### SRM VALLIAMMAI ENGINEERING COLLEGE

(Autonomous Institution)

SRM Nagar, Kattankulathur – 603 203

# DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

# **QUESTION BANK**



#### VIII SEMESTER

#### 1905807- ENERGY MANAGEMENT AND AUDITING

Regulation-2019

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Prepared by

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SRM VALLIAMMAI ENGINEERING COLLEGE (An Autonomous Institution) SRM Nagar, Kattankulathur – 603 203.

# DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING **QUESTION BANK**

SUBJECT & SUBJECT CODE: 1905807- ENERGY MANAGEMENT AND AUDITING

SEM / YEAR: VIII / IV

	LINIT LINTDODUCTION			
	Basics of Energy – Need for energy management monitoring, targeting and reporting - Energy audit process	<ul><li>Energ</li></ul>	y accounting - ]	Energy
	PART-A			
Q. No	Questions	BT Level	Competence	CO
1.	What is the need of energy management?	BTL1	Remembering	CO1
2.	What is energy targeting?	BTL2	Understanding	CO1
3.	Interpret cogeneration.	BTL1	Remembering	CO1
4.	Define energy audit.	BTL2	Understanding	CO1
5.	Demonstrate the objectives of energy management.	BTL3	Applying	CO1
6.	Summarize about energy monitoring.	BTL3	Applying	CO1
7.	List out various types of energy available.	BTL1	Remembering	CO1
8.	Illustrate energy accounting.	BTL5	Evaluating	CO1
9.	Analyze the objectives of the energy management program.	BTL2	Understanding	CO1
10.	Evaluate the need for energy management.	BTL4	Analyzing	CO1
11.	List the basics of energy.	BTL1	Remembering	CO1
12.	Demonstrate the essential elements of energy monitoring and reporting.	BTL4	Analyzing	CO1
13.	Justify the components of the energy management program to ensure the success.	BTL2	Understanding	CO1
14.	Distinguish between monitoring and targeting.	BTL4	Analyzing	CO1
15.	Evaluate parts of energy monitoring.	BTL3	Applying	CO1
16.	List the benefits of monitoring and targeting system.	BTL1	Remembering	CO1
17.	What is the major source of electrical power generation in India?	BTL1	Remembering	CO1
18.	Compose the energy intensity ratio.	BTL6	Creating	CO1
19.	Prepare the need of energy audit.	BTL6	Creating	CO1

20.	Analyze various energy audit methods.		BTL5	Evaluating	CO1
21.	Define energy intensity.		BTL1	Remembering	CO1
22.	List the four steps of an energy audit.		BTL2	Understanding	CO1
23.	Articulate the major source of electrical p	ower	BTL3	Applying	CO1
	generation in India.				
24.	Analyze the meaning of energy monitoring how	it is	BTL4	Analyzing	CO1
	achieved.				
1	PART-B	(12)	D/DI 1	D 1 '	001
1.	Describe about energy audit process.	(13)	BTL1	Remembering	CO1
2.	Examine the different phase of energy auditing methodology	(13)	BTL2	Understanding	CO1
3.	Demonstrate the methods of energy monitoring.	(13)	BTL3	Applying	CO1
4.	Describe the basics of energy.	(13)	BTL2	Understanding	CO1
5.	Evaluate the methods energy accounting.	(13)	BTL1	Remembering	CO1
6.	Formulate the types of energy monitoring.	(13)	BTL3	Applying	CO1
7.	Examine the essentials of energy.	(13)	BTL4	Analyzing	CO1
8.	Examine the categories of energy accounting.	(13)	BTL1	Remembering	CO1
9.	Analyze the difference between monitoring and	(13)	BTL2	Understanding	CO1
	targeting in detail				
10.	Explain energy conservation and its importance.	(13)	BTL1	Remembering	CO1
11.	Explain the parts of energy monitoring.	(13)	BTL4	Analyzing	CO1
12.	Examine the benefits of monitoring and targeting system and explain in detail.	(13)	BTL3	Applying	CO1
13.	Summarize the need for energy management.	(13)	BTL5	Evaluating	CO1
14.	Demonstrate main source of energy and its types.	(13)	BTL6	Creating	CO1
15.	What is energy conservation? Articulate its	, ,	BTL1	Remembering	CO1
	importance.				
16.	Define energy monitoring, energy targeting and	(13)	BTL2	Understanding	CO1
	explain how it is achieved				
17.	Articulate about PPP.	(13)	BTL3	Applying	CO1
1	PART-C	(1.5)	D/E1 #	<b>.</b>	001
1.	Evaluate the methodologies for detailed energy	(15)	BTL5	Evaluating	CO1
	audit process.				
2.	Summarize the need and importance for energy	(15)	BTL5	Evaluating	CO1
	management.				
3.	Integrate the process of energy auditing.	(15)	BTL6	Creating	CO1

4.	Design the importance of energy monitoring		(15)	BTL6	Creating	CO1
5.	Analyze the difference between enconservation and energy efficiency with suitable example.	0.5	` ′	BTL4	Analyzing	CO1

# UNIT-II ENERGY MANAGEMENT FOR MOTORS AND COGENERATION

Energy management for electric motors – Transformer and reactors - Capacitors and synchronous machines, energy management by cogeneration – Forms of cogeneration – Feasibility of cogeneration – Electrical interconnection.

