Lesson Plan

Name of Faculty : Jagjeet Singh, Assistant Professor
Discipline : ECE
Semester : 3rd
Subject : **ESC-ME202-T, Elements of Mechanical Engineering**
Lesson Plan Duration: 15 weeks (from September, 2022 to December, 2022)
Work Load (Lecture/Practical) per week (in hours): Lectures 03 hours

Week	Lecture Day	Topic (Including Assignment/Test)	%Syllabus Covered	Remarks
	Unit-I	**Properties of Steam & Boilers, Steam Turbines and Condensers**		
1st	1	Introduction, Formation of steam at constant pressure, Thermodynamics properties of steam		
	2	Steam boilers, Requirements of a good boiler, Classification of boilers, Comparison of water and fire tube boilers		
	3	Cochran boiler		
2nd	4	Babcock and Wilcox boiler		
	5	Mounting and accessories with their functions		
	6	Working principle of steam turbine, Classification of steam turbines		
3rd	7	Comparison of impulse and reaction turbines, Compounding of impulse turbine		
	8	Elements of steam condensing plant, Types of steam condensers		
	9	Cooling ponds and cooling towers		
		UNIT-II I.C. Engines, Water Turbines and Pumps:		
4th	10	Introduction, Classification, I.C. Engines basic terminology, engine parts and their functions		
	11	Constructional details and working of two-stroke diesel and petrol engines		
	12	Constructional details and working of four-stroke diesel and petrol engines		
5th	13	Otto and Diesel cycles		
	14	Comparison of petrol and diesel engines		
	15	Classification of hydraulic turbines, Pelton turbine		
6th	16	Francis and Kaplan turbines		
	17	Classification of water pumps, constructional and working of centrifugal pump.		
	18	Constructional and working of reciprocating pumps.		
7th		**Minor Test- I**		

Week	Lecture Day	Topic (IncludingAssignment/Test)	%Syllabus Covered	Remarks
UNIT-III Simple Lifting Machines, Power Transmission Devices				
8th	19	Introduction, Basic concepts and definition, reversible and irreversible machines, Laws of machines		
	20	Simple wheel and axle		
	21	Problems		
9th	22	Single and double purchase winch crabs		
	23	Problems		
	24	Simple and differential screw jacks		
10th	25	Problems		
	26	Introduction to Belt drive, Rope drive, Chain drive, Gear drive		
	27	Types of gears,		
11th	28	Gear trains		
	29	Single plate clutches		
	30	Multi plate clutches		
UNIT-IV Stresses and Strains, Shear Force and Bending Moment				
12th	31	Introduction, types of Stresses and strains, elastic limit, Hooks law,stress-strain diagram, factor of safety, Poison's ratio		
	32	Elastic constants & their relationships, thermal stresses		
	33	Stress and strains in simple and compound bars under axial loading,		
13th	34	Problems		
	35	Introduction, types of beams, types of loads		
	36	SF and BM diagrams for simply supported beam.		
14th		**Minor Test- II**		
15th	37	Problems		
	38	SF and BM diagrams for cantilever beam.		
	39	Problems		