



R.T.E. SOCIETY'S
RURAL ENGINEERING COLLEGE,
HULKOTI-582 205.

(Approved by A.I.C.T.E.(New Delhi) Affiliated to V. T. U. Belagavi)

E-mail: principalrechkt@rediffmail.com

(ESTD-1980)

Ph No. 08372-289097
08372-289253
Fax: 08372-289427

Dist. Gadag

State: Karnataka

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 3 Scheme : 2018

Course: TRANSFER CALCULUS, FOURIER SERIES & NUMERICAL METHODS(18MAT31) Year: 2019-20

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|-----|--|
| CO1 | Student will be able to understand and apply the knowledge of laplace transform in solving ordinary differential equations. |
| CO2 | Student will be able to solve the fourier series expansion of function analytically and numerically. |
| CO3 | Student will be able to apply fourier transform to solve continuous model problems and z-transform techniques to solve difference equations. |
| CO4 | Student will be able to solve ode of first order and first degree using appropriate numerical methods. |
| CO5 | Student will be able to apply numerical method to solve second order ode and solve simple problems of calculus of variations. |

Branch : Mechanical Engineering Semester : 3 Scheme : 2018

Course: Mechanics of materials(18ME32) Year: 2019-20

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|-----|---|
| CO1 | Student will be able to understand simple, compound, thermal stresses and strains their relations and strain energy |
| CO2 | Student will be able to analyse structural members for stresses, strains and deformations |
| CO3 | Student will be able to analyse the structural members subjected to bending and shear loads |
| CO4 | Student will be able to analyse shafts subjected to twisting loads. |
| CO5 | Student will be able to analyse the short columns for stability. |

Branch : Mechanical Engineering Semester : 3 Scheme : 2018

Course: BASIC THERMODYNAMICS(18ME33) Year: 2019-20

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| CO1 | Student will be able to explain fundamentals of thermodynamics and evaluate energy interactions across the boundary of thermodynamic systems. |
| CO2 | Student will be able to determine heat,work,internal energy for floe and non flow process usins 1st law of thermodynamics. |
| CO3 | Student will be able to evaluate the feasibility of cyclic and non-cyclic processes using 2nd law of thermodynamics |
| CO4 | Student will be able to apply the knowledge of entropy,reversibility and irreversility to solve numerical problems and apply 1st law of thermodynamics to closed and open systems and determine quantity of energy transfers and change in properties. |

COURSE OUTCOMES - MECHANICAL ENGINEERING



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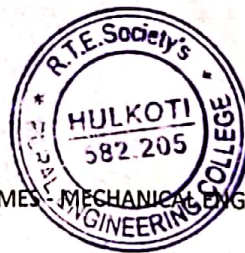
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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

| | |
|-----|---|
| COS | Student will be able to interpret the behavior of pure substances and its application in practical problems & recognise differences between ideal and real gases and evaluate thermodynamic properties of ideal and real gas mixtures using various relations |
|-----|---|



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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 3 Scheme : 2018
Course: MATERIAL SCIENCE(18ME34) Year: 2019-20

| | |
|-----|--|
| CO1 | Student will be able to understand the mechanical properties of metals and their alloys |
| CO2 | Student will be able to analyze the various modes of failure and understand the microstructures of ferrous and non ferrous materials |
| CO3 | Student will be able to describe the processes of heat treatment of various alloys. |
| CO4 | Student will be able to acquire the knowledge of composite materials and their production process as well as applications. |
| CO5 | Student will be able to understand the properties and potentialities of various materials available and material selection |

Branch : Mechanical Engineering Semester : 3 Scheme : 2018
Course: METAL CUTTING AND FORMING(18ME35A) Year: 2019-20

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| CO1 | Student will be able to explain the construction & specification of various machine tools. |
| CO2 | Student will be able to discuss different cutting tool materials, tool nomenclature & surface finish.ials |
| CO3 | Student will be able to apply mechanics of machining process to evaluate machining time. |
| CO4 | Student will be able to analyze tool wear mechanisms and equations to enhance tool life and minimize machining cost. |
| CO5 | Student will be able to understand the concepts of different metal forming processes. apply the concepts of design of sheet metal dies to design different dies for simple sheet metal components. |