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Q.	Questions	BT	Competence	CO
No		Level		
1.	List the effects of capacitors in energy management.	BTL1	Remembering	CO2
2.	List the various factors to be considered for electric motors.	BTL2	Understanding	CO2
3.	List the need for current transformers.	BTL1	Remembering	CO2
4.	Describe about energy efficient motors	BTL2	Understanding	CO2
5.	Interpret few energy management possibilities in transformers.	BTL3	Applying	CO2
6.	How can we conserve energy in motor?	BTL3	Applying	CO2
7.	Analyze the energy management techniques.	BTL1	Remembering	CO2
8.	Show the need for energy management.	BTL5	Evaluating	CO2
9.	List the three parts of energy management.	BTL2	Understanding	CO2
10.	Analyze the two forms of energy are usually produced	BTL4	Analyzing	CO2
	in a cogeneration process.			
11.	Tell the other name of cogeneration.	BTL1	Remembering	CO2
12.	Show the need of cogeneration.	BTL4	Analyzing	CO2
13.	List the advantages of cogeneration.	BTL2	Understanding	CO2
14.	Compose the disadvantages of cogeneration.	BTL4	Analyzing	CO2
15.	Illustrate the applications of cogeneration.	BTL3	Applying	CO2
16.	Analyze the need of electrical interconnection.	BTL1	Remembering	CO2
17.	Decide which device is required for the electrical interconnection.	BTL1	Remembering	CO2
18.	Evaluate how electric motors can be used in an energy efficient manner.	BTL6	Creating	CO2
19.	Compose the types of energy efficient motors.	BTL6	Creating	CO2
20.	Describe an example of electrical interconnection.	BTL5	Evaluating	CO2
21.	What are the four main elements of energy	BTL1	Remembering	CO2
	management?			
22.	Infer the schematic view of steam turbine cogeneration	BTL2	Understanding	CO2

	systems.				
23.		ırbine	BTL3	Applying	CO2
	cogeneration systems.				
24.	Analyze the schematic view of reciprocating e	ngine	BTL4	Analyzing	CO2
	cogeneration Systems				
	PART-B	T	T	T	
1.	Examine synchronous machine control and	(13)	BTL1	Remembering	CO2
	energy management in detail.				
2.	Analyze various factors to be considered while	(13)	BTL2	Understanding	CO2
	selecting a motor.				
3.	List and explain the various steps in energy	(13)	BTL3	Applying	CO2
	management for transformers.				
4.	Analyze the functions of capacitors in energy	(13)	BTL2	Understanding	CO2
	management in brief.				
5.	Evaluate the need of reactors in energy	(13)	BTL1	Remembering	CO2
	management				
6.	Summarize energy management in motor	(13)	BTL3	Applying	CO2
	systems.				
7.	Define the importance of transformers in energy	(13)	BTL4	Analyzing	CO2
	management in detail				
8.	Summarize the need of transformers in energy	(13)	BTL1	Remembering	CO2
0.	management in detail	(13)	DILI	Remembering	
9.	Demonstrate the forms of cogeneration.	(13)	BTL2	Understanding	CO2
10.	Integrate the features of cogeneration.	(13)	BTL1	Remembering	CO2
11.	Quote the feasibility of cogeneration.	(13)	BTL4	Analyzing	CO2
12.	Briefly analyze the objectives of reactors in	(13)	BTL3	Applying	CO2
12.	energy management.	(10)	2120		
13.	Compose the need and importance of energy	(13)	BTL5	Evaluating	CO2
	management for electric motors.	` ′		- C	
14.	Evaluate the various functions of reactors in	(13)	BTL6	Creating	CO2
	energy management.				
15.	Explain gas turbine cogeneration systems.	(13)	BTL1	Remembering	CO2
16.	Interpret in detail about reciprocating engine	(13)	BTL2	Understanding	CO2
17	cogeneration Systems  Factors Influencing Cogeneration Chains	(12)	DTI 2	A	CO2
17.	Factors Influencing Cogeneration Choice-Articulate.	(13)	BTL3	Applying	CO2
	PART-C	<u> </u>			1
	IANIC				

1.	Evaluate the importance of synchronous	(15)	BTL5	Evaluating	CO2
	machines in energy management.				
2.	Evaluate the various steps in energy	(15)	BTL5	Evaluating	CO2
	management by cogeneration.				
3.	Compose the principles of cogeneration	(15)	BTL6	Creating	CO2
4.	Prepare a note on electrical interconnection.	(15)	BTL6	Creating	CO2
5.	Analyze the Factors Influencing Cogeneration.	(15)	BTL4	Analyzing	CO2

### **UNIT-III LIGHTING SYSTEMS**

Energy management in lighting systems – Task and the working space - Light sources – Ballasts – Lighting controls – Optimizing lighting energy – Power factor and effect of harmonics, lighting and energy standards.

