

DEPARTMENT OF MECHANICAL ENGINEERING
Course Outcomes-2021 Scheme

S.No.	Subject Code	Course Code	Course Outcomes
1	21MAT11 Calculus And Differential Equations	C101.1	Apply the knowledge of calculus to solve problems related to polar curves and its applications in determining the bentness of a curve.
		C101.2	Learn the notion of partial differentiation to calculate rate of change of multivariate functions and solve problems related to composite functions and Jacobian.
		C101.3	Solve first-order linear/nonlinear ordinary differential equations analytically using standard methods
		C101.4	Demonstrate various models through higher order differential equations and solve such linear ordinary differential equations.
		C101.5	Test the consistency of a system of linear equations and to solve them by direct and iterative methods.

S.No.	Subject Code	Course Code	Course Outcomes
2	21MAT21 Advanced Calculus and Numerical Methods	C102.1	Apply the concept of change of order of integration and change of variables to evaluate multiple integrals and their usage in computing the area and volume
		C102.2	Illustrate the applications of multivariate calculus to understand the solenoidal and irrotational vectors and also exhibit the inter dependence of line, surface and volume integrals
		C102.3	Formulate physical problems to partial differential equations and to obtain solution for standard practical PDE's.
		C102.4	Apply the knowledge of numerical methods in modelling of various physical and engineering phenomena.
		C102.5	Solve first order ordinary differential equations arising in engineering problems.

S.No.	Subject Code	Course Code	Course Outcomes
3	21PHY11/22 Engineering Physics	C103.1	Interpret the types of mechanical vibrations and their applications, the role of Shock waves in various fields.
		C103.2	Demonstrate the quantisation of energy for microscopic system.
		C103.3	Apply LASER and Optical fibers in opto electronic system.
		C103.4	Illustrate merits of quantum free electron theory and applications of Hall effect
		C103.5	Analyse the importance of XRD and Electron Microscopy in Nano material characterization

S.No.	Subject Code	Course Code	Course Outcomes
4	21PHYL16/26 Engineering Physics Laboratory	C104.1	Understand the measuring techniques
		C104.2	Operate different instruments and be capable to analyse the experimental results.
		C104.3	Construct the circuits and their analysis

S.No.	Subject Code	Course Code	Course Outcomes
5	21CHE12/22	C105.1	Discuss the electrochemical energy systems such as electrodes and batteries.
		C105.2	Explain the fundamental concepts of corrosion, its control and surface modification methods namely electroplating and electroless plating
		C105.3	Enumerate the importance, synthesis and applications of polymers. Understand properties and application of nanomaterials.
		C105.4	Describe the principles of green chemistry, understand properties and application alternative fuels.
		C105.5	Illustrate the fundamental principles of water chemistry, applications of volumetric and analytical instrumentation.

S.No.	Subject Code	Course Code	Course Outcomes
6	21CHEL16/26	C106.1	Determine the pKa and coefficient of Viscosity of a given organic liquid.
		C106.2	Estimate the amount of substance present in the given solution using Potentiometer Conductometric and Colorimetric.
		C106.3	Determine the total hardness and chemical oxygen demand in the given solution by volumetric analysis method
		C106.4	Estimate the percentage of Nickel, copper and Iron in the given analyte solution by titration method.
		C106.5	Demonstrate flame photometric estimation of sodium & potassium and the synthesis of nanomaterials by Precipitation method.

S.No.	Subject Code	Course Code	Course Outcomes
7	21ELE13/23 BASIC ELECTRICAL ENGINEERING	C107.1	Analyse basic DC and AC electric circuits.
		C107.2	Explain the working principles of transformers and electrical machines.
		C107.3	Explain the concepts of electric power transmission and distribution of power.
		C107.4	Understand the wiring methods, electricity billing, and working principles of circuit protective devices and personal safety measures.
		C107.1	Analyse basic DC and AC electric circuits.

S.No.	Subject Code	Course Code	Course Outcomes
8	21CIV14/24 ELEMENTS OF CIVIL ENGINEERING AND MECHANICS	C108.1	Understand the various fields of civil engineering.
		C108.2	Compute the resultant of a force system and resolution of a force.
		C108.3	Comprehend the action for forces, moments, and other types of loads on rigid bodies and compute the reactive forces.
		C108.4	Locate the centroid and compute the moment of inertia of regular and built-up sections.
		C108.5	Analyze the bodies in motion.