Branch : Mechanical Engineering Semester : 3 Scheme : 2018
Course: COMPUTER AIDED MACHINE DRAWING(18ME36A) Year: 2019-20

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|-----|---|
| CO1 | Student will be able to identify the national and international standards pertaining to machine drawing. |
| CO2 | Student will be able to understand the importance of the linking functional and visualization aspects in the preparation of |
| CO3 | Student will be able to apply limits and tolerances to assemblies and choose appropriate fits for given assemblies. |
| CO4 | Student will be able to interpret the machining and surface finish symbols on the component drawings. |
| CO5 | Student will be able to prepare the part or assembly drawings as per the conventions. |

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COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 3 Scheme : 2018

Course: Material Testing lab(18MEL37A) Year: 2019-20

| | |
|-----|--|
| CO1 | Student will be able to acquire experimentation skills in the field of material testing. |
| CO2 | Student will be able to develop theoretical understanding of the mechanical properties of materials by performing experiments. |
| CO3 | Student will be able to apply the knowledge to analyse a material failure and determine the failure inducing agent/s. |
| CO4 | Student will be able to apply the knowledge of testing methods in related areas. |
| CO5 | Student will be able to understand how to improve structure/behaviour of materials for various industrial applications. |

Branch : Mechanical Engineering Semester : 3 Scheme : 2018

Course: Workshop and Machine Shop Practice(18MEL38A) Year: 2019-20

| | |
|-----|--|
| CO1 | Student will be able to read working drawings, understand operational symbols and execute machining operations. |
| CO2 | Student will be able to understand integral parts of lathe, shaping and milling machines and various accessories and attachments used. |
| CO3 | Student will be able to select cutting parameters like cutting speed, feed, depth of cut, and tooling for various machining operations. |
| CO4 | Student will be able to perform cylindrical turning operations such as plain turning, taper turning, step turning, thread cutting, facing, knurling, internal thread cutting, eccentric turning and estimate cutting time. |
| CO5 | Student will be able to perform machining operations such as plain shaping, inclined shaping, keyway cutting, indexing and gear cutting and estimate cutting time. |

Branch : Mechanical Engineering Semester : 3 Scheme : 2018

Course: Constitution of India, Professional Ethics and Cyber Law(18CPC39) Year: 2019-20

| | |
|-----|---|
| CO1 | Student will be able to know constitutional knowledge and legal literacy. |
| CO2 | Student will be able to understand engineering and professional ethics and responsibilities of engineers. |
| CO3 | Student will be able to understand the the cybercrimes and cyber laws for cyber safety measures. |



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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 3 Scheme : 2018

Course: Additional Mathematics-1(18MATDIP31) Year: 2019-20

| | |
|-----|---|
| CO1 | Student will be able to apply concepts of complex numbers and vector algebra to analyze the problems arising in related area. |
| CO2 | Student will be able to use derivatives and partial derivatives to calculate rate of change of multivariate functions. |
| CO3 | Student will be able to analyze position, velocity and acceleration in two and three dimensions of vector valued functions. |
| CO4 | Student will be able to learn techniques of integration including the evaluation of double and triple integrals. |
| CO5 | Student will be able to identify and solve first order ordinary differential equations. |

Branch : Mechanical Engineering Semester : 4 Scheme : 2018

Course: COMPLEX ANALYSIS, PROBABILITY & STATISTICAL METHODS(18MAT41) Year: 2019-20

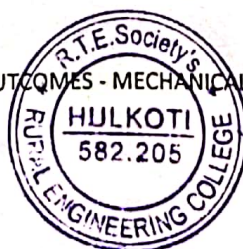
| | |
|-----|--|
| CO1 | Student will be able to use the concepts of analytic function and complex potentials to solve the problems arising in electromagnetic field theory. |
| CO2 | Student will be able to utilize conformal transformation and complex integral arising in aerofoil theory, fluid flow visualization and image processing. |
| CO3 | Student will be able to apply discrete and continuous probability distributions in analyzing the probability models arising in engineering field. |
| CO4 | Student will be able to make use of the correlation and regression analysis to fit a suitable mathematical model for the statistical data. |
| CO5 | Student will be able to construct joint probability distributions and demonstrate the validity of testing the hypothesis. |

