed and open cycle gas turbine.
C421.4	Classify the hydroelectric power plant, dams and spillways.
C421.5	Analyze the different forms of non-conventional energy sources
C421.6	Determine the effluents from the power plants and input on environment pollutions.

Course Name: C422 Entrepreneurship Development **Year: IV-II Sem A.Y: 2022-23**

C422.1	Describe the Indian Industrial Environment, Entrepreneurship and Economic growth, small- and large-scale Industries, Types and forms of enterprises.
C422.2	Identify the characteristics of entrepreneurs, Emergence of first-generation entrepreneurs, Conception and evaluation of ideas and their sources.
C422.3	Practice the principles of project formulation, Analysis of market demand, Financial and profitability analysis and technical analysis.
C422.4	Apply the concepts of Project Management during construction phase, project organization, project planning and control using CPM, PERT techniques.
C422.5	Differentiate the behavioral aspects of entrepreneurs, Time Management, Various approaches of time management, their strengths and weakness. The urgency addiction and time management matrix.
C422.6	Use behavioral, leadership and time management aspects in entrepreneurial journey

Course Name: C423 Road Safety Engineering **Year: IV-II Sem A.Y: 2022-23**

C423.1	Explain the fundamentals of traffic engineering and road safety principles, planning & designing.
C423.2	Gain information and knowledge about people responsible for accidents and their duties.
C423.3	Apply traffic enforcement procedures and processes.
C423.4	Design safe road infrastructure.
C423.5	Apply design principles for roadway geometrics improvement with various types of traffic safety appurtenances/tools.
C423.6	Apply road safety audit at all stages.

Course Name: C424 Project-II **Year: IV-II Sem A.Y: 2022-23**

C424.1	Gather Effectively and Interpret Information from Literature Survey About Development of Human Skills Using Additive Manufacturing.
C424.2	Identify Methods and Selections of Material to Develop the Project.
C424.3	Design And Perform Comparative Analysis for Both Techniques in Development of FDM Printed Skull with Human Dry Skull.
C424.4	Consider Alternate Assumption, Approaches and Procedures Carry Out Calculations Involved in Experiment for Analyze and Discuss the Result to Draw Valid Conclusions.
C424.5	Prepare Report as Per the Recommended Format and Defend the Work and Explore the Possibility of Publishing Papers in Peer Review Journals/Conference Proceedings.