AMRUTVAHINI COLLEGE OF ENGINEERING, SANGAMNER

Department Of Production Engineering

Course Outcomes

Final Year – 2012 Course			
Course Code	Course Name	Course Outcomes	
Semester-I			
411081	Machine Tool Design	CO1	Design multi-stage gear box for machine tool applications.
		CO2	Analysis of machine tool structures and element so machine tools such as bearings, powers crews, guide ways, etc.
		CO3	Understand the analysis of vibration and dynamic characteristics of machine tools
		CO4	Understand the control system parameter with respect to machine Tools
		CO5	Design special purpose machine tools
		CO6	Understand and apply the recent knowledge of machine tool.
411082	Automation & Control Engineering	CO1	Extend basic principles of fluid power for automation of industrial systems
		CO2	Select the suitable hydraulic and pneumatic component for an application
		CO3	Design basic fluid power components and circuits
		CO4	Apply electric, electronics and computer control systems used in soft automation.
		CO5	Understand application concepts of advanced automation systems to real life problems
		CO6	Learn automated assembly system

411083	Operations Research	CO1	Know principles of construction of mathematical models of conflicting situations and mathematical analysis methods of operations research;
		CO2	Select rational options in practical decision-making problems using standard mathematical models of operations research;
		CO3	Have skills in analysis of operations research objectives, mathematical methods and computer systems.
		CO4	Formulate the problem and use mathematical software to solve the proposed models.
		CO5	Ability to take decision with a quantitative basis and improves quality of decisions.
		CO6	Understand the variety of waiting line and simulation models and make better decisions concerning the operation of waiting line and simulation
411084(b)	Financial Management and Costing	CO1	Understand what is Financial Management
		CO2	Formulate Accounting of Rate of Return
		CO3	Understand how to manage Working Capital
		CO4	Study Methods of costing and elements of cost
		CO5	Learn how to maximize profit
		CO6	Learn various Costing Methods
411085(a)	Advanced Welding	CO1	Learn basics of welding process
		CO2	Study Advanced Welding Techniques
		CO3	Understand working principle of Welding machines/equipment
		CO4	Study mechanism and types of metal transfer
		CO5	Understand thermal considerations for welding
		CO6	Learn Welding Of Plastics And Composites

411086	Machine Tool Design Lab	CO1	Design multi-stage gear box for any machine tool applications.
		CO2	Design on analysis of machine tool structures and element so machine tools such as bearings, powers crews, guide ways, etc.
		CO3	Analysis of vibration and dynamic characteristics of any machine tools
		CO4	Study and use of the control system parameter with respect to machine Tools.
		CO5	Design special purpose machine tools.
		CO6	Apply the recent knowledge of machine tool for any new concepts.
411087	Automation & Control Engineering Lab	CO1	Extend basic principles of fluid power for automation of industrial systems
		CO2	Select the suitable hydraulic and pneumatic component for an application
		CO3	Design basic fluid power components and circuits
		CO4	Apply electric, electronics and computer control systems used in soft automation.
		CO5	Understand application concepts of advanced automation systems to real life problems
		CO6	Learn automated assembly system
411088	Operations Research Lab	CO1	Know principles of construction of mathematical models of conflicting situations and mathematical analysis methods of operations research;
		CO2	Select rational options in practical decision-making problems using standard mathematical models of operations research;
		CO3	Have skills in analysis of operations research objectives, mathematical methods and computer systems.
		CO4	Formulate the problem and use mathematical software to solve the proposed models.
		CO5	Ability to take decision with a quantitative basis and improves quality of decisions.
		CO6	Understand the variety of waiting line and simulation models and make better decisions concerning the operation of waiting line and simulation

411089	Advanced Welding Lab	CO1	Learn basics of welding process
		CO2	Study Advanced Welding Techniques
		CO3	Understand working principle of Welding machines/equipment
		CO4	Study mechanism and types of metal transfer
		CO5	Understand thermal considerations for welding
		CO6	Learn Welding Of Plastics And Composites
411090	Project Phase-I	CO1	Ability to identify the community that shall benefit through the solution to the identified engineering problem
		CO2	Ability to engage in independent study to research literature in the identified domain and to consolidate the literature search to identify and formulate the engineering problem
		CO3	Ability to select the engineering tools/components necessary for solving the identified engineering problem
		CO4	To write test cases using multi-core, distributed, embedded, concurrent/Parallel environments;
		CO5	To write a conference paper
		CO6	To practice presentation, communication and team-work skills.
Semester-II			
411091	Computer Integrated Design & Manufacturing	CO1	Understand the basics of graphics workstations, generation and transformation of different graphic elements.
		CO2	Apply geometric modeling principles to design a component.
		CO3	Illustration of the role of computers in manufacturing process and apply it in operation.
		CO4	Evaluate different concepts to describe computer integrated manufacturing and develop part programming of CNC milling machine and CNC lathe.
		CO5	Apply the techniques of finite element analysis to solve engineering problems.
		CO6	Understand the basics of graphics workstations, generation and transformation of different graphic elements.

