R.M.K. ENGINEERING COLLEGE

(An Autonomous Institution)
RSM Nagar, Kavaraipettai – 601 206
DEPARTMENT OF MECHANICAL ENGINEERING
COURSE OUTCOMES: ODD Semester 2021-22

List of Courses

S. No.	Semester	Theory / Practical	Course Code / Course Name
1.	3	Theory	20MA301-Transforms and Partial Differential Equations
2.	3	Theory	20ME302-Engineering Thermodynamics
3.	3	Theory	20ME303-Fluid Mechanics and Machinery
4.	3	Theory	20ME304-Machine Tool Technology
5.	3	Theory	20CS304-JAVA Programming
6.	3	Theory	20GE301-Universal Human Values –2: Understanding Harmony
7.	3	Practical	20ME311-Manufacturing Processes Laboratory and Mini Project
8.	3	Practical	20ME312-Computer Aided Machine Drawing
9.	3	Practical	20CS314-JAVA Programming Laboratory
10.	3	Practical	20CS313-Aptitude and Coding Skills – I
11.	5	Theory	ME8595 -Thermal Engineering- II
12.	5	Theory	ME8593-Design of Machine Elements
13.	5	Theory	ME8501 -Metrology and Measurements
14.	5	Theory	ME8594 -Dynamics of Machines
15.	5	Theory	OMF551-Product Design and Development
16.	5	Practical	ME8511-Kinematics and Dynamics Laboratory
17.	5	Practical	ME8512 -Thermal Engineering Laboratory
18.	5	Practical	ME8513 -Metrology and Measurements Laboratory
19.	7	Theory	ME8792- Power Plant Engineering
20.	7	Theory	ME8791- Mechatronics
21.	7	Theory	ME8793 -Process Planning and Cost Estimation
22.	7	Theory	Open Elective - II
23.	7	Theory	Professional Elective - II
24.	7	Theory	Professional Elective - III
25.	7	Practical	ME8711- Simulation and Analysis Laboratory
26.	7	Practical	ME8781- Mechatronics Laboratory
27.	7	Practical	ME8712- Technical Seminar

COURSE OUTCOMES

SECOND YEAR - SEMESTER: 03

REGULATION: 2020

Semester: III   Course Name: Transform and Partial Differential Equation (20MA 301)

S.No.	Course Outcomes	COs
C201.1	Employ the Fourier series concept in Engineering Problems.	**CO1**
C201.2	Identify the solution of Fourier transform in continuous time signals.	**CO2**
C201.3	Elucidate the difference equation using Z-transform.	**CO3**
C201.4	Compute the solutions of the partial differential equation.	**CO4**
C201.5	Utilize the Fourier series for heat and wave equations	**CO5**

Semester: III   Course Name: Engineering Thermodynamics (20ME 302)

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 between the properties of ideal and real gases	**CO4**
C202.5	Solve problems in psychrometric processes and gas mixtures.	**CO5**
C202.6	Apply thermodynamic laws for real time applications.	**CO6**

Semester: III Course Name: Fluid Mechanics and Machinery (20ME 303)

S.No.	Course Outcomes	COs
C203.1	Calculate the fluid properties and flow characteristics	CO1
C203.2	Compute the flow of fluid in circular conduits	CO2
C203.3	Discuss the importance of dimensional and model analysis	CO3
C203.4	Estimate the performance of hydraulic turbines	CO4
C203.5	Explain the working principle and draw the performance curves of hydraulic pumps.	CO5
C203.6	Demonstrate a keen understanding of various fluid properties, involving real time experimentation	CO6

Semester: III Course Name: Machine Tool Technology – I (20ME 304)

S.No.	Course Outcomes	COs
C204.1	Apply the theory of metal cutting for effective machining.	CO1
C204.2	Summarize the working principles and operations performed in various lathe machines.	CO2
C204.3	Explain the working of special type machines.	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 suitable machine tool in machining of desired product.	CO6

