



SHREE DEVI INSTITUTE OF TECHNOLOGY

(Affiliated to Visvesvaraya Technological University & Recognized by AICTE)

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Department of Mechanical Engineering

Course Outcomes and CO-PO-PSO articulation Matrix

Batch: 2015-2018

Semester-V/VI

Subject: MANAGEMENT AND ENTREPRENEURSHIP						Subject Code: 15ME51									
Course Outcomes															
CO1	Examine the meaning, importance, nature of management, its difference between management and administration and role of managers in management. Describe effective communication process, its importance, types and purpose for running an organization.														
CO2	Examine the meaning characteristics principles and process of organizing.														
CO3	Explain the importance of engineering economics, Law of demand and supply in engineering decision making.														
CO4	Describe various interest rate factors and implement the same for economic decision making.														
CO5	Examine different economic analysis methods-NPW, EAW, IRR, FW for decision making.														
CO6	Discuss different component of costs and methods of cost estimation.														
CO7	Explain depreciation, different methods of computing depreciation.														
CO8	Discuss taxation concepts-income tax and corporate taxes.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3	-	-	3	2	-	-	-	-	3	2			
CO2	3	3	-	-	3	2	-	-	-	-	3	2			
CO3	3	3	-	-	3	2	-	-	-	-	3	2			
CO4	3	3	-	-	3	2	-	-	-	-	3	2			
CO5	3	3	-	-	3	2	-	-	-	-	3	2			
CO6	3	3	-	-	3	2	-	-	-	-	3	2			
CO7	3	3	-	-	3	2	-	-	-	-	3	2			
CO8	3	3	-	-	3	2	-	-	-	-	3	2			

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Average	3	3	-	-	3	2	-	-	-	-	3	2			
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Subject: Energy and Environment											Subject Code: 15ME562				
Course Outcomes															
CO1	Understand energy scenario, energy sources and their utilization														
CO2	Learn about methods of energy storage, energy management and economic analysis														
CO3	Have proper awareness about environment and eco system.														
CO4	Understand the environment pollution along with social issues and acts.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	3	2	2	2	-	-	-	-	3	3			
CO2	3	2	3	2	2	2	-	-	-	-	3	3			
CO3	3	2	3	2	2	2	-	-	-	-	3	3			
CO4	3	2	3	2	2	2	-	-	-	-	3	3			
Average	3	2	3	2	2	2	-	-	-	-	3	3			

Subject: Dynamics of Machinery											Subject Code: 15ME52				
Course Outcomes															
CO1	To gain the knowledge static and dynamic equilibrium conditions of mechanisms subjected forces and couple, with and without friction.														
CO2	Analyze the mechanisms for static and dynamic equilibrium.														
CO3	To understand the balancing principles of rotating and reciprocating masses, governors and gyroscopes.														
CO4	Analyze the balancing of rotating and reciprocating masses, governors and gyroscopes.														
CO5	To understand vibrations characteristics of single degree of freedom systems.														
CO6	Characterize the single degree freedom systems subjected to free and forced vibrations with and without damping.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3	-	3	-	-	-	-	-	-	3	2			
CO2	3	3	-	3	-	-	-	-	-	-	3	2			
CO3	3	3	-	3	-	-	-	-	-	-	3	2			
CO4	3	3	-	3	-	-	-	-	-	-	3	2			

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CO5	3	3	-	3	-	-	-	-	-	-	3	2			
CO6	3	3	-	3	-	-	-	-	-	-	3	2			
Average	3	3	-	3	-	-	-	-	-	-	3	2			

Subject: Turbo Machines											Subject Code: 15ME53				
Course Outcomes															
CO1	The course aims at giving an overview of different types of turbomachinery used for energy transformation, such as pumps, fans, compressors, as well as hydraulic and steam turbines.														
CO2	Explain the working principles of turbomachines and apply it to various types of machines														
CO3	It will focus on application of turbo machinery in power generation, power absorption and transportation sectors.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	2	3	3	-	-	-	-	-	2	2			
CO2	3	2	2	3	3	-	-	-	-	-	2	2			
CO3	3	2	2	3	3	-	-	-	-	-	2	2			
Average	3	2	2	3	3	-	-	-	-	-	2	2			

