



# PALLAVI ENGINEERING COLLEGE

(Formerly Nagole Institute of Technology & Science)

Abdullapurmet(M), Near Hayathanagar

## DEPARTMENT OF MECHANICAL ENGINEERING

### COURSE OUTCOMES

**I YEAR ME SEMESTER-I (REGULATION –R18)**

**ACADEMIC YEAR: 2019-2020**

#### **Course Code & Name: MA101BS Mathematics-I**

Upon completion of the course, students will be able to:

Course Name	Course outcomes
C111 [1]	Write the matrix representation of a set of linear equations and to analyse the solution of the system of equations
C111 [2]	Find the Eigen values and Eigen vectors
C111[3]	Reduce the quadratic form to canonical form using orthogonal transformations.
C111[4]	Analyse the nature of sequence and series.
C111[5]	Solve the applications on the mean value theorems.
C111[6]	Evaluate the improper integrals using Beta and Gamma functions.
C111[7]	Find the extreme values of functions of two variables with/ without constraints.

#### **Course Code & Name: PH102BS: Engineering Physics**

Upon completion of the course, Students will be able to:

Course Name	Course outcomes
C112 [1]	The knowledge of Physics relevant to engineering is critical for converting ideas into technology.
C112 [2]	An understanding of Physics also helps engineers understand the working and limitations of existing devices and techniques, which eventually leads to new innovations and improvements.
C112[3]	In the present course, the students can gain knowledge on the mechanism of physical bodies upon the action of forces on them, the generation, transmission and the detection of the waves, Optical Phenomena like

	Interference, diffraction, the principles of lasers and Fiber Optics.
C112[4]	Various chapters establish a strong foundation on the different kinds of characters of several materials and pave a way for them to use in at various technical and engineering applications.

**Course Code & Name: CS103ES: Programming For Problem Solving**

Upon the completion of the course, students will be able to:

Course Name	Course outcomes
C113 [1]	To write algorithms and to draw flowcharts for solving problems
C113 [2]	To convert the algorithms/flowcharts to C programs.
C113 [3]	To code and test a given logic in C programming language.
C113 [4]	To decompose a problem into functions and to develop modular reusable code.
C113 [5]	To use arrays, pointers, strings and structures to write C programs.
C113 [6]	Searching and sorting problems.

**Course Code & Name: ME104ES: Engineering Graphics**

Upon Completion of the course, the students will be able to:

Course Name	Course outcomes
C114 [1]	Preparing working drawings to communicate the ideas and information.
C114 [2]	Read, understand and interpret engineering drawings.

**Course Code & Name: PH105BS: Engineering Physics Lab**

Upon Completion of the course, the students will be able to:

Course Name	Course outcomes
C115 [1]	Ability to design and conduct experiment as well as to analyze and interpret data
C115 [2]	Ability to identify, formulates, and solves Engineering Problems.
C115 [3]	Ability to use Skills associated with modern engineering tools such as laser and fiber optics.

**Course Code & Name: CS106ES: Programming For Problem Solving Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C116 [1]	Formulate the algorithms for simple problems
C116 [2]	Translate given algorithms to a working and correct program
C116 [3]	Correct syntax errors as reported by the compilers
C116 [4]	Identify and correct logical errors encountered during execution
C116 [5]	Represent and manipulate data with arrays, strings and structures
C116 [6]	Use pointers of different types
C116 [7]	Create, read and write to and from simple text and binary files
C116 [8]	Modularize the code with functions so that they can be reused

**Course Code & Name: \*MC109ES: Environmental Science**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C117 [1]	Based on this course, the Engineering graduate will understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development

**I YEAR ME SEMESTER-II (REGULATION –R18)****ACADEMIC YEAR: 2019-2020****Course Code & Name: MA201BS: Mathematics - II**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C121 [1]	Identify whether the given differential equation of first order is exact or not
C121 [2]	Solve higher differential equation and apply the concept of differential equation to real world problems
C121 [3]	Evaluate the multiple integrals and apply the concept to find areas, volumes, centre of mass and Gravity for cubes, sphere and rectangular parallelepiped
C121 [4]	Evaluate the line, surface and volume integrals and converting them from one to another

**Course Code & Name: CH202BS: Chemistry**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C122 [1]	The knowledge of atomic, molecular and electronic changes, band theory related to conductivity.
C122 [2]	The required principles and concepts of electrochemistry, corrosion and in understanding the problem of water and its treatments.
C122 [3]	The required skills to get clear concepts on basic spectroscopy and application to medical and other fields.
C122 [4]	The knowledge of configurationally and conformational analysis of molecules and reaction mechanisms.