S.No.	Subject Code	Course Code	Course Outcomes
9	21EVN15/25 Engineering	C109.1	Understand and visualize the objects with definite shape and dimensions

	Visualization	C109.2	Analyze the shape and size of objects through different views
		C109.3	Develop the lateral surfaces of the object
		C109.4	Create a 3D view using CAD software.
		C109.5	Identify the interdisciplinary engineering components or systems through its graphical representation.

S.No.	Subject Code	Course Code	Course Outcomes
10	21ELE17/27 BASIC ELECTRICAL ENGINEERING LABORATORY	C110.1	Verify KCL and KVL and maximum power transfer theorem for DC circuits.
		C110.2	Compare power factors of different types of lamps..
		C110.3	Demonstrate the measurement of the impedance of an electrical circuit and power consumed by a 3-phase load.
		C110.4	Analyse two-way and three-way control of lamps.
		C110.5	Explain the effects of open and short circuits in simple circuits.

S.No.	Subject Code	Course Code	Course Outcomes
11	21EGH18 Communicative English	C111.1	Understand and apply the Fundamentals of Communication Skills in their communication skills.
		C111.2	Identify the nuances of phonetics, intonation and enhance pronunciation skills.
		C111.3	To impart basic English grammar and essentials of language skills as per present requirement.
		C111.4	Understand and use all types of English vocabulary and language proficiency.
		C111.5	Adopt the Techniques of Information Transfer through presentation.

S.No.	Subject Code	Course Code	Course Outcomes
12	21PSP23/13 PROBLEM- SOLVING THROUGH PROGRAMMING	C113.1	Elucidate the basic architecture and functionalities of a computer and also recognize the hardware parts.
		C113.2	Apply programming constructs of C language to solve the real world problem
		C113.3	Explore user-defined data structures like arrays in implementing solutions to problems like searching and sorting
		C113.4	Explore user-defined data structures like

			structures, unions and pointers in implementing solutions
		C113.5	Design and Develop Solutions to problems using modular programming constructs using functions

S.No.	Subject Code	Course Code	14Course Outcomes
13	21ELN14/24 BASIC ELECTRONICS & COMMUNICATION ENGINEERING	C114.1	Describe the concepts of electronic circuits encompassing power supplies, amplifiers and oscillators.
		C114.2	Present the basics of digital logic engineering including data representation, circuits and the microcontroller system with associated sensors and actuators.
		C114.3	Discuss the characteristics and technological advances of embedded systems.
		C114.4	Relate to the fundamentals of communication engineering spanning from the frequency spectrum to the various circuits involved including antennas.
		C114.5	Explain the different modes of communications from wired to wireless and the computing involved.

S.No.	Subject Code	Course Code	14Course Outcomes
14	21EME15/25 ELEMENTS OF MECHANICAL ENGINEERING	C115.1	Understand basic concepts of mechanical engineering in the fields of energy and its utilization, materials technology, manufacturing techniques, and transmission systems through demonstrations.
		C115.2	Understand the application of energy sources in Power generation and utilization, Engineering materials, manufacturing, and machining techniques leading to the latest advancements and transmission systems in day to day activities
		C115.3	Apply the skills in developing simple mechanical elements and processes

S.No.	Subject Code	Course Code	14Course Outcomes
15	21CPL27/17 COMPUTER PROGRAMMING LABORATORY	C116.1	Define the problem statement and identify the need for computer programming
		C116.2	Make use of C compiler, IDE for programming, identify and correct the syntax and syntactic errors in programming

		C116.3	Develop algorithm, flowchart and write programs to solve the given problem
		C116.4	Demonstrate use of functions, recursive functions, arrays, strings, structures and pointers in problem solving.
		C116.5	Document the inference and observations made from the implementation.

