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

Department of Mechanical Engineering

List of Course Outcomes for 2017 Regulation

Sl No.	Year & Semester	Course Code	Course Name	Course Outcome
1	2nd Year 3rd Semester	MA8353	Transform And Partial Differential Equations	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. Apply analysis of variance technique for a given experiment with appropriate situation.
				5. Apply quality control theory to examine the standard of the products based on the statistical data.
2	2nd Year 3rd Semester	ME8351	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.
				4. Summarize different types of forming processes
				5. Explain manufacturing methods of plastic components
3	2nd Year 3rd Semester	ME8391	Engineering Thermodynamics	1. Illustrate the basic concepts and laws of thermodynamics
				2. Apply the concepts of enthalpy and entropy in thermal systems
				3. Explain the working principle of steam power cycles
				4. Apply the concepts of thermodynamics to ideal gases and real gases and its relationships
				5. Apply the concepts of gas mixtures and psychrometry
4	2nd Year	CE8394	Fluid Mechanics And	1. Explain the fluid properties and their characteristics

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	3rd Semester		Machinery	2. Classify and explain the flow of fluid through circular conduits
				3. Extend and infer the importance of dimensional analysis
				4. Classify and interpret the performance characteristics of various pumps in engineering fields
				5. Classify and compare the performance characteristics of various turbines in engineering fields
5	2nd Year 3rd Semester	EE8353	Electrical Drives and Controls	1. Understand the basic concepts of different types of electrical machines and their performance.
				2. Explain different types of electrical machines and their performance characteristics.
				3. Illustrate the different methods of starting D.C motors and induction motors.
				4. Design conventional and solid-state speed control of DC drives
				5. Design conventional and solid-state speed control of AC drives
6	2nd Year 3rd Semester	ME8361	Manufacturing Technology Laboratory-I	1. Demonstrate the safety precautions exercised in the mechanical workshop
				2. Make the workpiece as per given shape and size using Lathe
				3. Join two metals using arc welding
				4. Use sheet metal fabrication tools and make simple tray and funnel
				5. Use different moulding tools, patterns and prepare sand moulds
7	2nd Year 3rd Semester	ME8381	Computer Aided Machine Drawing	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
8	2nd Year 3rd Semester	EE8361	Electrical Engineering Laboratory	1. Conduct load test on various AC and DC machines
				2. Draw the OCC and SC characteristics of AC and DC machines
				3. Find the regulation of an alternator.
				4. Perform speed characteristic of different electrical machine
				5. Understand the function of AC and DC starters

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9	2nd Year 3rd Semester	HS8381	Interpersonal skills / listening and speaking	1. Listen and respond appropriately
				2. Deliver thoughts and ideas with proper modulation.
				3. Make effective presentations.
				4. Participate in group discussions.
				5. Participate confidently and appropriately in conversations both formal and informal.
10	2nd Year 3rd Semester	MA8452	Statistics and Numerical Methods	1. Apply the concept of testing of hypothesis for small and large samples in real life problems
				2. Apply the basic concepts of classifications of design of experiments in the field of agriculture
				3. Appreciate the numerical techniques of interpolation in various intervals and apply the numerical techniques of differentiation and integration for engineering problems.
				4. Understand the knowledge of various techniques and methods for solving first and second order ordinary differential equations.
				5. Solve the partial and ordinary differential equations with initial and boundary conditions by using certain techniques with engineering applications.
11	2nd Year 4thSemester	ME8492	Kinematics of Machinery	1. Understand the basics of mechanisms and its application
				2. Determine the velocity and acceleration at any point of a link in a mechanism
				3. Draw the different types of cam profile for different types of follower motion
				4. Design the various types of gears and gear trains used in various machines
				5. Analyze the friction developed and power requirement to operate the screw jack, belt drives, clutch and brakes
12	2nd Year 4thSemester	ME8451	Manufacturing Technology II	1. Acquire knowledge about the concepts of tool life equations and process in machining.