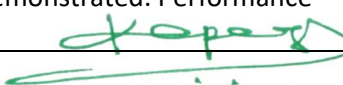
Subject: Non-Traditional Machining											Subject Code: 15ME554				
Course Outcomes															
CO1	Understand the compare traditional and non-traditional machining process and recognize the need for Non-traditional machining process.														
CO2	Understand the constructional features, performance parameters, process characteristics, applications, advantages and limitations of USM, AJM and WJM.														
CO3	Identify the need of Chemical and electro-chemical machining process along with the constructional features, process parameters, process characteristics, applications, advantages and limitations.														
CO4	Understand the constructional feature of the equipment, process parameters, process characteristics, applications, advantages and limitations EDM & PAM.														
CO5	Understand the LBM equipment, LBM parameters, and characteristics. EBM equipment and mechanism of metal removal, applications, advantages and limitations LBM & EBM.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	2	3	3	-	-	3	-	-	2	2			

CO2	3	2	2	3	3	-	-	3	-	-	2	-			
CO3	3	2	2	3	3	-	-	3	-	-	2	-			
CO4	3	2	2	3	3	-	-	3	-	-	2	-			
CO5	3	2	2	3	3	-	-	3	-	-	2	-			
Average	3	2	2	3	3	-	-	3	-	-	2	-			

Subject: Design of Machine Elements - I								Subject Code: 15ME54							
Course Outcomes															
CO1	Able to understand mechanical design procedure, materials, codes and use of standards														
CO2	Able to design machine components for static, impact and fatigue strength.														
CO3	Able to design fasteners, shafts, joints, couplings, keys, threaded fasteners riveted joints, welded joints and power screws.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3	2	3	3	-	1	-	-	-	3	-			
CO2	3	3	2	3	3	-	1	-	-	-	3	-			
CO3	3	3	2	3	3	-	1	-	-	-	3	-			
Average	3	3	2	3	3	-	1	-	-	-	3	-			

Subject: Fluid Mechanics & Machinery Lab								Subject Code: 15MEL57							
Course Outcomes															
CO1	This course will provide a basic understanding of flow measurements using various types of flow measuring devices, calibration and losses associated with these devices.														
CO2	Energy conversion principles, analysis and understanding of hydraulic turbines and pumps will be discussed. Application of these concepts for these machines will be demonstrated. Performance analysis will be carried out using characteristic curves.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3	-	3	3	-	-	3	-	-	-	-			
CO2	3	3	-	3	3	-	-	3	-	-	-	-			
Average	3	3	-	3	3	-	-	3	-	-	-	-			

Subject: Energy Lab								Subject Code: 15MEL58							
Course Outcomes															
CO1	This course will provide a basic understanding of fuel properties and its measurements using various types of measuring devices														
CO2	Energy conversion principles, analysis and understanding of I C Engines will be discussed. Application of these concepts for these machines will be demonstrated. Performance analysis will be carried out using characteristic curves.														


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CO3	Exhaust emissions of I C Engines will be measured and compared with the standards.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3	-	2	3	-	-	-	2	-	-	1			
CO2	3	3	-	2	3	-	-	-	2	-	-	1			
CO3	3	3	-	2	3	-	-	-	2	-	-	1			
Average	3	3	-	2	3	-	-	-	2	-	-	1			

Semester-VI

Subject: Finite Element Analysis								Subject Code: 15ME61							
Course Outcomes															
CO1	To learn basic principles of finite element analysis procedure.														
CO2	To learn the theory and characteristics of finite elements that represent engineering structures.														
CO3	To learn and apply finite element solutions to structural, thermal, dynamic problem to develop the knowledge and skills needed to effectively evaluate finite element analyses.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3	-	2	3	-	-	-	2	-	-	1			
CO2	3	3	-	2	3	-	-	-	2	-	-	1			
CO3	3	3	-	2	3	-	-	-	2	-	-	1			
Average	3	3	-	2	3	-	-	-	2	-	-	1			

Subject: Industrial Safety								Subject Code: 15ME662							
Course Outcomes															
CO1	Students will be able to recognize and evaluate occupational safety and health hazards in the workplace, and to determine appropriate hazard controls following the hierarchy of controls.														
CO2	Students will furthermore be able to analyze the effects of workplace exposures, injuries and illnesses, fatalities and the methods to prevent														
CO3	incidents using the hierarchy of controls, effective safety and health management systems and task-oriented training.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	2	3	3	-	-	-	-	-	2	2			
CO2	3	2	2	3	3	-	-	-	-	-	2	2			
CO3	3	2	2	3	3	-	-	-	-	-	2	2			