411092	Product Design and Development	CO1	Describe and carry out the basic engineering design process and also various techniques used for a product.
		CO2	Describe and analyze product architecture.
		CO3	Classify and analyze the product development process and customer requirements.
		CO4	Understand and analyze the identification of customer needs.
		CO5	Check the performance measure of design and DFMA.
		CO6	Perform the case study of product life cycle management of a product.
411093(c)	World Class Manufacturing	CO1	Understand the concept of manufacturing excellence and framework for achieving manufacturing and business excellence.
		CO2	Understand and use the techniques of TPM, VSM and VAM to reduce bottlenecks in manufacturing.
		CO3	Understand and Apply the principles of tools like 5S, JIT, TPM, Lean Production, SQC and FMS to become World Class Organization.
		CO4	Evaluate Organizational learning techniques of removing Root cause of problems, Use people as problem solvers, Illustrate organizational structures, and motivation in relation to Human Resource in WCM.
		CO5	Decide performance indicators like POP, TOPP and AMBITE systems, six Sigma for analyzing world Class Performance.
		CO6	Understand and Illustrate Green Manufacturing, Clean Manufacturing, Agile Manufacturing concepts to lead Indian Organizations towards world Class status.
411094(c)	Automobile Engineering	CO1	Understand Vehicle specifications, Chassis and safety.
		CO2	Study of Fuel Supply System & Cooling System.
		CO3	Understand Lubrication System and Ignition System.
		CO4	Study of Clutches and Gear Boxes.
		CO5	Understand Suspension and Steering System.
		CO6	Understand Breaking Systems and Automobile Maintenance techniques.

411095	Computer Integrated Design & Manufacturing Lab	CO1	Ability to draw a solid model of a component using modelling software.
		CO2	Learn CNC programming for lathe and milling machine.
		CO3	Understand basic commands of robot programming.
		CO4	Study of flexible manufacturing systems.
		CO5	Understanding various modules of manufacturing resource planning.
		CO6	Study of a simulation of a simple mechanical system.
411096	Product Design and Development Lab	CO1	Learn how to identify customer needs for specific product
		CO2	Understand Product Life cycle Management (PLM)
		CO3	Understand concept of Quality Function Deployment (QFD) and House of Quality.
		CO4	Learn product design approach.
		CO5	Understand FMEA and its performance measures.
		CO6	Understand Product Tear Down approach in product design
411097	World Class Manufacturing Lab	CO1	Understand the concept of manufacturing excellence and framework for achieving manufacturing and business excellence.
		CO2	Understand and use the techniques of TPM, VSM and VAM to reduce bottlenecks in manufacturing.
		CO3	Understand and Apply the principles of tools like 5S, JIT, TPM, Lean Production, SQC and FMS to become World Class Organization.
		CO4	Evaluate Organizational learning techniques of removing Root cause of problems, Use people as problem solvers, Illustrate organizational structures, and motivation in relation to Human Resource in WCM.
		CO5	Decide performance indicators like POP, TOPP and AMBITE systems, six Sigma for analyzing world Class Performance.
		CO6	Understand and Illustrate Green Manufacturing, Clean Manufacturing, Agile Manufacturing concepts to lead Indian Organizations towards world Class status.

411098	Automobile Engineering Lab	CO1	Learn to how fuel injection systems for SI and CI engines works.
		CO2	Understand working of cooling systems & ignition systems in an automobile.
		CO3	Understand working of different types of clutches & transmission system in an automobile.
		CO4	Understand importance of wheel alignment & Study of different types braking system.
		CO5	Understand working of independent suspension system.
		CO6	Learn how to do preventive maintenance, trouble shooting for clutch, steering, brake, suspension and gear box systems in an automobile.
411099	Project Work	CO1	Ability to transform the design solution(s) for the identified engineering problem into a full-scale model/prototype/virtual model
		CO2	Ability to analyze and interpret results of testing and validation of full-scale model/prototype/virtual model and to arrive at valid conclusions
		CO3	Ability to perform the budget analysis of the project through the utilization of resources
		CO4	Ability to demonstration of the project full-scale model/prototype/virtual model, effective written communication through the project stage II report
		CO5	To write conference paper
		CO6	To practice presentation, communication and team-work skills.