**SYNERGY INSTITUTE OF TECHNOLOGY, BHUBANESWAR**

Deparment of Mechanical Engineering

**Course Outcome (CO)**

**Academic Year: 2023-24, Branch: ME, Subject(Code):Mathematics-I(C101), Year/Semester of Study:1st /1st**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C101.1** | Understand the technique of calculus | **L2** |
| **C101.2** | Understand indefinite integral , Gamma function and Beta function. | **L2** |
| **C101.3** | Apply the mean value theorem and power series . | **L3** |
| **C101.4** | Identify the application of partial derivatives . | **L3** |
| **C101.5** | Analyze linear system of equation and rank of a matrix . | **L4** |
| **C101.6** | Apply the specific properties of matrices . | **L3** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Chemistry(C102),**
**Year/Semester of Study: 1st/2nd**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C102.1** | Demonstrate various periodic properties associated with different elements present in different groups and periods of modern periodic table. | **L4** |
| **C102.2** | Understand about free energy concept of the thermodynamics associated with chemical reactions and equilibriums. | **L1** |
| **C102.3** | Analyze the concept of rotational and vibrational spectroscopic techniques for identification of organic and inorganic compounds. | **L4** |
| **C102.4** | Understand the concept of UV spectroscopy for identification of organic and inorganic compounds. | **L2** |
| **C102.5** | Analyze the concept of configurations and conformations of various organic compounds. | **L4** |
| **C102.6** | Understand the generation, reaction and identification of intermediate reactions and their applications | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Basic Electronics (C103),**
**Year/Semester of Study:1st/2nd**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C103.1** | Analyze the basic concept of semiconductor physics | **L4** |
| **C103.2** | Analyze the principle of operation of bipolar junction transistor (BJT) | **L4** |
| **C103.3** | Analyze the principle and operational charecteristics of junction Field Effect Transistor(JFET) , Metal Oxide Semiconductor Field Effect Transistor (MOSFET) and Integrated Circuit (IC) | **L4** |
| **C103.4** | Understand the concept and application of feedback amplifier and operational amplifier (OP-AMP) | **L2** |
| **C103.5** | Understand the fundamentals of digital electronic circuits | **L2** |
| **C103.6** | Discuss about the electronic instruments and communication systems | **L3** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Engineering Mechanics(C104), Year/Semester of Study: 1st/2nd**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|

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|---|---|---|
| **C104.1** | Understand the principle and application of concurrent forces on a plane | **L1** |
| **C104.2** | Analyze the fundamental principle of friction and virtual work | **L4** |
| **C104.3** | Explain about parallel forces on a plane | **L2** |
| **C104.4** | Disscus about the concept and application of moment of inertia | **L3** |
| **C104.5** | Understand rectilinear translation and conservation of energy | **L2** |
| **C104.6** | Understand curvilinear translation | **L2** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Basic Mechanical Engineering(C105), Year/Semester of Study: 1st/2nd**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C105.1** | Understand the fundamental concept of thermodynamics system. | **L1** |
| **C105.2** | Analyze the application of thermodynamics in IC engine,refrigerator and heat pump. | **L4** |

| | | |
|---|---|---|
| **C105.3** | Understand the concept of fluid mechanics and Heat transfer | **L2** |
| **C105.4** | Analyze the different manufacturing process and techniques. | **L4** |
| **C105.5** | Understand about the working principle of basic power transmission devices | **L2** |
| **C105.6** | Explain about the configuration and anatomy of Robotics | **L2** |

**Academic Year: 2023-24, Branch: ME , Subject(Code):English for Technical Writing (C106), Year/Semester of Study: 1st/2nd**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C106.1** | Understand the concept and nature of communication and the objective of Technical communication relevant for the workplace as Engineers. | **L2** |
| **C106.2** | Use suitable vocabulary and grammar with confidence and express their ideas both in speech and writing. | **L4** |
| **C106.3** | Analyze their efficacy as fluent and efficient communicators by learning the voice dynamics. | **L4** |

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|---|---|---|
| **C106.4** | Understand appropriate and competent professional writing skills to communicate information effectively in the organization setup. | **L1** |
| **C106.5** | Formulate a comprehensive, holistic and job specific chronological or functional resume, to increase employability. | **L3** |
| **C106.6** | Understand appropriate skills to face interviews with confidence and to develop desired corporate and social etiquettes. | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code):Chemistry Laboratory(107) , Year/Semester of Study: 1st/ 2nd**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C107.1** | Analyze the alkalinity and hardness value of the water sample for industrial application | **L4** |
| **C107.2** | Analyze the concentration of Iron and calcium present in the solution for industrial application | **L4** |
| **C107.3** | Analyze the chlorine content and dissolve oxygen of water sample for industrial application | **L4** |
| **C107.4** | Apply knowledge on preparation of drugs for industrial application | **L3** |
| **C107.5** | Analyze viscosity and flashpoint of lubricating oils for industrial application | **L4** |

**Academic Year: 2022-23, Branch: ME , Subject(Code): Basic Electronics Lab. (C108), Year/Semester of Study: 1st/2nd**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C108.1** | Understand basic knowledge on Electronic Components, Devices and use of CRO | **L2** |
| **C108.2** | Analyze V-I Characteristics of Semiconductor Diode and Transistor | **L4** |
| **C108.3** | Analyze the Transfer Characteristics of JFET and MOSFET | **L4** |
| **C108.4** | Analyze configuration of OP-Amp, verification of Truth Table of Logic Gates and realization by Universal Gate | **L4** |
| **C108.5** | Understand Full-Wave Rectifier, Half -wave Rectifier, Digital Circuit using Universal Gates and Op-Amp as Integrator and Differentiator | **L1** |