**Course Code & Name: ME203ES: Engineering Mechanics**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C123 [1]	Determine resultant of forces acting on a body and analyse equilibrium of a body subjected to a system of forces
C123 [2]	Solve problem of bodies subjected to friction
C123 [3]	Find the location of centroid and calculate moment of inertia of a given section.
C123 [4]	Understand the kinetics and kinematics of a body undergoing rectilinear, curvilinear, rotatory motion and rigid body motion.

**Course Code & Name: ME205ES: Engineering Workshop**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C124 [1]	Study and practice on machine tools and their operations
C124 [2]	Practice on manufacturing of components using workshop trades including plumbing, fitting, carpentry, foundry, house wiring and welding.
C124 [3]	Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.
C124[4]	Apply basic electrical engineering knowledge for house wiring practice.

**Course Code & Name: EN205HS: English**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C125 [1]	Use English Language effectively in spoken and written forms
C125 [2]	Comprehend the given texts and respond appropriately.
C125 [3]	Communicate confidently in various contexts and different cultures.
C125 [4]	Acquire basic proficiency in English including reading and listening comprehension, writing and speaking skills.

**Course Code & Name: CH206BS: Engineering Chemistry Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
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C126 [1]	Determination of parameters like hardness and chloride content in water.
C126 [2]	Estimation of rate constant of a reaction from concentration – time relationships.
C126 [3]	Determination of physical properties like adsorption and viscosity.
C126 [4]	Calculation of Rf values of some organic molecules by TLC technique

**Course Code & Name: EN207HS: English Language And Communication Skills Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C127 [1]	Better understanding of nuances of English language through audio-visual experience and group activities
C127[2]	Neutralization of accent for intelligibility
C127 [3]	Speaking skills with clarity and confidence which in turn enhances their employability skills

**II YEAR ME SEMESTER-I (REGULATION –R18)**

**ACADEMIC YEAR: 2019-2020**

**Course Code & Name: MA301BS: Probability And Statistics & Complex Variables**

Upon completion of the course, students will be able to:

Course Name	Course outcomes
C211 [1]	Formulate and solve problems involving random variables and apply statistical methods for analysing experimental data.
C211 [2]	Analyse the complex function with reference to their analyticity, integration using Cauchy's integral and residue theorems.
C211 [3]	Taylor's and Laurent's series expansions of complex function.

**Course Code & Name: ME302PC: Mechanics Of Solids**

Upon completion of the course, Students will be able to:

Course Name	Course outcomes
C212 [1]	Analyze the behavior of the solid bodies subjected to various types of loading.
C212 [2]	Apply knowledge of materials and structural elements to the analysis of

	simple structures.
C212 [3]	Undertake problem identification, formulation and solution using a range of analytical methods.
C212 [4]	Analyze and interpret laboratory data relating to behavior of structures and the materials they are made of, and undertake associated laboratory work individually and in teams.
C212 [5]	Expectation and capacity to undertake lifelong learning.

**Course Code & Name: ME303PC: Material Science And Metallurgy**

Upon the completion of the course, students will be able to:

Course Name	Course outcomes
C213 [1]	Identify the properties of metals with respect to crystal structure and grain size.
C213 [2]	Interpret the phase diagram of materials.
C213 [3]	Classify and distinguish different types of cast irons, steels and non-ferrous alloys.
C213 [4]	Describe the concept of heat treatment of steels & strengthening mechanisms.
C213 [5]	Explain the powder metallurgy process, types and manufacturing of composite materials

**Course Code & Name: ME304PC: Production Technology**

Upon Completion of the course, the students will be able to:

Course Name	Course outcomes
C214 [1]	Understand the idea for selecting materials for patterns.
C214 [2]	Know Types and allowances of patterns used in casting and analyze the components of moulds.
C214 [3]	Design core, core print and gating system in metal casting processes.
C214 [4]	Understand the arc, gas, solid state and resistance welding processes
C214 [5]	Develop process-maps for metal forming processes using plasticity principles.
C214 [6]	Identify the effect of process variables to manufacture defect free products.