Semester: III Course Name: JAVA Programming (20CS304)

S.No.	Course Outcomes	COs
C205.1	Understand the Object Oriented Programming concepts and fundamentals of Java	CO1
C205.2	Develop Java programs with the packages, inheritance and interfaces	CO2
C205.3	Build applications using Exceptions and Threads.	CO3
C205.4	Build Java applications with I/O streams and generics classes	CO4
C205.5	Use Strings and Collections in applications	CO5

Semester: III Course Name: Universal Human Values –2:
Understanding Harmony (20GE301)

S.No.	Course Outcomes	COs
C206.1	Would become more aware of themselves, and their surroundings (family, society, nature).	**CO1**
C206.2	Would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.	**CO2**
C206.3	Would have better critical ability.	**CO3**
C206.4	Would become sensitive to their commitment towards what they have understood (human values, human relationship and human society).	**CO4**
C206.5	Would 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: III   Course Name: Manufacturing Processes Laboratory and
Mini Project (20ME311)

S.No.	Course Outcomes	COs
C207.1	Demonstrate the working of lathe machine	**CO1**
C207.2	Compare the various operations performed in Lathe machines.	**CO2**
C207.3	Operate the shaper machine to fabricate simple shapes.	**CO3**
C207.4	Use the arc welding process for manufacturing basic structural shapes.	**CO4**
C207.5	Develop the green sand mould for a simple component	**CO5**
C207.6	C Apply the concept of manufacturing processes for making mechanical product / working model.	**CO6**

Semester: III   Course Name: Computer Aided Machine Drawing (20ME 312)

S.No.	Course Outcomes	COs
C208.1	Apply the knowledge on standards in drawing practices to prepare the production drawings.	CO1
C208.2	Use the hand books for selecting the standard components in the drafting of Machine components.	CO2
C208.3	Distinguish between the 2D drafting and 3D modeling processes available in the standard CAD packages.	CO3
C208.4	Draw the 2D orthographic views of standard machine components both manually and using CAD packages.	CO4
C208.5	Prepare the 3D geometric and assembly models of standard machine components using the CAD packages.	CO5
C208.6	Produce the production drawings from the 3D Assembly models using the detailing feature available in the CAD packages.	CO6

Semester: III Course Name: JAVA Programming Laboratory (20CS 314)

S.No.	Course Outcomes	COs
C209.1	Develop and implement Java programs for simple applications that make use of classes, packages and interfaces.	CO1
C209.2	Develop and implement Java programs with collections, exception handling and multithreading.	CO2
C209.3	Design applications using file processing and generic programming.	CO3

Semester: III Course Name: Aptitude and Coding Skills - I (20CS 313)

S.No.	Course Outcomes	COs
C210.1	Develop vocabulary for effective communication and reading skills.	CO1
C210.2	Build the logical reasoning and quantitative skills.	CO2
C210.3	Develop error correction and debugging skills in programming.	CO3

COURSE OUTCOMES

THIRD YEAR - SEMESTER: 05

REGULATION: 2017

Semester V **Course Name: Thermal Engineering – II (ME 8595)**

S.No.	Course Outcomes	COs
C301.1	Understand and explain the processes in various gas power cycles	CO1
C301.2	Demonstrate the working of the various components of I.C.Engines.	CO2
C301.3	Analyze, evaluate and explain the working and performance of nozzles and turbines	CO3
C301.4	Understand, analyze and explain the working of air compressor	CO4
C301.5	Able to understand the working principle of Refrigeration and air conditioning systems	CO5
C301.6	Able to utilize Refrigeration and Psychrometric chart.	CO6

Semester: V **Course Name: Design of Machine Elements (ME8593)**

S.No.	Course Outcomes	COs
C302.1	Familiar in various step involved in the design process	CO1
C302.2	Understand, compute and explain the concepts of steady and variable stresses in machine elements	CO2
C302.3	Learn to use standard data and apply the same for designing various machine elements	CO3
C302.4	Understand the principles, compute and predict the strength requirements for machine elements.	CO4
C302.5	Analyze and demonstrate the design procedures for various machine elements.	CO5
C302.6	Able to understand the design procedure of miscellaneous elements like seals, gaskets and connecting rod.	CO6