**Academic Year: 2023-24, Branch: ME, Subject (Code): Communicative English & Report writing Lab.(C109), Year/Semester of Study: 1st/2nd**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C109.1** | Discuss about self-introduction and professional presentation | **L3** |
| **C109.2** | Apply power presentation and situational conversational practice/Role play | **L3** |
| **C109.3** | Discuss review of a book/newspaper editorial/movie, coverletter and CV writing | **L3** |
| **C109.4** | Understand Listening Practice and Group Discussion | **L2** |
| **C109.5** | Discuss the Mock Interview and Reading Practice | **L3** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Workshop & Digital Manufacturing Lab (110), Year/Semester of Study: 1st/2nd**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C110.1** | Analyze the job in fitting section lathe and turning operation | **L4** |
| **C110.2** | Describe the Preparation of job in black smith section to Study milling machine and milling operation | **L2** |
| **C110.3** | Analyze the Preparation of job in carpentry section/milling operation on CNC milling machine | **L4** |
| **C110.4** | Understand about CNC lathe machine and turning on CNC lathe. | **L1** |
| **C110.5** | Understand about Robot for picking and palletizing operation. | **L2** |
| **C110.6** | Analyze additive manufacturing using 3D printer and product development | **L4** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Mathematics (II) (C111), Year/Semester of Study:1st/2nd**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C111.1** | Analyze concept of matrices for solution of linear equations | **L4** |
| **C111.2** | Understand about different type of matrices | **L2** |
| **C111.3** | Analyze the similarity of matrix and its diagonalization | **L4** |
| **C111.4** | Understand about vector differential calculus | **L2** |
| **C111.5** | Understand about vector integral calculus | **L1** |
| **C111.6** | Analyze the fourier transform and its application | **L4** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Physics(C112),**
**Year and Semester of Study:1st /1st sem**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C112.1** | Apply knowledge of harmonic oscillations in mechanical and electrical system. | **L3** |
| **C112.2** | Understand the basic concept of nature of light and coherent sources of waves. | **L2** |
| **C112.3** | Explain the thickness of the thin film, refractive index & resolving power of grating using principle of interference & diffraction of light. | **L2** |
| **C112.4** | Use Maxwell's equations & time varying electric field to show the nature of propagation of EM waves & its energy through free space, non-conducting and conducting media. | **L4** |
| **C112.5** | Understand the Schrodinger wave equation to calculate the matter wave energy and momentum of a particle in a box. | **L2** |
| **C112.6** | Classify among different types of LASER and its transition probabilities. | **L3** |

**Academic Year: 2023-24, Branch: ME ,Subject(Code): Basic Electrical Engineering (113),**
**Year/Semester of Study:1st/1st**

| COs | CO Statements | Bloom's Taxonomy |
|---|---|---|

| COs | After successful completion of course the students will be able to | Taxonomy Level |
|---|---|---|
| **C113.1** | Analyze fundamental laws and theorems of AC and DC circuits | **L4** |
| **C113.2** | Understand fundamentals of Single phase AC circuits | **L2** |
| **C113.3** | Analyze three phase AC circuits | **L4** |
| **C113.4** | Analyze magnetic circuit and its applications | **L4** |
| **C113.5** | Understand the fundamentals of AC machines | **L2** |
| **C113.6** | Understand the fundamental concept of power system | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Programming in C and Data Structure(C114), Year/Semester of Study: 1st/1st**

| COs | CO Statements | Bloom's Taxonomy Level |
|---|---|---|
| | **After successful completion of course the students will be able to** | |

| | | |
|---|---|---|
| **C114.1** | Understand the basic concept of programming in 'C' | **L2** |
| **C114.2** | Apply simple algorithm to 'C' program | **L3** |
| **C114.3** | Understand programs using Function, Array, Structure and Union | **L2** |
| **C114.4** | Analyze the relation between memory and memory referencing with execution of the program | **L4** |
| **C114.5** | Apply different Data structure for Problem Solving | **L3** |
| **C114.6** | Understand about tree, Sorting and Searching fundamentals | **L2** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Basic Civil Engineering (115), Year/Semester of Study: 1st/1st**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C115.1** | Understand the basics of civil engineering and fundamental aspects of building. | **L2** |
| **C115.2** | Analyze about classification of foundation and bearing capacity of soil | **L4** |

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|---|---|---|
| **C115.3** | Understand the brief overview of general aspects of building materials. | **L2** |
| **C115.4** | Explain about transportation modes and planning. | **L2** |
| **C115.5** | Understand about drinking water standards and water treatment plant. | **L2** |
| **C115.6** | Discuss irrigation network system. | **L3** |

