LORDS INSTITUTE OF ENGINEERING & TECHNOLOGY

Hyderabad-500091, TS.

Department of Mechanical Engineering

COURSE OUTCOMES (COS)

Course Outcomes: C221– Environmental Science **Year: IV- Sem** **A.Y: 2020-21**

C221.1	Create environmental ethics to attain sustainable development.
C221.2	Develop an attitude of concern for the environment.
C221.3	Conserve the natural resources and biological diversity.
C221.4	Create awareness of green technologies for nation's security.
C221.5	Create awareness for environmental laws and regulations
C221.6	Create awareness of technologies for security purposes.

Course Outcomes: C222– Essence of Indian Traditional Knowledge **Year: IV- Sem** **A.Y: 2020-21**

C222.1	Recite vocabulary and use it contextually
C222.2	Listen and speak effectively
C222.3	Develop proficiency in academic reading and writing
C222.4	Increase possibilities of job prospects
C222.5	Communicate confidently in formal and informal contexts
C222.6	Adopt professional behavior and develop team spirit

Course Outcomes: C223– Industrial Psychology **Year: IV- Sem** **A.Y: 2020-21**

C223.1	Summarize the key concepts, theoretical perspectives, and trends in industrial psychology.
C223.2	Evaluate the problems thorough and systematic competency model.
C223.3	Analyze the problems present in environment and design a job analysis method.
C223.4	Create a better work environment for better performance.
C223.5	Design a performance appraisal process and form for the human behavior.
C223.6	Describe the working of the union, state and local levels

Course Outcomes: C224– Biology For Engineers **Year: IV- Sem** **A.Y: 2020-21**

C224.1	Apply biological engineering principles, procedures needed to solve real world problems.
C224.2	Explain the fundamentals of living things, their classification, cell structure and biochemical constituents.
C224.3	Apply the concept of plant, animal and microbial systems and growth in real life situations.
C224.4	Explain genetics and the immune system.
C224.5	Tell the cause, symptoms, diagnosis and treatment of common diseases.
C224.6	Apply basic knowledge of the applications of biological systems in relevant industries.

Course Outcomes: C225– Energy Sciences and Engineering **Year: IV- Sem** **A.Y: 2020-21**

C225.1	Understand the basics of various sources of energy
C225.2	Analyze the present status of conventional energy sources
C225.3	Understand the working principle of RES
C225.4	Design and develop waste heat Recovery system
C225.5	Relate energy economics standards and future challenges

Course Outcomes: C226– Mechanics of Material **Year: IV- Sem** **A.Y: 2020-21**

C226.1	Understand the basic concepts of stress, strain, compound stresses and their relations for different sections and identify the behavior of the solid bodies, composite bars, and thermal stresses and strain energy, subjected to varioustypes of loading.
C226.2	Understand and 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.
C226.3	Determine Longitudinal and circumferential stresses of thin cylinder andspheres.
C226.4	Analyze Bending stresses in different sections of beams and shear stress for rectangular section.
C226.5	Understand and analyze the torsional stresses developed in the shafts and determine the stresses developed in helical springs when subjected to variousaxial loads.
C226.6	Determine the deflection at any point of the beams when it carries differentloads.

Course Outcomes: C227–Applied Thermodynamics **Year: IV- Sem** **A.Y: 2020-21**

C227.1	Quantify the behavior of reciprocating compressor and solve numerical related to the performance of single and multi-stage air compressor.
C227.2	Explain various stages of combustion phenomena and thermal design of IC. Engines.
C227.3	Describe the various cooling, lubrication, ignition and fuel supply systems and evaluate the performance parameters of I.C. Engines.
C227.4	Explain the thermal design and working principles of power plant devicessuch as boilers, condensers, pumps & nozzles.
C227.5	Evaluate the performance of vapour power cycle and steam nozzles.

Course Outcomes: C228 –Kinematics of Machinery **Year: IV- Sem** **A.Y: 2020-21**

C228.1	Understand the concept of mechanism, inversion of mechanism & mobility ofplanar mechanism and can be able to find D.O.F of mechanism & know the applications of mechanisms.
C228.2	Analyze the velocity & acceleration of the links of the mechanism by graphical method.
C228.3	Analyze the power loss in bearing due to friction and can be able to analyze power transmitted by clutch, and understand the operation of dynamometers.
C228.4	Analyze the motion of the cam & follower & can be able to design the profileof the cam.
C228.5	Understand gear terminologies & the working of differential gear box & canbe able to analyze gear teeth parameters.
C228.6	Understand gear trains; analyze the train value of gear trains.

