R.M.K. ENGINEERING COLLEGE
(An Autonomous Institution)
RSM Nagar, Kavaraipettai – 601 206
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES: ODD Semester 2024-25

List of Courses

S. No.	Regulation	Semester	Category of Courses	Course Code / Course Name
1.	R2022 (Students admitted during 2023-24)	3	Theory	22MA303 - Fourier Analysis and Partial Differential Equation
2.		3	Theory	22ME301 - Thermodynamics and Power Generation
3.		3	Theory with Lab Component	22ME302 - Science of Engineering Materials
4.		3	Theory with Lab Component	22ME303 - Mechanical Engineering Tools
5.		3	Theory with Lab Component	22ME304 - Fluid Mechanics and Machinery
6.		3	Practical	22ME311 - Product Development Lab – 3 (Design and Analysis Phase)
7.		3	Employability Enhancement Courses	22CS311 - Aptitude and Coding Skills I
8.		3	Employability Enhancement Courses	22ME312 - Internship/Seminar
9.	R2022 (Students admitted during 2022-23)	5	Theory	22ME501-Design of Machine Elements
10.		5	Theory with Lab Component	22ME906-Applied Hydraulics and Pneumatics (Professional Elective-II)
11.		5	Theory	22ME910-Renewable Energy Sources (Professional Elective-III)
12.		5	Theory	22EE936-Electric and Hybrid Vehicle (Open Elective-I)
13.		5	Theory with Lab Component	22ME502-Mechanics of Machines
14.		5	Theory with Lab Component	22ME503-Basics of Product Lifecycle Management
15.		5	Practical	22CS511-Advanced Aptitude and Coding Skills I
16.		5	Employability Enhancement Courses	22ME511-Internship

S. No.	Regulation	Semester	Category of Courses	Course Code / Course Name
17.	R2020 (Students admitted during 2021-22)	7	Theory	20ME703-Introduction to Business Intelligence and Analytics, Advanced Integration techniques
18.		7	Theory	20EE702-Conventional and Renewable energy systems (Open Elective II)
19.		7	Theory	20ME919-Mechatronics (Professional Elective III)
20.		7	Theory	20ME928-Entrepreneurship Development (Professional Elective IV)
21.		7	Practical	20ME711-Simulation and Analysis Laboratory
22.		7	Practical	20ME712 - Mechatronics Laboratory
23.		7	Employability Enhancement Courses	20ME713-Mini project and Comprehension

COURSE OUTCOMES

SECOND YEAR - SEMESTER: 03
REGULATION: 2022 (2023-24)

Semester: III   Course Name: 22MA303 - Fourier Analysis and Partial Differential Equation

S. No.	Course Outcomes	COs
C201.1	Find the Fourier series of periodic functions.	CO1
C201.2	Compute the Fourier transform of prescribed functions.	CO2
C201.3	Solve first order partial differential equations.	CO3
C201.4	Determine the solutions of higher order partial differential equations.	CO4
C201.5	Apply the concept of Fourier series to solve heat and wave equations.	CO5

Semester: III   Course Name: 22ME301 - Thermodynamics and Power Generation

S. No.	Course Outcomes	COs
C202.1	Explain the basic concepts and laws of thermodynamics	CO1
C202.2	Apply second law of thermodynamics to open and closed systems and calculate entropy in thermal systems.	CO2
C202.3	Calculate the properties of pure substance and explain the working of steam cycles.	CO3
C202.4	Distinguish the performance of different air standard cycles & gas power cycles.	CO4
C202.5	Discuss the concepts to improve the performance of Gas turbines.	CO5
C202.6	Examine the performance of compressors & IC Engines.	CO6

Semester: III   Course Name: 22ME302 - Science of Engineering Materials

S. No.	Course Outcomes	COs
C203.1	Perform phase equilibrium calculation and construct phase diagram.	CO1
C203.2	Select suitable ferrous and non-ferrous materials for engineering application.	CO2
C203.3	Explain the various heat treatment processes that can be applied for different ferrous and non-ferrous alloys.	CO3
C203.4	Classify the various case hardening treatments and analyse the effect of various case hardening treatments on the metals and alloys.	CO4
C203.5	Understand the basics concepts and types of composite materials.	CO5
C203.6	Apply the heat treatment and surface treatment process for the metals	CO6