**Academic Year: 2023-24,Branch: EE, Subject(Code): Universal Human Values(C116), Year/Semester of Study:1st/1st**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C116.1** | Understand the essentials of human values,skills, self exploration, happiness and prosperity. | **L2** |
| **C116.2** | Analyze coexistence of the "I" with the body. | **L4** |
| **C116.3** | Identify the role of harmony in family, society and universal order. | **L3** |

| | | |
|---|---|---|
| **C116.4** | Apply appropriate technologies and management patterns to create harmony in professional and personal lives. | **L3** |
| **C116.5** | Understand the holistic perception of harmony at all levels of existence | **L2** |
| **C116.6** | Understand about awareness in professional ethics. | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Physics Lab.(C117),**
**Year/Semester of Study: 1st /1st**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C117.1** | Analyze acceleration due to gravity by using Bar pendulum and resonance using sonometer. | **L4** |
| **C117.2** | Understand wave length of monochromatic light by using Newton's rong apparatus and diffraction grating using spectrometer. | **L2** |
| **C117.3** | Analyze RLC circuit,characteristics of Bipolar Junction Transistor (BJT) and PN junction diode. | **L4** |
| **C117.4** | Understand the rigidity modulus by using Barton's apparatus and Young's modulus by Searle's apparatus and surface tension of capillary rise method. | **L2** |

| | | |
|---|---|---|
| **C117.5** | Analyze the magentic field of Helmholtz coil and e/m ratio. | **L4** |

**Academic Year: 2023-24 , Branch: ME, Subject(Code): Basic Electrical Engineering Lab. (C118), Year/Semester of Study: 1st/1st**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C118.1** | Understand the Priliminary Concept of Laboratory Equipments and demonstration of Cut-Out section of Machines | **L2** |
| **C118.2** | Analyze measurment of Field Resistance, Armature Resistance, Starting and Speed Control of D.C Machine | **L4** |
| **C118.3** | Understand B-H curve and Open Circuit Characteristics (O.C.C) of D.C Machine | **L1** |
| **C118.4** | Understand the calibration of Single Phase Energy Meter, power measurement of Single Phase Circuit and V-I Characteristics of Incandescent Lamp | **L2** |
| **C118.5** | Analyze the measurement of Earth Resistance, House Wiring, Thevenin's Theorem and Norton's Theorem | **L4** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Programming Lab.(C119), Year/Semester of Study:1st/1st**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C119.1** | Apply logical ability to solve the problems | **L3** |
| **C119.2** | Understand 'C' programming environment, compiling, debugging, linking and executing using the development environment | **L2** |
| **C119.3** | Analyze the complexity of the problems in to small modules. | **L4** |
| **C119.4** | Apply in-built and customized functions for solving the problems. | **L3** |
| **C119.5** | Apply the pointers, memory allocation techniques and files for dealing with variety of problems. | **L3** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Engineering Graphic and Design Lab (C120) , Year/Semester of Study:1st/1st**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C120.1** | Understand the basics of Auto-CAD to perform simple drawing using commands. | **L2** |
| **C120.2** | Understand free hand sketching of basic geometrical constructions and multiple views of objects using the various types of scales. | **L1** |
| **C120.3** | Identify different geometrical figures and engineering curves using physical instruments and Auto-CAD. | **L3** |
| **C120.4** | Apply the projections of points, straight lines and plane surfaces in given quadrant. | **L3** |
| **C120.5** | Apply projections of solids to develop geometrical surfaces. | **L3** |
| **C120.6** | Analyze isometric and perspective sections of simple solids. | **L4** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Math-III(201),**
**Year/Semester of Study: 2nd/3rd**

| COs | CO Statements<br>**After successful completion of course the students will be able to** | Bloom's Taxonomy Level |
|---|---|---|
| **C201.1** | Understand about the numerical solution of linear equation, nonlinear equation and different type of interpolation | **L2** |
| **C201.2** | Analyze differentiation,integration and solution of ordinary differential equation | **L4** |
| **C201.3** | Demonstrate knowledge of probability distribution function | **L3** |
| **C201.4** | Apply fundamental knowledge on various types of probability distribution | **L3** |
| **C201.5** | Analyze correlation & regression theory based on sample data | **L4** |
| **C201.6** | Explain about testing of hypothesis | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Object Oriented Programming Using JAVA (C202 ), Year \ Semester of Study: 2nd\3rd**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C202.1** | Understand the basics of object-oriented programming using C++ and JAVA | **L2** |
| **C202.2** | Apply the concept of classes, Java, JDK Components and devlop Simple Java Programs | **L3** |
| **C202.3** | Devlop Simple Java Programs using inheritance and Exception handling | **L4** |
| **C202.4** | Develop web applications and can be executed by browsers for many platforms | **L4** |
| **C202.5** | Develop GUI applications using Swing components and Event handling programs | **L4** |
| **C202.6** | Develop the animation and media | **L4** |

**Academic Year: 2023-24, Branch: ME, Subject(Code):Organisational Behaviour (C203), Year/Semester of Study: 2nd/3rd**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C203.1** | Understand about the basic concept, evolution and managerial implications of organizational behaviour (OB) | **L2** |
| **C203.2** | Understand the importance of Right Personality,Attitude, Perception in an organization | **L2** |
| **C203.3** | Understand the role of Group Behaviour , ways to develop Effective Teams, Understand various Leadership style | **L1** |
| **C203.4** | Explain the importance of organizational culture | **L2** |
| **C203.5** | Understand the concept of organizational change | **L2** |
| **C203.6** | Analyze different Organizational Change Models and Change Intervention Methods to solve organizational problems | **L4** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Mechanics of Solid (C204), Year/Semester of Study: 2nd/3rd**

