



Sri Eshwar
College of Engineering
An Autonomous Institution
Affiliated to Anna University, Chennai



Department of Mechanical Engineering

List of Course Outcomes for 2019 Regulation

| Sl No. | Year & Semester | Course Code | Course Name | Course Outcome |
|--------|--|-------------|-----------------------------|---|
| 1 | 1 st Year 1 st Semester | U19HS101 | Technical English | 1. Express their ideas effectively using appropriate vocabulary |
| | | | | 2. Develop reading skills with the help of relevant reading strategies |
| | | | | 3. Apply various interactive techniques for effective communication |
| | | | | 4. Write letters, Contents and articles with proper structure |
| | | | | 5. Make use of writing skills to communicate effectively |
| 2 | 1 st Year 1 st Semester | U19MA101 | Matrix Algebra and Calculus | 1. Determine inverse, higher integral powers by Cayley Hamilton theorem and convert quadratic form to canonical form by orthogonal transformation |
| | | | | 2. Analyze the convergence or divergence of series of positive terms and alternating series by various techniques |
| | | | | 3. Classify the extreme values of functions of two variables and functional dependence |
| | | | | 4. Apply integration concepts to compute area of the given surfaces, integrals in cartesian and polar coordinates |
| | | | | 5. Apply triple integration concepts to compute volume of the given surfaces and solid structure and area, volume of the surface using Gamma and Beta functions |
| 3 | 1 st Year 1 st Semester | U19CY101 | Engineering Chemistry | 1. Apply the principles of electrochemistry and corrosion in engineering |
| | | | | 2. Understand the quality of water, and its treatment methods |
| | | | | 3. Apply the concepts relevant to thermodynamics |
| | | | | 4. Understand the Engineering materials |
| | | | | 5. Understand the science of polymer and polymer reactions |

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| 4 | 1 st Year 1 st Semester | U19CS101 | Problem Solving Using C | 1. Apply appropriate looping and conditional constructs for given problems |
| | | | | 2. Use pointers, arrays and strings to solve complex problems |
| | | | | 3. Use Structures, unions and files for problem solving |
| | | | | 4. Apply problem solving techniques to real world problems |
| | | | | 5. Make use of functions to build modular programming |
| 5 | 1 st Year 1 st Semester | U19ME101 | Engineering Graphics | 1. Perform freehand sketching of basic geometrical constructions and multiple views of objects |
| | | | | 2. Project orthographic projections of points, lines and plane surfaces |
| | | | | 3. Draw the projection of simple solids using graphic principles |
| | | | | 4. Draw the sectional views of simple solids and develop the surfaces of sheet metal components |
| | | | | 5. Draw isometric projection and perspective projection of simple objects |
| 6 | 1 st Year 1 st Semester | U19CY111 | Chemistry Laboratory | 1. Analyse the role of water quality related parameters |
| | | | | 2. Design the engineering materials against corrosion |
| 7 | 1 st Year 1 st Semester | U19GE111 | Engineering Practices Laboratory | 1. Fabricate and experiment with Mechanical and Carpentry components and pipe connections |
| | | | | 2. Use fabrication tools to join and assembling the structures |
| | | | | 3. Identify and illustrate the various parts of pumps, plumbing works, welding and machine tools |
| | | | | 4. Apply electrical & electronic fundamentals to understand basic circuit elements and emerging technologies |
| | | | | 5. Use electrical fundamentals to solve domestic / industrial wiring faults |
| 8 | 1 st Year 1 st Semester | U19CS111 | Problem Solving Using C Laboratory | 1. Solve problems using data types and operators |
| | | | | 2. Apply appropriate looping and conditional constructs for given C programs |
| | | | | 3. Use functions to build modular programs |
| | | | | 4. Use appropriate IDE and tools to write, compile, debug and execute a C Program |
| | | | | 5. Implement structures, unions and File Operations |