Branch : Mechanical Engineering Semester : 4 Scheme : 2018

Course: APPLIED THERMODYNAMICS(18ME42) Year: 2019-20

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|-----|---|
| CO1 | Student will be able to apply thermodynamic concepts to analyze the performance of gas power cycles. |
| CO2 | Student will be able to apply thermodynamic concepts to analyze the performance of vapour power cycles. |
| CO3 | Student will be able to understand combustion of fuels and performance of i c engines. |
| CO4 | Student will be able to understand the principles and applications of refrigeration systems |
| CO5 | Student will be able to apply thermodynamic concepts to determine performance parameters of refrigeration and air conditioning systems. |

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COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 4 Scheme : 2018

Course: Fluid Mechanics (18ME43) Year: 2019-20

| | |
|-----|---|
| CO1 | Student will be able to identify and calculate the key fluid properties used in the analysis of fluid behavior. |
| CO2 | Student will be able to explain the principles of pressure, buoyancy and floatation |
| CO3 | Student will be able to apply the knowledge of fluid statics, kinematics and dynamics while addressing problems of mechanical and chemical engineering. |
| CO4 | Student will be able to describe the principles of fluid kinematics and dynamics. |
| CO5 | Student will be able to illustrate and explain the basic concept of compressible flow and cfd |

Branch : Mechanical Engineering Semester : 4 Scheme : 2018

Course: KINEMATIC OF MACHINES(18ME44) Year: 2019-20

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| CO1 | Student will be able to get knowledge of mechanisms and their motion. |
| CO2 | Student will be able to understand the inversions of four bar mechanisms. |
| CO3 | Student will be able to analyse the velocity, acceleration of links and joints of mechanisms. |
| CO4 | Student will be able to analyse cam follower motion for the motion specifications. |
| CO5 | Student will be able to understand the working of the spur gears and analyse the gear trains speed ratio and torque. |

Branch : Mechanical Engineering Semester : 4 Scheme : 2018

Course: Metal Casting and Welding(18ME45B) Year: 2019-20

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| CO1 | Student will be able to describe the casting process and prepare different types of cast products. |
| CO2 | Student will be able to acquire knowledge on pattern, core, gating, riser system and to use jolt, squeeze, sand slinger moulding machines. |
| CO3 | Student will be able to compare the gas fired pit, resistance, coreless, electrical and cupola metal furnaces. |
| CO4 | Student will be able to compare the gravity, pressure die, centrifugal, squeeze, slush and continuous metal mold castings. understand the solidification process and casting of non-ferrous metals. |
| CO5 | Student will be able to describe the metal arc, tig, mig, submerged and atomic hydrogen welding processes etc. used in manufacturing. describe methods for the quality assurance of components made of casting and joining process |



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COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 4 Scheme : 2018

Course: Mechanical Measurements & Metrology(18ME46B) Year: 2019-20

| | |
|-----|---|
| CO1 | Student will be able to understand the objectives of metrology, methods of measurement, standards of measurement & various measurement parameters. |
| CO2 | Student will be able to explain tolerance, limits of size, fits, geometric and position tolerances, gauges and their design understand the working principle of different types of comparators. |
| CO3 | Student will be able to describe measurement of major & minor diameter, pitch, angle and effective diameter of screw threads. |
| CO4 | Student will be able to explain measurement systems, transducers, intermediate modifying devices and terminating devices. |
| CO5 | Student will be able to describe functioning of force, torque, pressure, strain and temperature measuring devices. |

Branch : Mechanical Engineering Semester : 4 Scheme : 2018

Course: MECHANICAL MEASUREMENTS AND METROLOGY LAB(18MEL47B) Year: 2019-20

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| CO1 | Student will be able to understand calibration of pressure gauge, thermocouple, lvdt, load cell, micrometer |
| CO2 | Student will be able to apply concepts of measurement of angle using sine centre/ sine bar/ bevel protractor, alignment using autocollimator/ roller set. |
| CO3 | Student will be able to demonstrate measurements using optical projector/tool maker microscope, optical flats. |
| CO4 | Student will be able to analyse tool forces using lathe/drill tool dynamometer. |
| CO5 | Student will be able to analyse screw thread parameters using 2-wire or 3-wire method, gear tooth profile using gear tooth vernier/gear tooth micrometer. understand the concepts of measurement of surface roughness. |