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Average	3	2	2	3	3	-	-	-	-	-	2	2			
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Subject: Computer integrated Manufacturing													Subject Code: 15ME62			
Course Outcomes																
CO1	To impart knowledge of CIM and Automation and different concepts of automation by developing mathematical models.															
CO2	To make students to understand the Computer Applications in Design and Manufacturing [CAD / CAM) leading to Computer integrated															
CO3	systems. Enable them to perform various transformations of entities on display devices.															
CO4	To expose students to automated flow lines, assembly lines, Line Balancing Techniques, and Flexible Manufacturing Systems.															
CO5	To expose students to computer aided process planning, material requirement planning, capacity planning etc.															
CO6	To expose the students to CNC Machine Tools, NC part programming, and industrial robots.															
CO7	To introduce the students to concepts of Additive Manufacturing, Internet of Things, and Industry 4.0 leading to Smart Factory.															
CO-PO-PSO Mapping																
COs	POs												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
CO1	3	3	2	2	1	-	-	-	-	-	-	1				
CO2	3	3	2	2	1	-	-	-	-	-	-	1				
CO3	3	3	2	2	1	-	-	-	-	-	-	1				
CO4	3	3	2	2	1	-	-	-	-	-	-	1				
CO5	3	3	2	2	1	-	-	-	-	-	-	1				
CO6	3	3	2	2	1	-	-	-	-	-	-	1				
CO7	3	3	2	2	1	-	-	-	-	-	-	1				
Average	3	3	2	2	1	-	-	-	-	-	-	1				

Subject: Heat Transfer													Subject Code: 15ME63			
Course Outcomes																
CO1	Study the modes of heat transfer.															
CO2	Learn how to formulate and solve 1-D steady and unsteady heat conduction problems.															
CO3	Apply empirical correlations for fully developed laminar, turbulent internal flows and external boundary layer convective flow problems.															
CO4	Study the basic principles of heat exchanger analysis and thermal design.															
CO5	Understand the principles of boiling and condensation including radiation heat transfer related engineering problems.															
CO-PO-PSO Mapping																
COs	POs												PSOs			
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
CO1	2	2	-	3	3	-	-	-	1	-	-	1				

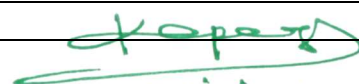
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CO2	2	2	-	3	3	-	-	-	1	-	-	1			
CO3	2	2	-	3	3	-	-	-	1	-	-	1			
CO4	2	2	-	3	3	-	-	-	1	-	-	1			
CO5	2	2	-	3	3	-	-	-	1	-	-	1			
Average	2	2	-	3	3	-	-	-	1	-	-	1			

Subject: Design of Machine Elements -II										Subject Code: 15ME64					
Course Outcomes															
CO1	To understand various elements involved in a mechanical system.														
CO2	To analyze various forces acting on the elements of a mechanical system and design them using appropriate techniques, codes, and standards.														
CO3	To select transmission elements like gears, belts, pulleys, bearings from the manufacturers" catalogue.														
CO4	To design completely a mechanical system integrating machine elements.														
CO5	To produce assembly and working drawings of various mechanical systems involving machine elements like belts, pulleys, gears, springs, bearings, clutches and brakes.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	2	2	3	3	-	-	-	-	-	-	1			
CO2	3	2	2	3	3	-	-	-	-	-	-	1			
CO3	3	2	2	3	3	-	-	-	-	-	-	1			
CO4	3	2	2	3	3	-	-	-	-	-	-	1			
CO5	3	2	2	3	3	-	-	-	-	-	-	1			
Average	3	2	2	3	3	-	-	-	-	-	-	1			

Subject: Automobile Engineering										Subject Code: 15ME655					
Course Outcomes															
CO1	Explain the fundamentals of operating system														
CO2	Comprehend process management, memory management and storage management.														
CO3	Familiar with various types of operating systems														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	-	-	2	-	2	-	-	-	-	-	1	1			
CO2	-	-	2	-	2	-	-	-	-	-	1	1			
CO3	-	-	2	-	2	-	-	-	-	-	1	1			
Average	-	-	2	-	2	-	-	-	-	-	1	1			