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| 9 | 1 st Year 1 st Semester | U19EM101 | Soft Skills | 1. Apply the basic personality traits in social activity for future working environment |
| | | | | 2. Apply receptiveness and get customized to today's corporate world |
| | | | | 3. Analyze and mingle with different types of people to overcome and eradicate fear |
| | | | | 4. Create a team environment in the classroom to measure their individual team player skills |
| | | | | 5. Create a vivid vision about their behaviour and discipline in future and through which they can measure themselves in socializing |
| 10 | 1 st Year 2 nd Semester | U19HS111 | Business English | 1. Apply different conversation techniques in day to day communication |
| | | | | 2. Practice effective listening techniques during conversations |
| | | | | 3. Develop good reading practice |
| | | | | 4. Report ideas and concepts in an effective manner |
| | | | | 5. Articulate effectively during discussions and presentations |
| 11 | 1 st Year 2 nd Semester | U19HS112 | Basic Japanese | 1. Recognize and write Japanese alphabet |
| | | | | 2. Speak using basic sounds of the Japanese language |
| | | | | 3. Apply appropriate vocabulary needed for simple conversation in Japanese language |
| | | | | 4. Apply appropriate grammar to write and speak in Japanese language |
| | | | | 5. Comprehend the conversation and give correct meaning |
| 12 | 1 st Year 2 nd Semester | U19HS113 | Basic German | 1. Recognize and write German alphabet |
| | | | | 2. Speak using basic sounds of the German language |
| | | | | 3. Apply appropriate vocabulary needed for simple conversation in German language |
| | | | | 4. Apply appropriate grammar to write and speak in German language |
| | | | | 5. Comprehend the conversation and give correct meaning |
| 13 | 1 st Year 2 nd Semester | U19MA102 | Advanced Calculus and Complex Variables | 1. Compare the ideas of vector integral theorems for solving given problems and exhibit the relation between them |
| | | | | 2. Make use of Milne Thomson method to construct analytic functions related to complex variable |
| | | | | 3. Apply the concepts of integration for complex functions in certain |

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| | | | | regions to determine real integrals |
| | | | | 4. Apply Laplace transform and inverse transform of simple functions, properties, various related theorems and application to differential equations with constant coefficients |
| | | | | 5. Apply various techniques in solving differential equations |
| 14 | 1 st Year 2 nd Semester | U19PH101 | Engineering Physics | 1. Learn the basic of properties of matter and its applications |
| | | | | 2. Acquire knowledge on the concepts of optical devices and their applications in fibre optics |
| | | | | 3. Have adequate knowledge on the concepts of thermal properties of materials and their applications in expansion joints and heat exchangers |
| | | | | 4. Get knowledge on advanced physics concepts of quantum theory and its applications in tunneling microscopes |
| | | | | 5. Understand the basics of quantum structures and their applications in spintronics and carbon electronics |
| 15 | 1 st Year 2 nd Semester | U19CY102 | Applied Chemistry | 1. Understand the industrial importance of phase rule and alloys |
| | | | | 2. Explain the properties, sources of fuel and the concept of combustion |
| | | | | 3. Explain the construction, working and applications of energy storage devices and batteries |
| | | | | 4. Understand the industrial electrochemical processes |
| | | | | 5. Analyze the role of lubricants in the various fields |
| 16 | 1 st Year 2 nd Semester | U19ME102 | Engineering Mechanics | 1. Solve the scalar and vector representation of forces and analyze the behaviour of particles in equilibrium conditions |
| | | | | 2. Solve the scalar and vector representation of forces and moments and analyze the behaviour of rigid bodies in equilibrium conditions |
| | | | | 3. Determine the frictional force and its effects by using laws of friction |
| | | | | 4. Analyze the properties of surfaces and solids |
| | | | | 5. Calculate dynamic forces exerted in rigid body |
| 17 | 1 st Year 2 nd Semester | U19EE101 | Basic Electrical and Electronics Engineering | 1. Revise the basic concepts in electrical and electronics engineering |
| | | | | 2. Explain the basic laws governing electric circuits, operation of electrical and electronic devices and digital circuits |
| | | | | 3. Summarize the various applications of electrical machines and |