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				2. Classify and infer different types of lathes for various applications and machining time calculations.
				3. Infer various functions of shaping, drilling milling and gear cutting machines and machining time calculations.
				4. Explain and extend the functioning of grinding and broaching machines and machining time calculations.
				5. Acquire knowledge on concepts of CNC, its types and part programming methods
13	2nd Year 4thSemester	ME8491	Engineering Metallurgy	1. Explain the phase developments during heating and cooling of alloys
				2. Develop skills to alter the properties of materials through heat treatment
				3. Choose specific engineering materials based on the application
				4. Acquire knowledge on non-metallic materials & the importance of composites
				5. Explain and infer failure modes & mechanism of materials
14	2nd Year 4thSemester	CE8395	Strength of Materials For Mechanical Engineers	1. Calculate stress, strain of ductile and composite material for different cross section.
				2. Draw a shear force and bending moment diagram.
				3. Design of shaft, helical and carriage spring
				4. Apply mathematics concepts and calculate the deflection and slope by various methods.
				5. Calculate the stress induced in thin, thick cylinder and sphere.
15	2nd Year 4thSemester	ME8493	Thermal Engineering-I	1. Apply thermodynamic concepts to different air standard cycles and solve problems
				2. Solve problems in single stage and multistage air compressors
				3. Explain the functioning and features of IC engines, components and auxiliaries.
				4. Calculate performance parameters of IC Engines
				5. Explain the flow in Gas turbines and solve problems
16	2nd Year 4thSemester	ME8462	Manufacturing Technology	1. Aware of the different types of special purpose machines and its working principle used in machining processes.

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			Laboratory–II	2. Apply the machining procedure to achieving the better surface finish in a component
				3. Analyze the different types of forces developed during machining process.
				4. Write programming for different types of contours and profiles in CNC machines
				5. Create different types of contours and sizes in a component
17	2nd Year 4thSemester	CE8381	Strength of Materials and Fluid Mechanics and machinery Laboratory	1. Perform Tension, Torsion, Hardness, Compression, and Deformation test on Solid materials.
				2. Analyze the mechanical properties by conducting heat treatment process.
				3. Analyze the mechanical properties by conducting heat treatment process.
				4. Use the measurement equipment for flow measurement
				5. Analyze the mechanical properties by conducting heat treatment process.
18	2nd Year 4thSemester	HS8461	Advance reading and writing	1. Write different types of essays.
				2. Write winning job applications.
				3. Read and evaluate texts critically.
				4. Display critical thinking in various professional contexts.
				5. Enhance their writing skills with specific reference to technical writing.
19	3rd Year 5thSemester	ME8595	Thermal Engineering-II	1. Solve problems in Steam Nozzle
				2. Explain the functioning and features of different types of Boilers and auxiliaries and calculate performance parameters.
				3. Explain the flow in steam turbines, draw velocity diagrams for steam turbines and solve problems.
				4. Summarize the concept of Cogeneration, Working features of Heat pumps and Heat exchangers
				5. Solve problems using refrigerant table / charts and psychrometric charts
20	3rd Year	ME8593	Design of Machine	1. Calculate the steady stresses and variable stresses in various

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	5thSemester		Elements	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
21	3rd Year 5thSemester	ME8501	Metrology And Measurements	1. Know about basic concept of metrology and measurement 2. Learn about various linear and angular measurements 3. Understand the principle and measurement of various form of an objects 4. Explain the advancements in metrology and Lasers 5. Learn about various measuring methods of mechanical parameters
22	3rd Year 5thSemester	ME8594	Dynamics of machines	1. Infer the force-motion relationship in components subjected to external forces and its analysis 2. Solve problems related to balancing of rotating and reciprocating masses. 3. Comprehend the effect of free vibrations. 4. Know the effect of dynamics of forced vibrations 5. Extend the mechanism principles used for speed control and stability control
22	3rd Year 5thSemester	OAI553	Production Technology of Agricultural machinery	1. Apply the knowledge of various engineering materials in real time applications 2. Apply the machining procedure to achieving the better surface finish in a component 3. Distinguish different types of welding process 4. Explain the need for unconventional machining processes and its classification 5. Write programming for different types of contours and profiles in CNC machines
23	3rd Year 5thSemester	OAT551	Automotive systems	1. Identify the different parts of chassis and engine components. 2. Acquire knowledge to assemble and dismantle engine auxiliary system.

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				3. Acquire knowledge to assemble and dismantle transmission system.
				4. Design and fabricate the steering system.
				5. Modify the engines based on alternate fuel.
24	3rd Year 5thSemester	ME8511	Kinematics and dynamics laboratory	1. Design the different types of gear trains
				2. Analyse the different types of vibrations and its effects on the machine components..
				3. Calculate the speed range of different types of governors.
				4. Find out the mass moment of inertia of the different types of machine components.
				5. Evaluate the effects of gyroscope and its application on different fields of engineering.
25	3rd Year 5thSemester	ME8512	Thermal Engineering laboratory	1. Measure thermal conductivity of materials of composite 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 Stefan Boltzmann constant and emissivity
				4. Evaluate the performance of parallel/counter flow heat exchanger apparatus and reciprocating air compressor
				5. Evaluate the performance of refrigeration and airconditioning test rigs.
26	3rd Year 5thSemester	ME8513	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 instruments.
27	3rd Year 6thSemester	ME8651	Design of transmission systems	1. Design flexible elements
				2. Design spur and helical gears
				3. Design bevel, worm and cross helical gears
				4. Design gear boxes, fluid couplings and torque converters
				5. Design effective braking components, cams and clutches as per

