

Week	Theory	Practical
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### LESSON PLAN

<b>Name of Faculty:</b>	Mr. Ashok Bhatia (Theory) Mr. Ashok Bhatia (Practical)
<b>Discipline:</b>	B. Tech
<b>Semester:</b>	2 <sup>nd</sup>
<b>Subject :</b>	Basics of Mechanical Engineering
<b>Lesson Plan Duration:</b>	15 weeks (from January,2018 to April,2018)
<b>Work Load (Lecture/ Practical) per week (in hours) :</b>	Lectures- 03, Practicals-02

	Lecture day	Topic	Practical day	Topic
1	1st	<b>Basic concepts of Thermodynamics:</b> Macroscopic and Microscopic Approach, Systems, Surrounding and Boundary	1	To study the construction and working of Cochran and Babcock & Wilcox boilers.
	2nd	Thermodynamic Properties- Intensive and Extensive, Thermodynamic equilibrium		
	3rd	State, Path, Process and Cycle, Concept of thermodynamic heat.		
2	4th	Concept of thermodynamic work, Zeroth law of thermodynamics	2	To study the function and working of various mountings and accessories in a boiler.
	5th	Energy and First law of thermodynamics.		
	6th	First law applied to non-flow Process		
3	7th	Internal Energy and Enthalpy, Numerical Problems.	3	To study the construction and working of 2 stroke & 4 stroke diesel engine.
	8th	Numerical Problems.		
	9th	<b>I.C. Engines:</b> Introduction, classification of I.C. Engines		
4	10th	Constructional detail and working (2- stroke, 4-stroke Petrol engine)	4	To study the construction and working of 2 stroke & 4 stroke petrol engine.
	11th	Constructional detail and working (2- stroke, 4-stroke diesel engine)		
	12th	Otto, Diesel Cycle		
5	13th	Dual Cycle	5	To calculate the mechanical advantage, velocity ratio and efficiency of worm and worm wheel
	14th	Numerical Problems.		
	15th	<b>Simple Lifting Machines:</b> Definition of Machine		
6	16th	Velocity ratio, Mechanical advantage Efficiency	6	VIVA
	17th	Laws of Machines, Reversibilities of machine		
	18th	Single, Double & Triple starts worm and worm wheel		
7	19th	Simple screw jack, Compound screw Jack	7	To calculate the mechanical advantage, velocity ratio and efficiency winch crab.
	20th	Class Test		
	21st	<b>Basics of Power Transmission:</b> Transmission of mechanical power Introduction to belt drives		
8	22nd	Gear Drive	8	To study Simple screw jacks and compound screw jacks and determine their efficiency.
	23rd	Introduction to Brakes		
	24th	Introduction to clutches		
9	25th	Numerical Problems.	9	Measurement of diameter of shaft using (i) vernier caliper (ii) digital caliper (iii) vernier micrometer (iv)
	26th	<b>Stresses and Strains:</b> Concept of type of stresses and strains		

	27th	Poisson's ratio, stresses and strains in simple and compound bars under axial loading		digital micrometer.
10	28th	Stress & strain diagram, Hook's law,	10	Measurement of angle of taper using sine bar.
	29th	Mechanical Properties of metals like mild steel and cast iron		
	30th	Elastic constants Relationship		
11	31st	Numerical Problems.	11	To study the different types of gears.
	32nd	<b>Basics of Manufacturing Processes and Measurements:</b> Brief introduction to classification of different manufacturing processes		
	33rd	Primary shaping processes, metal cutting processes, joining processes, finishing processes		
12	34th	Processes bringing change in properties	12	Revision
	35th	Working principle, parts and specification of commonly used machine tools in workshop such as Lathe		
	36th	Shaper		
13	37th	Milling	13	Revision
	38th	<b>Measuring Instruments:</b> Introduction to slip gauges		
	39th	GO and NO GO gauges		
14	40th	Dial gauges	14	Viva voce
	41st	Vernier Calliper		
	42nd	Micrometer		
15	43rd	Sine bar	15	Lab Test
	44th	Vernier height gauge		
	45th	Class Test		