

I.T.S Engineering College Greater Noida
Department of Mechanical Engineering

S.NO	Course Name	CO
1	KME301 Thermodynamics	CO 1: To learn about work and heat interactions, and balance of energy between system and its surroundings. CO 2: To learn about application of I law to various energy conversion devices. CO 3: To evaluate the changes in properties of substances in various processes. CO 4: To understand the difference between high grade and low-grade energies and II law limitations on energy conversion.
2	KME302 Fluid Mechanics & Fluid Machines	CO 1: To learn about the application of mass and momentum conservation laws for fluid flows. CO 2: To understand the importance of dimensional analysis. CO 3: To obtain the velocity and pressure variations in various types of simple flows. CO 4: To analyze the flow in water pumps and turbines.
3	KME303 Materials Engineering	CO 1: Understanding of the correlation between the internal structure of materials, their mechanical properties and various methods to quantify their mechanical integrity and failure criteria. CO 2: To provide a detailed interpretation of equilibrium phase diagrams. CO 3: Learning about different phases and heat treatment methods to tailor the properties of Fe-C alloys.
4	KVE401 Universal Human Values	CO 1: To help students distinguish between values and skills, and understand the need, basic guidelines, content and process of value education. CO 2: To help students initiate a process of dialog within themselves to know what they 'really want to be' in their life and profession CO 3: To help students understand the meaning of happiness and prosperity for a human being.
5	KME401 Applied Thermodynamics	CO 1: To learn about of I law for reacting systems and heating value of fuels. CO 2: To learn about gas and vapor cycles and their first law and second law efficiencies. CO 3: To understand about the properties of dry and wet air and the principles of psychrometry. CO 4: To learn about gas dynamics of air flow and steam through nozzles. CO 5: To learn the about reciprocating compressors with and without intercooling. CO 6: To analyze the performance of
6	KME402 Engineering Mechanics	structures. CO 2: Apply fundamental concepts of kinematics and kinetics of particles to the analysis of simple, practical problems. CO 3: Apply basic knowledge of mathematics and physics to solve real-world problems. CO 4: Understand basic dynamics concepts – force, momentum, work and energy. CO 5: Understand and be able to apply Newton's laws of motion.
7	KME403 Manufacturing Processes	CO 1: Study of various casting and metal forming processes with applications. CO 2: To teach the construction and working of various machine tools including their applications. CO 3: Study of various super finishing processes and applications. CO 4: Study of various welding processes, it limitations and applications. CO 5: Study of various unconventional machining processes applications.
8	KME501 Heat & Mass Transfer	CO 1: Understand the fundamentals of heat and mass transfer. CO 2: Apply the concept of steady and transient heat conduction. CO 3: Apply the concept of thermal behavior of fins. CO 4: Apply the concept of forced and free convection. CO 5: Apply the concept of radiation for black and non-black bodies. CO 6: Conduct thermal analysis of heat exchangers.
9	KME502 Strength of Material	CO 1: Understand the concept of stress and strain under different conditions of loading. CO 2: Determine the principal stresses and strains in structural members. CO 3: Determine the stresses and strains in the members subjected to axial, bending and torsional loads. CO 4: Apply the concepts of stresses and strain in solving problems related to springs, column and pressure vessels. CO 5: Calculate the slope, deflection and buckling of loaded members CO 6: Analyze the stresses developed in straight and curved beams of different cross sections