Semester: V   **Course Name: Metrology and Measurements (ME 8501)**

S.No.	Course Outcomes	COs
C303.1	Understand and explain about basic principles of measurements.	CO1
C303.2	Demonstrate various method of measuring mechanical parameters.	CO2
C303.3	Understand and explain the usage of the operations and applications of Linear, Angular measuring instruments.	CO3
C303.4	Understand, explain and apply various measurements techniques for measuring Threads, Gears, Surface Finish, Linear and Cylindrical Components.	CO4
C303.5	Apply the usage of Quality control of components.	CO5
C303.6	Exhibit the knowledge in the application of Coordinate Measuring Machine	CO6

Semester: V   **Course Name: Dynamics of Machines (ME 8594)**

S.No.	Course Outcomes	COs
C304.1	Understand the dynamic force analysis of simple mechanism	CO1
C304.2	Understand and outline the effects of the static and dynamic balancing of various machines and mechanisms	CO2
C304.3	Analyze and predict the undesirable effects of unbalanced forces in rotors and engines	CO3
C304.4	Explain the concepts of single degree free vibratory systems	CO4
C304.5	Analyze the simple forced vibration system	CO5
C304.6	Demonstrate the principles of governs and gyroscopes	CO6

Semester: V   Course Name: Product Design and Development (OMF551)

S. No.	Course Outcomes	COs
C305.1	Understand the basic concepts of product design	CO1
C305.2	Understand and outline product features and its architecture	CO2
C305.3	Analyze and predict the design features and its architecture	CO3
C305.4	Explain the concepts of product features and its architecture	CO4
C305.5	Analyze the product design	CO5
C305.6	Demonstrate the incorporate design suitably in product	CO6

Semester: V   Course Name: Kinematics and Dynamics Laboratory (ME8511)

S.No.	Course Outcomes	COs
C306.1	Explain the various types of gear trains and simple mechanisms.	CO1
C306.2	Utilize the principles learnt in kinematics and dynamics of machinery	CO2
C306.3	Understand the use of certain measuring devices in dynamic testing	CO3
C306.4	Compute the mass moment inertia of rotating element.	CO4

Semester: VI   Course Name: Thermal Engineering Laboratory (ME 8512)

S.No.	Course Outcomes	COs
C307.1	Explain the thermal conductivity of composite wall and lagged pipe apparatus.	CO1
C307.2	Illustrate the heat transfer co-efficient values of natural and forced convention	CO2
C307.3	Apply Stefan-Boltzmann law to calculate it's constant.	CO3
C307.4	Analyse the performance characteristics curves of two stage reciprocating air compressor.	CO4

Semester: V Course Name: Metrology and Measurements Laboratory (ME8513)

S.No.	Course Outcomes	COs
C308.1	Demonstrate the basic working concepts of the various measuring instruments.	CO1
C308.2	Understand the difference in accuracy and precision among various techniques.	CO2
C308.3	Discuss the methods of calibrating the equipment.	CO3
C308.4	Compute the displacement, force and torque of machine element.	CO4

Semester: VII   **Course Name: Power Plant Engineering (ME8792)**

S. No.	Course Outcomes	COs
C401.1	Understand and explain the basic working principles and the layout of different power plants	CO1
C401.2	Understand and explain the operation of various components of power plants and use the knowledge in selection of components	CO2
C401.3	Understand and explain the applications of various power plants	CO3
C401.4	Select appropriate power plant based on their economic analysis.	CO4
C401.5	Aware of Economics of load sharing.	CO5
C401.6	Known about other power plants such as Geothermal, OTEC, Tidal and Solar.	CO6

Semester: VII   Course Name: Process Planning and Cost Estimation (ME8793)