# PART-A

Q.	Questions	BT	Competence	CO
No		Level		
1.	List various lightning sources.	BTL1	Remembering	CO3
2.	Analyse harmonic distortion.	BTL2	Understanding	CO3
3.	Show how to ensure energy efficiency in lightning system.	BTL1	Remembering	CO3
4.	Analyze energy management in lighting system.	BTL2	Understanding	CO3
5.	List out the different Ways to save energy on lighting.	BTL3	Applying	CO3
6.	How do you ensure the efficiency and Optimize the	BTL3	Applying	CO3
	energy consumption of the lighting system?			
7.	List the different methods of lighting energy.	BTL1	Remembering	CO3
8.	Predict the most energy efficient lighting.	BTL5	Evaluating	CO3
9.	Illustrate the use of task lighting	BTL2	Understanding	CO3
10.	Define the lighting levels in a workplace be.	BTL4	Analyzing	CO3
11.	Describe what type of lighting is task lighting.	BTL1	Remembering	CO3
12.	Discriminate the sources of light.	BTL4	Analyzing	CO3
13.	Analyze the meaning of source of light.	BTL2	Understanding	CO3
14.	Describe natural source of light.	BTL4	Analyzing	CO3
15.	Compose various artificial source of light.	BTL3	Applying	CO3
16.	Evaluate various lighting control options to support the vision of lighting arrangement.	BTL1	Remembering	CO3
17.	Describe the meaning of lighting control.	BTL1	Remembering	CO3
18.	Demonstrate parts of a lighting control system.	BTL6	Creating	CO3
19.	Define how do harmonics affect power factor.	BTL6	Creating	CO3
20.	Compose the reason. Does power factor Correction reduce harmonics.	BTL5	Evaluating	CO3

21.	Define Lux.		BTL1	Remembering	CO3
22.	Interpret the different types of lamps.		BTL2	Understanding	CO3
23.	What do the following terms mean?		BTL3	Applying	CO3
	- Illuminance				
2.4	- Luminous efficacy		D/DL 4	A 1 .	002
24.	Analyse short note on Luminaire and Control gear.  PART-B	•	BTL4	Analyzing	CO3
1.	Demonstrate various steps involved in design of	(13)	BTL1	Remembering	CO3
1.	lightning system & also explain how optimizing	(13)	DILI	Remembering	003
	lighting energy is done.				
2.	Discover the various types of light sources &	(13)	BTL2	Understanding	CO3
۷.		(13)	DIL2	Officerstanding	CO3
	discuss about its luminous performance characteristics.				
3.		(12)	BTL3	A polying	CO3
3.	Quote the various measures for energy efficient	(13)	DILS	Applying	CO3
4	and economic use of lighting.	(12)	DTI 2	II. 1 1°	002
4.	Describe the effect of power factor &	(13)	BTL2	Understanding	CO3
	harmonics.	(1.0)	DET 4	<del></del>	002
5.	Describe the functions of lightning sources.	(13)	BTL1	Remembering	CO3
6.	Explain how optimizing lighting energy is done.	(13)	BTL3	Applying	CO3
7.	List the various energy efficiency improvement	(13)	BTL4	Analyzing	CO3
0	opportunities in lightning system.  Analyze the different procedure involved in	(12)	DTI 1	D	CO2
8.	design of lightning system.	(13)	BTL1	Remembering	CO3
9.	Analyze the steps involved in optimizing lighting	(13)	BTL2	Understanding	CO3
	energy.				
10.	Tell the effect of lightning and energy standards.	(13)	BTL1	Remembering	CO3
11.	Tabulate the effect of power factor and	(13)	BTL4	Analyzing	CO3
	harmonics.				
12.	Analyze the opportunities for energy efficient	(13)	BTL3	Applying	CO3
	lighting.				
13.	Discriminate the different types of ballast.	(13)	BTL5	Evaluating	CO3
14.	Integrate the function of electronic ballast.	(13)	BTL6	Creating	CO3
15.	List the energy savings opportunities in industrial lighting systems.	(13)	BTL1	Remembering	CO3
16.	Briefly describe the methodology of lighting energy audit in an industrial facility?	(13)	BTL2	Understanding	CO3
17.	Explain briefly about various lighting controls	(13)	BTL3	Applying	CO3