Semester: III   Course Name: 22ME303 - Mechanical Engineering Tools

S. No.	Course Outcomes	COs
C204.1	Explain the various manufacturing processes used for fabricating the components.	CO1
C204.2	Apply the theory of metal cutting for effective machining and summarize the working principle of various types of lathes.	CO2
C204.3	Demonstrate the working of special type machine tools.	CO3
C204.4	Discuss various types of gear manufacturing and surface finishing process	CO4
C204.5	Prepare NC codes for a machining program	CO5
C204.6	Apply the concept of manufacturing processes for making mechanical Product / working model.	CO6

Semester: III   Course Name: 22ME304 - Fluid Mechanics and Machinery

S. No.	Course Outcomes	COs
C205.1	Calculate the fluid properties.	CO1
C205.2	Analyze fluid flows and the application of basic fluid-flow principles.	CO2
C205.3	Compute the flow of fluid in circular conduits.	CO3
C205.4	Estimate the performance of hydraulic turbines.	CO4
C205.5	Explain the working principle and draw the performance curves of hydraulic pumps.	CO5
C205.6	Demonstrate the working of hydraulic turbines and pumps.	CO6

Semester: III Course Name: 22ME311 - Product Development Lab – 3

(Design and Analysis Phase)

S. No.	Course Outcomes	COs
C2061	Enhance their skills in design concepts, rules and procedures.	CO1
C206.2	Develop their cognitive strategy to think, organize, learn and behave.	CO2
C206.3	Demonstrate the ability to provide conceptual design strategies for a product.	CO3
C206.4	Describe the procedure for designing a Mock-up model.	CO4
C206.5	Recognize and apply appropriate interdisciplinary and integrative strategies for solving complex problems.	CO5

Semester: III   Course Name: 22CS311 - Aptitude and Coding Skills I

S. No.	Course Outcomes	COs
C207.1	Develop vocabulary for effective communication and reading skills.	CO1
C207.2	Build the logical reasoning and quantitative skills.	CO2
C207.3	Develop error correction and debugging skills in programming.	CO3

Semester: III   Course Name: 22ME312-Internship/Seminar

S. No.	Course Outcomes	COs
C208.1	Demonstrate Professional and Ethical Responsibility.	CO1
C208.2	Understand the Global, Economic, Environmental, and Societal Impact of Engineering Solutions.	CO2
C208.3	Cultivate Research Skills and Lifelong Learning Abilities.	CO3
C208.4	Identify career paths based on individual abilities and create a report detailing work experience in the industry.	CO4
C208.5	Develop personal confidence to tackle diverse engineering tasks	CO5

Semester: V   Course Name: 22ME501 - Design of Machine Elements

S. No.	Course Outcomes	COs
C301.1	Compute the stress acting on various machine elements.	**CO1**
C301.2	Discuss the dimensions, stress requirements of shaft and couplings based on various load conditions.	**CO2**
C301.3	Predict appropriate bearing, from the standard catalog for varied applications.	**CO3**
C301.4	Demonstrate the dimensions of the energy storing devices for specific applications.	**CO4**
C301.5	Summarize the temporary and permanent joints based on application requirements.	**CO5**
C301.6	Apply the various design concepts on to real time product applications.	**CO6**

Semester: V   Course Name: 22ME906-Applied Hydraulics and Pneumatics
(Professional Elective-II)

S. No.	Course Outcomes	COs
C302.1	Analyze the methods in fluid power principles and working of hydraulic pumps.	**CO1**
C302.2	Distinguish the working of hydraulic actuators and control components.	**CO2**
C302.3	Summarize the basics of hydraulic circuits and systems.	**CO3**
C302.4	Explain the basics concept in pneumatic and electro pneumatic systems.	**CO4**
C302.5	Solve the trouble shooting of hydraulic and pneumatics circuits.	**CO5**
C302.6	Design a suitable fluid power circuit for the specific applications.	**CO6**