**Course Code & Name: ME305PC: Thermodynamics**

Upon Completion of the course, the students will be able to:

Course Name	Course outcomes
C215 [1]	At the end of the course, the student should be able to Understand and differentiate between different thermodynamic systems and processes.
C215 [2]	Understand and apply the laws of Thermodynamics to different types of systems undergoing various processes and to perform thermodynamic analysis.
C215 [3]	Understand and analyze the Thermodynamic cycles and evaluate performance parameters.

**Course Code & Name: ME306PC: Production Technology Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C216 [1]	Understanding the properties of moulding sands and pattern making.
C216 [2]	Fabricate joints using gas welding and arc welding
C216 [3]	Evaluate the quality of welded joints. Basic idea of press working tools and performs moulding studies on plastics.

**Course Code & Name: ME307PC: Machine Drawing Practice**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C217 [1]	Preparation of engineering and working drawings with dimensions and bill of material during design and development. Developing assembly drawings using part drawings of machine components
C217 [2]	Conventional representation of materials, common machine elements and parts such as screws, nuts, bolts, keys, gears, webs, ribs.
C217 [3]	Types of sections – selection of section planes and drawing of sections and auxiliary sectional views. Parts not usually sectioned.
C217 [4]	Methods of dimensioning, general rules for sizes and placement of dimensions for holes, centers, curved and tapered features.
C217 [5]	Title boxes, their size, location and details - common abbreviations and their liberal usage
C217 [6]	Types of Drawings – working drawings for machine parts.

**Course Code & Name: ME308PC: Material Science & Mechanics Of Solids Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
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C218 [1]	The Primary focus of the Metallurgy and Material science program is to provide undergraduates with a fundamental knowledge based associated materials properties, and their selection and application.
C218 [2]	Upon graduation, students would have acquired and developed the necessary background and skills for successful careers in the materials-related industries.
C218 [3]	Furthermore, after completing the program, the student should be well prepared for management positions in industry or continued education toward a graduate degree.

**Course Code & Name: \*MC309: Constitution of India**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C219 [1]	The Constitution of India is the supreme law of India
C219 [2]	Understand Social, political and economic perspectives of the Indian Society

**II YEAR ME SEMESTER-II (REGULATION –R18)**

**ACADEMIC YEAR: 2019-2020**

**Course Code & Name: EE401ES: Basic Electrical and Electronics Engineering**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C221 [1]	To analyze and solve electrical circuits using network laws and theorems.
C221 [2]	To understand and analyze basic Electric and Magnetic circuits.
C221 [3]	To study the working principles of Electrical Machines.
C221 [4]	To introduce components of Low Voltage Electrical Installations.
C221 [5]	To identify and characterize diodes and various types of transistors

**Course Code & Name: ME402PC: Kinematics of Machinery**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
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C222 [1]	The main purpose is to give an idea about the relative motions obtained in all the above type of components used in mechanical Engineering.
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**Course Code & Name: ME403PC: Thermal Engineering – I**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C223 [1]	At the end of the course, the student should be able to evaluate the performance of IC engines and compressors under the given operating conditions
C223 [2]	Apply the laws of Thermodynamics to evaluate the performance of Refrigeration and air-conditioning cycles.
C223 [3]	Understand the functionality of the major components of the IC Engines and effects of operating conditions on their performance

**Course Code & Name: ME404PC: Fluid Mechanics And Hydraulic Machines**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C224 [1]	Able to explain the effect of fluid properties on a flow system.
C224 [2]	Able to identify type of fluid flow patterns and describe continuity equation.
C224 [3]	To analyze a variety of practical fluid flow and measuring devices and utilize Fluid Mechanics principles in design
C224 [4]	To select and analyze an appropriate turbine with reference to given situation in power plants.
C224 [5]	To estimate performance parameters of a given Centrifugal and Reciprocating pump.
C224 [6]	Able to demonstrate boundary layer concepts.

**Course Code & Name: ME405PC: INSTRUMENTATION AND CONTROL SYSTEMS**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C225 [1]	To identify various elements and their purpose in typical instruments, to identify various errors that would occur in instruments.
C225 [2]	Analysis of errors so as to determine correction factors for each instrument.
C225 [3]	To understand static and dynamic characteristics of instrument and should be able to determine loading response time.

C225 [4]	For given range of displacement should be able to specify transducer, its accurate and loading time of that transducer.
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**Course Code & Name: EE409ES: Basic Electrical And Electronics Engineering Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C226 [1]	To analyze and solve electrical circuits using network laws and theorems.
C226 [2]	To understand and analyze basic Electric and Magnetic circuits
C226 [3]	To study the working principles of Electrical Machines
C226 [4]	To introduce components of Low Voltage Electrical Installations
C226 [5]	To identify and characterize diodes and various types of transistors.

