SRI SAIRAM ENGINEERING COLLEGE

DEPARTMENT OF PRODUCTION ENGINEERING

COURSE OUTCOMES

(2017-Regulations)

IV YEAR/VII SEMESTER

ME8791 MECHATRONICS

S.No	OUTCOMES
1	Discuss the interdisciplinary applications of Electronics, Electrical, Mechanical and Computer Systems for the Control of Mechanical, Electronic Systems and sensor technology.
2	Discuss the architecture of Microprocessor and Microcontroller, Pin Diagram, Addressing Modes of Microprocessor and Microcontroller.
3	Discuss Programmable Peripheral Interface, Architecture of 8255 PPI, and various device interfacing.
4	Explain the architecture, programming and application of programmable logic controllers to problems and challenges in the areas of Mechatronic engineering.
5	Discuss various Actuators and Mechatronics system using the knowledge and skills acquired through the course and also from the given case studies.

GE8077 TOTAL QUALITY MANAGEMENT

S.No	OUTCOMES
1	The student would be able to apply the tools and techniques of quality management to manufacturing and services processes.

ME8098 QUALITY CONTROL AND RELIABILITY ENGINEERING

S.No	OUTCOMES
1	Summarize the concept of Quality and Process control for variables.
2	Apply the process control for attributes.
3	Explain the concept of sampling and to solve problems.
4	Explain the concept of Life testing.
5	Explain the concept Reliability and techniques involved.

OIE751 ROBOTICS

S.No	OUTCOMES
1	Upon completion of this course, the students can able to apply the basic engineering knowledge for the design of robotics.

PR8003 INSTRUMENTATION AND CONTROL

S.No	OUTCOMES
1	Understand the dynamic characteristics of measurement system.
2	Understand the mechanical measurements and industrial instrumentation.
3	Understand the working principle of data display and recording devices.
4	Understand the working principle of control system.
5	Perform Stability Analysis..

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ME8097 NON DESTRUCTIVE TESTING AND EVALUATION

S.No	OUTCOMES
1	Explain the fundamental concepts of NDT.
2	Discuss the different methods of NDE.
3	Explain the concept of Thermography and Eddy current testing.
4	Explain the concept of Ultrasonic Testing and Acoustic Emission.
5	Explain the concept of Radiography.

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IV YEAR/VIII SEMESTER

ME8793-PROCESS PLANNING AND COST ESTIMATION

S.No	OUTCOMES
1	Select the process, equipment and tools for various industrial products.
2	Prepare process planning activity chart.
3	Explain the concept of cost estimation.
4	Compute the job order cost for different type of shop floor.
5	Calculate the machining time for various machining operations.

GE8076 - PROFESSIONAL ETHICS IN ENGINEERING

S.No	OUTCOMES
1	To acquire the basic knowledge of human values, moral, ethics, industrial standards, code of ethics and role of professional ethics in engineering field.
2	To have an awareness of professional rights and responsibilities of an engineer, and to have an understanding for safety and risk benefit analysis.
3	To imbibe the various ethical theories developed and apply them for a professional and societal advancement.
4	To imbibe adequate knowledge about the culture & the value system adopted by MNC's, local business houses and to create an ethical based work environment.
5	To understand and solve the employees' conflict & grievances in an amicable and ethical way.
6	Formulate and provide solutions to overcome ethical issues for win-win outcome.

PR8006-ENGINEERING ECONOMICS AND FINANCIAL MANAGEMENT

S.No	OUTCOMES
1	Understand the principles of Engineering Economics.
2	Understand the principles of Engineering Economics.
3	Able to perform Profit analysis.
4	Able to manage the working capital
5	Understand the logic behind the capital budgeting.

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III YEAR/V SEMESTER

PR8501 ENGINEERING METROLOGY AND MEASUREMENT

S.No	OUTCOMES
1	Define the basic concepts and terminology in measurements..
2	Differentiate the principle, operation of linear and angular measuring instruments.
3	Mathematically define the method of form measurements of screw threads, surface roughness and basic feature form.
4	Explain the applications of laser on dimensional measurements &computer aided inspection.
5	Illustrate the working principles of different measuring instruments for measuring mechanical parameters.