10	KME503Industrial Engineering	CO1: Able to understand the basic concept of of Industrial Management, Productivity and Industrial Ownership. CO2: Able to understand various Management Function, Taylor's and Fayol's theories of scientific management. CO3: Understanding the principles of Inventory Control and Queuing Theory. CO4: Able to understand the concept of Process control, SQC, Control charts, Acceptance Sampling and introduction to TQM. CO5: Able to understand Project network analysis, CPM, PERT and Project crashing and resource leveling.
11	KME051Computer Integrated Manufacturing	CO 1:Understand the basic concepts of automation, computer numeric control machining CO 2:Understand the algorithms of line generation, circle generation, transformation,curve, surface modeling and solid modeling. CO 3: Understand group technology, computer aided process planning, flexible manufacturing, Industry 4.0, robotics. CO: 4 Understand information system and material
12	KME055Advance Welding	CO 1: Introduction to welding power sources and metal transfer. CO 2: To provide the knowledge about welding processes. CO 3: Introduce about the different elements of heat flow welding. CO 4: To provide the knowledge about repair and maintenance welding and effect of allowing elements on weld ability. CO 5: The fundamental knowledge about type of welds and joints and weld defects.
13	KME603Theory of Machines	CO 1: To understand the concept of simple mechanisms and velocity & acceleration analysis. CO 2: To understand the static and dynamic force analysis,T.M.D. and Flywheel. CO 3: Understanding of various governors and static & dynamic balancing. CO 4: Detailed study of cam- follower mechanisms and cam profiles and Gears and gear trains. CO 5: Advancement in brakes and dynamometers.
14	KME602Machine Design	CO 1: To provide knowledge about design standard and selection of material for Gears. CO 2: To allow a student to calculate life of bearings. CO 3: To enable a student to learn about the design of Gears. CO 4: To enable a student to have knowledge of Sliding and rolling contact bearing. CO 5: 5. To provide an insight into the safe design of IC engine components.
15	KME061Non Destructive Testing	CO1: Able to understand the basic concept of of Industrial Management, Productivity and Industrial Ownership. CO2: Able to understand various Management Function, Taylor's and Fayol's theories of scientific management. CO3: Understanding the principles of Inventory Control and Queuing Theory. CO4: Able to understand the concept of Process control, SQC, Control charts, Acceptance Sampling and introduction to TQM. CO5: Able to understand Project network analysis, CPM, PERT and Project crashing and resource leveling.
16	KME601Refrigeration & Airconditionin	CO 1: To know the basic concepts of thermodynamics used in refrigeration and understand the thermodynamic analysis of air refrigeration cycle. CO 2: To understand the working principle and thermodynamic analysis of vapour compression refrigeration system. CO 3: To understand the working principle and thermodynamic analysis of vapour absorption refrigeration system & study the properties of different refrigerants. CO 4: To study the different psychometric processes and estimation of cooling load in Air conditioning. CO 5: To study the different equipments used in refrigeration and Air conditioning.
17	KHU702Project Management and Entrepreneurship	CO 1. Understand the theories of entrepreneurship and Entrepreneurial Development Programmes. CO 2.Create innovative business ideas and market opportunities. CO 3.Understand the importance of Project Management and Project's life cycle CO 4. Analyze Project Finance and project report. CO 5. Evaluate Social Sector Perspectives and Social Entrepreneurship.

18	KME071 Additive Manufacturing	<p>CO 1. Understanding the basics of additive manufacturing/rapid prototyping and its advantages and disadvantages</p> <p>CO 2. Understanding the role of additive manufacturing in the design process and the implications for design.</p> <p>CO 3. Understanding the processes used in additive manufacturing for a range of materials and applications.</p> <p>CO 4. Understand the various software tools, processes and techniques that enable advanced/additive manufacturing and personal fabrication.</p> <p>CO 5. Apply knowledge of additive manufacturing for various real-life applications</p>
19	KME073 Mathematical modelling of manufacturing processes	<p>CO 1 Understand the fundamentals of manufacturing processes, mathematical models and their solutions.</p> <p>CO 2 Understand unconventional and conventional machining, their discrete-time linear and non-linear models and solutions.</p> <p>CO 3 Apply the principles of casting, powder metallurgy, coating and additive manufacturing.</p> <p>CO 4 Analyze the mechanism of heat and mass transfer in welding.</p> <p>CO 5 Evaluate microstructure properties and residual stress of different manufacturing</p>
20	KOE074 Renewable energy resources	<p>CO 1. Distinguish about different types of renewable and nonrenewable energy resources and review their advantages and disadvantages. Also demonstrate the working and limitations of various solar cells, solar arrays and solar cell power plants</p> <p>CO 2. Discuss the solar radiation and understand the working of flat plate and concentrating collectors. Also explain the working of various solar thermal power plants and thermal energy storage devices.</p> <p>CO 3. Identify the types of geothermal resources, its impact on environment and interpret the geothermal to electrical & nonelectrical energy conversion. Also compare the working, performance and limitations of MHD Power Plants & different types of fuel cells.</p> <p>CO 4. Interpret the thermo-electrical power conversion and thermionic power conversion and explain wind energy, energy estimation of wind, types of rotors and energy conversion</p>
21	KHU801 Rural Development: Administration and Planning	<p>CO 1. Understand the concepts, basics and importance of rural development.</p> <p>CO 2. Recognize and acquire knowledge of pre and postindependence rural development programs.</p> <p>CO 3. Understand the importance, structure, significance of Panchayati raj and rural administration.</p>
22	KOE085 Quality Management	<p>CO 1. Describe the concepts of quality management system in order to manage a product quality.</p> <p>CO 2. Describe the effective organizational structure and the methods of managing the economic and the human aspects in controlling the quality of a product.</p> <p>CO 3. Demonstrate the application of Statistical Quality Control techniques in managing a product quality proactively.</p> <p>CO 4. Describe the various techniques for the evaluation and the improvement of reliability and maintainability as well as the motivational techniques (zero defects, quality circles) for the adaptability of a new quality control system.</p> <p>CO 5. Describe the ISO 9000 Series, Taguchi method and JIT in improving a product quality.</p>
23	KOE091 Automation and Robotics	<p>CO 1. Describe the concepts of Automation</p> <p>CO 2. Describe the Manufacturing Automation</p> <p>CO 3. Demonstrate the application of Robotics</p> <p>CO 4. Describe the Robot Drives and Power Transmission Systems</p> <p>CO 5. Describe the Robot Simulation</p>