| COs | CO Statements | Bloom's Taxonomy |
|---|---|---|

| COs | After successful completion of course the students will be able to | Taxonomy Level |
|---|---|---|
| **C204.1** | understand the basic concepts of stress, and bi-axial state of stress. | **L4** |
| **C204.2** | know the bi-axial strains in details. | **L2** |
| **C204.3** | Observation and interpretation of shear force and bending momnet in details. | **L2** |
| **C204.4** | Evaluate the bending and deflection of beams in a realistic mode. | **L4** |
| **C204.5** | Investigate the significance of column in both concept and mathematical domain | **L1** |
| **C204.6** | Estimate the torsional behaviour of shafts and spring in an analytical manner. | **L4** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Fluid Mechanics & Hydraulic Machines(C205), Year/Semester of Study: 2nd/3rd**

| COs | CO Statements | Bloom's Taxonomy Level |
|---|---|---|
| | **After successful completion of course the students will be able to** | |

| | | |
|---|---|---|
| **C205.1** | Aware about the concept of fluid and its properties. | **L2** |
| **C205.2** | Interpret the basic laws of fluids, flow patterns, viscous flow through ducts and their corresponding problems. | **L2** |
| **C205.3** | Considerate of the concepts related to boundary layer theory, and dimensional ana | **L3** |
| **C205.4** | Investigate the functional aspects of turbo machinery | **L3** |
| **C205.5** | Get convenience upon the issues with pump, both centrifugal and reciprocating. | **L4** |
| **C205.6** | Evaluate the performance characteristics of hydraulic turbines. | **L4** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Mechanics of Solid Lab(C207), Year/Semester of Study: 2nd/3rd**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C207.1** | determine tensile and compressive strength using UTM. | **L3** |

| | | |
|---|---|---|
| **C207.2** | find out modulus of rigidity and fatigue strength of material. | **L4** |
| **C207.3** | calculate spring constant subjected to tension and compression loading. | **L4** |
| **C207.4** | measure load and strain using load cell and strain gauge. | **L3** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Fluid Mechanics and Hydaulic Machines Lab(C208), Year/Semester of Study: 2nd/3rd**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C208.1** | Determine meta centric height, CV nd CD of Orifice meter. | **L4** |
| **C208.2** | Experiment impact of jets. | **L4** |

| | | |
|---|---|---|
| **C208.3** | Study performance of different types of turbines | **L2** |
| **C208.4** | Study performance of centrifugal and reciprocating pump | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): OOP Using JAVA Lab (C209 ), Year / Semester of Study: 2nd/3rd**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C209.1** | Write programs for solving real world problems using java collection framework | **L2** |
| **C209.2** | Write programs using abstract classes and classes having different forms | **L2** |
| **C209.3** | Demonstrate multiple flow of execution simultaneously | **L3** |
| **C209.4** | Write how to access through implementing various classes | **L3** |

| | | |
|---|---|---|
| **C209.5** | Write GUI programs using Applet | **L3** |
| **C209.6** | Develop Exception handling mechanism | **L5** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Evaluation of Internship (C210), Year/Semester of Study: 2nd/3rd**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C210.1** | Learn the application of knowledge in real world problems. | **L2** |
| **C210.2** | Get exposure to team-work and leadership quality. | **L4** |
| **C210.3** | Deal with industry-professionals and ethical issues in the work environment. | **L1** |
| **C210.4** | Correlate technical skill with practical exposure. | **L3** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Kinematics & Dynamics of Machines (C211), Year/Semester of Study: 2nd/4th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C211.1** | Identify and enumerate different link based mechanisms with basic understanding of motion. | **L2** |
| **C211.2** | Interpret and analyse the velocity and acceleration diagrams for various mechanisms. | **L2** |
| **C211.3** | Understand and illustrate various power transmission mechanisms using suitable methods. | **L2** |
| **C211.4** | Observe and analyze the static and inertia forces concern to various functional elements. | **L3** |
| **C211.5** | Understand and illustrate the influence of friction, and other flexible mechanical elements. | **L4** |
| **C211.6** | Understand and illustrate various braking and dynamometer mechanisms | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Engineering Thermodynamics (C212), Year/Semester of Study: 2nd/4th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C212.1** | Understanding the concepts of 1st, 2nd law of thermodynamics, along with the issues like availability, and irreversibility. | **L2** |
| **C212.2** | Understanding the concept of various thermodynamic property relations and their effect. | **L2** |
| **C212.3** | Analyze the performance of vapour power cycles and identify methods to improve thermodynamic performance. | **L3** |
| **C212.4** | evaluate the execution of gas power cycles and identifies methods to improve thermodynamic performance. | **L5** |
| **C212.5** | Analyze the performance of refrigeration cycles. | **L3** |
| **C212.6** | Understanding the working principle of air compressor and its performance effect. | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Engineering Economics (C213), Year/Semester of Study: 2nd/4th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C213.1** | Understand the meaning and importance of demand and supply in engineering economics | **L2** |
| **C213.2** | Analyze the pattern of production and cost -output relationship in different scale. | **L4** |
| **C213.3** | Understand different market structure and its impact on price determination | **L2** |
| **C213.4** | Apply the different engineering formula to evaluate engineering projects | **L3** |
| **C213.5** | Understand the concept of national income, inflation and fiscal policy | **L2** |
| **C213.6** | Understand the role of RBI and commercial bank | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Introduction to Physical Metallurgy & Engineering Materials(C214),Year/Semester of Study: 2nd/4th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C214.1** | Observe a systematic understanding of crystal structures. | **L2** |
| **C214.2** | Analyse the concept of plastic deformation and its influence in details. | **L4** |
| **C214.3** | Comprehend a critical awareness in the concept of alloys. | **L3** |
| **C214.4** | Highlights the binary phase diagrams along with its microstructures in details. | **L5** |
| **C214.5** | Justify a critical awareness on the concept of material optical aspects and the optical fibre | **L4** |
| **C214.6** | Comprehend a vivid vision on the concepts like plastic, ceramic, composites. | **L5** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Mechanical Measurement,Metrology & Reliability (C215), Year/Semester of Study: 2nd/4th**