S. No.	Course Outcomes	COs
C402.1	Understand the process planning concepts to make cost estimation for various products after process planning.	CO1
C402.2	Explain the fundamental principles for the selection of the jigs, fixtures, and quality assurance methods.	CO2
C402.3	Understand and apply the concepts of cost estimation for a given component.	CO3
C402.4	Compute and explain the production cost estimation for the product manufactured by forging, welding and casting process.	CO4
C402.5	Understand the methods to calculate the machining time for different machining processes.	CO5
C402.6	Prepare the cost optimal processes for the given job	CO6

Semester: VII   **Course Name: Mechatronics (ME 8791)**

S. No.	Course Outcomes	COs
C403.1	Knowledge about elements and techniques of involved in mechatronics systems	CO1
C403.2	Understand and explain the concepts and applications of various sensors and transducers.	CO2
C403.3	Demonstrate the uses and applications of various electric motors and electronic devices in mechanical engineering applications	CO3
C403.4	Explain the emerging field of automation.	CO4
C403.5	Design and explain PLC circuits for various mechatronics systems.	CO5
C403.6	Design, develop and analyze models for mechanical, thermal and fluid systems	CO6

Semester: VII   **Course Name: Simulation and Analysis Laboratory (ME8711)**

S. No.	Course Outcomes	COs
C407.1	Demonstrate the various applications of simulation and analysis tools.	CO1
C407.2	Discuss the need of software tools to analyse engineering problem	CO2
C407.3	Create the model, analyse and simulate experiments to meet real world systems	CO3
C407.4	Evaluate the performance of the various models using thermal, vibration and modal analysis	CO4

Semester: VII   **Course Name: Mechatronics Laboratory (ME8781)**

S. No.	Course Outcomes	COs
C408.1	Understand the working of various pneumatic systems by practice	CO1
C408.2	Create various microprocessor or programs for steeper motors and allied equipment.	CO2
C408.3	Analyse the different hydraulic circuits through hydraulic trainer kit	CO3
C408.4	Demonstration of image processing technique kit	CO4
C408.5	Simulation of circuits with multiple cylinder sequences in electro pneumatic using PLC.	CO5
C408.6	Simulation of basic hydraulic, pneumatic and electrical circuits using software.	CO6

Semester: VII Course Name: Technical Seminar (ME8712)

S. No.	Course Outcomes	COs
C409.1	To enrich the communication skills of the student and presentations of technical topics of interest.	CO1
C409.2	To present three Technical papers or recent advances in engineering/technology.	CO2

R.M.K. ENGINEERING COLLEGE
(An Autonomous Institution)
RSM Nagar, Kavaraipettai – 601 206
Department of Mechanical Engineering
COURSE OUTCOMES: EVEN Semester 2021-22

Sl. No.	Semester	Theory / Practical	Course Code / Course Name
1	4	Theory	20MA404-Statistics and Numerical Methods
2	4	Theory	20ME402-Kinematics of Machinery
3	4	Theory	20ME403-Engineering Materials and Metallurgy
4	4	Theory	20ME404-Strength of Materials
5	4	Theory	20ME405-Thermal Engineering- I
6	4	(Laboratory Integrated Course)	20ME406-Engineering Metrology and Measurement
7	4	Practical	20ME411-Machine Tool Laboratory
8	4	Practical	20ME412-Strength of Materials and Fluid Mechanics and Machinery Laboratory
9	4	Practical	20CS415-Applications of Programming in Mechanical Engineering
10	4	Practical	20CS414-Aptitude and Coding Skills - II
11	6	Theory	ME8651- Design of Transmission Systems
12	6	Theory	ME8691 - Computer aided design and manufacturing
13	6	Theory	ME8693 - Heat and Mass Transfer
14	6	Theory	ME8692 - Finite Element Analysis
15	6	Theory	ME8694 - Hydraulics and Pneumatics
16	6	Theory	ME8091 - Automobile Engineering (Professional Elective I)
17	6	Practical	ME8681 - C.A.D. / C.A.M. Laboratory
18	6	Practical	ME8682 - Design and Fabrication Project
19	6	Practical	HS8581 - Professional Communication
20	8	Theory	MG8591- Principles of Management
21	8	Theory	Professional Elective IV
22	8	Practical	ME8811- Project Work