Branch : Mechanical Engineering Semester : 4 Scheme : 2018

Course: FOUNDRY FORGE AND WELDING LAB(18MEL48B) Year: 2019-20

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|-----|---|
| CO1 | Student will be able to demonstrate various skills in preparation of molding sand for conducting tensile, shear and compression tests using universal sand testing machine. |
| CO2 | Student will be able to demonstrate skills in determining permeability, clay content and grain fineness number of base sands in foundry |
| CO3 | Student will be able to demonstrate skills in preparation of forging models involving upsetting, drawing and bending operations |
| CO4 | Student will be able to demonstrate skills in preparation of welding models involving I joint , t joint, butt-joint, lap- joint |

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COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 4 Scheme : 2018

Course: Aadalitha Kannada (Kannada for Administration) (18KVK49) Year: 2019-20

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|-----|--|
| CO1 | Student will be able to understand, speak, read and write kannada language and communicate (converse) in kannada language in their daily life with kannada speakers. |
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Branch : Mechanical Engineering Semester : 4 Scheme : 2018

Course: Additional Mathematics-2(18MATDIP41) Year: 2019-20

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|-----|---|
| CO1 | Student will be able to solve systems of linear equations using matrix algebra. |
| CO2 | Student will be able to apply the knowledge of numerical methods in modelling and solving engineering problems. |
| CO3 | Student will be able to make use of analytical methods to solve higher order differential equations. |
| CO4 | Student will be able to classify partial differential equations and solve them by exact methods. |
| CO5 | Student will be able to apply elementary probability theory and solve related problems |

Branch : Mechanical Engineering Semester : 5 Scheme : 2018

Course: Management & Economics(18ME51) Year: 2020-21

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|-----|---|
| CO1 | Student will be able to explain the concept, scope and role of operations management in a business functions |
| CO2 | Student will be able to role of operations management in the organizations' strategic planning and gaining competitive advantage. |
| CO3 | Student will be able to analyze the appropriateness and applicability of a range of om systems/models in decision making. |
| CO4 | Student will be able to assess a range of strategies for improving the efficiency and effectiveness of organizational operations. |
| CO5 | Student will be able to evaluate a selection of frameworks used in the design and delivery of operations . |



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COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 5 Scheme : 2018

Course: DESIGN OF MACHINE ELEMENTS-I(18ME52) Year: 2020-21

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|-----|---|
| CO1 | Student will be able to apply the concepts of selection of materials for given mechanical components. |
| CO2 | Student will be able to study of machine elements subjected to loadings. |
| CO3 | Student will be able to demonstrate the application of engineering design tools to the design of machine components like shafts, couplings. |
| CO4 | Student will be able to analyse the performance and failure modes of mechanical components subjected to combined loading and fatigue loading using the concepts of theories of failure. |
| CO5 | Student will be able to demonstrate the application of engineering design tools to the design of machine components like power screws, fasteners, welded and riveted joints. |

Branch : Mechanical Engineering Semester : 5 Scheme : 2018

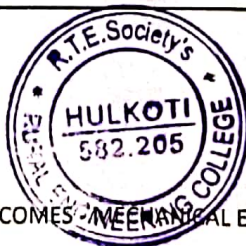
Course: DYNAMICS OF MACHINES(18ME53) Year: 2020-21

| | |
|-----|---|
| CO1 | Student will be able to analyse the mechanisms for static and dynamic equilibrium. |
| CO2 | Student will be able to carry out the balancing of rotating and reciprocating masses |
| CO3 | Student will be able to analyse different types of governors used in real life situation. |
| CO4 | Student will be able to analyse the gyroscopic effects on disks, airplanes, stability of ships, two and four wheelers |
| CO5 | Student will be able to understand the free and forced vibration phenomenon and determine the natural frequency, force and motion transmitted in vibrating systems. |

Branch : Mechanical Engineering Semester : 5 Scheme : 2018

Course: TURBOMACHINE(18ME54) Year: 2020-21

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| CO1 | Student will be able to model studies and thermodynamics analysis of turbomachines |
| CO2 | Student will be able to analyse the energy transfer in turbo machine with degree of reaction and utilisation factor. |
| CO3 | Student will be able to classify, analyse and understand various type of steam turbine. |
| CO4 | Student will be able to design brakes and clutches. |
| CO5 | Student will be able to design hydrodynamic bearings for different applications. select anti friction bearings for different applications using the manufacturers,catalogue. |



