MERI College of Engineering and Technology (MERI - CET)

Session: 2020-21

Lesson Plan

Name of the Faculty : Mr. Sandeep Chhillar (Theory & Practical)

Discipline : Mechanical Engineering

Semester : 3rd

Subject : Basics of Mechanical Engineering (**ESC-ME-211G**)

Lesson Plan Duration : 15 Weeks (from Aug., 2020 to Nov., 2020)

** Work Load (Lecture/Practical) per week (in hours): Lectures-02, Practicals-01

Week	Theory		Practical	
	Lecture Day	Topic (including assignment/test)	Practical day	Topic
1st	1st	Introduction to Commonly used Machine Tools in a Workshop: Lathe, Shaper	1st	To study various types of boilers & also study mountings and accessories in boilers
	2nd	Introduction to Planer, Milling, Drilling, Slotter		
2nd	3rd	Introduction to Metal Cutting	2nd	To study various types of internal Combustions Engines
	4th	Basic concept of thermodynamics Introduction, States, Work, Heat, Temperature		
3rd	5th	1st, 2nd and 3rd law of thermodynamics,	3rd	To calculate the Mechanical Advantage, Velocity Ratio and Efficiency of single start, Double start and Triple start worm & Worm Wheel
	6th	Concept of internal energy, enthalpy and entropy, Problems.		
4th	7th	Formation of steam under constant pressure	4th	To find the Mechanical Advantage, velocity Ratio and Efficiency of a Differential Wheel and Axle
	8th	Thermodynamic properties of steam, use of steam tables		
5th	9th	Measurement of dryness fraction by throttling calorimeter.	5th	Verification of reciprocal theorem of

	10th	Introduction to refrigeration and air-conditioning, rating of refrigeration machines		deflection using a simply supported beam.
6th	11th	Coefficient of performance, Psychometric charts and its use	6th	Experimental and analytical study of 3 hinged arch and influence line for horizontal thrust
	12th	Simple refrigeration vapour compression cycle, Human comforts.		
7th	13th	**Hydraulic Turbines & Pumps:** Introduction, Classification, Construction details and working of Pelton turbine	7th	Experiment on a two-hinged arch for horizontal thrust & influence line for Horizontal thrust
	14th	Classification, Construction details and working of Kaplan, Francis turbine		
8th	15th	Specific speed and selection of turbines, Classification of water pumps and their working.	8th	Experimental and analytical study of a 3-bar pin jointed Truss
	16th	Introduction to Power transmission, Belt, Rope, Chain and Gear drive		
9th	17th	Types and functioning of clutches.	9th	Elastic displacements (vertical & horizontal) of curved members.
	18th	**Stresses and Strains: Introduction**, Concept & types of stresses and strains, Poison's ratio		
10th	19th	stresses and strains in simple and compound bars under axial loading	10th	To determine elastic properties of a beam
	20th	flexure & torsional loading, Stress-strain diagrams		
11th	21th	Hook's law, Elastic constants & their relationships.		
	22nd	Introduction to Manufacturing Systems, Fundamentals of Numerical Control (NC).		
12th	23rd	Advantage of NC systems, Classifications of NC, Comparison of NC and CNC.		