S.No.	Subject Code	Course Code	14Course Outcomes
16	21EGH28 Professional Writing Skills in English	C117.1	To understand and identify the Common Errors in Writing and Speaking.
		C117.2	To Achieve better Technical writing and Presentation skills.
		C117.3	To read Technical proposals properly and make them to Write good technical reports.
		C117.4	Acquire Employment and Workplace communication skills.
		C117.5	To learn about Techniques of Information Transfer through presentation in different level.

S.No.	Subject Code	Course Code	14Course Outcomes
17	21SFH19/29 Scientific Foundations of Health	C118.1	To understand Health and wellness (and its Beliefs)
		C118.2	To acquire Good Health & It's balance for positive mindset
		C118.3	To inculcate and develop the healthy lifestyle habits for good health. .
		C118.4	To Create of Healthy and caring relationships to meet the requirements of MNC and LPG world
		C118.5	To adopt the innovative & positive methods to avoid risks from harmful habits in their campus & outside the campus.
	OR		
	21IDT19/29 INNOVATION and DESIGN THINKING	C112.1	Appreciate various design process procedure
		C112.2	Generate and develop design ideas through different technique
		C112.3	Identify the significance of reverse Engineering to Understand products
C112.4		Draw technical drawing for design ideas	

S.No.	Subject Code	Course Code	14Course Outcomes
18	21MAT 31	C201.1	To solve ordinary differential equations using

	TRANSFORM CALCULUS, FOURIER SERIES AND NUMERICAL TECHNIQUES		Laplace transform.
		C201.2	Demonstrate the Fourier series to study the behaviour of periodic functions and their applications in system communications, digital signal processing and field theory.
		C201.3	To use Fourier transforms to analyze problems involving continuous-time signals and to apply Z-Transform techniques to solve difference equations
		C201.4	To solve mathematical models represented by initial or boundary value problems involving partial differential equations
		C201.5	Determine the extremals of functionals using calculus of variations and solve problems arising in dynamics of rigid bodies and vibrational analysis.

S.No.	Subject Code	Course Code	14Course Outcomes
19	21ME32 METAL CASTING FORMING & JOINING PROCESS (IPCC)	C202.1	Select appropriate primary manufacturing process and related parameters for obtaining initial shape and size of components.
		C202.2	Design and develop adequate tooling linked with casting, welding and forming operations.
		C202.3	Appreciate the effect of process parameters on quality of manufactured components
		C202.4	Demonstrate various skills in preparation of molding sand for conducting tensile, shear and compression tests using Universal sand testing machine.
		C202.5	Demonstrate skills in preparation of forging models involving upsetting, drawing and bending operations.

S.No.	Subject Code	Course Code	14Course Outcomes
20	21ME33 MATERIAL SCIENCE AND ENGINEERING	C203.1	Understand the atomic arrangement in crystalline materials and describe the periodic arrangement of atoms in terms of unit cell parameters.
		C203.2	Understand the importance of phase diagrams and the phase transformations.
		C203.3	Know various heat treatment methods for controlling the microstructure..
		C203.4	Correlate between material properties with component design and identify various kinds of defects.

		C203.5	Apply the method of materials selection, material data and knowledge sources for computer-aided selection of materials.
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S.No.	Subject Code	Course Code	14Course Outcomes
21	21ME34 THERMODYNAMICS	C204.1	Describe the fundamental concepts and principles of engineering thermodynamics.
		C204.2	Apply the governing laws of thermodynamics for different engineering applications.
		C204.3	Analyse the various thermodynamic processes, cycles and results.
		C204.4	Interpret and relate the impact of thermal engineering practices to real life problems.

S.No.	Subject Code	Course Code	14Course Outcomes
22	21MEL35 MACHINE DRAWING AND GD & T	C205.1	Interpret the Machining and surface finish symbols on the component drawings.
		C205.2	Apply limits and tolerances to assemblies and choose appropriate fits for given assemblies.
		C205.3	Illustrate various machine components through drawings
		C205.4	Create assembly drawings as per the conventions

S.No.	Subject Code	Course Code	14Course Outcomes
23	21UH36 Social Connect and Responsibility	C206.1	Understand social responsibility
		C206.2	Practice sustainability and creativity
		C206.3	Showcase planning and organizational skills

S.No.	Subject Code	Course Code	Course Outcomes
	BKBKK207 Balake Kannada	C115.1	To understand the necessity of learning of local language for comfortable life.
		C115.2	To speak, read and write Kannada language as per requirement.
		C115.3	To communicate (converse) in Kannada language in their daily life with kannada speakers.
		C115.4	To Listen and understand the Kannada language properly.
		C115.5	To speak in polite conversation.