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				requirement specifications
28	3rd Year 6thSemester	ME8691	Computer aided design and manufacturing	1. Acquire knowledge the 2D and 3D transformations, clipping algorithm, Manufacturing models and Metrics
				2. Explain the fundamentals of parametric curves, surfaces and Solids
				3. Summarize the different types of Standard systems used in CAD
				4. Apply NC & CNC programming concepts to develop part programme for Lathe & Milling Machines
				5. Summarize the different types of techniques used in Cellular Manufacturing and FMS
29	3rd Year 6thSemester	ME8692	Finite element analysis	1. Comprehend the need for Mathematical Modelling& Evaluation of Finite Element Method
				2. Solve One Dimensional Solid Mechanics, Heat Transfer & Vibration Problems
				3. Solve Two Dimensional Scalar Variable Problems using Finite Element Method
				4. Solve Two Dimensional Vector Variable Problems using Finite Element Method fields
				5. Formulate the ISO parametric element
30	3rd Year 6thSemester	ME8693	Heat and mass transfer	1. Explain the conduction mode with respect to various geometry
				2. Explain the concept of convection principle and estimate boundary layer for different flow types
				3. Apply the concept of heat transfer and design the heat exchangers.
				4. Estimate radiation and heat transfer of different bodies with shape factor
				5. Explain the concept of mass transfer with different mass transfer correlations
31	3rd Year 6thSemester	ME8694	Hydraulics and pneumatics	1. Understand the basics of fluids and their properties with respect to its potential to do the work.
				2. Understand the basic components and systems with respect to Hydraulics.
				3. Understand the circuits for various applications with respect to Hydraulic system.

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				4. Understand the basic components and systems with respect to pneumatics.
				5. Design the circuits for various applications using Hydraulics and Pneumatics.
32	3rd Year 6thSemester	PR8592	Welding technology	1. Understand the construction and working principles of gas and arc welding process
				2. Understand the construction and working principles of resistance welding process
				3. Understand the construction and working principles of various solid-state welding process
				4. Understand the construction and working principles of various special welding process
				5. Understand the concepts on weld joint design, weldability and testing of weldments
33	3rd Year 6thSemester	ME8681	CAD/CAM laboratory	1. Work in CAD software and Design simple Components
				2. Work in CAM software and to program to machine simple components by manually
				3. Work in CAM software and to know computer aided part programming
				4. Expose students to modern control systems to control the CNC Machine Tool
				5. Know the application of various CNC machines like CNC lathe, CNC Vertical Machining center, CNC EDM and CNC wire-cut and studying of Rapid prototyping.
34	3rd Year 6thSemester	ME8682	Design and fabrication project	1. Identify the suitable project, technology to be adopted, rationale behind selection of technology and the objective(s) to be met by the project.
				2. Work as a team in planning and execution of project work, preparation of review presentations and project report.
				3. Apply relevant and appropriate knowledge of Engineering to achieve identified objectives of the project.

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				4. Create the tangible or intangible and demonstrable output at the end of the project either at our campus or in an industrial environment
35	3rd Year 6thSemester	HS8581	Professional Communication	1. Listen and respond appropriately
				2. Participate confidently in group discussions.
				3. Attend Job interviews and be successful in them.
				4. Develop adequate soft skills required for the work place.
36	4th Year 7thSemester	ME8792	Power Plant Engineering	1. Explain the concepts of coal based thermal power plant.
				2. Explain the working principle of diesel, gas turbine and combined cycle power plants.
				3. Explain the working principle of nuclear power plant.
				4. Classify and explain the various concepts of renewable energy recourses.
				5. Analyze the different types of power plant and calculate its performance
37	4th Year 7thSemester	ME8793	Process Planning And Cost Estimation	1. Understand the process planning methods, process planning selection and evaluating parameters for drawing interpretation
				2. Calculate the process parameters for various production processes and its economics.
				3. Know the procedure for preparing the cost estimation
				4. Solve problems in the calculation of cost of different types of jobs
				5. Calculate the time required for various machining operations
38	4th Year 7thSemester	ME8791	Mechatronics	1. Acquire knowledge on the basic principles of mechatronics system and working of various sensors
				2. Acquire knowledge on 8085 microprocessor and 8051micro controller system
				3. Comprehend the Programmable Peripheral Interface system and its