**Course Code & Name: ME407PC: Fluid Mechanics And Hydraulic Machines Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C227 [1]	Able to explain the effect of fluid properties on a flow system.
C227 [2]	Able to identify type of fluid flow patterns and describe continuity equation.
C227 [3]	To analyze a variety of practical fluid flow and measuring devices and utilize fluid mechanics principles in design.
C227 [4]	To select and analyze an appropriate turbine with reference to given situation in power plants.
C227 [5]	To estimate performance parameters of a given Centrifugal and Reciprocating pump.
C227 [6]	Able to demonstrate boundary layer concepts.

**Course Code & Name: ME408PC: Instrumentation And Control Systems Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C228 [1]	At the end of the course, the student will be able to Characterize and calibrate measuring devices.

C228 [2]	Identify and analyze errors in measurement
C228 [3]	Analyze measured data using regression analysis.
C228 [4]	Calibration of Pressure Gauges, temperature, LVDT, capacitive transducer, rotameter.

### **III YEAR ME SEMESTER-I (REGULATION –R16)**

**ACADEMIC YEAR: 2019-2020**

#### **Course Code & Name: ME501PC: Design Of Machine Members – I**

Upon completion of the course, students will be able to:

Course Name	Course outcomes
C311 [1]	The student acquires the knowledge about the principles of design, material selection, component behavior subjected to loads, and criteria of failure.
C311 [2]	Understands the concepts of principal stresses, stress concentration in machine members and fatigue loading.
C311 [3]	Design on the basis of strength and rigidity and analyze the stresses and strains induced in a machine element.

#### **Course Code & Name: ME502PC: Thermal Engineering – I**

Upon completion of the course, Students will be able to:

Course Name	Course outcomes
C312 [1]	At the end of the course, the student should be able to evaluate the performance of IC engines and compressors under the given operating conditions.
C312 [2]	Apply the laws of Thermodynamics to evaluate the performance of Refrigeration and air-conditioning cycles.
C312[3]	Understand the functionality of the major components of the IC Engines and effects of operating conditions on their performance.

**Course Code & Name: ME503PC: Metrology And Machine Tools**

Upon the completion of the course, students will be able to:

Course Name	Course outcomes
C313 [1]	Identify techniques to minimize the errors in measurement.
C313 [2]	Identify methods and devices for measurement of length, angle, gear & thread parameters, surface roughness and geometric features of parts.
C313 [3]	Understand working of lathe, shaper, planer, drilling, milling and grinding machines.
C313 [4]	Comprehend speed and feed mechanisms of machine tools.
C313 [5]	Estimate machining times for machining operations on machine tools.

**Course Code & Name: SM504MS: Fundamentals Of Management**

Upon Completion of the course, the students will be able to:

Course Name	Course outcomes
C314 [1]	The students understand the significance of Management in their Profession.
C314 [2]	The various Management Functions like Planning, Organizing, Staffing, Leading, Motivation and Control aspects are learnt in this course.
C314 [3]	The students can explore the Management Practices in their domain area.

**Course Code & Name: CE511OE: Disaster Management (Open Elective I)**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C315 [1]	Understanding Disasters, man-made Hazards and Vulnerabilities
C315 [2]	Understanding disaster management mechanism.
C315 [3]	Understanding capacity building concepts and planning of disaster managements.

**Course Code & Name: ME505PC: Thermal Engineering Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C316 [1]	Analyze the performance Characteristics of an internal combustion engines.

C316 [2]	Analyze air compressor characteristics, IP,BP, Brake thermal Efficiency
C316 [3]	Analyze the influence of Variations in TDC and BDC operations.

**Course Code & Name: ME506PC: Machine Tools Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C317 [1]	Exhibit the ability in developing sequence of machining operations required for industry.
C317 [2]	Capable of manufacturing components according to given drawings using various machine tools.

**Course Code & Name: ME507PC: Engineering Metrology Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C318 [1]	Develop quality standards of engineering products in industries.
C318 [2]	Demonstrate work in quality control departments of industries and to ensure quality of products.
C318 [3]	Analyze the measurement of the surface roughness and perform alignment tests.
C318 [4]	Develop the ability to apply the principles in instruments and measuring techniques.
C318 [5]	Demonstrate work in designing the instrumentation for a Particular purpose and special devices.