Subject: Heat Transfer Lab										Subject Code: 15MEL67					
Course Outcomes															



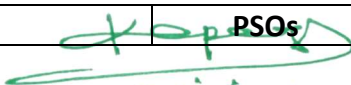
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CO1	The primary objective of this course is to provide the fundamental knowledge necessary to understand the behavior of thermal systems.														
CO2	This course provides a detailed experimental analysis, including the application and heat transfer through solids, fluids, and vacuum. Convection, conduction, and radiation heat transfer in one and two dimensional steady and unsteady systems are examined.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3				3			3	3	3	3			
CO2	3	3				3			3	3	3	3			
Average	3	3				3			3	3	3	3			

Subject: Modeling and Analysis Lab (FEA)								Subject Code: 15MEL68							
Course Outcomes															
CO1	To acquire basic understanding of Modeling and Analysis software														
CO2	To understand the different kinds of analysis and apply the basic principles to find out the stress and other related parameters of bars, beams loaded with loading conditions.														
CO3	To learn to apply the basic principles to carry out dynamic analysis to know the natural frequency of different kind of beams.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3	3	3	-	-	-	-	-	3	-	-	-			
CO2	3	3	3	-	-	-	-	-	3	-	-	-			
CO3	3	3	3	-	-	-	-	-	3	-	-	-			
Average	3	3	3	-	-	-	-	-	3	-	-	-			

Semester-VII/VIII

Subject: CONTROL ENGINEERING								Subject Code: 15ME71							
Course Outcomes															
CO1	Summarize the basic concepts of thermal energy systems,														
CO2	Identify renewable energy sources and their utilization.														
CO3	Understand the basic concepts of solar radiation and analyze the working of solar PV and thermal systems.														
CO4	Understand principles of energy conversion from alternate sources including wind, geothermal, ocean, biomass, biogas.														
CO5	Understand the concepts and applications of fuel cells, thermoelectric convertor and MHD generator.														
CO-PO-PSO Mapping															
COs	POs												PSOs		


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	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2	3	-	-	-	-	-	-	-	2	-			
CO2	2	2	3	-	-	-	-	-	-	-	2	-			
CO3	2	2	3	-	-	-	-	-	-	-	2	-			
CO4	2	2	3	-	-	-	-	-	-	-	2	-			
CO5	2	2	3	-	-	-	-	-	-	-	2	-			
Average	2	2	3	-	-	-	-	-	-	-	2	-			

Subject: Tribology Syllabus							Subject Code: 15ME742								
Course Outcomes															
CO1	Understand the fundamentals of tribology and associated parameters.														
CO2	Apply concepts of tribology for the performance analysis and design of components experiencing relative motion.														
CO3	Analyse the requirements and design hydrodynamic journal and plane slider bearings for a given application.														
CO4	Select proper bearing materials and lubricants for a given tribological application.														
CO5	Apply the principles of surface engineering for different applications of tribology.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2	3	-	2	-	-	-	-	-	-	-			
CO2	2	2	3	-	2	-	-	-	-	-	-	-			
CO3	2	2	3	-	2	-	-	-	-	-	-	-			
CO4	2	2	3	-	2	-	-	-	-	-	-	1			
CO5	2	2	3	-	2	-	-	-	-	-	-	1			
Average	2	2	3	-	2	-	-	-	-	-	-	0.6			

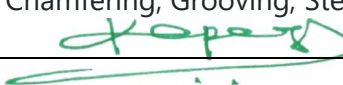
Subject: Fluid Power Systems Syllabus							Subject Code: 15ME72								
Course Outcomes															
CO1	Identify and analyze the functional requirements of a fluid power transmission system for a given application.														
CO2	Visualize how a hydraulic/pneumatic circuit will work to accomplish the function.														
CO3	Design an appropriate hydraulic or pneumatic circuit or combination circuit like electro hydraulics, electro-pneumatics for a given application.														
CO4	elect and size the different components of the circuit.														
CO5	Develop a comprehensive circuit diagram integrating the components selected for the given application.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2	3	-	2	-	-	-	-	-	-	-			
CO2	2	2	3	-	2	-	-	-	-	-	-	-			
CO3	2	2	3	-	2	-	-	-	-	-	-	-			
CO4	2	2	3	-	2	-	-	-	-	-	-	1			
CO5	2	2	3	-	2	-	-	-	-	-	-	1			
Average	2	2	3	-	2	-	-	-	-	-	-	0.6			