Semester: V   **Course Name: 22ME910-Renewable Energy Sources**
                       (Professional Elective-III)

S. No.	Course Outcomes	COs
C303.1	Analyze the importance and Economics of renewable Energy	CO1
C303.2	Discuss the method of power generation from Solar Energy	CO2
C303.3	Describe the method of power generation from Wind Energy.	CO3
C303.4	Explain the method of power generation from Bio Energy.	CO4
C303.5	Differentiate the Tidal energy, Wave Energy, OTEC, Hydro energy and Geothermal Energy.	CO5
C303.6	Illustrate the importance of Fuel cells and Hybrid systems.	CO6

Semester: V   **Course Name: 22EE936-Electric and Hybrid Vehicle**
                       (Open Elective-I)

S. No.	Course Outcomes	COs
C304.1	Electric and hybrid vehicle operation and architectures	CO1
C304.2	Design of hybrid and electric vehicles.	CO2
C304.3	Energy requirement for vehicles.	CO3
C304.4	Vehicle characteristics, operating modes, and performance parameters of the vehicle.	CO4
C304.5	Different subsystems of hybrid and electric vehicles	CO5

Semester: V   **Course Name: 22ME502 – Mechanics of Machines**

S. No.	Course Outcomes	COs
C305.1	Design the basics of mechanism.	CO1
C305.2	Solve problems on gears and gear trains.	CO2
C305.3	Examine friction in machine elements	CO3
C305.4	Calculate static and dynamic forces of mechanisms.	CO4
C305.5	Calculate the balancing masses and their locations of reciprocating and rotating masses.	CO5
C305.6	Computing the frequency of free vibration, forced vibration and damping coefficient	CO6

Semester: V   Course Name: 22ME503- Basics of Product Lifecycle Management

S. No.	Course Outcomes	COs
C306.1	Explain the installation and maintenance procedure of software related to PLM.	CO1
C306.2	Understand the PLM and PDM functions in executing the task of enterprise.	CO2
C306.3	Demonstrate workflow, Project and search in PLM environment.	CO3
C306.4	Describe the case studies in detail.	CO4
C306.5	Discuss the PLM software interface.	CO5
C306.6	Illustrate design file integration with Windchill	CO6

Semester: V Course Name: 22CS511 - Advanced Aptitude and Coding Skills - I

S. No.	Course Outcomes	COs
C307.1	Develop vocabulary for effective communication and reading skills.	CO1
C307.2	Build the logical reasoning and quantitative skills.	CO2
C307.3	Develop error correction and debugging skills in programming.	CO3

Semester: V   Course Name: 22ME511-Internship

S. No.	Course Outcomes	COs
C308.1	Demonstrate Professional and Ethical Responsibility.	CO1
C308.2	Understand the Global, Economic, Environmental, and Societal Impact of Engineering Solutions.	CO2
C308.3	Cultivate Research Skills and Lifelong Learning Abilities.	CO3
C308.4	Identify career paths based on individual abilities and create a report detailing work experience in the industry.	CO4
C308.5	Develop personal confidence to tackle diverse engineering tasks	CO5

COURSE OUTCOMES
FOURTH YEAR - SEMESTER: 07
REGULATION: 2020 (2021-22)

Semester: VII   **Course Name: 20ME703 - Introduction to Business Intelligence and Analytics, Advanced Integration techniques**

S. No.	Course Outcomes	COs
C401.1	Describe the need for Industry4.0 and the associated technologies.	**CO1**
C401.2	Explain the process of integrating PLMwithIndustry4.0.	**CO2**
C401.3	Understand the basic concepts of Digital Twin.	**CO3**
C401.4	Illustrate the features and types of Digital Twin.	**CO4**
C401.5	Discuss the technologies of Digital Thread.	**CO5**
C401.6	Explain the importance of advanced tools and techniques for business integration.	**CO6**

Semester: VII   **Course Name: 20EE702 - Conventional and Renewable Energy Systems (Open Elective –II)**