COURSE OUTCOMES

SECOND YEAR - SEMESTER: 04

REGULATION - 2020

Semester: IV   **Course Name: Statistics and Numerical Methods (20MA 404)**

S.No.	Course Outcomes	COs
C211.1	Employ the concept of testing the hypothesis in real life problems.	CO1
C211.2	Implement the analysis of variance for real life problems.	CO2
C211.3	Compute the solutions of algebraic, transcendental and the system of equations.	CO3
C211.4	Apply the numerical techniques of interpolation, differentiation and integration for engineering problems.	CO4
C211.5	Employ the various techniques of solving first and second order ordinary differential equations.	CO5

Semester: IV   **Course Name: Kinematics of Machinery (20ME 402)**

S. No.	Course Outcomes	COs
C212.1	Explain the principles of kinematic pairs of planar mechanisms.	CO1
C212.2	Compute velocity and acceleration in planar mechanisms.	CO2
C212.3	Apply various motion principles to draw cam profiles	CO3
C212.4	Summarize the role of gear geometry in gear train.	CO4
C212.5	Explain the mechanisms by algebraic and vector methods.	CO5
C212.6	Examine the kinematic interactions of various elements in a given machine tool.	CO6

Semester: IV Course Name: Engineering Materials and Metallurgy (20ME 403)

S.No.	Course Outcomes	COs
C213.1	Explain various binary alloy systems with respective invariant reaction.	CO1
C213.2	Classify various heat treatment process and its significance	CO2
C213.3	Discuss various Ferrous and non-ferrous metals with its application	CO3
C213.4	Summarize the various non-metallic materials with its applications	CO4
C213.5	Compute the material properties by various material testing techniques	CO5
C213.6	Apply the knowledge of material science on material selection for specific requirements	CO6

Semester: IV Course Name: Strength of Materials (20ME 404)

S.No.	Course Outcomes	COs
C214.1	Estimate the stresses, strains and deformations in solids under axial loading	CO1
C214.2	Compute the bending and shearing stresses in beams subjected to loadings	CO2
C214.3	Examine the effect of torsion in shafts and springs	CO3
C214.4	Calculate the deflection and slopes in beams	CO4
C214.5	Compute the two dimensional stresses in thin cylinder and spherical shells	CO5
C214.6	Calculate the stresses and deformation of solids subjected to various loads.	CO6

Semester: IV   Course Name: Thermal Engineering - I (20ME 405)

S.No.	Course Outcomes	COs
C215.1	Distinguish the performance of different air standard cycles	CO1
C215.2	Summarize the working of compressor and factors influencing its performance in different stages.	CO2
C215.3	Explain the functioning and features of IC engines, components and auxiliaries	CO3
C215.4	Calculate the performance parameters of IC Engines and its associated systems.	CO4
C215.5	Discuss the concepts to improve the performance of Gas turbines.	CO5
C215.6	Examine the performance of compressors, engines and turbines.	CO6

Semester: IV Course Name: Engineering Metrology and Measurements (20ME 406)

S.No.	Course Outcomes	COs
C216.1	Explain the fundamentals of Measuring system and calibration of various measuring devices.	CO1
C216.2	Discuss the use of Linear and Angular Measuring instruments.	CO2
C216.3	Demonstrate the advanced Instruments used in Metrology.	CO3
C216.4	Distinguish the various methods for form measurement.	CO4
C216.5	Associate suitable measuring instruments to measure power, flow and temperature.	CO5
C216.6	Apply the different measurement tools and perform measurements in quality Inspection.	CO6

Semester: IV   Course Name: Machine Tool Laboratory (20ME 411)