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COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 5 Scheme : 2018

Course: FLUID POWER ENGINEERING(18ME55) Year: 2020-21

| | |
|-----|---|
| CO1 | Student will be able to identify and analyse the functional requirements of a fluid power transmission system for a given application. |
| CO2 | Student will be able to visualize how a hydraulic/pneumatic circuit will work to accomplish the function. |
| CO3 | Student will be able to design an appropriate hydraulic or pneumatic circuit or combination circuit like electro-hydraulics, electro- pneumatics for a given application. |
| CO4 | Student will be able to select and size the different components of the circuit. |
| CO5 | Student will be able to develop a comprehensive circuit diagram by integrating the components selected for the given application. |

Branch : Mechanical Engineering Semester : 5 Scheme : 2018

Course: Operations Management(18me56) Year: 2020-21

| | |
|-----|---|
| CO1 | Student will be able to explain the concept, scope and role of operations management in a business functions |
| CO2 | Student will be able to role of operations management in the organizations' strategic planning and gaining competitive advantage. |
| CO3 | Student will be able to analyze the appropriateness and applicability of a range of om systems/models in decision making. |
| CO4 | Student will be able to assess a range of strategies for improving the efficiency and effectiveness of organizational operations. |
| CO5 | Student will be able to evaluate a selection of frameworks used in the design and delivery of operations course outcomes: |

Branch : Mechanical Engineering Semester : 5 Scheme : 2018

Course: Fluid Mechanics & Machinery Lab(18MEL57) Year: 2020-21

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|-----|--|
| CO1 | Student will be able to perform experiments to determine the coefficient of discharge of flow measuring devices. |
| CO2 | Student will be able to conduct experiments on hydraulic turbines and pumps to draw characteristics. |
| CO3 | Student will be able to test basic performance parameters of hydraulic turbines and pumps and execute the knowledge in real life situations. |
| CO4 | Student will be able to determine the energy flow pattern through the hydraulic turbines and pumps. |



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Branch : Mechanical Engineering Semester : 5 Scheme : 2018

Course: ENERGY CONVERSION LABORATORY(18MEL58) Year: 2020-21

| | |
|-----|--|
| CO1 | Student will be able to perform experiments to determine the properties of fuels and oils. |
| CO2 | Student will be able to conduct experiments on engines and draw characteristics. |
| CO3 | Student will be able to test basic performance parameters of i.c. engine and implement the knowledge in industry. |
| CO4 | Student will be able to identify exhaust emission, factors affecting them and exhibit his competency towards preventive maintenance of ic engines. |

Branch : Mechanical Engineering Semester : 6 Scheme : 2018

Course: Finite Element Methods(18ME61) Year: 2020-21

| | |
|-----|--|
| CO1 | Student will be able to identify the application and characteristics of fea elements such as bars, beams, plane and isoparametric elements. |
| CO2 | Student will be able to develop element characteristic equation and generation of global equation. |
| CO3 | Student will be able to formulate and solve axi-symmetric and heat transfer problems |
| CO4 | Student will be able to apply suitable boundary conditions to a global equation for bars, trusses, beams, circular shafts, heat transfer, fluid flow, axi-symmetric and dynamic problems |

Branch : Mechanical Engineering Semester : 6 Scheme : 2018

Course: DESIGN OF M/C ELEMENTS-II(18ME62) Year: 2020-21

| | |
|-----|--|
| CO1 | Student will be able to apply design principles for the design of mechanical systems involving springs, belts, pulleys, and wire ropes. |
| CO2 | Student will be able to design different types of gears and simple gear boxes for relevant applications. |
| CO3 | Student will be able to understand the design principles of brakes and clutches. |
| CO4 | Student will be able to apply design concepts of hydrodynamic bearings for different applications and select anti friction bearings for different applications using the manufacturers, catalogue. |
| CO5 | Student will be able to apply engineering design tools to product design, become good design engineers through learning the art of working in a team. |



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Branch : Mechanical Engineering Semester : 6 Scheme : 2018

