

LORDS INSTITUTE OF ENGINEERING & TECHNOLOGY

(UGC Autonomous)

Approved by AICTE | Affiliated to Osmania University | Estd.2003.

Department of Mechanical Engineering

Course Outcomes

A.Y:2023-24

Semester: IV (A)

Student will be able to

Course Name: C41 Business Economics and Financial Analysis (U21MB401)

CO. No.	Description
C41.1	Apply the concepts of business and economics during his professional and personal life.
C41.2	Explain the elasticity of the demand of the product, different types, and measurement of elasticity of demand, and factors influencing on elasticity of demand.
C41.3	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.
C41.4	Prepare the financial statements of the firm.
C41.5	Analyze the financial statements using ratio analysis and cash flow techniques.

Course Name: C42 Metallurgy and Material Science (U21ME402)

CO. No.	Description
C42.1	Identify the different types of Bonds, Crystals, and their properties.
C42.2	Find the types of Crack Propagations and types of creep deformations.
C42.3	Determine the structure alloys with respect to Time Temperature and Transformation diagram and their Characteristics.
C42.4	Recognize alloy steels with respect to Alloying Elements.
C42.5	Explain about Heat Treatment Process and the effects caused by Heating the Metals and Alloys.
C42.6	Apply the knowledge of Materials Properties, Alloy Steels and their Characteristics by the Internal Structure and with Heat Treatment Process.

Course Name: C43 Mechanics of Solid (U21ME403)

CO. No.	Description
C43.1	Determine the different stresses, strains, deformations and their relations for different sections when subjected to various types of loading.
C43.2	Apply the concepts of S.F and B.M for drawings the S.F and B.M diagrams for different beams with different loads, and locate the maximum B.M, point of contra flexure and deflection.
C43.3	Analyze bending stresses and shear stress distribution in different sections of beams.
C43.4	Determine the compound stresses in varies planes, and longitudinal and circumferential stresses for thin cylinders and spheres.
C43.5	Analyze the torsional stresses developed in the shafts and also the behavior of the Columns and Struts under different loading.

Course Name: C44 Applied Thermodynamics (U21ME404)

CO. No.	Description
C44.1	Apply the knowledge of Reciprocating Air Compressor Ideal and actual P-V diagrams. Find the efficiency of single and multi-stage compressor.
C44.2	Analyze the functions of major components of IC engines such as Spark Ignition and Compression ignition engines and perform the analysis of heat balance.
C44.3	Distinguish between combustion phenomena in S.I. and C.I. Engines.
C44.4	Analyze the boilers and condensers.
C44.5	Interpret and apply tables and charts for solving problems related nozzles, and performance test of steam turbines.

Course Name: C45 Kinematics of Machines (U21ME405)

CO. No.	Description
C45.1	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.
C45.2	Perform synthesis of different mechanism by graphical methods.
C45.3	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.
C45.4	Draw the displacement diagram and cam profile diagram for follower executing different types of motions and various configurations of followers
C45.5	Draw the displacement diagram and cam profile diagram for follower executing different types of motions and various configurations of followers.
C45.6	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: C46 Metallurgy and Material Testing Lab (U21ME4L)

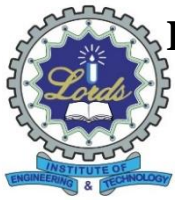
CO. No.	Description
C46.1	Prepare specimen for metallographic observation
C46.2	Analyze and identify low, medium and high carbon steels, different types of cast irons, non-ferrous alloys, from the study of their microstructure
C46.3	Contrast the importance of grain size in evaluating the desired mechanical properties.
C46.4	Inspect the mechanical properties of engineering materials such as Hardness, toughness, Stiffness, Elastic and plastic deformation.
C46.5	Analyze and identify microstructures and their mechanical properties after different heat treatment processes.

