

Branch Name:	Mechanical Engineering / Civil Engineering / Electrical Engineering / Robotics & Automation
Program Code:	ET101 / ET106 / ET109 / ET113
Course Title:	Elements of Mechanical Engineering Practical
Course Code:	2ET1000114P
Pre-requisite Course:	Zeal to learn the subject

Course Objectives:

- CO1. Identify and comprehend the different sources of energy, their conversion processes, working principles of Pumps, IC Engines.
- CO2. Recognize the various properties of steams, principles of various power transmission Elements and their applications in an engineering industry

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								Total (Marks)
					Theory (Marks)				Practical (Marks)				
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
01	-	-	2	2	-	-	-	-	10	25	10	25	50

Course Contents:

Sr. No	Detail of Practical's	Contact Hours
1	To understand construction and working of various types of boilers.	04
2	To understand construction and working of different boiler mountings and accessories.	04
3	To determine brake thermal efficiency of an I. C. Engine.	04
4	To understand construction and working of different types of air compressors.	04
5	To demonstrate vapor compression refrigeration cycle of domestic refrigerator OR window air conditioner OR split air conditioner.	04

Reference Books:

- Elements of Mechanical Engineering by P. S. Desai and S. B. Soni, Atul Prakashan
- Elements of Mechanical Engineering by Sadhu Singh S. Chand Publication
- Basic Mechanical Engineering by Pravin Kumar, Pearson

List of Open-Source Software/learning website:

- <http://www.howstuffworks.com/> -- Tech stuff
- <https://nptel.ac.in/courses>
- <https://www.vlab.co.in/>

Course Learning Outcomes (CLO): On completion of this course, the students will be able to

Course Outcomes	Description	Bloom's Taxonomy Level
CLO1	Discuss the various sources of energy and basic terminology of Mechanical engineering	Applying (3) Creating (6)
CLO2	Make calculations for commonly used working fluids i.e. ideal gases and steam.	Remembering (1)
CLO3	Discuss working and applications of steam boilers and various energy conversion systems	Understanding (2) Applying (3)
CLO4	Discuss various power transmission elements and properties of various engineering materials with their applications	Understanding (2) Remembering (1)
CLO5	Analyze various heat engine cycles and understand construction and working of IC engines	Applying (3) Evaluating (5)
CLO6	perceive the inter-disciplinary role and importance of mechanical engineering related to various engineering domains	Applying (3)

Mapping of CLO with PO and PSO:

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	H	M	M	H		H	M	H				H		H	H	M
CLO2	M	H	L	H								L	M		M	H
CLO3	H	M	L								L			L	H	M
CLO4	M	L	H	M			L								M	L
CLO5	L	H	H	M	M	H	M				M			M	L	H
CLO6		M	H	M		L		M	H		M		M			M

H: High, M: Medium, L: Low