



DEPARTMENT OF MECHANICAL ENGINEERING		
YEAR: IIIrd		SEMESTER: IInd
COURSE OUTCOMES(R20)		
S.No	COURSE CODE: R2032031	COURSE NAME: HEAT TRANSFER
1	CO1: Apply knowledge about mechanism and modes of heat transfer.	
	CO2: Understand the concepts of conduction and convective heat transfer.	
	CO3: Learn about forced and free convection.	
	CO4: Analyze the concepts of heat transfer with phase change and condensation along with heat exchangers.	
	CO5: Interpret the knowledge about radiation mode of heat transfer.	
	COURSE CODE: R2032032	COURSE NAME: DESIGN OF MACHINE MEMBERS-II
2	CO1: Apply knowledge about the design of bearings.	
	CO2: Explain the concepts in designing various engine parts.	
	CO3: Utilize the knowledge to design curved beams and power screws.	
	CO4: Justify power transmission systems and to design pulleys and gear drives.	
	CO5: Apply the concepts in designing various machine tool elements.	
	COURSE CODE: R2032033	COURSE NAME: INTRODUCTION TO ARTIFICIAL INTELLIGENCE & MACHINE LEARNING
3	CO1: Discuss basic concepts of artificial intelligence, neural networks and genetic algorithms.	
	CO2: Apply the principles of knowledge representation and reasoning.	
	CO3: Learn about bayesian and computational learning and machine learning.	
	CO4: Utilize various machine learning techniques.	
	CO5: Apply the machine learning analytics and deep learning techniques.	
	COURSE CODE: R203203A	COURSE NAME: AUTOMOBILE ENGINEERING (PE-2)
4	CO1: Discuss various components of four wheeler automobile.	
	CO2: Apply the knowledge of different parts of transmission system.	
	CO3: Judge about steering and suspension systems.	
	CO4: Justify the braking system and electrical system used in automobiles.	
	CO5: Analyze the concepts about engine specifications and service, safety and electronic system used in automobiles.	
	COURSE CODE: R203203B	COURSE NAME: SMART MANUFACTURING (PE-2)
5	CO1: Apply the basic concepts of smart manufacturing.	
	CO2: Analyze about smart machines and sensors.	
	CO3: Utilize the principles of IoT connectivity to industry 4.0.	
	CO4: Perceive about digital twin and its applications and machine learning and artificial intelligence in manufacturing.	
	CO5: Learn the basic concepts of metaverse.	

	COURSE CODE: R203203C	COURSE NAME: ADVANCED MECHANICS OF SOLIDS (PE-2)
6	CO1: Explain the principles of failure criteria.	
	CO2: Determine the stresses and deflection in unsymmetrical bending of beams.	
	CO3: Apply the knowledge about curved beam theory.	
	CO4: Interpret the concept of torsion.	
	CO5: Analyze the contact stresses.	
	COURSE CODE: R203203D	COURSE NAME: STATISTICAL QUALITY CONTROL (PE-2)
7	CO1: Discuss the concepts of quality systems and quality engineering in design and processes.	
	CO2: Utilize knowledge about the statistical process control charts and sampling techniques.	
	CO3: Analyze the loss function and quality function deployment.	
	CO4: Judge the models of reliability engineering.	
	CO5: Apply knowledge about the concepts of complex system and reliability engineering techniques.	
	COURSE CODE: R203203E	COURSE NAME: INDUSTRIAL HYDRAULICS AND PNEUMATICS (PE-2)
8	CO1: Discuss the principles and laws of fluid power.	
	CO2: Judge the hydraulic and pneumatic elements and their accessories.	
	CO3: Analyze and design the hydraulic and pneumatic circuits.	
	CO4: Apply the principles of hydraulic and pneumatic devices.	
	CO5: Analyze knowledge about installation, maintenance and trouble shooting of hydraulic and pneumatic systems.	
	COURSE CODE: R203203G	COURSE NAME: INDUSTRIAL ROBOTICS (OE-2)
9	O1: Explain the basic concepts and components of industrial robotics and automation.	
	CO2: Judge the knowledge about robot actuators and feedback components.	
	CO3: Analyze the motion of robot and manipulator kinematics.	
	CO4: Analyze the general considerations of path description and generation.	
	CO5: Utilize knowledge about the image processing, machine vision and robotic applications.	
	COURSE CODE: R203203H	COURSE NAME: ESSENTIALS OF MECHANICAL ENGINEERING (OE-2)
10	CO1: Discuss the concepts about stresses and strains.	
	CO2: Justify about the components of transmission systems.	
	CO3: Analyze Problems related to project management techniques.	
	CO4: Utilize knowledge about manufacturing processes and materials.	
	CO5: Learn the concepts of boilers, steam power plant, petrol and diesel engines.	
	COURSE CODE: R203203I	COURSE NAME: ADVANCED MATERIALS (OE-2)
11	CO1: Explain the metals and alloys and their utility in different environments.	
	CO2: Learn about polymers and ceramics and their applications.	
	CO3: Analyze composite materials along with reinforcements and their applications.	
	CO4: Apply the basics of shape memory alloys and functionally graded materials.	

		CO5: Analyze the knowledge about the nano materials and their applications.
	COURSE CODE: R203203J	COURSE NAME: INTRODUCTION TO AUTOMOBILE ENGINEERING (OE-2)
12		CO1: Explain various components of a four wheeler automobile.
		CO2: Discuss the different parts of transmission system.
		CO3: Justify the concepts of steering and suspension systems.
		CO4: Utilize the knowledge about the braking system and electrical system used in automobiles.
		CO5: Analyze the concepts about engine specifications and service, safety of automobiles.
	COURSE CODE: R2032034	COURSE NAME: HEAT TRANSFER LAB
13		CO1: Determine the heat transfer rate and coefficient.
		CO2: Determine the thermal conductivity, efficiency and effectiveness.
		CO3: Determine the emissivity and Stefan-Boltzman constant.
		CO4: Determine critical heat flux and investigate Lambert's cosine law.
		CO5: Experiment with Virtual labs and analyse conduction, HT coefficient.
		CO6: Experiment with Virtual labs and investigate Lambert's laws.
	COURSE CODE: R2032035	COURSE NAME: CAE & CAM Lab
14		CO1: Experiment with trusses and beams to determine stress, deflection, natural frequencies, harmonic analysis, HT analysis and buckling analysis.
		CO2: Create part programmes using FANUC controller.
		CO3: Apply G-codes for automated tool path using CAM software.
		CO4: Analyze about rapid prototyping machine and to print simple parts.
		CO5: Experiment with virtual 3D printing simulation using V-labs.
	COURSE CODE: R2032036	COURSE NAME: Measurements & Metrology lab
15		CO1: Demonstrate the calibration experiments with different gauges, transducers, thermo couple and temperature detector.
		CO2: Demonstrate the calibration experiments with rotameter, seismic apparatus.
		CO3: Demonstrate the calibration experiments with vernier calipers, micrometer, height and dial gauges.
		CO4: Analyze various machine tools for their alignment.
		CO5: Measure angular and taper measurements, straightness, surface roughness.
	COURSE CODE: R2032038	COURSE NAME: RESEARCH METHODOLOGY
16		CO1: Understand objectives and characteristics of a research problem
		CO2: Analyze research related information and to follow research ethics.
		CO3: Understand the types of intellectual property rights.
		CO4: Learn about the scope of IPR.
		CO5: Understand the new developments in IPR.

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