Course outcomes: C229 – Manufacturing Process Year: IV- Sem A.Y: 2020-21

C229.1	Get the basic knowledge of casting process like there terminologies, steps etc and understanding concept of patterns like, pattern making, allowances, machineries using for mould preparation and gating design, their types etc & applying the same while designing and making the patterns, mould, gating & riser.
C229.2	Understands special casting processes & plastic processing processes & gets of knowledge of powder metallurgy
C229.3	Gets knowledge of various welding processes, equipment's and understandvarious techniques involved in welding processes.
C229.4	Understand & gets broad knowledge of various gas welding processes, Arc, SMAM, SAW, Atomic hydrogen, electro slag welding & soldering and brazing operations.
C229.5	Understand & get knowledge of various solid-state processes like forge, friction etc & resistance welding processes like spot, projection welding processes & welding defects.
C229.6	Understand various forming processes like Hot and Cold work process along with rolling, bending, blanking piercing wire drawing process and calculate forces in this process & various sheet metal processes also gets knowledge of various advance forming processes like electromagnetic, electro hydraulic

Course outcomes: C2210 – Thermal Engineering Lab – I Year: IV- Sem A.Y: 2020-21

C2210.1	Perform experiments to find the efficiency of Petrol and Diesel engines.
C2210.2	Find the properties of unknown fuels/lubricants.
C2210.3	Perform experiments on CI and SI engines.
C2210.4	Perform experiments on Reciprocating Air Compressor
C2210.5	Study Boiler Models

Course outcomes: C2211 – Manufacturing Process Lab Year: IV- Sem A.Y: 2020-21

C2211.1	Understand & recognize the principle of casting, and various casting methods used and melting practices followed
C2211.2	Find the strengths of various types of sand & their properties
C2211.3	Identify the basic principle of welding and distinguish between variouswelding types and their applications
C2211.4	Determine the principles of metal working, various types of metal working technique
C2211.5	Recognize the bulk deformation processes of rolling, extrusion, & makingpiercing and blanking operation by using hydraulic press
C2211.6	Identify the various types of plastics and their processing techniques.

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COURSE OUTCOMES (COS)

Course Name: C321 Design of Machine Members – II **Year: III-II Sem** **A.Y: 2020-21**

C321.1	Apply the basic knowledge for selection of materials, lubricating oil to design the of sliding contact bearings for different operating load, temperature and speed,
C321.2	Demonstrate the knowledge of selecting the materials, lubricating oil, and designing the roller contact bearing by adopting standard measures to avoid self-alignment and deflection errors
C321.3	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.
C321.4	Demonstrate the design, development and use of Different types of Springs, Belt drives and pulleys, and their uses in different engineering applications
C321.5	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: C322 Heat transfer **Year: III-II Sem** **A.Y: 2020-21**

C322.1	Analyze the different modes of HT, derivations related to cylindrical, spherical andCartesian co-ordinates.
C322.2	Evaluate the 1_D steady state conduction, overall heat transfer coefficient and criticalradius of insulation
C322.3	Analyze the differences between forced convection and natural convection
C322.4	Evaluate the different classifications of boiling and condensation and also of radiation heat transfer, heat exchangers and its classification
C322.5	Analyze practical applications of heat transfer and its importance in the field of mechanical engineering in practical life

Course Name: C323 CAD/CAM **Year: III-II Sem** **A.Y: 2020-21**

C323.1	Demonstrate design process, automation and the benefits of CAD.
C323.2	Recognize the existing geometric modeling and develop a geometric modelingfor a new component in design process.
C323.3	Write a CNC manual part program and understand the difference between manual part program and computer assisted part program.
C323.4	Implement Group Technology concept in modern manufacturing methods.
C323.5	Recognize the Flexible Manufacturing Layouts and understand the CIMsystem.

Course Name: C324 Unconventional Machining Processes **Year: III-II Sem** **A.Y: 2020-21**

C324.1	Understand the need and importance of non-traditional machining processes and their applications.
C324.2	Understand the principle, equipment's, process parameters & mechanics ofabrasive jet, water jet and abrasive water jet machining processes.
C324.3	Understand the fundamentals of electrochemical processes & analyze the metal removal rate.
C324.4	Understand and analyze the principle of thermal metal removal process & EDM in tool designing.
C324.5	Apply the knowledge of plasma application in manufacturing industries and understand the principle of chemical machining.

Course Name: C325 Renewable Energy Sources **Year: III-II Sem** **A.Y: 2020-21**

C325.1	Understand the Global and National Energy Scenario

C325.2	Understand the Solar energy system, Solar Radiation, Availability, Measurement and Estimation, Solar Thermal Conversion Devices and Storage
C325.3	Understand Wind Energy Conversion, Potential, Wind energy potential measurement, Site selection, Types of wind turbines, Wind farms, windGeneration and Control.
C325.4	Understand biogas plant technology and status, Bio energy system, design and constructional features.
C325.5	Understand Ocean wave energy conversion, principle of Ocean Thermal Energy Conversion (OTEC), ocean thermal power plants, tidal energy conversion,