Course Name: C47 Thermal Engineering Lab (U21ME4L2)

CO. No.	Description
C47.1	Draw the port timing and valve timing diagrams for two stroke petrol engine & four stroke diesel engine.
C47.2	Conduct performance test and economical speed on two stroke petrol engine and morse test on four stroke multi cylinder petrol.
C47.3	Conduct performance test and perform heat balance test on a four- stroke single cylinder diesel engine.
C47.4	Conduct performance test on variable compression ratio on the four-stroke single cylinder diesel engine.
C47.5	Evaluate the volumetric and mechanical efficiencies of an air compressor and determine the flash, fire point and viscosity of oil.

Course Name: C48 Programming Language – II (U21CS4L3)

CO. No.	Description
C48.1	Develop Python Programs using Library Modules
C48.2	Implement Python Programs
C48.3	Implement python programs using Pandas
C48.4	Develop python programs using Matplotlib Module
C48.5	Write, test, Debug Python Library Modules



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Semester: VI (A)

Student will be able to

Course Name: C61 Metal Cutting and Machine Tools (U21ME601)

CO. No.	Description
C61.1	Develop the relations for shear angle, shear strain, forces and temperatures associated with orthogonal cutting.
C61.2	Select the cutting fluids, tool materials and coatings to control the tool wear and temperature.
C61.3	Evaluate the tool life and economics of machining for maximum production and minimum cost.
C61.4	Select the appropriate machine tool and tool & work holding devices for machining of components.
C61.5	Illustrate the various finishing techniques and unconventional machining processes.

Course Name: C62 Design of Machine Elements-II (U21ME602)

CO. No.	Description
C62.1	Demonstrate the design, development and use of Different types of Springs and apply design principles for the design of mechanical systems involving belts, pulleys, and wire rope.
C62.2	Apply design concepts of hydrodynamic bearings for different applications and select anti friction bearings for different applications using the manufacturers, catalogue
C62.3	Apply the knowledge of design, selection of material, shape and standard parameters of fins for piston, to withstand the buckling, tension and compressive loads for piston and connecting rod.
C62.4	Analyze and differentiate the of curved beams and straight beams in terms of load distribution across the section of different shaped elements
C62.5	Demonstrate the basic knowledge in the designing, choosing the best materials for Spur gear, helical gear, worm gears for different operating temperature, speed and number of operating hours.

Course Name: C63 Heat Transfer (U21ME603)

CO. No.	Description
C63.1	Illustrate the basic modes of heat transfer with its associated laws in simple geometries
C63.2	Solve the problems of steady state and transient heat conduction with simple and multi-layer geometries. Analyze heat transfer coefficients for free and forced convection, considering boundary layers.
C63.3	Develop relationships for radiation exchange between (Opaque, Diffuse, Gray) Surfaces in an enclosure.
C63.4	Familiarize with time dependent heat transfer and compute convective heat transfer coefficients in forced, natural convection.
C63.5	Analyse heat exchanger performance by using the methods of Log Mean Temperature Difference (LMTD).

Course Name: C64 CAD/CAM/CAE (U21ME604)

CO. No.	Description
C64.1	Apply the fundamental applications of computer in design, manufacturing and geometric transformation techniques in CAD.
C64.2	Develop mathematical Model for curves, surfaces, solid models and understand the fundamental concepts of Finite Element Analysis
C64.3	Develop CNC Part program for manufacturing components.
C64.4	Differentiate the concepts of Machining Centre's, adaptive control and as well as fundamentals knowledge of robotics.
C64.5	Analyze the working of various components of an modern manufacturing systems

Course Name: C65 Metal Cutting and Machine Tools Lab (U21ME6L1)

CO. No.	Description
C65.1	Demonstrate the need of machine alignment test for qualitative production.
C65.2	Practice calibration principles for maintaining the required precision of instruments / tools.
C65.3	Select and practice the methods of temperature measurement.
C65.4	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.
C65.5	Recognize and summarize the features and applications of various machine tools like Lathe, Milling, Drilling, Grinding, Shaping, Slotting etc.
C65.6	Practice calibration principles for maintaining the required precision of instruments / tools.