| COs | CO Statements | Bloom's Taxonomy |
|---|---|---|

| COs | After successful completion of course the students will be able to | Taxonomy Level |
|---|---|---|
| **C215.1** | Explain the basic knowledge of measurements, metrology and measuring devices. | **L3** |
| **C215.2** | Understand the principle of linear and angular measuring instruments. | **L2** |
| **C215.3** | Understand the fundamentals of transducer elements. | **L2** |
| **C215.4** | Estimate various features like strain, pressure, temperature measurements in details. | **L5** |
| **C215.5** | Explain the significance of measurement principles in details. | **L4** |
| **C215.6** | Understand various reliability works and its approach towards failure. | **L2** |

**Academic Year: 2023-24, Branch: EE, Subject(Code): Digital Signal Processing(C216), Year/Semester of Study: 2nd/4th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|

| | | |
|---|---|---|
| **C216.1** | Analyze the fundamental concept and classification of discrete time systems | **L4** |
| **C216.2** | Apply Z- Transform and inverse Z-Transform to analyze linear time invariant system | **L3** |
| **C216.3** | Explain about discrete fourier Transform and its properties | **L2** |
| **C216.4** | Discuss about efficient computation of Discrete FourierTtransform (DFT) | **L3** |
| **C216.5** | Analyze structure and implementation of Finite Impluse Response (FIR) filter and Infinite Impluse Response (IIR) filter | **L4** |
| **C216.6** | Understand the structure and application of analog filters and basic addaptive filter | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Kinematics & Dynamics of Machines Lab.(C218), Year/Semester of Study: 2nd/4th**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C218.1** | Find out radius of gyration of a pendulum and lift in screw jack. | **L3** |

| | | |
|---|---|---|
| **C218.2** | Calculate forces on bearing and study of clutches. | **L3** |
| **C218.3** | Find out performance different types of gear trains. | **L5** |
| **C218.4** | Experiment on dynamometer and brake. | **L3** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Engineering Thermodynamics Lab.(C219), Year/Semester of Study: 2nd/4th**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C219.1** | Study models of petrol and diesel engines and types of refrigeration system. | **L2** |
| **C219.2** | Analyse Performance of different types of compressors. | **L4** |
| **C219.3** | Study performance of gear pump and characteristics of CI Engine | **L2** |
| **C219.4** | Find load calculation in SI & CI engines | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Introduction to Physical Metallirgy and Engineering Materials Lab.(C220), Year/Semester of Study: 2nd/4th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C220.1** | Study of crystal structure and microscopic operation. | **L4** |
| **C220.2** | Study metallographic and micro structural analysis of carbon steel. | **L2** |
| **C220.3** | Micro structural analysis of various metals. | **L2** |
| **C220.4** | Calculate hardness and impact testing of ferrous materials | **L4** |

**Academic Year: 2023-24, Branch: ME , Subject(Code):Basic Manufacturing Processes (C301), Year/Semester of Study: 3rd/5th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C301.1** | Comprehend the foundry process along with the testing in details. | **L2** |
| **C301.2** | Look into the melting work concern with melting furnaces, and casting methods in details. | **L2** |
| **C301.3** | Explain various joining processes, keeping welding work as a pivot. | **L2** |
| **C301.4** | Establish the importance of forming processes, like powder metallurgy, rolling and forging in details. | **L2** |
| **C301.5** | Observe the extrusion, and drawing operations in a vivid manner. | **L2** |
| **C301.6** | Analysis of different sheet metal working, explosive forming, coating and deposition processes. | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Mechanisms and Machines (C302) , Year/Semester of Study: 3rd/5th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C302.1** | Identify and enumerate different mechanisms, taking gear in focus. | **L2** |
| **C302.2** | Experience and enumerate different mechanisms with basic understanding of motion specifically concern to Cam and Follower. | **L2** |
| **C302.3** | Equip the student with fundamental knowledge of dynamics of machines. | **L2** |
| **C302.4** | Develop understanding of dynamic balancing, flywheel analysis, gyroscopic forces and moments. | **L4** |
| **C302.5** | Elaborate knowledge of analytical and graphical methods for calculating balancing of rotary and reciprocating masses. | **L2** |
| **C302.6** | Develop understanding of vibrations and its significance on engineering design. | **L2** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Heat Transfer (C303), Year/Semester of Study: 3rd/5th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C303.1** | Understand the basic modes of heat transfer and apply principles of heat transfer t | **L1** |
| **C303.2** | Explain the basic law of heat transfer in steady state mode. | **L2** |
| **C303.3** | Demonstrate heat transfer with convection mode of heat transfer. | **L3** |
| **C303.4** | Validate convection mode of heat transfer in various arrangements. | **L5** |
| **C303.5** | Establish the concept of Radiation mode of heat transfer in details. | **L4** |
| **C303.6** | Justify the facts against condensation and heat exchanger domain. | **L5** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Automobile Engineering (C304), Year/Semester of Study: 3rd/5th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C304.1** | Layout the foundation against automobile basics added with guidelines. | **L2** |
| **C304.2** | Acquire knowledge about the various powers aligned with automotive. | **L4** |
| **C304.3** | Establishes facts against the automobile braking systems. | **L2** |
| **C304.4** | Acquire ideas about the transmission system equipped in an automobile unit. | **L3** |
| **C304.5** | Acquire understanding about the wheel geometry and steering system of an autom | **L3** |
| **C304.6** | Comprehend electrical system aligned to automobile unit along with electric power driven vehicle. | **L2** |