Course Name: C326 Finite Element Methods Year: III-II Sem A.Y: 2020-21

C326.1	Describe the relationship of stress-strain & displacement in 2D & 3D structuralbody. Apply the general steps of finite element methods and mathematical model preparing techniques to 1D-bar element.
C326.2	Construct the Finite Element Models for plane truss & structural beam.
C326.3	Illustrate the Finite Element Model of 2D-CST/Quadrilateral andAxisymmetric elements.
C326.4	Illustrate and solve the Finite Element Model of 1D slab, 2D-Thin plate &uniform shaft for Heat transfer analysis.
C326.5	Reviewing the application and use of the Finite Element Model for dynamicand 3D structural problems.
C326.6	Simulating structural problems using FEA software's such as ANSYS,ABAQUS, NASTRAN

Course Name: C327 Heat Transfer Lab Year: III-II Sem A.Y: 2020-21

C327.1	Determine the thermal conductivity of given metal rod, Lagged pipe andconcentric sphere.
C327.2	Determine the coefficient of convective heat transfer in natural and forced convection also to determine the critical heat flux by using critical heat fluxapparatus.
C327.3	Determine the Stefan Boltzman Constant using Stefan Boltzman Apparatus.
C327.4	Determine the Effectiveness of Pin-Fin and also to determine the LMTD byusing parallel and counter flow heat exchanger
C327.5	Demonstrate the heat pipe

Course Name: C328 CAD/CAM Lab Year: III-II Sem A.Y: 2020-21

C328.1	Recognize the development of part drawings for various components.
C328.2	Determine the stresses and estimation of natural frequencies.
C328.3	Do analysis on heat transfer of plane and axi-symmetric components.
C328.4	Analyze the development of manufacturing defects and tool management systems.
C328.5	Produce detailed production drawings using commercially available draftingsoftware

Course Name: C329 Advanced Communication Skills Lab Year: III-II Sem A.Y: 2020-21

C329.1	Acquire vocabulary and use it contextually
C329.2	Listen and speak effectively
C329.3	Develop proficiency in academic reading and writing
C329.4	Increase possibilities of job prospects
C329.5	Communicate confidently in formal and informal contexts
C329.6	Adopt professional behavior and develop team spirit.

Course Name: C3210 Environmental Science Year: III-II Sem A.Y: 2020-21

C3210.1	Create environmental ethics to attain sustainable development.
C3210.2	Develop an attitude of concern for the environment.
C3210.3	Conserve the natural resources and biological diversity.
C3210.4	Create awareness of green technologies for nation's security.
C3210.5	Create awareness for environmental laws and regulations
C3210.6	Create awareness of technologies for security purposes.

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COURSE OUTCOMES (COS)

Course Name: C421 Organizational Behavior **Year: IV-II Sem A.Y: 2020-21**

C421.1	Analyze the behavior of individuals and groups in organizations in terms of the key factors that influence organizational behavior.
C421.2	Assess the potential effects of organizational level factors (such as structure,culture and change) on organizational behavior.
C421.3	Conceptual framework and the theories underlying Organizational Behavior.
C421.4	Critically evaluate the potential effects of important developments in the external environment (such as globalization and advances in technology) on organizational behavior
C421.5	Analyze organizational behavioral issues in the context of organizational behavior theories, models and concepts.

Course Name: C422 Production Planning and Control **Year: IV-II Sem A.Y: 2020-21**

C422.1	Understanding the basic concepts of production planning and control functions and systems. Apply principles and techniques in the forecasting of these systems to optimize/make best use of resources in achieving their objectives.
C422.2	Understand the importance and function of inventory and to be able to apply selected techniques for its control and management under dependent and independent demand circumstances.
C422.3	Understand Method of line balancing, largest candidate method, route sheetand factors affecting route procedures
C422.4	Apply scheduling and material control techniques to various specified situations. Include an explanation of the need for inventory minimization procedures and how these might conflict with delivery response objectives.
C422.5	The ability to measure the effectiveness, identify likely areas for improvement, develop and implement improved planning and control methods fordispatching.

Course Name: C423 Unconventional Machining Processes **Year: IV-II Sem A.Y: 2020-21**

C423.1	Understand the need and importance of non-traditional machining processes and their applications.
C423.2	Understand the principle, equipment's, process parameters & mechanics of abrasive jet, water jet and abrasive water jet machining processes.
C423.3	Understand the fundamentals of electrochemical processes & analyze themetal removal rate.
C423.4	Understand and analyze the principle of thermal metal removal process &EDM in tool designing.
C423.5	Apply the knowledge of plasma application in manufacturing industries andunderstand the principle of chemical machining.

Course Name: C424 Major Project **Year: IV-II Sem A.Y: 2020-22**

C424.1	Classify the projects and describe the phases involved in project formulation with feasibility studies and SWOT (strengths, weaknesses, opportunities, and threats) analysis.
C424.2	Devise a projects development cycle and get acquainted with the different appraisals in the process of deciding the worthiness of project.
C424.3	Exhibit and apply the managerial skills and knowledge of financial aspects required during the implementation of project.
C424.4	Identify sources for project finance and select the method of project implementation which is best suited for a particular project.