S.No.	Course Outcomes	COs
C217.1	Complete the machining operation using Capstan and Turret lathe	CO1
C217.2	Operate special machines to machine gear tooth and contours.	CO2
C217.3	Use different machine tools for finishing operations	CO3
C217.4	Produce cutting edges using tool and cutter grinder	CO4
C217.5	Prepare a CNC Program for machining special contour cutting operation	CO5
C217.6	Apply suitable machining sequence to plan the process in producing a component	CO6

Semester: IV   Course Name: Strength of Materials and Fluid Mechanics and Machinery Laboratory (20ME 412)

S.No.	Course Outcomes	COs
C218.1	Compute the mechanical properties of materials.	COs
C218.2	Calculate the deflection of beam by deflection method and springs using tensile andcompression tests.	CO1
C218.3	Summarize the influence of heat treatment process in mechanical properties and micro structure.	CO2
C218.4	Apply Bernoulli's principle in various flow meters.	CO3
C218.5	Discuss the characteristics of hydraulic pumps and prime movers.	CO4
C218.6	Use flow meters and hydraulic machines for specific applications.	CO5

Semester: IV   Course Name: Application of Programming in Mechanical Engineering (20CS 415)

S.No.	Course Outcomes	COs
C219.1	Implement the various mechanical applications using programming language.	CO1
C219.2	Create a project for shaft design.	CO2

Semester: IV   Course Name: Aptitude and Coding Skills – II (20CS 414)

S.No.	Course Outcomes	COs
C220.1	Develop advanced vocabulary for effective communication and reading skills.	**CO1**
C220.2	Build an enhanced level of logical reasoning and quantitative skills.	**CO2**
C220.3	Develop error correction and debugging skills in programming.	**CO3**
C220.4	Apply data structures and algorithms in problem solving.	**CO4**

Semester: VI   **Course Name: Design of Transmission Systems (ME8651)**

S. No.	Course Outcomes	COs
C309.1	Understand and explain the principles and procedures of power transmission systems.	**CO1**
C309.2	Learn to use standard data and catalogues and apply the same for designing various transmission systems	**CO2**
C309.3	Understand, apply and explain the standard design procedure for various transmission systems.	**CO3**
C309.4	Design and applications of various gears.	**CO4**
C309.5	Plan and develop optimum design for gear box.	**CO5**
C309.6	Design and analysis of Cams, Clutches and Brakes.	**CO6**

Semester VI   **Course Name: Computer Aided Design and Manufacturing (ME8691)**

S. No.	Course Outcomes	COs
C310.1	Explain the basic concept of product design, 2D and 3D CAD graphical manipulations.	**CO1**
C310.2	Show the representation of curves, surface and solid modeling techniques on various aerospace applications	**CO2**
C310.3	Analyze the production drawings	**CO3**
C310.4	Demonstrate the concept of parametric design for mechanical assembly.	**CO4**
C310.5	Describe the various CAD standards for different applications in modeling	**CO5**
C310.6	Classify the applications of computer in mechanical component design	**CO6**

Semester: VI   Course Name: Heat and Mass Transfer (ME 8693)

S. No.	Course Outcomes	COs
C311.1	Understand and explain the basic concepts of conduction, convection and radiation heat transfer.	CO1
C311.2	Learn to use standard data book and apply the same to analyze and compute heat and mass transfer problems.	CO2
C311.3	Understand and explain the fundamentals of heat transfer and mass transfer in fluid flow.	CO3
C311.4	Design, analyze and compute effectiveness of heat exchangers.	CO4
C311.5	Understand and explain the basic concepts of different types of mass transfer.	CO5
C311.6	Able to understand the basics of boiling and condensation processes.	CO6

Semester: VI   Course Name: Finite Element Analysis (ME 8692)