MF8791 METAL FORMING TECHNOLOGY

S.No	OUTCOMES
1	To understand the fundamental mechanics of metal forming processes.
2	To learn the principle, classification, equipment's used and applications of Rolling and Forging Processes.
3	To learn the principle, classification, equipment's used and applications of Extrusion and Drawing Processes.
4	To understand the principle, procedure of various sheet metal forming processes
5	To study about the recent advances in technology for metal forming.

PR8551 DESIGN OF MACHINE ELEMENTS AND TRANSMISSION SYSTEMS

S.No	OUTCOMES
1	To formulate and analyze stresses and strains in machine elements subjected to various loads
2	To analyze and design structural joints such as Riveted joints, welded joints, Bolts
3	To analyze and design the components for power transmission like shaft and couplings
4	To analyze and design different types of gears and belts for engineering applications.
5	To analyze and design mechanical springs and bearings.

PR8502 FOUNDRY TECHNOLOGY

S.No	OUTCOMES
1	To understand of various steps in Casting Process.
2	To analyze Casting Solidification and Castability of metals.
3	To design different casting system and use different Foundry practices.
4	To study of various recent trends in Casting methods.
5	To perform different testing to study the defect in the casting and apply engineering skills to minimise the defects.

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PR8592 WELDING TECHNOLOGY

S.No	OUTCOMES
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 processes.
5	Understand the concepts on weld joint design, weldability and testing of weldments.

OAT551 AUTOMOTIVE SYSTEMS

S.No	OUTCOMES
1	Upon completion of this course, the students will be able to identify the different Components in automobile engineering.
2	Have clear understanding on different auxiliary and transmission systems usual.

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III YEAR/VI SEMESTER

PR8072-NEW PRODUCT DEVELOPMENT

S.No	OUTCOMES
1	To develop familiarity with models of innovation and the marketing and technology interface.
2	To learn how to integrate the customer and end-consumer into this process.
3	To learn methods of generating, evaluating and testing product ideas.
4	To identify relevant components and plan a product launch.
5	To Study various manufacturing cost components and learn cost analysis of product design.

PR8602-METAL CUTTING AND CNC MACHINES

S.No	OUTCOMES
1	To apply the principles of metal cutting and mechanics in machining process.
2	To select tool materials based on requirement.
3	To understood the concepts of various gear manufacturing methods.
4	To acquire knowledge on modern material removal process like EDM
5	To perform CNC and APT program for turning and machining centre.

ME8095-DESIGN OF JIGS, FIXTURES AND PRESS TOOLS

S.No	OUTCOMES
1	Summarize the different methods of Locating Jigs and Fixtures and Clamping principles
2	Design and develop jigs and fixtures for given component
3	Discuss the press working terminologies and elements of cutting dies
4	Distinguish between Bending and Drawing dies.
5	Discuss the different types of forming techniques.

PR8601-COMPUTER AIDED PRODUCT DESIGN

S.No	OUTCOMES
1	Will be able to design and develop a system or component systematically in various stages.
2	Have the ability to select suitable hardware and software for particular applications.
3	Have potential to create geometric modelling and assembly modelling based on requirement using computer graphics.
4	Have acquired knowledge to design a component by considering different aspects like manufacturing, assembly, usage etc.
5	Will be able to manage various product data.

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ME8692-FINITE ELEMENT ANALYSIS

S.No	OUTCOMES
1	Summarize the basics of finite element formulation.
2	Apply finite element formulations to solve one dimensional Problems.
3	Apply finite element formulations to solve two dimensional Problems.
4	Apply finite element method to solve heat transfer and fluid mechanics problems.
5	Apply finite element method to solve problems on dynamic analysis.