Course: HEAT TRANSFER(18ME63) Year: 2020-21

| | |
|-----|--|
| CO1 | Student will be able to understand the basic modes of heat transfer |
| CO2 | Student will be able to compute temperature distribution in steady state and unsteady state heat conduction. |
| CO3 | Student will be able to understand and interpret heat transfer through extended surfaces. |
| CO4 | Student will be able to interpret and compute forced and free convection heat transfer. |
| CO5 | Student will be able to explain the principles of radiation heat transfer and understand the numerical formula for heat conduction problems. |

Branch : Mechanical Engineering Semester : 6 Scheme : 2018

Course: NON TRADITIONAL MACHINING(18ME641) Year: 2020-21

| | |
|-----|--|
| CO1 | Student will be able to understand the compare traditional and non-traditional machining process and recognize the need for |
| CO2 | Student will be able to understand the constructional features, performance parameters, process characteristics, applications, advantages and limitations of usm, ajm and wjm. |
| CO3 | Student will be able to identify the need of chemical and electro-chemical machining process along with the constructional features, process parameters, process characteristics, applications, advantages and limitations |
| CO4 | Student will be able to understand the constructional feature of the equipment, process parameters, process characteristics, applications, advantages and limitations edm & pam. |
| CO5 | Student will be able to understand the lbm equipment, lbm parameters, and characteristics. ebm equipment and mechanism of metal removal, applications, advantages and limitations lbm & ebm. |

Branch : Mechanical Engineering Semester : 6 Scheme : 2018

Course: TRAFFIC ENGINEERING(18CV652) Year: 2020-21

| | |
|-----|--|
| CO1 | Student will be able to understand urbanization identify transportation problems and different modelling techniques encountered in transportation planning process |
| CO2 | Student will be able to design, conduct and administer surveys to provide the data required for transportation planning |
| CO3 | Student will be able to supervise the process of data collection about travel behaviour and analyze the data for use in transport planning |
| CO4 | Student will be able to develop and calibrate models associated with trip generation and trip distribution |

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DEPARTMENT OF MECHANICAL ENGINEERING

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| | |
|-----|--|
| COS | Student will be able to develop and calibrate modal split, synthetic models of trip distribution for specific types of land use developments |
|-----|--|



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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 6 Scheme : 2018

Course: COMPUTER AIDED MODELLING AND ANALYSIS LAB(18MEL66) Year: 2020-21

| | |
|-----|--|
| CO1 | Student will be able to use the modern tools to formulate the problem, create geometry, descritize, apply boundary conditions to solve problems of bars, truss, beams, and plate to find stresses with different-loading conditions. |
| CO2 | Student will be able to demonstrate the ability to obtain deflection of beams subjected to point, uniformly distributed and varying loads and use the available results to draw shear force and bending moment diagrams. |
| CO3 | Student will be able to analyze and solve 1d and 2d heat transfer conduction and convection problems with different boundary conditions. |
| CO4 | Student will be able to carry out dynamic analysis and finding natural frequencies of beams, plates, and bars for various boundary conditions and also carry out dynamic analysis with forcing functions. |

Branch : Mechanical Engineering Semester : 6 Scheme : 2018

Course: HEATTRANSFER LAB(18MEL67) Year: 2020-21

| | |
|-----|--|
| CO1 | Student will be able to perform experiments to determine the thermal conductivity of a metal rod |
| CO2 | Student will be able to conduct experiments to determine convective heat transfer coefficient for free and forced convection and correlate with theoretical values. |
| CO3 | Student will be able to estimate the effective thermal resistance in composite slabs and efficiency in pin-fin |
| CO4 | Student will be able to estimate performance of a refrigerator and effectiveness of fin calculate temperature distribution of study and transient heat conduction through plane wall, cylinder and fin using numerical approach. |

Branch : Mechanical Engineering Semester : 7 Scheme : 2018

Course: CONTROL ENGINEERING(18ME71) Year: 2021-22

| | |
|-----|---|
| CO1 | Student will be able to identify the type of control and control actions. |
| CO2 | Student will be able to develop the mathematical model of the physical systems. |
| CO3 | Student will be able to estimate the response and error in response of first and second order systems subjected standard input signals. |
| CO4 | Student will be able to represent the complex physical system using block diagram and signal flow graph and obtain transfer function. |
| CO5 | Student will be able to analyse a linear feedback control system for stability using hurwitz criterion, routh's criterion |

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COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 7 Scheme : 2018