S. No.	Course Outcomes	COs
C312.1	Understand, compare and explain the concepts of discrete and continuum mathematical modeling.	CO1
C312.2	Apply numerical methods for solving engineering problems for design.	CO2
C312.3	Able to apply finite element formulation of Boundary value problems	CO3
C312.4	Understand and explain application of FEA principles in heat transfer and fluid mechanics domains.	CO4
C312.5	Understand, compare and explain the concepts of one dimensional and two dimensional cases of FEA.	CO5
C312.6	Explain the dynamics analysis by FEA method.	CO6

Semester: VI Course Name: Hydraulics and Pneumatics (ME8694)

S. No.	Course Outcomes	COs
C313.1	Define the properties of fluid in flow through a pipe line.	CO1
C313.2	Compare the basic principles of hydraulic and pneumatic system.	CO2
C313.3	Summarize the application of hydraulic and pneumatic components and select them for suitable applications.	CO3
C313.4	Demonstrate hydraulic and pneumatic circuits.	CO4
C313.5	Apply the hydraulic and pneumatic systems and predict problems for trouble shooting.	CO5
C313.6	Built the ladder logic diagrams for the given problem.	CO6

Semester: VI   Course Name: Automobile Engineering (ME8091)

S. No.	Course Outcomes	COs
C314.1	Explain the vehicle construction and different layouts of automobile	CO1
C314.2	Explain and demonstrate the working of the various systems of an automobile	CO2
C314.3	Able to understand the function of various engine auxiliary systems.	CO3
C314.4	Demonstrate and evaluate the functioning of an automobile.	CO4
C314.5	Understand the working principles of steering, brakes and suspension systems.	CO5
C314.6	Explain need of alternate fuels and emission control.	CO6

Semester: VI   **Course Name: CAD / CAM LABORATORY (ME 8681)**

S. No.	Course Outcomes	COs
C315.1	Develop 2D and 3D models using modeling software to gain practical experience	CO1
C315.2	Demonstrate the features of CNC Machine tools and understand the CNC control in modern manufacturing system.	CO2
C315.3	Develop CNC part programming for turning and milling machines	CO3
C315.4	Differentiate the application of various CNC machines in industries	CO4

Semester: VI   **Course Name: Design and Fabrication Project (ME 8682)**

S. No.	Course Outcomes	COs
C316.1	Develop conceptual engineering design of any components by using basic design principles	CO1
C316.2	Fabricate any components using different manufacturing tools.	CO2
C316.3	Demonstrate their practical ability in the form of working models, patentable concepts and innovations.	CO3
C316.4	Evaluate design concepts and fabrication sequence.	CO4

Semester: VI   **Course Name: Professional Communication (HS 8581)**

S. No.	Course Outcomes	COs
C317.1	Understand the concepts of group discussions and employ it in practice	CO1
C317.2	Develop communication skills and soft skills.	CO2
C317.3	Realize the use of blog, tweet, text and e-mail.	CO3
C317.4	Improve personality development skills	CO4

Semester: VIII   Course Name: Principles of Management

S. No.	Course Outcomes	COs
C410.1	Understand and explain the basic principles, concepts and evolution of Management thinking and the role of managers	CO1
C410.2	Apply the knowledge on Planning tools and techniques.	CO2
C410.3	Discuss the stages in decision making process and explain the types of strategies in order to make rational decisions	CO3
C410.4	Illustrate the concepts of controlling and organizing of an organization.	CO4
C410.5	Assess and compare different leadership styles and select appropriate style for an organization	CO5
C410.6	Compile and demonstrate effective communication and explain various theories of motivation, innovation and creativity	CO6

Semester VIII   Course Name: Project Work (ME 8811)

S.No.	Course Outcomes	COs
C412.1	Analyze the various factors and techniques currently in use in their respective field of study	CO1
C412.2	Comprehensively evaluate a new and broader field of engineering not restricted by any boundary.	CO2
C412.3	Develop the ability to solve a specific problem right from its identifications.	CO3
C412.4	Discuss on the different literature reviews till the successful solutions.	CO4
C412.5	Find solutions by formulating proper methodology related to the problem	CO5
C412.6	Solve any challenging practical problems.	CO6