**Academic Year: 2023-24, Branch: ME , Subject(Code):Rapid Manufacturing Process (C305), Year/Semester of Study: 3rd/5th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C305.1** | Understand the Additive Manufacturing and its distinction relating to other Rapid Prototyping fields. | **L2** |
| **C305.2** | Become proficient in topic like liquid based rapid manufacturing process. | **L2** |
| **C305.3** | Become convenient in comprehending solid based rapid manufacturing process | **L2** |
| **C305.4** | Experience the powder based rapid manufacturing process. | **L2** |
| **C305.5** | Look into the issues like Rapid Tooling and also different software used in RP proce | **L3** |
| **C305.6** | Understand the application of RP process in different areas. | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Basic Manufacturing Process Lab. (C307) ,Year/Semester of Study: 3rd/5th**

| COs | CO Statements | Bloom's Taxonomy |
|---|---|---|

| COs | After successful completion of course the students will be able to | Taxonomy Level |
|---|---|---|
| **C307.1** | Study properties of sand | **L2** |
| **C307.2** | Prepare jobs by different forming process | **L2** |
| **C307.3** | Understand different process of rolling Mill | **L6** |
| **C307.4** | Perform different extrusion processes | **L3** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Mechanisms and Machines Lab.(308), Year/Semester of Study: 3rd/5th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C308.1** | Determine gyroscopic couple and performance of spring loaded governor | **L2** |
| **C308.2** | Find out critical speed of shaft and to test static and dynamic balance | **L4** |

| | | |
|---|---|---|
| **C308.3** | Determine natural frequency of vibrating system and to perform under cutting of gear drives. | **L5** |
| **C308.4** | Determine the motion of cam & follower | **L4** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Heat Transfer Lab. (C309), Year/Semester of Study: 3rd/5th**

| **Cos** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C309.1** | Determine thermal conductivity and heat transfer co efficient. | **L2** |
| **C309.2** | Find out emissivity and effectiveness of parallel & counter flow heat exchanger. | **L5** |
| **C309.3** | Determine the performance of fins and to find critical flux in boiling. | **L3,L5** |
| **C309.4** | Verify Stefan Boltzman's law. | **L5** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Evaluation of Summer Internship (C310) , Year/Semester of Study: 3rd/5th**

| Cos | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C310.1** | Learn the application of knowledge in real world problems. | **L2** |
| **C310.2** | Get exposure to team-work and leadership quality. | **L4** |
| **C310.3** | Deal with industry-professionals and ethical issues in the work environment. | **L1** |
| **C310.4** | Correlate technical skill with practical exposure. | **L3** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Design of Machine Elements (C311) , Year/Semester of Study: 3rd/5th**

| Cos | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C311.1** | Understand and apply principles of design fundamentals along with materials detail. | **L2** |
| **C311.2** | Become proficient in understanding of load, failure, safety, and theories of failure in detail. | **L2** |
| **C311.3** | Develop capability for analysing mechanical components and its selection from manufacturer's Catalogue | **L4** |
| **C311.4** | Learn a skill to design keys, shaft, couplings for various industrial applications. | **L5** |
| **C311.5** | Inculcate an ability to design springs and its selection for various purposes. | **L3** |
| **C311.6** | Achieve an expertise in design of bearings for industrial applications | **L3** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Machining Science and Technology(C312),Year/Semester of Study: 3rd/6th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C312.1** | Understand the cutting tool geometry, mechanism of chip formation. | **L3** |
| **C312.2** | Different types of machine tools, tool wears, and economics of machining in details. | **L1** |

| | | |
|---|---|---|
| **C312.3** | Understand different conventional machining processes and various techniques inv | **L2** |
| **C312.4** | Know various principles of machine tools and study of different mechanisms. | **L4** |
| **C312.5** | Aware of production machine tools especially a kind of lathe and others | **L2** |
| **C312.6** | Comprehend some non-traditional machining processes in details. | **L1** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Microprocessor and Microcontroller (C216), Year/Semester of Study: 2nd/4th**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C216.1** | Understand the organization and architecture of microprocessor | **L2** |
| **C216.2** | Understand the hardware architecture and system configuration of 8086 microprocessor | **L2** |
| **C216.3** | Analyze instruction set assembly language programming of 16- bit microprocessor | **L4** |

| | | |
|---|---|---|
| **C216.4** | Discuss about Interfacing of microprocessor peripherals | **L3** |
| **C216.5** | Understand hardware architecture, instruction set and programming of 8-bit microprocessor | **L2** |
| **C216.6** | Classify different types of interfacing in microprocessor | **L1** |