Course: COMPUTER AIDED DESIGN AND MANUFACTURING(18ME72) Year: 2021-22

| | |
|-----|--|
| CO1 | Student will be able to define automation, cim, cad, cam and explain the differences between these concepts. solve simple problems of transformations of entities on computer screen |
| CO2 | Student will be able to explain the basics of automated manufacturing industries through mathematical models and analyze different types of automated flow lines. |
| CO3 | Student will be able to analyse the automated flow linestoreduce time and enhance productivity. |
| CO4 | Student will be able to explain the use of different computer applications in manufacturing, and able to prepare part programs forsimple jobs on cnc machine tools and robot programming. |
| CO5 | Student will be able to visualize and appreciate the modern trends in manufacturing like additive manufacturing, industry 4.0 and applications of internet of things leading to smart manufacturing. |

Branch : Mechanical Engineering Semester : 7 Scheme : 2018

Course: TOTAL QUALITY MANAGEMENT(18ME734) Year: 2021-22

| | |
|-----|--|
| CO1 | Student will be able to explain the various approaches of tqm |
| CO2 | Student will be able to infer the customer perception of quality |
| CO3 | Student will be able to analyse customer needs and perceptions to design feedback systems. |
| CO4 | Student will be able to apply statistical tools for continuous improvement of systems |
| CO5 | Student will be able to apply the tools and technique for effective implementation of tqm. |

Branch : Mechanical Engineering Semester : 7 Scheme : 2018

Course: MECHATRONICS(18ME744) Year: 2021-22

| | |
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| CO1 | Student will be able to illustrate various components of mechatronics systems. |
| CO2 | Student will be able to assess various control systems used in automation. |
| CO3 | Student will be able to design and conduct experiments to evaluate the performance of a mechatronics system or component with respect to specifications, as well as to analyse and interpret data. |
| CO4 | Student will be able to apply the principles of mechatronics design to product design. |
| CO5 | Student will be able to function effectively as members of multidisciplinary teams. |



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COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 7 Scheme : 2018

Course: Environmental Protection and Management (18CV753) Year: 2021-22

| | |
|-----|--|
| CO1 | Student will be able to appreciate the elements of corporate environmental management systems complying to international environmental management system standards |
| CO2 | Student will be able to understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale |
| CO3 | Student will be able to lead pollution prevention assessment team and implement waste minimization options. |
| CO4 | Student will be able to develop, implement, maintain environmental management system |
| CO5 | Student will be able to audit environmental management systems for organizations |

Branch : Mechanical Engineering Semester : 7 Scheme : 2018

Course: COMPUTRE AIDED MANUFACTURING LAB(18MEL76) Year: 2021-22

| | |
|-----|--|
| CO1 | Student will be able to expose to the techniques of cnc milling programming and cutting tool path generation through cnc simulation software by using g-codes and m-codes. |
| CO2 | Student will be able to expose to the techniques of cnc turning programming and cutting tool path generation through cnc simulation software by using g-codes and m-codes. |
| CO3 | Student will be able to use cam packages and understand the importance of automation in industries through exposure to fms, robotics, and hydraulics and pneumatics. |

Branch : Mechanical Engineering Semester : 7 Scheme : 2018

Course: DESIGN LAB(18MEL77) Year: 2021-22

| | |
|-----|--|
| CO1 | Student will be able to compute the natural frequency of the free and forced vibration of single degree freedom systems, critical speed of shafts |
| CO2 | Student will be able to carry out balancing of rotating masses. |
| CO3 | Student will be able to analyse the governor characteristics. |
| CO4 | Student will be able to determine stresses in disk, beams, plates and hook using photo elastic bench. |
| CO5 | Student will be able to determination of pressure distribution in journal bearing. analyse the stress and strains using strain gauges in compression and bending test and stress distribution in curved beams. |



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COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 7 Scheme : 2018

Course: PROJECT WORK PHASE-I(18MEP78) Year: 2021-22

| | |
|-----|--|
| CO1 | Student will be able to identify an engineering problem, devise a means of solving and exhibit the ability to execute the solution |
| CO2 | Student will be able to demonstrate knowledge of professional and ethical responsibilities. |
| CO3 | Student will be able to show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues |
| CO4 | Student will be able to communicate effectively in both verbal and written form |
| CO5 | Student will be able to develop confidence for self-education and ability for lifelong learning |