S. No.	Course Outcomes	COs
C402.1	Create awareness about conventional and renewable energy sources and technologies.	**CO1**
C402.2	Get adequate inputs on a variety of issues in harnessing renewable energy.	**CO2**
C402.3	Recognize current and possible future role of renewable energy sources.	**CO3**
C402.4	Explain the various renewable energy resources and technologies and their applications.	**CO4**
C402.5	Understand basics about biomass energy.	**CO5**
C402.6	Acquire knowledge about solar energy.	**CO6**

Semester: VII   Course Name: 20ME919 – Mechatronics (Professional Elective - III)

S. No.	Course Outcomes	COs
C403.1	Discuss the interdisciplinary applications of Electronics, Electrical, Mechanical and Computer Systems for the Control of Mechanical, Electronic Systems and Sensor technology.	CO1
C403.2	Explain the architecture of Microprocessor and Microcontroller, Pin Diagram, Addressing Modes of Microprocessor and Microcontroller.	CO2
C403.3	Demonstrate the Programmable Peripheral Interface, Architecture of 8255 PPI, and various device interfacing.	CO3
C403.4	Explain the architecture, programming and application of programmable logic controllers to problems and challenges in the areas of Mechatronic engineering.	CO4
C403.5	Summarize the various Actuators and Mechatronics system using the knowledge and skills acquired through the course and also from the given case studies.	CO5
C403.6	Design and develop the mechatronics system for the suitable applications.	CO6

Semester: VII   Course Name: 20ME928 - Entrepreneurship Development (Professional Elective - IV)

S. No.	Course Outcomes	COs
C404.1	Understand the role of entrepreneur in economic growth of the nation.	CO1
C404.2	Explain the major motivation factors for becoming an entrepreneur.	CO2
C404.3	Classify, compare and analyze for setting up of a good business opportunity.	CO3
C404.4	Summarize the various sources of finance and method of accounting.	CO4
C404.5	Establish business opportunity with the knowledge on Government taxation norms.	CO5
C404.6	Apply the knowledge for expanding business.	CO6

Semester: VII   Course Name: 20ME711 - Simulation and Analysis Laboratory

S. No.	Course Outcomes	COs
C405.1	Apply the fundamentals concepts of the finite element method in problem characterization.	CO1
C405.2	Compute the deflection and stress in 1D and 2D problem.	CO2
C405.3	Explain the effect of various load acting on 1D beam in real-time problem.	CO3
C405.4	Examine the modal analysis for a beam under various boundary conditions.	CO4
C405.5	Demonstrate the effects due to harmonic loading on structures.	CO5
C405.6	Examine the thermal effects on 2D structure.	CO6

Semester: VII   Course Name: 20ME712 - Mechatronics Laboratory

S. No.	Course Outcomes	COs
C406.1	Examine various fluid power circuits.	**CO1**
C406.2	Experiment Hydraulic, Pneumatic and electro pneumatic circuits using software tool.	**CO2**
C406.3	Prepare PLC programs for controlling multiple cylinders using timers.	**CO3**
C406.4	Demonstrate the speed control of DC motor by microcontroller.	**CO4**
C406.5	Use programmable peripheral interface for stepper motor and traffic light.	**CO5**
C406.6	Summarize assembly language programming of 8085 for arithmetic operation.	**CO6**

Semester: VII   Course Name: 20ME713 - Mini project and Comprehension

S. No.	Course Outcomes	COs
C407.1	Apply the concept of manufacturing processes for making mechanical product / working model.	**CO1**
C407.2	Demonstrate the working model of the machine element or the mechanical product.	**CO2**
C407.3	Discuss various applications of engineering materials.	**CO3**
C407.4	Summarize the basics of core engineering concepts.	**CO4**
C407.5	Apply the various engineering concepts in day to day life.	**CO5**
C407.6	Understand and comprehend any given problem related to mechanical engineering.	**CO6**