**Academic Year: 2023-24, Branch: ME, Subject(Code):Optimization in Engineering(C313), Year/Semester of Study:3rd Year/6th Sem**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C313.1** | Analyze optimization as mathematical programming problems. | **L4** |
| **C313.2** | Apply classical optimization techniques to solve linear programming problems. | **L3** |
| **C313.3** | Apply classical optimization techniques to solve linear programming problems (Transportation problems, Assignment problems and IPP) | **L3** |
| **C313.4** | Understand classical optimization techniques to solve nonlinear optimization problems. | **L2** |

| | | |
|---|---|---|
| **C313.5** | Explain about Evolutionary algorithms to find global optimum of nonlinear optimization problems. | **L2** |
| **C313.6** | Understand Queuing Theory. | **L2** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Smart and Composite Materials (C314),Year/Semester of Study:3rd/6th**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C314.1** | Explain the behavior of constituents in the composite materials. | **L2** |
| **C314.2** | Comprehend composite materials and its concern issues in detail. | **L3** |
| **C314.3** | Extend vision over Metal matrix composites in detail manner. | **L2** |
| **C314.4** | Illuminate the knowledge and analysis skills in applying rudimentary ideas about ceramic matrix composites. | **L2** |
| **C314.5** | Promotes the concepts and analysis skills upon the topic, polymer matrix composite. | **L3** |

| | | |
|---|---|---|
| **C314.6** | Progress the understanding around the issue like micro-mechanics, short fibre composites etc. in a vivid and broad sequence. | **L2** |

**Academic Year: 2023-24 , Branch: ME, Subject(Code): Artificial Intelligence and Machine Learning (C315), Year/Semester of Study: 3rd/6th**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C315.1** | Identify appropriate AI methods to solve a given problem. | **L3** |
| **C315.2** | Interpret the knowledge using logic concepts | **L4** |
| **C315.3** | Solve the problem using probabilistic methods | **L3** |
| **C315.4** | Describe various methods of machine learning | **L2** |
| **C315.5** | Compare and contrast the different expert systems | **L1** |
| **C315.6** | Manipulate representations of numbers stored in digital computers | **L4** |

**Academic Year: 2023-24 , Branch: ME, Subject(Code): Design of Machine Elements Lab. (C317), Year/Semester of Study: 3rd/6th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C317.1** | Design and drawing of riveted and cotter joint | **L6** |
| **C317.2** | Design and drawing of Knuckle joint and flange coupling | **L4** |
| **C317.3** | Design of shafts subjected to combined loading | **L6** |
| **C317.4** | Design of different types of bearing | **L4** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Machining Science and Technology Lab. (C318), Year/Semester of Study: 3rd/6th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C318.1** | Perform different jobs in lathe and milling machines. | **L6** |
| **C318.2** | Perform different jobs in planar, slotting and surface grinding machines. | **L4** |
| **C318.3** | Determine cutting force using lathe and drill dynamometer. | **L2** |
| **C318.4** | Perform different jobs using CNC machine. | **L3** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Seminar -I (C320) ,**
**Year/Semester of Study: 3rd/6th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C320.1** | Ability to understand and analyze the literature | **L2** |
| **C320.2** | Understand design aspect and analyze solutions to engineering problems | **L3** |
| **C320.3** | Ability to qualitatively evaluate the solutions on sustainable and ethical aspects | **L4** |
| **C320.4** | Ability to conduct collaborative discussions and presentations | **L3** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Entrepreneurship Development (C401) ,**
**Year/Semester of Study: 4th/7th**

| COs | CO Statements | Bloom's Taxonomy |
|---|---|---|

| COs | After successful completion of course the students will be able to | Taxonomy Level |
|---|---|---|
| **C401.1** | Understand the Concept of Entrepreneurship and skills of Entrepreneurs | **L2** |
| **C401.2** | Analyze business environment to identify business opportunities and preparation of Preliminary & detailed Project Report. | **L4** |
| **C401.3** | Understand about the Environment Protection Acts, rules and regulations to start a new venture | **L2** |
| **C401.4** | Apply Entrepreneurial Strategies to manage an enterprise | **L3** |
| **C401.5** | Identify the causes of industrial sickness and remedial measures to revive sick industry | **L3** |
| **C401.6** | Understand the role of Government Bank to revive sick units | **L2** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Power Plant Engineering (C402), Year/Semester of Study: 4th/7th**

| COs | CO Statements | Bloom's Taxonomy Level |
|---|---|---|
| | **After successful completion of course the students will be able to** | |

| | | |
|---|---|---|
| **C402.1** | Explain the concept of energy, its generation and steam generator in details. | **L1,L2** |
| **C402.2** | Study of nozzle and its influence upon the flow work along with parametric details. | **L4,L5** |
| **C402.3** | Fundamental and computational observations concern to different types of steam turbines. | **L2** |
| **C402.4** | Explain in details about the reaction turbine kind. | **L3** |
| **C402.5** | Understand and analysis of steam condenser and water circulation system in steam power plant. | **L4** |
| **C402.6** | Working principles of Nuclear power plant and its safety measures. To visualise the financial aspects of a power plant. | **L3,L4** |