CO1	2	2	-	2	1	-	-	-	-	-	-	1			
CO2	2	2	-	2	1	-	-	-	-	-	-	1			
CO3	2	2	-	2	1	-	-	-	-	-	-	1			
CO4	2	2	3	-	2	-	-	-	-	-	-	1			
CO5	2	2	3	-	2	-	-	-	-	-	-	1			
Average	2	2	2	1.6	1.6	-	-	-	-	-	-	1			

Subject: Mechatronics Syllabus					Subject Code: 15ME753										
Course Outcomes															
CO1	Illustrate various components of Mechatronics systems.														
CO2	Assess various control systems used in automation.														
CO3	Develop mechanical, hydraulic, pneumatic and electrical control systems.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2	3	1	-	-	-	-	-	-	-	-			
CO2	2	2	3	1	-	-	-	-	-	-	-	-			
CO3	2	2	3	1	-	-	-	-	-	-	-	-			
Average	2	2	3	1	-	-	-	-	-	-	-	-			

Subject: Design Lab Syllabus					Subject Code: 15MEL76										
Course Outcomes															
CO1	Conduct experiments to evaluate the design characteristics of various machine elements subjected to various loading.														
CO2	Analyse the theoretical and experimental concept in machine elements subjected to various loading.														
CO3	Understand and discuss the design characteristics of various systems subjected to mechanical loading.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2	3	1	-	-	-	-	-	-	-	2			
CO2	2	2	3	1	-	-	-	-	-	-	-	2			
CO3	2	2	3	1	-	-	-	-	-	-	-	2			
Average	2	2	3	1	-	-	-	-	-	-	-	2			

Subject: CIM Lab Syllabus					Subject Code: 15MEL77										
Course Outcomes															
CO1	Generate CNC Lathe part program for Turning, Facing, Chamfering, Grooving, Step turning, Taper turning, Circular interpolation etc.														


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CO2	Generate CNC Mill Part programming for Point-to-point motions, Line motions, Circular interpolation, Contour motion, Pocket milling- circular, rectangular, Mirror commands etc.														
CO3	Use Canned Cycles for Drilling, Peck drilling, Boring, Tapping, Turning, Facing, Taper turning Thread cutting etc.														
CO4	Simulate Tool Path for different Machining operations of small components using CNC Lathe & CNC Milling Machine.														
CO5	Use high end CAM packages for machining complex parts; use state of art cutting tools and related cutting parameters; optimize cycle time.														
CO6	Understand & write programs for Robot control; understand the operating principles of hydraulics, pneumatics and electropneumatic systems. Apply this knowledge to automate & improve efficiency of manufacturing.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	1	-	-	-	-	-	-	-	-	-	1			
CO2	2	1	-	-	-	-	-	-	-	-	-	1			
CO3	2	1	-	-	-	-	-	-	-	-	-	1			
CO4	2	1	-	-	-	-	-	-	-	-	-	1			
CO5	2	1	-	-	-	-	-	-	-	-	-	1			
CO6	2	1	-	-	-	-	-	-	-	-	-	1			
Average	2	1	-	-	-	-	-	-	-	-	-	1			

Subject: Project Work Phase - 1								Subject Code: 15MEP78							
Course Outcomes															
CO1	Identify and interpret the realistic mechanical engineering problems and related systems.														
CO2	Apply the basic principles and concepts of mechanical engineering in real world systems based on professional ethics and responsibilities.														
CO3	Criticize and experiment to achieve optimum solutions for mechanical engineering problems.														
CO4	Analyze, evaluate and review the obtained solution for problems in mechanical engineering systems.														
CO5	Demonstrate professionalism with ethics; present effective communication skills and relate engineering issues to broader societal context.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3				1	2	2	-	3	3	1	2			
CO2	3	1			2	1	-	1	3	3	1	3			
CO3	3	2	2	2	2	2	1		3	3	1	2			
CO4	3	2	2	2	2	2	1		3	3	1	2			

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CO5						1		3	3	3		1			
Average	2.5	2.33	2.33	2	1.75	2	2	2.5	3	3	1.6	2.6			