OR			
24	BKBKK207 Samskrutika Kannada	C115.1	ಕನ್ನಡಭಾಷೆ, ಸಾಹಿತ್ಯಮತ್ತುಕನ್ನಡದಸಂಸ್ಕೃತಿಯಕುರಿತುಅ ರಿವುಮೂಡಿರುತ್ತದೆ.
		C115.2	ಕನ್ನಡಸಾಹಿತ್ಯದಪ್ರಧಾನಭಾಗವಾದಆಧುನಿಕ ಪೂರ್ವಮತ್ತುಆಧುನಿಕಕಾವ್ಯಗಳನ್ನುಸಾಂಕೇತಿ ಕವಾಗಿಕಲಿತುಹೆಚ್ಚಿನಓದಿಗೆಮತ್ತುಜ್ಞಾನಕ್ಕೆಸ್ಪೂ ರ್ತಿಮೂಡುತ್ತದೆ.
		C115.3	ವಿದ್ಯಾರ್ಥಿಗಳಲ್ಲಿಸಾಹಿತ್ಯಮತ್ತುಸಂಸ್ಕೃತಿಯಬ ಗ್ಗೆಅರಿವುಹಾಗೂಆಸಕ್ತಿಯನ್ನುಹೆಚ್ಚಾಗುತ್ತದೆ.
		C115.4	ತಾಂತ್ರಿಕವ್ಯಕ್ತಿಗಳಪರಿಚಯಹಾಗೂಅವರುಗಳ ಸಾಧಿಸಿದವಿಷಯಗಳನ್ನುತಿಳಿದುಕೊಂಡುನಾಡಿ ನನ್ನಿತ್ತರವ್ಯಕ್ತಿಗಳಬಗ್ಗೆತಿಳಿದುಕೊಳ್ಳಲುಕೌತು ಕತೆಹೆಚ್ಚಾಗುತ್ತದೆ.
		C115.5	ಸಾಂಸ್ಕೃತಿಕ, ಜನಪದಹಾಗೂಪ್ರವಾಸಕಥನಗಳಪರಿಚಯ ಮಾಡಿಕೊಡುವುದು.

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25	21ME381 INTRODUCTION TO PYTHON	C209.1	Demonstrate proficiency in handling of loops and creation of functions
		C209.2	Identify the methods to create and manipulate lists, tuples and dictionaries.
		C209.3	Discover the commonly used operations involving regular expressions and file system
		C209.4	Examine working of PDF and word file formats

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26	21PE83 Physical Education(Sports & Athletics)-I	C209.1	Understand the fundamental concepts and skills of Physical Education, health, Nutrition and Fitness	
		C209.2	Familiarization of health-related exercises, sports for overall-growth and development	
		C209.3	Create a foundation for the professionals in Physical Education and Sports	
		C209.4	Participate in the competition at regional/state/national/international levels.	
		C209.5	Create consciousness among the students on Health, Fitness, and Wellness in developing and maintaining a healthy lifestyle.	
	OR			
	21NS83	C209.1	Understand the importance of his / her responsibilities towards society	
		C209.2	Analyse the environmental and societal problems/issues and will be able to design	

	National Service Scheme (NSS)		solutions for the same.
		C209.3	Evaluate the existing system and to propose practical solutions for the same for sustainable development.
		C209.4	Implement government or self-driven projects effectively in the field.
		C209.5	Develop capacity to meet emergencies and natural disasters & practice national integration and social harmony in general.
	OR		
	21YO83 Yoga for a Better Life	C209.1	Understand the meaning, aim and objectives of Yoga.
		C209.2	Perform Suryanamaskar and able to Teach its benefits.
		C209.3	Understand and teach different Asanas by name, its importance, methods and benefits.
		C209.4	Instruct Kapalabhati and its need and importance
		C209.5	Teach different types of Pranayama by its name, precautions, procedure and uses
C209.6		Coach different types of Kriyas , method to follow and usefulness.	