Course Name: C66 Heat Transfer Lab (U21ME6L2)

CO. No.	Description
C66.1	Perform steady state conduction experiments to estimate thermal conductivity of different materials.
C66.2	Perform transient heat conduction experiment.
C66.3	Estimate heat transfer coefficients in forced convection, free convection, condensation and correlate with theoretical values
C66.4	Obtain variation of temperature along the length of the pin fin under forced and free convection.
C66.5	Perform radiation experiments: Determine surface emissivity of a test plate and Stefan-Boltzmann's constant and compare with theoretical value.

Course Name: C67 CAD/CAM/CAE Lab (U21ME6L3)

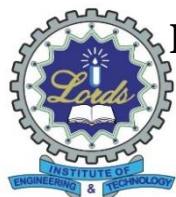
CO. No.	Description
C67.1	Apply the fundamental applications of computer in design, manufacturing and geometric transformation techniques in CAD.
C67.2	Develop mathematical Model for curves, surfaces, and understand the fundamental concepts
C67.3	Model engineering components using solid Modeling techniques.
C67.4	Create mathematical model for parametric representation of synthetic surfaces.
C67.5	Application of computers in various aspects of Manufacturing.
C67.6	Design and plan the Manufacturing cost, Layout & Material Handling system.

Course Name: C68 Research Writing (U21EN6L1)

CO. No.	Description
C68.1	Demonstrate the ethics and nuances of plagiarism
C68.2	Construct the topic of research and formulate hypothesis.
C68.3	Analyze the research process elaborately.
C68.4	Organize and rephrase the data in a sequential order as per format
C68.5	Interpret the data by the use of methodology and discussion

Course Name: C69 Mini Project (U21EN6L1)

CO. No.	Description
C69.1	Formulate a specific problem and give valuable and economical solution
C69.2	Develop model/models either theoretical/practical/numerical form
C69.3	Solve, interpret/correlate the results and discussions
C69.4	Conclude the results obtained
C69.5	Write the documentation in standard format



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Course Outcomes

A.Y:2023-24

Semester: VIII (OU)

Student will be able to

Course Name: C81 Entrepreneurship Development (PE562ME)

CO. No.	Description
C81.1	Describe the Indian Industrial Environment, Entrepreneurship and Economic growth, small- and large-scale Industries, Types and forms of enterprises.
C81.2	Identify the characteristics of entrepreneurs, Emergence of first-generation entrepreneurs, Conception and evaluation of ideas and their sources.
C81.3	Practice the principles of project formulation, Analysis of market demand, Financial and profitability analysis and technical analysis.
C81.4	Apply the concepts of Project Management during construction phase, project organization, project planning and control using CPM, PERT techniques.
C81.5	Differentiate the behavioral aspects of entrepreneurs, Time Management, Various approaches of time management, their strengths and weakness. The urgency addiction and time management matrix.
C81.6	Use behavioral, leadership and time management aspects in entrepreneurial journey

Course Name: C82 Essentials of Road Safety Engineering (OE805CE)

CO. No.	Description
C82.1	Explain the fundamentals of traffic engineering and road safety principles, planning & designing.
C82.2	Gain information and knowledge about people responsible for accidents and their duties.
C82.3	Apply traffic enforcement procedures and processes.
C82.4	Design safe road infrastructure.
C82.5	Apply design principles for roadway geometrics improvement with various types of traffic safety appurtenances/tools.
C82.6	Apply road safety audit at all stages.

Course Name: C83 Project-II (PW703ME)

CO. No.	Description
C83.1	Gather Effectively and Interpret Information from Literature Survey About Development of Human Skills Using Additive Manufacturing.
C83.2	Identify Methods and Selections of Material to Develop the Project.
C83.3	Design And Perform Comparative Analysis for Both Techniques in Development of FDM Printed Skull with Human Dry Skull.
C83.4	Consider Alternate Assumption, Approaches and Procedures Carry Out Calculations Involved in Experiment for Analyze and Discuss the Result to Draw Valid Conclusions.
C83.5	Prepare Report as Per the Recommended Format and Defend the Work and Explore the Possibility of Publishing Papers in Peer Review Journals/Conference Proceedings.