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| | | | | <ul style="list-style-type: none"> electronic devices 4. Apply the laws and concepts to predict the performance of electrical circuit and machines 5. Identify the operating characteristics of semiconductor devices, analog and digital circuits |
| 18 | 1 st Year 2 nd Semester | U19PH111 | Physics Laboratory | <ul style="list-style-type: none"> 1. Understand the various experiments in the areas of optics, mechanics and thermal physics will nurture the students in all branches of Engineering 2. Interpret and formulate experiments in engineering physics |
| 19 | 1 st Year 2 nd Semester | U19ME111 | Computer Aided Drafting and Modeling Laboratory | <ul style="list-style-type: none"> 1. Impart fundamental knowledge and basic skill to draft and model objects 2. Develop 2D and 3D models in relevance to given drawings using CAD Software 3. Recognize the conventions and apply dimensioning concepts while drafting simple objects 4. Draw orthographic and isometric projections of simple components 5. Draw orthographic and isometric projections of simple components |
| 20 | 1 st Year 2 nd Semester | U19EM111 | Technical Report Writing | <ul style="list-style-type: none"> 1. Realize the use of literature analysis 2. Become familiar with a variety of journals and online resources and gain an understanding of their value as learning tools 3. Understand and utilize the unique style of technical writing 4. Prepare annotated bibliographies related to the focus of their project 5. Prepare and deliver effective oral presentations for audiences and make effective use of PowerPoint |
| 21 | 2 nd Year 3 rd Semester | U19MA204 | Probability and Applied Statistics | <ul style="list-style-type: none"> 1. Apply the basic probability concepts for random variables and random experiments. 2. Apply the probability concepts of one-dimensional random variable for standard distributions, which can describe real life phenomena. 3. Apply statistical tests in testing of hypothesis. 4. Analyze an experiment for an appropriate situation using analysis of variance technique 5. Analyze quality of the products and services using quality Control |

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| 22 | 2nd Year 3rd Semester | U19ME201 | Engineering Materials and Metallurgy | 1. Compare different types of solid solutions and phase diagrams in metallurgical systems |
| | | | | 2. Apply the knowledge of heat treatments to alter the properties of materials |
| | | | | 3. Apply the knowledge of various engineering materials in real time applications |
| | | | | 4. Select suitable non-metallic materials for the given engineering requirements |
| | | | | 5. Evaluate various mechanical properties of materials using destructive testing methods |
| 23 | 2nd Year 3rd Semester | U19ME202 | Manufacturing Technology I | 1. Relate different types of patterns, casting process and furnaces used in foundry |
| | | | | 2. Distinguish different types of welding process and welding defects |
| | | | | 3. Explain hot working and cold working process based on its applications |
| | | | | 4. Summarize different types of forming processes based on its applications |
| | | | | 5. Explain manufacturing methods of plastic components based on its application |
| 24 | 2nd Year 3rd Semester | U19ME203 | Engineering Thermodynamics | 1. Familiarize the principles of work and energy |
| | | | | 2. Analyse the heat and work transfer in various thermodynamics process |
| | | | | 3. Acquire knowledge about the fundamentals of thermodynamic laws, concepts and principles |
| | | | | 4. Examine the Rankine cycle to determine the efficiency of the steam power systems |
| | | | | 5. Evaluate the performance of various thermal systems based on the laws of thermodynamics |
| 25 | 2nd Year 3rd Semester | U19ME204 | Fluid Mechanics and Machinery | 1. Apply mathematical knowledge to predict the properties and characteristics of a fluid |
| | | | | 2. Understand the transport of mass, momentum and energy of a fluid |
| | | | | 3. Analyse and calculate major and minor losses associated with pipe flow in piping networks |
| | | | | 4. Mathematically predict the nature of physical quantities, model |