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27	21ME41 Complex Analysis, Probability and Linear Programming.	C210.1	Use the concepts of an analytic function and complex potentials to solve the problems arising in fluid flow.
		C210.2	Utilize conformal transformation and complex integral arising in aerofoil theory, fluid flow visualization and image processing
		C210.3	Apply discrete and continuous probability distributions in analyzing the probability models arising in the engineering field.
		C210.4	Analyze and solve linear programming models of real-life situations and solve LPP by the simplex method
		C210.5	Learn techniques to solve Transportation and Assignment problems

S.No.	Subject Code	Course Code	Course Outcomes
28	21ME42 Machining Science and Jigs &	C211.1	Demonstrate the Conventional CNC machines and advanced manufacturing process operations
		C211.2	Determine tool life, cutting force, and economy of the machining process.
		C211.3	Analyze the influence of various parameters on

	Fixtures		machine tools' performance.
		C211.4	Select the appropriate machine tools and process, the Jigs, and fixtures for various applications

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29	21ME43 FLUID MECHANICS	C212.1	Understand the basic principles of fluid mechanics and fluid kinematics
		C212.2	Acquire the basic knowledge of fluid dynamics and flow measuring instruments
		C212.3	Understand the nature of flow and flow over bodies and the dimensionless analysis
		C212.4	Acquire the compressible flow fundamental and basics of CFD packages and the need for CFD analysis
		C212.5	Conduct basic experiments of fluid mechanics and understand the experimental uncertainties

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30	21ME44 Mechanics of Materials	C213.1	Understand simple, compound, thermal stresses and strains their relations and strain energy.
		C213.2	Analyse structural members for stresses, strains and deformations.
		C213.3	Analyse the structural members subjected to bending and shear loads.
		C213.4	Analyse shafts subjected to twisting loads.
		C213.5	Analyse the short columns for stability.

S.No.	Subject Code	Course Code	Course Outcomes
31	21BE45 Biology For Engineers	C214.1	Elucidate the basic biological concepts via relevant industrial applications and case studies.
		C214.2	Evaluate the principles of design and development, for exploring novel bioengineering projects.
		C214.3	Corroborate the concepts of biomimetics for specific requirements.
		C214.4	Think critically towards exploring innovative biobased solutions for socially relevant problems.

S.No.	Subject Code	Course Code	Course Outcomes
32	21MEL46 MECHANICAL MEASUREMENTS AND METROLOGY LABORATORY	C215.1	Understand Calibration of pressure gauge, thermocouple, LVDT, load cell, micrometer.
		C215.2	Apply concepts of Measurement of angle
		C215.3	Demonstrate measurements using Optical Projector/Tool maker microscope, Optical flats.
		C215.4	Analyse Screw thread parameters using 2-Wire or 3-Wire method, gear tooth profile using gear tooth Vernier/Gear tooth micrometre
		C215.5	Understand the concepts of measurement of surface roughness.

S.No.	Subject Code	Course Code	Course Outcomes
33	21CIP37/47 Constitution of India & Professional Ethics	C216.1	Analyse the basic structure of Indian Constitution.
		C216.2	Remember their Fundamental Rights, DPSP's and Fundamental Duties (FD's) of our constitution
		C216.3	know about our Union Government, political structure & codes, procedures.
		C216.4	Understand our State Executive & Elections system of India.
		C216.5	Remember the Amendments and Emergency Provisions, other important provisions given by the constitution.