Branch : Mechanical Engineering Semester : 8 Scheme : 2018

Course: ENERGY ENGINEERING(18ME81) Year: 2021-22

| | |
|-----|---|
| CO1 | Student will be able to understand the construction and working of steam generators and their accessories. |
| CO2 | Student will be able to identify renewable energy sources and their utilization. |
| CO3 | Student will be able to understand principles of energy conversion from alternate sources including wind, geothermal, ocean, biomass, nuclear, hydel and tidal. |

Branch : Mechanical Engineering Semester : 8 Scheme : 2018

Course: AUTOMOBILE ENGINEERING(18ME824) Year: 2021-22

| | |
|-----|---|
| CO1 | Student will be able to identify the different parts of an automobile and it's working |
| CO2 | Student will be able to understand the working of transmission and braking systems |
| CO3 | Student will be able to comprehend the working of steering and suspension systems |
| CO4 | Student will be able to learn various types of fuels and injection systems |
| CO5 | Student will be able to know the cause of automobile emissions, its effects on environment and methods to reduce the emissions. |



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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 8 Scheme : 2018

Course: PROJECT WORK PHASE-II(18MEP83) Year: 2021-22

| | |
|-----|--|
| CO1 | Student will be able to identify an engineering problem, devise a means of solving and exhibit the ability to execute the solution |
| CO2 | Student will be able to demonstrate knowledge of professional and ethical responsibilities. |
| CO3 | Student will be able to show the understanding of impact of engineering solutions on the society and also will be aware of contemporary issues |
| CO4 | Student will be able to communicate effectively in both verbal and written form |
| CO5 | Student will be able to develop confidence for self-education and ability for lifelong learning |

Branch : Mechanical Engineering Semester : 8 Scheme : 2018

Course: TECHNICAL SEMINAR(18MES84) Year: 2021-22

| | |
|-----|--|
| CO1 | Student will be able to develop interest towards research oriented field with ability to search the literature and brief report preparation.(literature work & report) |
| CO2 | Student will be able to develop the skills,competencies and points of view needed by professionals in the field most closely related to the course(topic coverage) |
| CO3 | Student will be able to discuss and critical thinking about topics of current intellectual practice(topic selection) |
| CO4 | Student will be able to improve the interpersonal and communication skills and awareness about the industrial environment(questionnaire) |
| CO5 | Student will be able to develop of presentation skills (body language and presentation skill) |

Branch : Mechanical Engineering Semester : 8 Scheme : 2018

Course: INTERNSHIP(18MEI85) Year: 2021-22

| | |
|-----|--|
| CO1 | Student will be able to help students gain hands-on professional work experience prior to their graduation. |
| CO2 | Student will be able to provide students possible opportunities to learn, understand and sharpen the real-time technical, managerial and life skills required at the job. |
| CO3 | Student will be able to contextualise the value of industry and professional networks and their importance to independent practice, lifelong learning and career progression |
| CO4 | Student will be able to demonstrate employability skills and attributes, linking them to industry expectations. |
| CO5 | Student will be able to expose students to the engineer's responsibilities and ethics. |

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DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 5 Scheme : 2018

Course: ENVIRONMENTAL STUDIES(18CIV59) Year: 2020-21

| | |
|-----|--|
| CO1 | Student will be able to understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale, |
| CO2 | Student will be able to develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.s |
| CO3 | Student will be able to demonstrate ecology knowledge of a complex relationship between biotic and abiotic components. |
| CO4 | Student will be able to apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues. |



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DEPARTMENT OF MECHANICAL ENGINEERING

COURSE OUTCOMES

Branch : Mechanical Engineering Semester : 6 Scheme : 2018
Course: Mini Project(18MEM68) Year: 2020-21

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|-----|---|
| CO1 | present the mini-project and be able to defend it. |
| CO2 | make links across different areas of knowledge and to generate, develop and evaluate ideas and information so as to apply these skills to the project task. |
| CO3 | habituated to critical thinking and use problem solving skills |
| CO4 | communicate effectively and to present ideas clearly and coherently in both the written and oral forms. |
| CO5 | work in a team to achieve common goal and learn on their own, reflect on their learning and take appropriate actions to improve it |

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