S. No.	Regulation	Semester	Category of Courses	Course Code / Course Name
1	R2022 (Students admitted during the academic year 2023-24)	4	Theory	22GE301 - Universal Human Values – 2: Understanding Harmony
2		4	Theory	22MA403 - Statistics and Boundary Value Problems
3		4	Theory with Lab Component	22ME901-Engineering Metrology and Measurements (Professional Elective – I)
4		4	Theory with Lab Component	22ME401 - Applied Thermal Engineering
5		4	Theory with Lab Component	22ME402 - Solid Mechanics and Design
6		4	Theory with Lab Component	22ME403 - Smart Manufacturing
7		4	Practical	22ME411 - Product Development Lab – 4 (Prototype Phase)
8		4	Employability Enhancement Courses	22CS411 - Aptitude and Coding Skills II
9	R2022 (Students admitted during the academic year 2022-23)	6	Theory	22ME601-Design of Transmission Systems
10		6	Theory	22ME917- Principles of Management (Management Elective)
11		6	Theory	22ME913 - Power Plant Engineering (Professional Elective-IV)
12		6	Theory with Lab Component	22ME914 - Process Planning & Cost Estimation (Professional Elective-V)
13		6	Theory	22EC005 - Automotive Electronics (Open Elective-II)
14		6	Theory with Lab Component	22ME602-Heat and Mass Transfer
15		6	Theory with Lab Component	22ME603-Advanced Product Lifecycle Management
16		6	Employability Enhancement Courses	22CS611- Advanced Aptitude and Coding Skills II
17	R2020 (Students admitted during 2021-22)	8	Employability Enhancement Courses	20ME811 - Project work

COURSE OUTCOMES

SECOND YEAR - SEMESTER: 04

REGULATION – 2022 (2023-24)

Semester: IV   **Course Name: 22GE301 - Universal Human Values – 2: Understanding Harmony**

S. No.	Course Outcomes	COs
C209.1	be aware of themselves, and their surroundings (family, society, nature).	CO1
C209.2	be more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.	CO2
C209.3	have better critical ability.	CO3
C209.4	become sensitive to their commitment towards what they have understood (human values, human relationships, and human society).	CO4
C209.5	be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.	CO5

Semester: IV   **Course Name: 22MA403 - Statistics and Boundary Value Problems**

S. No.	Course Outcomes	COs
C210.1	Apply the concept of testing the hypothesis.	CO1
C210.2	Implement the concept of analysis of variance for various experimental designs.	CO2
C210.3	Demonstrate the control charts for variables and attributes.	CO3
C210.4	Solve the initial value problems using numerical techniques.	CO4
C210.5	Determine the numerical solutions of boundary value problems	CO5

Semester: IV   **Course Name: 22ME901 – Engineering Metrology and Measurements**
(Theory Course with Laboratory Component) (Professional Elective I)

S. No.	Course Outcomes	COs
C211.1	Explain the fundamentals of Measuring system and calibration of various measuring devices.	CO1
C211.2	Discuss the use of Linear and Angular Measuring instruments.	CO2
C211.3	Demonstrate the advanced Instruments used in Metrology.	CO3
C211.4	Distinguish the various methods for form measurement.	CO4
C211.5	Associate suitable measuring instruments to measure power, flow and temperature.	CO5
C211.6	Develop the ability to apply the principles in instruments and measuring techniques.	CO6

Semester: IV Course Name: 22ME401 - Applied Thermal Engineering

S. No.	Course Outcomes	COs
C212.1	Discuss various types of steam nozzles and their flow characteristics	CO1
C212.2	Calculate the performance parameters of IC Engines and its associated systems.	CO2
C212.3	Explain the functioning and features of different types of Boilers along with their auxiliaries required to compute performance parameters	CO3
C212.4	Calculate the Performance of steam turbines in power generation	CO4
C212.5	Compute the cooling load for air conditioning and COP of refrigeration systems	CO5
C212.6	Apply thermal engineering principles to examine the performance of various thermal systems.	CO6

Semester: IV   Course Name: 22ME402 - Solid Mechanics and Design

S. No.	Course Outcomes	COs
C213.1	Apply the Fundamental Design concepts.	CO1
C213.2	Estimate the stresses, strains and deformations in solids under axial loading.	CO2
C213.3	Compute the bending and shearing stresses in beams subjected to loadings.	CO3
C213.4	Examine the effect of torsion in shafts and springs.	CO4
C213.5	Compute the two-dimensional stresses in thin cylinder and spherical shells.	CO5
C213.6	Calculate the stresses and deformation of solids subjected to various loads.	CO6