**Course Code & Name: \*MC500HS: Professional Ethics**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C319 [1]	The students will understand the importance of Values and Ethics in their personal lives and professional careers.
C319 [2]	The students will learn the rights and responsibilities as an employee, team member and a global citizen.

**III YEAR ME SEMESTER-II (REGULATION –R16)**

**ACADEMIC YEAR: 2019-2020**

**Course Code & Name: ME601PC: Thermal Engineering - II**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C321 [1]	Develop state – space diagrams based on the schematic diagrams of process flow of steam and gas turbine plants.
C321 [2]	Apply the laws of Thermodynamics to analyze thermodynamic cycles.
C321 [3]	Differentiate between vapour power cycles and gas power cycles.
C321 [4]	Infer from property charts and tables and to apply the data for the evaluation of performance parameters of the steam and gas turbine plants.
C321 [5]	Understand the functionality of major components of steam and gas turbine plants and to do the analysis of these components.

**Course Code & Name: ME602PC: Design Of Machine Members - II**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C322 [1]	Knowledge about journal bearing design using different empirical relations.
C322 [2]	Estimation of life of rolling element bearings and their selection for given service conditions.
C322 [3]	Acquaintance with design of the components as per the standard, recommended procedures which is essential in design and development of machinery in industry.

**Course Code & Name: ME603PC: Heat Transfer**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C323 [1]	Understand the basic modes of heat transfer.
C323 [2]	Compute one dimensional steady state heat transfer with and without heat generation.
C323 [3]	Understand and analyze heat transfer through extended surfaces.
C323 [4]	Understand one dimensional transient conduction heat transfer.
C323 [5]	Understand concepts of continuity, momentum and energy equations
C323 [6]	Interpret and analyze forced and free convective heat transfer.

C323 [7]	Interpret and analyze forced and free convective heat transfer
C323 [8]	Design of heat exchangers using LMTD and NTU methods

**Course Code & Name: CE621OE: Remote Sensing and GIS (Open Elective - II)**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C324 [1]	Retrieve the information content of remotely sensed data.
C324 [2]	Analyze the energy interactions in the atmosphere and earth surface features.
C324 [3]	Interpret the images for preparation of thematic maps.
C324 [4]	Apply problem specific remote sensing data for engineering applications.
C324 [5]	Analyze spatial and attribute data for solving spatial problems.
C324 [6]	Create GIS and cartographic outputs for presentation.

**Course Code & Name: ME614PE: Ic Engines And Gas Turbines (Professional Elective - I)**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C325 [1]	Explain basic concepts of actual cycles with analysis and to describe the fundamental concepts of IC engines along with its working principles.
C325 [2]	Describe the combustion phenomenon in SI and CI engines.
C325 [3]	Evaluate the performance of IC engines and the importance of alternate fuels.
C325 [4]	Classify the essential components of gas turbine along with its performance Improving methods.
C325 [5]	Illustrate the working principle of different types of Jet propulsive engines and Rockets.

**Course Code & Name: ME604PC: Heat Transfer Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C326 [1]	Perform steady state conduction experiments to estimate thermal conductivity of different materials



C326 [2]	Perform transient heat conduction experiment
C326 [3]	Estimate heat transfer coefficients in forced convection, free convection , condensation and correlate with theoretical values
C326 [4]	Obtain variation of temperature along the length of the pin fin under forced and free convection
C326 [5]	Perform radiation experiments: Determine surface emissivity of a test plate and Stefan- Boltzmann's constant and compare with theoretical value

**Course Code & Name: ME605PC: CADD and MATLAB**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C327 [1]	Develop 8086 programming codes for basic operations
C327 [2]	Interface peripherals and demonstrate the 8051 based applications

**Course Code & Name: EN606HS: Advanced English Communication Skills Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C328 [1]	Acquire vocabulary and use it contextually
C328 [2]	Listen and speak effectively
C328 [3]	Develop proficiency in academic reading and writing
C328 [4]	Increase possibilities of job prospects
C328 [5]	Communicate confidently in formal and informal contexts

**IV YEAR ME SEMESTER-I (REGULATION –R16)**

**ACADEMIC YEAR: 2019-2020**

**Course Code & Name: ME701PC: CAD/CAM**

Upon completion of the course, students will be able to:

Course Name	Course outcomes
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C411 [1]	Understand geometric transformation techniques in CAD
C411 [2]	Develop mathematical models to represent curves and surfaces.
C411 [3]	Model engineering components using solid modeling techniques.
C411 [4]	Develop programs for CNC to manufacture industrial components.
C411 [5]	To understand the application of computers in various aspects of Manufacturing viz., Design, Proper planning, Manufacturing cost, Layout & Material Handling system.