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| | | | | analysis, boundary layer |
| | | | | 5. Analyze the performance of pumps and turbines |
| 26 | 2nd Year 3rd Semester | U19MC202 | Indian Constitution and Tradition | 1. Understand the characteristics of the Constitution of India |
| | | | | 2. Understand the fundamental rights and duties |
| | | | | 3. Understand the federal structure and distribution of legislative and financial powers |
| | | | | 4. Understand the constitutional amendments and emergency provisions |
| | | | | 5. Understand the fundamental right to equality, freedom, life and personal freedom |
| 27 | 2nd Year 3rd Semester | U19ME211 | Computer Aided Machine Drawing lab | 1. Acquire the knowledge of various standards and specifications about standard machine components |
| | | | | 2. Apply the knowledge of fits and tolerances for various applications |
| | | | | 3. Model components of their choice using CAD software |
| | | | | 4. Sketch Manual drawings of assemblies with the help of given part |
| | | | | 5. Create detailing of a Machine component |
| 28 | 2nd Year 3rd Semester | U19ME212 | Manufacturing Technology Laboratory | 1. Machine the work piece as per given drawing using Lathe / shaper / Slotter |
| | | | | 2. Make gear as per given drawing using gear hobbing |
| | | | | 3. Use different moulding tools, patterns to prepare sand moulds |
| | | | | 4. Select and use different type of grinding machines to machine the given workpiece |
| | | | | 5. Prepare process plan for given component |
| 29 | 2nd Year 3rd Semester | U19ME213 | Fluid Mechanics and Machinery Laboratory | 1. Determine the flow parameters using flow measurement devices |
| | | | | 2. Perform calculations related to losses in pipes |
| | | | | 3. Perform the characteristic study on Positive and Non-Positive Displacement Pump |
| | | | | 4. Interpret the performance of Impulse turbine to draw its characteristic curves |
| | | | | 5. Interpret the performance of Reaction turbine to draw its characteristic curves |

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| 30 | 2nd Year 3rd Semester | U19ME214 | Strength of Materials Laboratory | 1. Assess the behaviour of materials different load conditions |
| | | | | 2. Estimate and interpret the effect of heat treatment on different materials |
| | | | | 3. Measure the deflection of beams at different load conditions |
| | | | | 4. Evaluate the spring properties under compression load |
| | | | | 5. Characterize the microstructure of given samples |
| 31 | 2nd Year 4th Semester | U19MA207 | Numerical Methods and Partial Differential Equations | 1. Apply the numerical techniques to obtain approximate solutions for algebraic, transcendental and system of linear equations. |
| | | | | 2. Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems. |
| | | | | 3. Execute the numerical techniques for initial value problem with engineering applications. |
| | | | | 4. Apply the mathematical principles to solve partial differential equations. |
| | | | | 5. Solve the partial differential equations with initial and boundary conditions by various techniques. |
| 32 | 2nd Year 4th Semester | U19ME205 | Strength of Materials | 1. Understand the concepts of stress and strain in simple and compound bars, the importance of principal stresses and principal planes. |
| | | | | 2. Understand the load transferring mechanism in beams and stress distribution due to shearing force and bending moment. |
| | | | | 3. Apply basic equation of simple torsion in designing of shafts and helical spring |
| | | | | 4. Calculate the slope and deflection in beams using different methods. |
| | | | | 5. Analyze and design columns under critical loads & thin and thick shells for the applied internal and external pressures. |
| 33 | 2nd Year 4th Semester | U19ME206 | Kinematics of Machinery | 1. Identify the simple mechanisms based on given application |
| | | | | 2. Find velocity and acceleration of simple mechanisms |
| | | | | 3. Construct the cam profile for different types of follower motion |
| | | | | 4. Identify the kinematic terminologies of spur gear and calculate speed ratio of various types of gear train |
| | | | | 5. Estimate the amount of power transmitted by friction drive |