S.No.	Subject Code	Course Code	Course Outcomes
34	21MT481 Spread Sheets For Engineers	C217.1	To create different plots and charts
		C217.2	To compute different functions, conditional functions and make regression analysis
		C217.3	To carryout iterative solutions for roots, multiple roots, optimization and non-linear regression analysis
		C217.4	To carryout matrix operations
		C217.5	To understand VBA subroutines and Macros

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35	21UH49 UniversalHumanValues	C218.1	Holistic vision of life
		C218.2	Socially responsible behaviour
		C218.3	Environmentally responsible work

		C218.4	Ethical human conduct
		C218.5	Having Competence and Capabilities for Maintaining Health and Hygiene

S.No.	Subject Code	Course Code	Course Outcomes
36	21INT49 Inter/Intra Institutional Internship	C219.1	Identifying the Industries/organizations that give training in interested field of Industrial and Production engineering
		C219.2	Developing the knowledge in cutting-edge technologies by undergoing the Training in the industries/organizations
		C219.3	Demonstrating the leadership qualities in problem solving of the field using the gained knowledge
		C219.4	Preparing to work in group while undergoing internship
		C219.5	Writing and presenting the report of internship

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37	21ME51 Theory of Machines	C301.1	Knowledge of mechanisms and their motion and the inversions of mechanisms
		C301.2	Analyse the velocity, acceleration of links and joints of mechanisms..
		C301.3	Analyse the mechanisms for static and dynamic equilibrium
		C301.4	Carry out the balancing of rotating and reciprocating masses
		C301.5	Analyse different types of governors used in real life situation

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38	21ME52 Thermo-fluids Engineering	C302.1	Apply the concepts of testing of I. C. Engines and evaluate their performance, and evaluate the performance of Reciprocating compressor
		C302.2	Apply and analyse the concepts related to Refrigeration and Air conditioning, and get conversant with Psychrometric Charts, Psychrometric processes, human comfort conditions
		C302.3	Explain the construction, classification and

			working principle of the Turbo machines and apply of Euler's turbine equation to evaluate the energy transfer and other related parameters. Compare and evaluate the performance of positive displacement pumps.
		C302.4	Classify, explain and analyse the various types of hydraulic turbines and centrifugal pumps
		C302.5	Classify, explain and analyse various types of steam turbines and centrifugal compressor

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39	21ME53 Finite Element Analysis	C303.1	Identify the application and characteristics of FEA elements such as bars, beams, plane and isoparametric elements.
		C303.2	Develop element characteristic equation and generation of global equation
		C303.3	Formulate and solve Axi-symmetric and heat transfer problems
		C303.4	Apply suitable boundary conditions to a global equation for bars, trusses, beams, circular shafts, heat transfer, fluid flow, axi-symmetric and dynamic problems

S.No.	Subject Code	Course Code	Course Outcomes
40	21ME54 Modern Mobility and Automotive Mechanics	C304.1	Understand the working of different systems employed in automobile
		C304.2	Analyse the limitation of present day automobiles
		C304.3	Evaluate the energy sources suitability
		C304.4	Apply the knowledge for selection of automobiles based on their suitability

S.No.	Subject Code	Course Code	Course Outcomes
41	21MEL55 Design lab	C305.1	Compute the natural frequency of the free and forced vibration of single degree freedom systems, critical speed of shafts
		C305.2	Carry out balancing of rotating masses and gyroscope phenomenon
		C305.3	Analyse the governor characteristics
		C305.4	Determine stresses in disk, beams and plates using photo elastic bench
		C305.5	Determination of Pressure distribution in

			Journal bearing
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42	21RMI56 Research Methodology & Intellectual Property Rights	C306.1	To know the meaning of engineering research
		C306.2	To know the procedure of Literature Review and Technical Reading
		C306.3	To know the fundamentals of patent laws and drafting procedure
		C306.4	Understanding the copyright laws and subject matters of copyrights and designs
		C306.5	Understanding the basic principles of design rights .

S.No.	Subject Code	Course Code	Course Outcomes
43	21CIV57 Environmental Studies	C307.1	Understand the principles of ecology and environmental issues that apply to air, land, and water issues on a global scale,
		C307.2	Develop critical thinking and/or observation skills, and apply them to the analysis of a problem or question related to the environment.
		C307.3	Demonstrate ecology knowledge of a complex relationship between biotic and a biotic components
		C307.4	Apply their ecological knowledge to illustrate and graph a problem and describe the realities that managers face when dealing with complex issues.

