

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

Session	Course Name	CO
1	RME302Thermodynamics	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	RCE303Fluid 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	RME-303Mechanics of Solids	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
4	RME301Materials Science	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- Alloys.
5	RVE301Universal 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. CO 4: To facilitate the students to understand harmony at all the levels of human living, and live accordingly. CO 5: To facilitate the students in applying the understanding of harmony in existence in their profession and lead an ethical life
6	RME403Applied 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 steam turbines.
7	RME-401Measurement & Metrology	CO 1: Able to understand the basic structure of measuring instrument along with static and dynamic parameters. CO 2: Able to understand the principles and various measuring devices used for the measurement of Time, Pressure and Strain. CO 3: Able to understand the principles and various measuring devices used for the measurement of Temperature, Flow, Force, Torque, Acceleration and Vibration. CO 4: Able to understand the broad scope of metrology in measuring instruments. CO 5: Able to understand the various parameters and instruments for surface roughness
8	402Manufacturing Science & Technology	CO 1: Design and analysis of forging processes. CO 2: Design and analysis of drawing, extrusion and rolling process. CO 3: Analysis of various sheet metal working and sheet metal forming processes. CO 4: Design and analysis of gating system used in casting. CO 5: To teach the basic principle and working of various unconventional forming processes, powder metallurgy. CO 6: To teach the various processes used for manufacturing of plastic components.
9	RME502Heat & 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.

10	RME503 Manufacturing Science & Technology-II	CO 1: To teach the basic science of metal cutting and influence of related parameters. CO 2: To teach the construction and working of various machine tools including their applications and limitations. CO 3: To teach the need, construction, working and selection of various abrasive machining processes. CO 4: To teach the basic science of various welding processes including their specific application and limitations. CO 5: To teach the basic principle and working of various unconventional machining processes including their applications and limitations.
11	RME051 IC Engines and Compressors	CO 1: Able to analyze air standard cycles used in IC Engines and Gas turbines. CO 2: Able to demonstrate the types of engines and their working 2-Stroke and 4-Stroke petrol and diesel engines. CO 3: Able to demonstrate the different fuel supply systems like carburetor, MPFI, fuel injectors, direct injection and their limitations. Also principles and operation of various jet and rocket propulsion devices. CO 4: Able to analyze the performance of IC Engines, gas turbines and their operating curve etc. CO 5: 5. Able to demonstrate the combustion phenomena in IC Engines and identify various alternative fuels and their applicability.
12	RME501 Machine Design-I	CO 1: To provide knowledge about design standard and selection of material for static and fatigue load. CO 2: To allow a student to solve a given complex problem using theory of failure. CO 3: To enable a student about the designing of machine component against Fluctuating load. CO: 4 To enable a student to have knowledge of riveted joint and their design procedure CO: 5 To provide an insight into the safe designing of key and couplings, power screw and springs.
13	RME601 Fluid Machinery	CO 1: Have a strong foundation in science and focus in mechanical Engg. CO 2: Be able to design, analyze, and test "intelligent" products and processes that incorporate appropriate computing tools. CO 3: Be able to demonstrate professional interaction and communicate effectively with team members. CO 4: Be able to work efficiently in multidisciplinary teams. CO 5: Be prepared for a variety of engineering careers, graduate studies, and continuing education. CO 6: Practice professional and ethical responsibility, and, be aware of the impact of their designs on human-kind and the environment.
14	RME602 Theory 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.
15	RME603 Machine Design-II	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.
16	RAS601 Industrial Management	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.
17	RME061 Refrigeration & Airconditioning	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.
18	RME071 Power Plant Engineering	CO 1: Understand the different sources of power generation and their impact on environment. CO 2: Understand the elements of power generation using fossil fuels. CO 3: Understand the elements of power generation using nuclear and renewable energy sources. CO 4: Understand the concepts of electrical systems used in power plants. CO 5: Apply the basic concepts of thermodynamics to measure the performance of different power plants. CO 6: Determine the performance of power plants based on load variations.

19	RME075Operation Research	CO 1: Introduce the basic concepts of linear programming, graphical method, simplex methods and sensitivity analysis. CO 2: Introduce the basic knowledge of transportation and assignment problems. CO 3: Introduce the basic knowledge of game theory and sequencing problems. CO 4: Introduce the basic concepts of stochastic inventory models and simulation techniques. CO 5: Introduce the basic concepts of Queuing model and project management.
20	RME701CAD/CAM	CO 1: To provide knowledge about various types of automation with its advantages and application. CO 2: To introduce the various features of NC machines and NC part programming for drilling, turning and milling. CO 3: To enable a student to write APT programming for different profiles. CO: 4 To enable a student to have knowledge of different system devices, Interpolators and control systems used in NC /CNC machines. CO: 5 To provide an insight about Group Technology, Flexible Manufacturing Systems, Computer Aided Process Planning and Inspection along with in-depth knowledge about the types, generation and structure of robots and their application.
21	RME702Automobile Engineering	CO 1: To provide knowledge about power unit, various components of an I.C.Engine. Working principle of I.C.Engine and Gear box. Power and Torque characteristics and Design of Gear box. CO 2: To provide the knowledge of clutch, differential gear, steering mechanism, front and rear wheel drive automobile. CO 3: To provide knowledge of Chassis, Suspension system and the importance of Brake system. CO 4: To give knowledge of all the electrical components in an automobile and fuel supply system of an I.C.Engine. CO 5: To provide knowledge of Air conditioning, cooling, lubrication and maintenance of automobile and its importance.
22	ROE086Renewable Energy Resources	CO 1: To develop the skills to differentiate between conventional & non-conventional energy resources & understand principle & use of solar cell. CO 2: To provide the knowledge of various solar collectors & their performance & understand the principle of solar power plants and energy storage. CO 3: To provide the knowledge of different resources of geothermal energy, principle of MHD power plants & working and principle of fuel cells. CO 4: To provide the knowledge of thermo-electric & thermionic conversion, understand the wind power & site selection parameters & wind energy conversion. CO 5: To provide different scopes of biomass energy conversion, understand principle of OTEC power conversion & working & principle of wave & tidal energy.
23	RME080Non Destructive Testing	CO 1: Need and applications of NDT. CO 2: Working principle and applications of LPT and MPT. CO 3: Working principle and applications of Radiographic testing. CO 4: Principle and applications of Ultrasonic testing. CO 5: Principle and application of Eddy current testing.
24	RME085Total Quality Management	CO 1: To understand the basic conceptual theory related to TQM. CO 2: To understand and change the basic organizational structure to make it more competitive. CO 3: To understand the various control Charts and its application. CO 4: To understand the types of defects prevailing in an organizational work setup and their prevention. CO 5: To perform the ISO 9000 and JIT related preparations for the organization.