**Academic Year: 2023-24, Branch: ME, Subject(Code):Refrigeration and Air conditioning(C403), Year/Semester of Study:4th/7th**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C403.1** | Illustrate the fundamental principles and applications of refrigeration and air condi | **L1** |

| | | |
|---|---|---|
| **C403.2** | Obtain cooling capacity and coefficient of performance in various arrangements concern to refrigeration unit by conducting test on vapour compression refrigeration system. | **L1,L4** |
| **C403.3** | Analysis of vapour absorption system and its comparison with vapour compression system. Fundamental awareness of Thermoelectric Refrigeration. | **L4** |
| **C403.4** | Observation of the properties, applications and environmental issues of different refrigerants. | **L2,L3** |
| **C403.5** | Understanding of air-vapour mixture, and Psychrometric chart in detail. | **L4** |
| **C403.6** | Analysis of comfort air conditioning system considering its various aspects in details. | **L4,L6** |

**Academic Year: 2023-24, Branch: ME, Subject(Code):Digital VLSI Design (C404), Year/Semester of Study: 4th/7th**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C404.1** | Demonstrate the concepts of VLSI design, fabrication of MOSFET and MOS transister | **L4** |
| **C404.2** | Explain the static and switching charecterictics of MOS inverter | **L2** |

| | | |
|---|---|---|
| **C404.3** | Discuss about combinational MOS logic circuit | **L3** |
| **C404.4** | Analyze Sequential MOS and dynamic logic circuits. | **L4** |
| **C404.5** | Analyze about design for testability | **L4** |
| **C404.6** | Summarize the Semiconductor memories-DRAM, SRAM and Flash Memory | **L1** |

**Academic Year: 2023-24, Branch: ME , Subject(Code): Green Technology(405), Year/Semester of Study: 4th/7th**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C405.1** | Understand the causes of production of green house gases and it's effect on the environment. | **L2** |
| **C405.2** | Explain the basic actions to prevent global warming and climate change. | **L1** |
| **C405.3** | Understand the impact knowledge on the methods of reducing $CO_2$ level in atmosphere | **L2** |

| | | |
|---|---|---|
| **C405.4** | Understand the importance of alternative energy sources for energy production | **L2** |
| **C405.5** | Understand the principles of green building technology and energy conservation measures. | **L1** |
| **C405.6** | Analyze the measures used on modern technology to reduce the climate change. | **L4** |

**Academic Year: 2023-24, Branch: ME, Subject(Code): Industrial Safety Engineering (C406 ), Year / Semester of Study: 3rd/7th Sem**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C406.1** | Explain details about industrial safety, preventive measures and the privileges prevailed inside the industry. | **L3** |
| **C406.2** | Explain the fundamentals, types, tools used, and financial aspects concern to maintenance engineering. | **L2** |
| **C406.3** | Explain in details of wear, lubrication and corrosion i.e. tribology deal with industry. | **L3** |
| **C406.4** | Comprehend the significance of Fault, and Decision tree concept relating to machine tools and equipments prevailed in an industry. | **L4** |

| | | |
|---|---|---|
| **C406.5** | Explain details aboutperiodic and preventive maintenance concern to mechanical a | **L3** |
| **C406.6** | Study steps and procedure in periodic and preventive maintenance concern with machine tools and prepare schedule of preventive maintenance concern to repair cycle. | **L1** |

**Academic Year: 2023-24, Branch: ME , Subject(Code):Minor Project (C408),**
**Year/Semester of Study: 4th/7th**

| **COs** | **CO Statements**<br>**After successful completion of course the students will be able to** | **Bloom's Taxonomy Level** |
|---|---|---|
| **C408.1** | Undergo a sound technical knowledge with selected project topics | **L3** |
| **C408.2** | Undertake problem identification, formulation and solution | **L2** |
| **C408.3** | Designing engineering solutions to complex problems with a systematic approach | **L4** |
| **C408.4** | Conduct an engineering project communication in both oral and written form | **L2** |

**Academic Year: 2023-24, Branch: ME, Subject(Code):Seminar -II (C409),**
**Year/Semester of Study: 4th/7th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C409.1** | Ability to understand and analyze the literature | **L4** |
| **C409.2** | Understand design aspect and analyze solutions to engineering problems | **L3** |
| **C409.3** | Ability to qualitatively evaluate the solutions on sustainable and ethical aspects | **L3** |
| **C409.4** | Ability to conduct collaborative discussions and presentations | **L2** |

**Academic Year: 2023-24, Branch: ME , Subject(Code):Comprehensive Viva (C410),**
**Year/Semester of Study: 4th/7th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C410.1** | The classes are arranged for practicingquestions based on the core courses listed in the Curriculum | **L3** |
| **C410.2** | The pass mark for this course is 25. | **L4** |
| **C410.3** | The mark will be treated as internal and should be uploaded along with internal marks of other subjects | **L3** |
| **C410.4** | Comprehensive Viva is conducted for students by the threemember committee. | **L4** |

**Academic Year: 2023-24, Branch: ME, Subject(Code):Major Project(C411),**
**Year/Semester of Study:4th/8th**

| COs | CO Statements<br>After successful completion of course the students will be able to | Bloom's Taxonomy Level |
|---|---|---|
| **C411.1** | Undergo a sound technical knowledge with selected project topics | **L3** |
| **C411.2** | Undertake problem identification, formulation and solution | **L2** |
| **C411.3** | Designing engineering solutions to complex problems with a systematic approach | **L4** |
| **C411.4** | Conduct an engineering project communication in both oral and written form | **L2** |

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