S.No.	Subject Code	Course Code	Course Outcomes
44	21ME582 Digital Marketing	C308.1	to identify the importance of the digital marketing for marketing success,
		C308.2	to manage customer relationships across all digital channels and build better customer relationships
		C308.3	to create a digital marketing plan, starting from the SWOT analysis and defining a target group, then identifying digital channels, their advantages and limitations
		C308.4	to perceive ways of the integration taking

			into consideration the available budget
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45	21ME61 Production and Operations Management	C309.1	Apply the necessary tools for decision making in operations management
		C309.2	Examine various approaches for forecasting the sales demand for an organization.
		C309.3	List various capacity and location plans to determine the suitable capacity required for meeting the forecast demand of an organization.
		C309.4	Analyse the aggregate plan and master production schedule for an organization, given its periodic demand
		C309.5	Apply MRP, purchasing and SCM techniques into practice.

S.No.	Subject Code	Course Code	Course Outcomes
46	21ME62 Heat Transfer	C310.1	Solve steady state heat transfer problems in conduction
		C310.2	Solve transient heat transfer problems
		C310.3	solve convection heat transfer problems using correlations
		C310.4	Solve radiation heat transfer problems
		C310.5	Explain the mechanisms of boiling and condensation. And Determine performance parameters of heat exchangers.

S.No.	Subject Code	Course Code	Course Outcomes
47	21ME63 Machine design	C311.1	Apply codes and standards in the design of machine elements and select an element based on the Manufacturer's catalogue
		C311.2	Analyse the performance and failure modes of mechanical components subjected to combined loading and fatigue loading using the concepts of theories of failure
		C311.3	Demonstrate the application of engineering design tools to the design of machine components like shafts, springs, couplings, fasteners, welded and riveted joints, brakes and clutches
		C311.4	Design different types of gears and simple gear boxes for relevant applications

		C311.5	Apply design concepts of hydrodynamic bearings for different applications and select Anti friction bearings for different applications using the manufacturers, catalogue
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S.No.	Subject Code	Course Code	Course Outcomes
48	21ME641 Supply Chain Management & Introduction to SAP	C312.1	Understand the framework and scope of supply chain management
		C312.2	Build and manage a competitive supply chain using strategies, models, techniques and information technology
		C312.3	Plan the demand, inventory and supply and optimize supply chain network.
		C312.4	Understand the emerging trends and impact of IT on Supply chain.
		C312.5	Understand the basics of SAP material management system

S.No.	Subject Code	Course Code	Course Outcomes
49	21CV651 Remote Sensing and GIS(OE)	C313.1	Collect data and delineate various elements from the satellite imagery using their spectral signature.
		C313.2	Analyze different features of ground information to create raster or vector data.
		C313.3	Perform digital classification and create different the matic maps for solving specific problems
		C313.4	Make decision based on the GIS analysis on thematic maps.

S.No.	Subject Code	Course Code	Course Outcomes
50	21MEL66 CNC Programming and 3-D Printing Lab	C314.1	Students will have knowledge of G-code and M-code for machining operations
		C314.2	Students will able to perform CNC programming for turning, drilling, milling and threading operation
		C314.3	Students will able to visualize the 3D models using CAD software's
		C314.4	Students will able to use 3D printing technology
		C314.5	Students are able to understand robotic programming and FMS

S.No.	Subject Code	Course Code	Course Outcomes
51	21MEMP67 Mini Project	C315.1	Comprehend a complex engineering problem while considering technical, ethical, and social issues.
		C315.2	Identify the limitations of existing solutions with the focus on design techniques and environmental factors.
		C315.3	Implement the technical solution by adopting modern tools and techniques, while analyzing the technical feasibility and cost effectiveness.
		C315.4	Ability to work and communicate effectively as an individual and in a team in designing, developing, testing and documenting the solution.
		C315.5	Validate the system in terms of applications in user's environment while improving personal

S.No.	Subject Code	Course Code	Course Outcomes
52	21INT68 Innovation/Entrepreneurship /Societal Internship	C316.1	Identifying the Industries/organizations that give training in interested field of Industrial and Production engineering
		C316.2	Developing the knowledge in cutting-edge technologies by undergoing the Training in the industries/organizations
		C316.3	Demonstrating the leadership qualities in problem solving of the field using the gained knowledge
		C316.4	Preparing to work in group while undergoing internship
		C316.5	Writing and presenting the report of internship