VIII-Semester

Subject: Operations Research							Subject Code: 15ME81								
Course Outcomes															
CO1	To enable the students to understand the scientific methods of providing various departments of an organization with a quantitative basis of decision making.														
CO2	To enable the studentsto understand the importance of various tools and techniques in finding optimal solutions to problems involving limited resources in the form of Men, Materials and machinery.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2	3	1	-	-	-	-	-	-	-	2			
CO2	2	2	3	1	-	-	-	-	-	-	-	2			
Average	2	2	3	1	-	-	-	-	-	-	-	2			

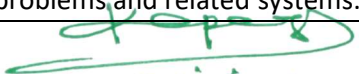
Subject: Additive Manufacturing							Subject Code: 15ME82								
Course Outcomes															
CO1	Understand the additive manufacturing process, polymerization and powder metallurgy process														
CO2	Understand characterisation techniques in additive manufacturing.														
CO3	Acquire knowledge on CNC and Automation.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2	3	1	-	-	-	-	-	-	-	2			

CO2	2	2	3	1	-	-	-	-	-	-	-	2			
CO3	2	2	3	1	-	-	-	-	-	-	-	2			
Average	2	2	3	1	-	-	-	-	-	-	-	2			

Subject: Internship / Professional Practice							Subject Code: 15ME84								
Course Outcomes															
CO1	Conduct experiments to evaluate the design characteristics of various machine elements subjected to various loading.														
CO2	Analyse the theoretical and experimental concept in machine elements subjected to various loading.														
CO3	Understand and discuss the design characteristics of various systems subjected to mechanical loading.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2	3	1	-	-	-	-	-	-	-	2			
CO2	2	2	3	1	-	-	-	-	-	-	-	2			
CO3	2	2	3	1	-	-	-	-	-	-	-	2			
Average	2	2	3	1	-	-	-	-	-	-	-	2			

Subject: Product life cycle management							Subject Code: 15ME835								
Course Outcomes															
CO1	Familiarize with various strategies of PLM														
CO2	Understand the concept of product design and simulation.														
CO3	Develop New product development ,product structure and supporting systems														
CO4	Interpret the technology forecasting and product innovation and development in business processes.														
CO5	Understand product building and Product Configuration.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2	3	1	-	-	-	-	-	-	-	2			
CO2	2	2	3	1	-	-	-	-	-	-	-	2			
CO3	2	2	3	1	-	-	-	-	-	-	-	2			
CO4	2	2	3	1	-	-	-	-	-	-	-	2			
CO5	2	2	3	1	-	-	-	-	-	-	-	2			
Average	2	2	3	1	-	-	-	-	-	-	-	2			

Subject: Project Phase – II							Subject Code: 15ME85								
Course Outcomes															
CO1	Identify and interpret the realistic mechanical engineering problems and related systems.														


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CO2	Apply the basic principles and concepts of mechanical engineering in real world systems based on professional ethics and responsibilities.														
CO3	Criticize and experiment to achieve optimum solutions for mechanical engineering problems.														
CO4	Analyze, evaluate and review the obtained solution for problems in mechanical engineering systems.														
CO5	Demonstrate professionalism with ethics; present effective communication skills and relate engineering issues to broader societal context.														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	3				1	2	2	-	3	3	1	2			
CO2	3	1			2	1	-	1	3	3	1	3			
CO3	3	2	2	2	2	2	1		3	3	1	2			
CO4	3	2	2	2	2	2	1		3	3	1	2			
CO5						1		3	3	3		1			
Average	2.5	2.33	2.33	2	1.75	2	2	2.5	3	3	1.6	2.6			

Subject: Seminar							Subject Code: 15MES86								
Course Outcomes															
CO1	Identify recent technical topics from interested domains														
CO2	Acquire basic skills for performing literature survey.														
CO3	Improve their Presentation and Communication skills.														
CO4	Develop skills for preparing technical report														
CO-PO-PSO Mapping															
COs	POs												PSOs		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3
CO1	2	2	3	1	-	-	-	-	-	-	-	2			
CO2	2	2	3	1	-	-	-	-	-	-	-	2			
CO3	2	2	3	1	-	-	-	-	-	-	-	2			
CO4	2	2	3	1								1			
Average	2	2	3	1	-	-	-	-	-	-	-	1.8			


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