Semester: IV Course Name: 22ME403 - Smart Manufacturing

S. No.	Course Outcomes	COs
C214.1	Describe the product cycle, 2D and 3D transformations, CAD/CAM concepts	**CO1**
C214.2	Interpret the fundamentals of parametric curves, surfaces and Solids	**CO2**
C214.3	Use the different types of Standard systems used in CAD	**CO3**
C214.4	Summarize the types of techniques used in Cellular Manufacturing and FMS	**CO4**
C214.5	Explain the basic types of additive manufacturing process.	**CO5**
C214.6	Discuss the 3D Modelling procedure of the part.	**CO6**

Semester: IV Course Name: 22ME411 - Product Development Lab – 4 (Prototype Phase)

S. No.	Course Outcomes	COs
C215.1	Identify the real-time problems through literature.	**CO1**
C215.2	Develop feasible solutions for the problems.	**CO2**
C215.3	Evaluate the methods to develop solutions to the problem.	**CO3**
C215.4	Analyze the business opportunities for a new product.	**CO4**
C215.5	Prepare a detailed report for the experimental dissemination	**CO5**

Semester: IV   Course Name: 22CS411 - Aptitude and Coding Skills II

S. No.	Course Outcomes	COs
C216.1	Develop advanced vocabulary for effective communication and reading skills.	**CO1**
C216.2	Build an enhanced level of logical reasoning and quantitative skills.	**CO2**
C216.3	Develop error correction and debugging skills in programming.	**CO3**
C216.4	Apply data structures and algorithms in problem solving	**CO4**

Semester VI   Course Name: 22ME601 - Design of Transmission Systems

S. No.	Course Outcomes	COs
C309.1	Understand the concepts of design to belts, chains and rope drives.	**CO1**
C309.2	Explain the concepts of design to spur, helical gears.	**CO2**
C309.3	Discuss the concepts of design to worm and bevel gears.	**CO3**
C309.4	Summarize and apply the concepts of design to gear boxes.	**CO4**
C309.5	Demonstrate the concepts of advanced transmission systems	**CO5**
C309.6	Apply the design procedures in their projects	**CO6**

Semester: VI   Course Name: 22ME917 - Principles of Management (Management Elective)

S. No.	Course Outcomes	COs
C310.1	Interpret management theories and analyze the complexities of managerial activities within a global business environment, integrating diverse perspectives to address contemporary challenges effectively.	**CO1**
C310.2	Evaluate and apply various decision-making strategies at different levels of management within organizations, synthesizing approaches to optimize decision outcomes and strategic alignment.	**CO2**
C310.3	Compare and contrast different types of organizational structures, evaluating their suitability and effectiveness in various contexts and industries.	**CO3**
C310.4	Describe the steps in the staffing process and stages in career development, integrating knowledge to design and implement effective talent management strategies that support organizational goals and employee growth.	**CO4**
C310.5	Analyze the processes of direction, coordination, and control within organizations, synthesizing their interrelationships and impacts on organizational performance and effectiveness.	**CO5**
C310.6	Evaluate and critique various controlling techniques used to maintain standards and ensure organizational performance, synthesizing best practices to develop comprehensive control systems aligned with organizational objectives.	**CO6**

Semester: VI   Course Name: 22ME913 – Power Plant Engineering
(Professional Elective-IV)

S. No.	Course Outcomes	COs
C311.1	Analyze various aspects of a Thermal Power Plant and its components.	**CO1**
C311.2	Interpret the Systems viz. Fuel and Ash Handling, Draught, Feed Water Cogeneration etc. associated with a Thermal Power Plant.	**CO2**
C311.3	Exemplify Diesel, Gas Turbine and Combined Cycle Power Plants besides analysis of Air Standard Cycles.	**CO3**
C311.4	Infer the Working Operation of various Nuclear Reactors and Magneto Hydro Dynamic power generation.	**CO4**
C311.5	Discuss environmental aspects and alternate sources of energy to reduce Pollution.	**CO5**
C311.6	Evaluate various factors of power. Calculate power generation cost .	**CO6**