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				application
				4. Gain knowledge of PLC system and its application
				5. Comprehend the various types of actuators and design of mechatronics system
39	4th Year 7thSemester	OML751	Testing of Materials	1. Acquire basic knowledge on material testing fundamentals, testing organizations, testing standards and procedures
				2. Comprehend different types of destructive testing methods and its applications
				3. Comprehend different types of basic non-destructive testing methods and its applications
				4. Explicate various optical instruments used for material characterization
				5. Comprehend various thermal and chemical testing techniques.
40	4th Year 7thSemester	ME8073	Unconventional Machining Process	1. Explain the need for unconventional machining processes and its classification
				2. Compare various thermal energy and electrical energy based unconventional machining processes.
				3. Summarize various chemical and electro-chemical energy based unconventional machining processes.
				4. Explain various Nano abrasives based unconventional machining processes
				5. Distinguish various recent trends based unconventional machining processes.
41	4th Year 7thSemester	GE8077	Total Quality Management	1. Acquire the basic concepts of total quality management and contributions by Deming, Juran and Crosby.
				2. Acquire the knowledge of total quality management principles and apply the same in manufacturing and service organizations.
				3. Explain the various tools and techniques of total quality management and solve various quality related problems.
				4. Explain the various tools and techniques and apply the concepts of six sigma in the manufacturing &service sectors.
				5. Apply ISO 9000-2000 & ISO 14000 quality systems in a product and

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				service organization.
42	4th Year 7thSemester	ME8099	Robotics	1. Explain the concepts of industrial robots, classification, specifications and coordinate systems. Also summarize the need and application of robots in different sectors
				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
				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 interpolate the economic analysis of robots
43	4th Year 7thSemester	ME8097	Nondestructive Testing and Evaluation	1. Comprehend the fundamental concepts of NDT
				2. Discuss the different methods of NDE
				3. Enlighten the concept of Thermography and Eddy current testing
				4. Enlighten the concept of Ultrasonic Testing and Acoustic Emission
				5. Enlighten the concept of Radiography
44	4th Year 7thSemester	ME8711	Simulation and Analysis Laboratory	1. Work in MATLAB software and solve simple problems in vibration
				2. Simulate mechanisms using multi body dynamics software
				3. Perform force and stress analysis of various components and beams
				4. Analyze thermal stress and heat transfer of plates and cylindrical shells
				5. Perform dynamic analysis of various components and beams
45	4th Year 7thSemester	ME8781	Mechatronics Laboratory	1. Work in Controller and to know Assembly level language of 8085 processor
				2. Study operations of PLC
				3. Study Image processing technique
				4. Design, model & analyse the basic electrical, hydraulic & pneumatic Systems
				5. Design a mechatronics system with the help of Microprocessor, PLC and other electrical and Electronics

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				Circuits.
46	4th Year 7thSemester	ME8712	Technical Seminar	1. Select a technical topic related to mechanical engineering, study, analyse and summarize the topic
				2. Prepare a report and make a presentation on the selected topic.
				3. Provide students better communication skills
				4. Demonstrate the understanding of impact of engineering solutions on the society
				5. Demonstrate the knowledge of professional and ethical responsibilities.
47	4th Year 8thSemester	MG8591	Principles of Management	1. Understand the evolution of management theories and organization culture.
				2. Understand the concepts of planning, types and decision making ability with strategic planning.
				3. Understand the concept of organization, departmentalization and activities of HR.
				4. Understand individual and group behavior, motivational techniques and leadership qualities with effective communication.
				5. Understand and control effectively budgetary and non-budgetary items using modern IT tools.
48	4th Year 8thSemester	IE8693	Production Planning & Control	1. Recognize the objectives, functions, applications of PPC and forecasting techniques
				2. Understand different work study technique
				3. Prepare production planning and control activities
				4. Prepare production planning and control activities such as product planning, production scheduling
				5. Prepare inventory control and plan manufacturing requirement Planning (MRP II) and Enterprise Resource Planning (ERP)

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49	4th Year 8thSemester	ME8811	Project Work	1. Develop the ability to solve a specific problem right from its identification and literature review till the successful solution of the same.
				2. Discover new method to solve the related problems
				3. Apply the engineering knowledge in solving the problem
				4. Agree and work as a team to come to a common conclusion