**Course Code & Name: ME702PC: Instrumentation And Control Systems**

Upon completion of the course, Students will be able to:

Course Name	Course outcomes
C412 [1]	To identify various elements and their purpose in typical instruments, to identify various errors that would occur in instruments.
C412 [2]	Analysis of errors so as to determine correction factors for each an instrument.
C412 [3]	To understand static and dynamic characteristics of instrument and should be able to determine loading response time.
C412 [4]	For given range of displacement should be able to specify transducer, its accurate and loading time of that transducer.

**Course Code & Name: ME724PE: Operations Research (Professional Elective –II)**

Upon the completion of the course, students will be able to:

Course Name	Course outcomes
C413 [1]	Understanding the problem, identifying variables & constants
C413 [2]	formulas of optimization model and applying appropriate optimization Tech

**Course Code & Name: ME734PE: CNC Technology (Professional Elective –III)**

Upon Completion of the course, the students will be able to:

Course Name	Course outcomes
C414 [1]	One should be able to select tooling method, control mechanism and do part programming for a given product.

**Course Code & Name: ME742PE: Turbo Machines (Professional Elective –IV)**

Upon Completion of the course, the students will be able to:

Course Name	Course outcomes
C415 [1]	Ability to design and calculate different parameters for turbo machines
C415 [2]	Prerequisite to CFD and Industrial fluid power courses.
C415 [3]	Ability to formulate design criteria.
C415 [4]	Ability to understand thermodynamics and kinematics behind turbo machines.

**Course Code & Name: ME703PC: CAD/CAM LAB**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C416 [1]	To understand the analysis of various aspects in of manufacturing design.

**Course Code & Name: ME704PC: Instrumentation And Control Systems Lab**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C417 [1]	The student will be able to Characterize and calibrate measuring devices.
C417 [2]	Identify and analyze errors in measurement.
C417 [3]	Analyze measured data using regression analysis.
C417 [4]	Calibration of Pressure Gauges, temperature, LVDT, capacitive transducer, rotameter.

**Course Code & Name: ME705PC Industry Oriented Mini Project**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C418 [1]	Apply the relevant knowledge and skills, which are acquired to a given problem.
C418 [2]	Document and present the work with requirements on structure, format, and language usage.

**Course Code & Name: ME706PC SEMINAR**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C419 [1]	Use English Language effectively in any Technical seminar form.
C419 [2]	Make use of the technical and engineering knowledge continuously which meets the expected outcome.

**IV YEAR ME SEMESTER-II (REGULATION –R16)**

**ACADEMIC YEAR: 2019-2020**

**Course Code & Name: CE831OE: Environmental Impact Assessment (Open Elective – III)**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C421 [1]	Identify the environmental attributes to be considered for the EIA study.
C421 [2]	Formulate objectives of the EIA studies.
C421 [3]	Identify the suitable methodology and prepare Rapid EIA.
C421 [4]	Identify and incorporate mitigation measures.

**Course Code & Name: ME853PE: Renewable Energy Sources (Professional Elective -V)**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C422 [1]	Understanding of renewable energy sources.
C422 [2]	Knowledge of working principle of various energy systems.
C422 [3]	Capability to carry out basic design of renewable energy systems.

**Course Code & Name: ME863PE: Unconventional Machining Processes (Professional Elective - VI)**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C423 [1]	Understand the basic techniques of machining processes modeling
C423 [2]	Understand the mechanical aspects of orthogonal cutting mechanics
C423 [3]	Understand the thermal aspects of orthogonal cutting mechanics
C423 [4]	Ability to extend, through modeling techniques, the single point, multiple point and abrasive machining processes
C423 [5]	Estimate the material removal rate and cutting force, in an industrially useful manner, for practical machining processes.

**Course Code & Name: ME801PC: MAJOR PROJECT**

Upon the completion of the course, Students will be able to:

Course Name	Course outcomes
C424 [1]	Apply the relevant knowledge and skills, which are acquired to a given problem
C424 [2]	Independently analyze and discuss inquiries/problems and solve larger problems
C424 [3]	Evaluate, and critically assess others scientific results as survey
C424 [4]	Document and present the work with requirements on structure, format, and language usage.
C424 [5]	Make use of the technical and engineering knowledge continuously which meets the expected outcome.