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| 34 | 2nd Year 4th Semester | U19ME207 | Thermal Engineering | 1. Explain the basic concepts and working principle of gas power cycle |
| | | | | 2. Investigate working principles of compressors and its performance characteristics related to thermodynamic cycles |
| | | | | 3. Explain the functioning and features of IC engines, components and auxiliaries |
| | | | | 4. Calculate performance parameters of IC Engines |
| | | | | 5. Solve problems in Steam Nozzle and explain the flow in steam turbines, draw velocity diagrams for steam turbines |
| 35 | 2nd Year 4th Semester | U19ME208 | Engineering Metrology and Measurements | 1. Describe the concepts of measurements to apply in various metrological instruments |
| | | | | 2. Outline the principles of linear and angular measurement tools used for industrial applications |
| | | | | 3. Explain the procedure for conducting computer aided inspection |
| | | | | 4. Demonstrate the techniques of form measurement used for industrial components |
| | | | | 5. Discuss various measuring techniques of mechanical properties in industrial applications |
| 36 | 2nd Year 4th Semester | U19MC201 | Environmental Sciences | 1. Analyze human interaction for the sustainability of a social eco-system. |
| | | | | 2. Examine the impact of pollution and hazardous chemical on environment and human health. |
| | | | | 3. Inspect the effect of different wastes and chemical on the environment and its mitigation methods. |
| | | | | 4. Identify the application of natural resources for creating a good eco-system. |
| | | | | 5. Apply the basic concepts to understand various environmental issues. |
| 37 | 2nd Year 4th Semester | U19ME215 | Engineering Metrology and Measurements Laboratory | 1. Measure the linear and angular dimensions of given specimens |
| | | | | 2. Measure the form measurement parameters |
| | | | | 3. Measure the gear dimensions parameters |
| | | | | 4. Measure surface finish parameters |
| | | | | 5. Measure force, torque and tool geometry by using appropriate |

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| | | | | instruments. |
| 38 | 2nd Year 4th Semester | U19ME216 | CAD/CAM Laboratory | 1. Understand the importance of CAD/CAM Principles in product development |
| | | | | 2. Develop 2D and 3D models using modeling software's |
| | | | | 3. Interpret drawings of machine components for preparation of given assembly drawings |
| | | | | 4. Prepare part programming and program generation from a CAD Model |
| | | | | 5. Infer a computer aided manufacturing model and generate machining codes automatically using CAD systems |
| 39 | 2nd Year 4th Semester | U19ME281 | Mini Project | 1. Identify the problems in mechanical engineering field by literature survey. |
| | | | | 2. Design, analyse and solve the identified problems by using modern engineering tools. |
| | | | | 3. Create innovative methodologies to solve the existing problems and developing the working models. |
| | | | | 4. Apply the engineering knowledge and suitable fabrication methods for fabrication of the working models |
| | | | | 5. Implement the role of team work in a project to find the solution and estimate the financial requirement of a project. |
| 40 | 2nd Year 4th Semester | U19EM201 | Verbal and Soft skills | 1. Inculcate rhetorical skills to build confidence level |
| | | | | 2. Creative employability attribution for campus interview |
| | | | | 3. Develop comprehending ability in various contexts |
| | | | | 4. Improve sentence formation by collaborative learning methods |
| | | | | 5. Conventional improvement practices by using various teaching aids |
| 41 | 3rd Year 5th Semester | U19ME301 | Manufacturing Technology - II | 1. Apply the metal cutting principles and calculate various cutting parameters in it |
| | | | | 2. Illustrate the construction, working and operations of centre, semi-automatic and automatic lathes |
| | | | | 3. Select suitable machine tools for the given product specifications |
| | | | | 4. Describe the constructional and operational features of grinding, broaching and fine finishing processes |

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| | | | | 5. Develop a CNC part program for the given part drawing |
| 42 | 3rd Year 5th Semester | U19ME302 | Dynamics of Machines | 1. Estimate the static and dynamic forces acting in the mechanisms and its components |
| | | | | 2. Analyze the static and dynamic balancing of different machines |
| | | | | 3. Compute the frequency of free vibration in machine components |
| | | | | 4. Calculate the frequency of forced vibration in machine components |
| | | | | 5. Determine the range of speed and lift of the different types of governors and gyroscopic effect on automobiles, airplanes and ships |
| 43 | 3rd Year 5th Semester | U19ME303 | Heat and Mass Transfer | 1. Understand the mechanisms of heat transfer under steady and transient conditions. |
| | | | | 2. Analyze the heat transfer coefficient of free convection and forced convection through pipes and flat Plates. |
| | | | | 3. Analyze the effectiveness and sizing of heat exchangers based on different application. |
| | | | | 4. Understand the radiation between surface and electrical analogy. |
| | | | | 5. Understand the basic concepts of mass transfer. |
| 44 | 3rd Year 5th Semester | U19ME304 | Design of Machine Elements | 1. Calculate the steady stresses and variable stresses in various machine components. |
| | | | | 2. Design the shafts, keys and couplings |
| | | | | 3. Design the temporary and permanent joints |
| | | | | 4. Design the energy storing elements and machine components. |
| | | | | 5. Design of the hydrodynamic bearings |
| 45 | 3rd Year 5th Semester | U19ME512 | Additive Manufacturing | 1. Explain basic concepts and classify the various additive manufacturing processes |
| | | | | 2. Select suitable liquid and solid based processes based on the application |
| | | | | 3. Apply powder based rapid prototyping systems in suitable applications |
| | | | | 4. Implement reverse engineering techniques for developing prototypes |
| | | | | 5. Develop knowledge on materials and novel applications additive manufacturing technologies |
| 46 | 3rd Year | U19ME522 | Automotive Electronics | 1. Understand the importance of emission standards in automobiles |

