

Lesson plan		
Name of Faculty	Sh. Pawan Kumar	
Discipline	Electrical Engineering	
Semester	6 <sup>th</sup>	
Subject	Energy Management	
Lesson Plan Duration	15 week (From January 2019 to April 2019) Theory:04	
Week	Theory	
	Lecture Day	Topics (Including assignment/test)
1 <sup>st</sup>	1	<b>Unit1: Energy Management:</b> Overview of energy management
	2	Need for energy conservation
	3	Environmental Aspects
	4	1.2 Need for energy conservation with brief description of oil and coal crisis.
2 <sup>nd</sup>	1	1.3 Alternative sources of energy.
	2	1.4 Energy efficiency- its significance
	3	Revision/Assignment
	4	Class Test
3 <sup>rd</sup>	1	<b>Unit2: Energy Conservation introduction</b>
	2	Energy conservation in Domestic sector- Lighting
	3	Home appliances
	4	2.2 Energy conservation in Industrial sector-Industrial lighting
4 <sup>th</sup>	1	Distribution system, Motor Pumps,
	2	Fans, Blowers etc.,
	3	2.3 Energy conservation in Agriculture sector Tube well pumps
	4	Diesel-generating sets.
5 <sup>th</sup>	1	2.4 Macro Level approach for energy conservation at design stage
	2	Revision/Assignment
	3	Class Test
	4	<b>Unit:3 Energy Efficient Devices introduction</b>
6 <sup>th</sup>	1	Energy efficient technology an overview - merits, demerits
	2	Construction of LCD,LED
	3	Construction of CFL etc.
	4	3.2 Need for energy efficient devices
7 <sup>th</sup>	1	3.2 Initial cost versus life cycle, cost analysis on life cycle basis
	2	3.3 Energy efficient motors as compared to standard motors.
	3	3.4 BIS standards for energy efficient motors, BIS salient design features
	4	3.5 Efficiency as a function of load, safety margins
8 <sup>th</sup>	1	3.6 Energy efficient lighting system different sources, lumens/watt
	2	LEDs, role of voltage on efficiency
	3	3.7 Distribution system- Optimum cable size, amorphous core transformer
	4	Role of power factor
9 <sup>th</sup>	1	use of compensating capacitors-manual
	2	and automatic location of capacitors Calculation of size of capacitor
	3	shunt capacitors
	4	series capacitors
10 <sup>th</sup>	1	3.9 Construction and design characteristics of energy efficient motors.
	2	Losses in energy efficient motors
	3	Revision/Assignment
	4	Class Test

11 <sup>th</sup>	1	<b>Unit 4:Energy Audit</b>
	2	Energy audit methodology
	3	4.2 Efficiency of energy conversion processes, monitoring system
	4	4.3 Specific energy consumption –
12 <sup>th</sup>	1	three pronged approach, fine tuning
	2	Technical upgradation
	3	avoidable losses
	4	Case studies of energy audit of distribution system
13 <sup>th</sup>	1	AC motors Industries.
	2	Audit activities
	3	Revision/Assignment
	4	Problem solution/ Class Test
14 <sup>th</sup>	1	<b>Unit 5:Environmental Impact Assessment</b>
	2	Need for environmental impact assessment – definition of EIA
	3	history of EIA
	4	5.2 Standard format for assessment and its completion
15 <sup>th</sup>	1	5.3 Evaluation of the assessment.
	2	Revision/Problem solution
	3	Revision/Problem solution
	4	Class Test