Semester: VI   Course Name: 22ME914 - Process Planning and Cost Estimation

S. No.	Course Outcomes	COs
C312.1	Synthesize engineering fundamentals to develop comprehensive process planning strategies and methodologies for optimizing production activities.	**CO1**
C312.2	Evaluate and integrate diverse process planning tools, analyzing their applications and effectiveness in different manufacturing contexts.	**CO2**
C312.3	Critically analyze the components and factors influencing costing, synthesizing knowledge to understand their implications on decision-making and resource allocation.	**CO3**
C312.4	Develop various manufacturing methods and techniques to estimate product costs, integrating knowledge to inform strategic pricing and budgeting decisions.	**CO4**
C312.5	Evaluate and compare machining times for different operations across various machines, synthesizing data to optimize production scheduling and resource utilization.	**CO5**
C312.6	Integrate process planning and cost estimation concepts creatively to design efficient production processes, evaluating their impact on productivity, quality, and profitability.	**CO6**

Semester: VI   Course Name: 22EC005 – Automotive Electronics (Open Elective-II)

S. No.	Course Outcomes	COs
C313.1	Describe the concept of automotive electronics trends and its evolution.	CO1
C313.2	Interpret the basic principles and fundamentals of ignition and injection systems	CO2
C313.3	List out the different types of sensors and define its working principle.	CO3
C313.4	Classify and demonstrate various types of actuators used in automobiles	CO4

Semester: VI   Course Name: 22ME602 - Heat and Mass Transfer

S. No.	Course Outcomes	COs
C314.1	Explain the concept of one dimensional steady and transient heat conduction through various systems.	CO1
C314.2	Discuss the concept of convection with the flow of fluids in different elements.	CO2
C314.3	Associate the significance of phase change with heat transfer in heat exchangers.	CO3
C314.4	Discuss the concept of radiation and application in heat transfer systems.	CO4
C314.5	Understand the concept of mass transfer and its correlations.	CO5
C314.6	Apply the conduction and convection principles in product application by real time study.	CO6

Semester: VI   Course Name: 22ME603 - Advanced Product Lifecycle Management

S. No.	Course Outcomes	COs
C315.1	Discuss the Product Lifecycle management architecture and data management.	CO1
C315.2	Explain the roles of Product Lifecycle in service and maintenance.	CO2
C315.3	Describe and Classify the varies ways of data representation.	CO3
C315.4	Demonstrate the Product lifecycle management configuration and integration with CAM.	CO4
C315.5	Illustrate the Integration of CAM with Product life cycle management.	CO5
C315.6	Distinguish the data interfaces, GD&T, annotations, manufacturing notes, Integration of CAM with Product Lifecycle Management.	CO6

Semester: VI   Course Name: 22CS611 - Advanced Aptitude and Coding Skills – II

S. No.	Course Outcomes	COs
C316.1	Develop advanced vocabulary for effective communication and reading skills.	**CO1**
C316.2	Build an enhanced level of logical reasoning and quantitative skills.	**CO2**
C316.3	Develop error correction and debugging skills in programming.	**CO3**
C316.4	Apply data structures and algorithms in problem solving.	**CO4**

COURSE OUTCOMES
FOURTH YEAR - SEMESTER: 08
REGULATION – 2020 (2021-22)

Semester VIII   **Course Name: 22ME811 - Project Work**

S.No.	Course Outcomes	COs
C409.1	Understand and explain the real time problems through literatures.	**CO1**
C409.2	Analyze the methods to develop solution to the systems.	**CO2**
C409.3	Classify, compare and analyze business opportunities for a new product.	**CO3**
C409.4	Summarize and prepare reports for the experimental determinations.	**CO4**
C409.5	Evaluate the performance and effectiveness of the existing systems.	**CO5**
C409.6	Apply the knowledge expanding business through new product design and development.	**CO6**