



Mechanical Engineering Department

Course Outcomes (COs)

T.E. Mechanical Engineering (2015 Course)

Course Code: C302041	
Name of Course: Design of Machine Elements-I	
C303.1	DESIGN&ANALYZE the cotter and knuckle Joints, levers and components subjected to eccentric loading.
C303.2	DESIGN shafts, keys and couplings under static loading conditions.
C303.3	Design machine components under fluctuating loads.
C303.4	ANALYZE different stresses in power screws and design screw jack.
C303.5	EVALUATE&INTERPRET the stress developed on the different type of welded and threaded joints.
C303.6	APPLY the design and development procedure for different types of springs.

Course Code: C302042	
Name of Course: Heat Transfer (HT)	
C302.1	Formulate heat conduction equations for one dimensional steady state thermal system without heat generation
C302.2	Formulate heat conduction equations for one dimensional steady state thermal system with heat generation and Apply principles of heat transfer to extended surfaces
C302.3	Explain Thermal insulation aspects and Analyze transient heat conduction
C302.4	Evaluate the heat transfer rate in natural and forced convection
C302.5	Analyze heat transfer by radiation.
C302.6	Explain condensation and boiling and analyze the performance of heat transfer equipments



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Course Code: C302043	
Name of Course: Theory of Machines II	
C303.1	Explain the fundamentals of spur gear and Analyze forces in spur gear.
C303.2	Explain the fundamentals of Helical, Bevel, Worm and Worm Wheel gear and Analyze forces in it.
C303.3	Explain gear trains and Analyze speed and torque in gear trains.
C303.4	Design Cam profiles for given follower motions.
C303.5	Discuss steps in synthesis process and synthesize a four-bar mechanism
C303.6	Discuss step less regulation and Analyze the gyroscopic couple of ship, aero plane and four wheeler vehicles.

Course Code: C302044	
Name of Course: Turbo Machines	
C304.1	Apply the fundamentals of Turbomachines, and Impulse-Momentum Principle to Evaluate the performance of the vanes
C304.2	Design impulse water turbine and analyze its performance
C304.3	Evaluate the performance parameters of hydraulic reaction turbine
C304.4	Analyze the performance of the steam nozzles and Evaluate the performance parameters of Steam Turbines.
C304.5	Design centrifugal pump and analyze its performance
C304.6	Illustrate compressor types and analyze the performance parameters of Centrifugal and Axial flow Compressor



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Course Code: C302045	
Name of Course: Metrology & Quality Control (MQC)	
C305.1	Explain the fundamentals of Metrology, Measurement System and Design gauges
C305.2	Explain comparators, gear metrology and Measure linear and Angular dimensions for different geometries
C305.3	Explain Advance Metrological Instruments and their applications in industries
C305.4	Select and apply the quality tools in design and manufacturing Engineering
C305.5	Construct control charts with the help of statistical quality control technique and illustrate Acceptance sampling
C305.6	Understand and apply quality management techniques and systems for engineering applications

Course Code: C302046	
Name of Course: Skill Development	
C306.1	Interpret and demonstrate the assembly and disassembly of the machines.
C306.2	Apply the knowledge of design of machinery and mechanisms.
C306.3	Draw the detailed design of the parts and assemblies.
C306.4	Apply the knowledge of geometric dimensioning and tolerances.

Course Code: C302054	
Name of Course: AUDIT COURSE	
C304.1	Understand and analyze technology and practices in smart manufacturing
C304.2	Explain challenges and advancement in industry



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Course Code: C302047	
Name of Course: Numerical Method & Optimization (NMO)	
C307.1	Understand and Apply Error Approximations to SOLVE system of equations using numerical methods
C307.2	Solve system of equations using iterative numerical methods.
C307.3	Understand and Apply optimization techniques to solve engineering problems.
C307.4	Estimate solutions for differential equations using numerical techniques.
C307.5	Design and develop a model using a curve fitting and regression analysis.
C307.6	Develop solution for engineering applications with numerical integration.

Course Code: C302048	
Name of Course: Design of Machine Elements-II	
C308.1	Describe Gears and apply principles of gear design to spur gears and industrial spur gear boxes.
C308.2	Design and analyze Helical and Bevel Gear
C308.3	Select & Design Rolling Contact Bearings
C308.4	Design Worm & Worm gear for industrial applications
C308.5	Explain belt, rope and chain drives and design belt drives
C308.6	Discuss lubricating oils, Hydrodynamic lubrication and Design sliding contact bearing

Course Code: C302049	
Name of Course: Refrigeration and Air Conditioning	
C409.1	Illustrate the applications of refrigeration and air-conditioning and Explain refrigerant classes, properties and environmental issues.
C409.2	Analyze the performance of simple vapour compression and vapour absorption refrigeration systems
C409.3	Evaluate the performance parameters of multiple-pressure vapour compression systems and Explain Linde Hampson cycle.
C409.4	Describe psychometric processes and Estimate air conditioning load for human comfort.
C409.5	Illustrate air conditioning systems and components of refrigeration and air conditioning system
C409.6	Design simple duct system and describe air handling units



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Course Code: C302050	
Name of Course: Mechatronics (MTRX)	
C300.1	Understand characteristic of instruments, sensors and actuators and apply for the measurement of appropriate parameters
C300.2	Determine the transfer function by using block diagram reduction technique.
C300.3	Explain the concept of signal processing and apply interfacing systems for data acquisition
C300.4	Explain Programmable logic control and develop the ladder programming for industrial and real time application.
C300.5	Evaluate Poles and Zero, frequency domain parameter for mathematical modeling for mechanical system.
C300.6	Apply the concept of different controller modes to an industrial application.

Course Code: C302051	
Name of Course: Manufacturing -Process-II	
C301.1	Explain Single point cutting tool parameters and Analyze merchants' circle and machinability
C301.2	Describe drilling, milling and broaching processes and state its applications
C301.3	Illustrate grinding and super finishing processes
C301.4	Illustrate advance machining processes and state its applications
C301.5	Explain CNC technology and Apply CNC programming to machining operations
C301.6	Understand the fundamentals of Jigs and Fixtures and Design jig and fixtures for machining operations



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Course Code: C302052	
Name of Course: Machine Shop-II	
C203.1	Create marketable assembly using machining processes
C203.2	Develop and apply CNC programming to manufacture turning job
C203.3	Design and draft jig and fixture for machine components
C203.4	Prepare process planning sheet to manufacture machine components
C203.5	Illustrate machining processes in manufacturing plant
C203.1	Create marketable assembly using machining processes

Course Code: C302053	
Name of Course: Seminar	
C313.1	Develop a thought process to select and analyze technical topic
C313.2	Understand, categorize, analyze and summarize literature on selected topic
C313.3	Develop technical report/ research paper writing and presentation skills