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| | 5th Semester | | | 2. Understand the electronic fuel injection/ignition components and their function |
| | | | | 3. Choose and use sensors and equipment for measuring mechanical quantities, temperature and appropriate actuators |
| | | | | 4. Diagnose electronic engine control systems problems with appropriate diagnostic tools |
| | | | | 5. Analyze the chassis and vehicle safety system |
| 47 | 3rd Year 5th Semester | U19ME311 | Kinematics and Dynamics Laboratory | 1. Understand types of kinematic motion on gear, and various linkages in mechanisms |
| | | | | 2. Determine mass moment of inertia of the various mechanical element |
| | | | | 3. Analyze the balancing of static and dynamic forces |
| | | | | 4. Study the nomenclatures of motion transmitting elements |
| | | | | 5. Analyze forces and torques of components in linkage |
| 48 | 3rd Year 5th Semester | U19ME312 | Thermal Engineering Laboratory | 1. Conduct tests on heat conduction apparatus and evaluate thermal conductivity of materials. |
| | | | | 2. Conduct tests on natural and forced convective heat transfer apparatus and evaluate heat transfer coefficient. |
| | | | | 3. Conduct tests on radiative heat transfer apparatus and evaluate emissivity of grey surface. |
| | | | | 4. Conduct tests to evaluate the effectiveness of parallel/counter flow heat exchanger apparatus. |
| | | | | 5. Conduct tests to evaluate the COP of refrigeration. |
| 49 | 3rd Year 5th Semester | U19IC702 | Geometric Dimensioning and Tolerancing | 1. Impart the basic concepts of geometrical dimensioning and tolerancing |
| | | | | 2. Explain the various aspect of geometrical dimensioning and tolerancing using simple examples |
| | | | | 3. Apply the geometrical dimensioning and tolerancing in Drafting |
| 49 | 3rd Year 5th Semester | U19IC703 | HVAC Systems Design | 1. Explain basics of HVAC and basic processes involved |
| | | | | 2. Select the suitable HVAC based on the requirement of the indoor space |
| | | | | 3. Design and application of Distribution |
| 50 | 3rd Year 5th | U19EM301 | Aptitude I | 1. Understand the importance and impact created by aptitude concepts in real life. |

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| | Semester | | | 2. Understand lot of learning methods and will be able to apply them in real life problems. 3. Students will be able to apply and solve problems based on application of aptitude concepts in real life 4. Analyze, evaluate and compare different scenarios given in a problem and find the strategically best solutions. 5. Creating their own questions based on parameters and constraints given. |
| 51 | 3rd Year 5th Semester | U19EM303 | Design Thinking Laboratory | |
| 52 | 3rd Year 6th Semester | U19ME305 | Production Planning and Control | 1. Explain the various components and functions of production planning and control 2. Prepare productions plan and control activities such as work study, time study and work sampling etc. 3. Acquire knowledge on product planning and process planning 4. Acquire knowledge and prepare production scheduling. 5. Acquire knowledge on recent trends in PPC |
| 53 | 3rd Year 6th Semester | U19ME306 | Design of Transmission Systems | 1. Apply the concepts of design to belts, chains and rope drives. 2. Design the spur and helical gears 3. Design the worm and bevel gears 4. Design the gear boxes 5. Design the cams, brakes and clutches |
| 54 | 3rd Year 6th Semester | U19ME504 | Industrial Robotics and Expert Systems | 1. Explain the concepts of industrial robots, classification, specifications and coordinate systems. 2. Illustrate the different types of robot drive systems as well as robot end effectors. 3. Apply the different sensors and image processing techniques in robotics to improve the ability of robots. |