IE8693-PRODUCTION PLANNING AND CONTROL

S.No	OUTCOMES
1	Recognize the objectives, applications of PPC and product development
2	Explain method study, work measurement and time study
3	Explain product planning and process planning
4	Explain loading and scheduling, production control systems
5	Explain different inventory control technique, MRP

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II YEAR/III SEMESTER

MA8353 TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATIONS

S.No	OUTCOMES
1	Understand how to solve the given standard partial differential equations.
2	Solve differential equations using Fourier series analysis which plays a vital role in engineering applications.
3	Appreciate the physical significance of Fourier series techniques in solving one and two dimensional heat flow problems and one dimensional wave equations.
4	Understand the mathematical principles on transforms and partial differential equations would provide them the ability to formulate and solve some of the physical problems of engineering.
5	Use the effective mathematical tools for the solutions of partial differential equations by using Z transform techniques for discrete time systems.

PR8301 BASIC MACHINING PROCESS

S.No	OUTCOMES
1	Understand the constructional features and working principles of Lathe, work holding devices and also understands the concepts of mechanics of metal cutting.
2	Understand the constructional features and working principles of shaper, planer and slotter, work holding devices and various machining operations performed.
3	Understand the constructional features and working principles of drilling machine and its types.
4	Understand the constructional features and working principles of milling machine and its types, work holding devices and various machining operations performed.
5	Understand the constructional features and working principles of grinding machine and its types.

PR8302 THERMODYNAMICS AND THERMAL ENGINEERING

S.No	OUTCOMES
1	To solve the basic problem in thermodynamics and its concepts.
2	To understand the concepts in Internal Combustion engines and Compressor.
3	To understand the basics in Production of Electricity and solve problems based on same.
4	To know the basics in Refrigeration and Air conditioning.
5	To analyze the heat transfer techniques and heat transfer in condensers.

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CE8395 STRENGTH OF MATERIALS FOR MECHANICAL ENGINEERS

S.No	OUTCOMES
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 thin and thick shells for the applied internal and external pressures.

CE8394 FLUID MECHANICS AND MACHINERY

S.No	OUTCOMES
1	Apply mathematical knowledge to predict the properties and characteristics of a fluid.
2	Can analyse and calculate major and minor losses associated with pipe flow in piping networks.
3	Can mathematically predict the nature of physical quantities.
4	Can critically analyse the performance of pumps.
5	Can critically analyse the performance of turbines.

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II YEAR/IV SEMESTER

PR8401-FLUID POWER DRIVES AND CONTROLS

S.No	OUTCOMES
1	To understand the fundamentals of pneumatics and hydraulics and its principles
2	To understand constructional and operational features about the hydraulic and pneumatic drives system
3	To identify pneumatic and hydraulic components and their functions
4	To design basic and advanced pneumatic and hydraulic circuits for industrial applications
5	To understand the basic concepts, elements and functions of Programmable Logic Controller

PR8491-COMPUTER INTEGRATED MANUFACTURING

S.No	OUTCOMES
1	Describe about the classical production system, the components of CIM .
2	Explain the concept of Computer Aided Process Planning (CAPP) and Material Requirements Planning (MRP)
3	Illustrate the cellular manufacturing using Rank order, Clustering and Hollier method
4	Explain Flexible Manufacturing system and applications of Automated Guided Vehicles in the implementation of CIM.
5	Describe the configurations of Industrial Robots, and their part programming.

PR8451-MECHANICS OF MACHINES

S.No	OUTCOMES
1	To understand the principles in the formation of mechanisms and their kinematics.
2	Understand the construction features of Gears and Gear Trains.
3	Understand the effect of friction in different machine elements.
4	Understand the importance of balancing, Governors and Gyroscopic effects.
5	Understand the importance of vibration

ME8491-ENGINEERING METALLURGY

S.No	OUTCOMES
1	Explain alloys and phase diagram, Iron-Iron carbide diagram and steel classification.
2	Explain isothermal transformation, continuous cooling diagrams and different heat treatment processes.
3	Summarize the mechanism of plastic deformation and testing mechanical properties.
4	Clarify the effect of alloying elements on ferrous and non-ferrous metals.
5	Differentiate different non-mettalic materials.

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MA8452-STATISTICS AND NUMERICAL METHODS

S.No	OUTCOMES
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.