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| | | | | 4. Develop robotic programs for different tasks and familiarize with the kinematics motions of robot. |
| | | | | 5. Examine the implementation of robots in various industrial sectors and understand the application of AI and KBES in Robots. |
| 55 | 3rd Year 6th Semester | U19ME505 | Finite Element Analysis | 1. Summarize the fundamentals of finite element formulation. |
| | | | | 2. Analyze one dimensional finite elements and to build the stiffness matrix. |
| | | | | 3. Analyze two dimensional finite elements and to build the stiffness matrix. |
| | | | | 4. Apply finite element method to solve one dimensional dynamic Problem. |
| | | | | 5. Make use of finite element techniques in isoparametric applications. |
| 56 | 3rd Year 6th Semester | U19ME533 | Industrial Automation | 1. Choose appropriate PLC and explain the architecture, installation procedures and troubleshooting |
| | | | | 2. Develop PLC programs using various functions of PLCs for a given application |
| | | | | 3. Explain the application development procedures in SCADA and manage data, alarm and storage |
| | | | | 4. Distinguish DCS, SCADA and PLC and explain the architecture of DCS |
| | | | | 5. Describe the controller elements and program methods |
| 57 | 3rd Year 6th Semester | U19ME313 | Industrial Automation and Robotics Laboratory | 1. Work with controllers and to know Assembly level language of 8085 processor |
| | | | | 2. Study operations of PLC and work with real time applications |
| | | | | 3. Study robot programming and simulate the robot for given application |
| | | | | 4. Design, model & analyze the basic electrical, hydraulic & pneumatic Systems |
| | | | | 5. Design a Mechatronics system with the help of Microprocessor, PLC and other electrical and Electronics Circuits. |
| 58 | 3rd Year 6th Semester | U19ME314 | Product Design and Development Laboratory | 1. Draw and assemble the components like mobile phone, hairdryers, electronics goods helmet etc, using modeling software. |
| | | | | 2. Analyze the stress, displacement, heat transfer and flow of the product using analysis software. |

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| | | | | 3. Optimize the material and cost using software. |
| | | | | 4. Develop the tooling program using CAM software. |
| | | | | 5. Prepare the design report of the modeled and analyzed product. |
| 59 | 3rd Year 6th Semester | U19ME381 | Innovative / Multi-Disciplinary Project | 1. Understand the concepts of basic and advancements of engineering |
| | | | | 2. Apply the engineering concepts to identify the problems |
| | | | | 3. Analyze the complex challenging problem in the field of engineering |
| | | | | 4. Create the new ideas or methodology to find the solution of the problem |
| | | | | 5. Evaluate the understanding based on the oral presentation |
| 60 | 3rd Year 6th Semester | U19EM304 | Technical Seminar | 1. Understand the concepts of basic and advancements of engineering |
| | | | | 2. Understand the technical concepts of topic presented |
| | | | | 3. Apply the concepts in application to present |
| | | | | 4. Analyze the pros and cons of engineering technologies presented |
| | | | | 5. Evaluate the understanding based on the oral presentation |
| 61 | 3rd Year 6th Semester | U19EM302 | Aptitude II | 1. Understand the importance and impact created by aptitude concepts in real life. |
| | | | | 2. Understand lot of learning methods and will be able to apply them in real life problems. |
| | | | | 3. Students will be able to apply and solve problems based on application of aptitude concepts in real life |
| | | | | 4. Analyze, evaluate and compare different scenarios given in a problem and find the strategically best solutions. |
| | | | | 5. Creating their own questions based on parameters and constraints given. |