	available?							
	PART-C							
1.	Compose a record of task and working space in	(15)	BTL5	Evaluating	CO3			
	lightning system.							
2.	Discriminate the purpose of lighting control.	(15)	BTL5	Evaluating	CO3			
3.	Explain about lightning and energy standards.	(15)	BTL6	Creating	CO3			
4.	Prepare the functions of optimizing light energy.	(15)	BTL6	Creating	CO3			
5.	Describe the methodology of lighting energy	(15)	BTL4	Analyzing	CO3			
	audit in an industrial facility?							

### UNIT-IV METERING FOR ENERGY MANAGEMENT

Metering for energy management – Units of measure - Utility meters – Demand meters – Paralleling of current transformers – Instrument transformer burdens – Multi tasking solid state meters, metering location vs requirements, metering techniques and practical examples.

	PART-A			
Q.	Questions	BT	Competence	CO
No		Level		
1.	Define demand meter.	BTL1	Remembering	CO4
2.	List various factors to be considered for paralleling of	BTL2	Understanding	CO4
	current transformer.			
3.	Describe smart metering.	BTL1	Remembering	CO4
4.	Demonstrate metering in energy.	BTL2	Understanding	CO4
5.	Differentiate energy metering and monitoring.	BTL3	Applying	CO4
6.	Discriminate the functions of utility meter.	BTL3	Applying	CO4
7.	How do you read a utility meter?	BTL1	Remembering	CO4
8.	What is unit in electric meter reading?	BTL5	Evaluating	CO4
9.	Describe how electric demand is measured.	BTL2	Understanding	CO4
10.	Interpret demand reading in electricity meter.	BTL4	Analyzing	CO4
11.	Illustrate the difference between energy consumption	BTL1	Remembering	CO4
	and demand.			
12.	Compare kilowatt demand meter from typical usage	BTL4	Analyzing	CO4
	meter like a kilowatt hour meter.			
13.	How do you evaluate maximum demand per kWh?	BTL2	Understanding	CO4
14.	Compose the need for paralleling of current	BTL4	Analyzing	CO4
	transformers.			
15.	Identify what happens when two transformers are	BTL3	Applying	CO4
	connected in parallel.			
16.	List the advantage of parallel operation of transformers.	BTL1	Remembering	CO4

17.	Discuss the points to select a current transformed metering.	er for	BTL1	Remembering	CO4
18.	Demonstrate burden of current transformer.		BTL6	Creating	CO4
19.	Explain burden in instrument transformer.		BTL6	Creating	CO4
20.	Compose the errors occurs in instrument transform	ers.	BTL5	Evaluating	CO4
21.	State the scope of energy audit.		BTL1	Remembering	CO4
22.	List the minimum requirements of energy metering	5.	BTL2	Understanding	CO4
23.	Articulate pressure correction factor.		BTL3	Applying	CO4
24.	Analyze steam metering.		BTL4	Analyzing	CO4
	PART-B	'			
1.	Describe about various cost factors associated with metering.	(13)	BTL1	Remembering	CO4
2.	Examine the need of following with respect to	(13)	BTL2	Understanding	CO4
	energy management				
	a. Utility meters				
	b. Demand meters				
3.	Summarize the need of paralleling of CT with	(13)	BTL3	Applying	CO4
	respect to energy management.				
4.	Illustrate multi tasking solid state meters in	(13)	BTL2	Understanding	CO4
	energy management.				
5.	Discover the importance of metering location and	(13)	BTL1	Remembering	CO4
	requirements in energy management.				
6.	Analyze the best practices of metering techniques	(13)	BTL3	Applying	CO4
	with example				
7.	Examine the role of the Smart meters in the	(13)	BTL4	Analyzing	CO4
	energy management systems.	(1.5)			~~.
8.	Summarize the need, importance and objectives	(13)	BTL1	Remembering	CO4
	of demand meters.	(10)	DEL 0	TT 1	004
9.	Summarize different cost factors associated with	(13)	BTL2	Understanding	CO4
10	metering in detail.	(12)	DTI 1	D 1	CO4
10.	Describe the need of paralleling of current	(13)	BTL1	Remembering	CO4
11	transformer with respect to energy management.	(12)	DTI 4	A1	CO4
11.	Express multi tasking solid state meters in energy	(13)	BTL4	Analyzing	CO4
12	management.	(12)	DTI 2	A maleria o	CO4
12.	Discover about linking meters to monitoring	(13)	BTL3	Applying	CO4
12	Systems.  Analyza the importance of matering leastion on	(12)	DTI 5	Evoluction	CO <sub>4</sub>
13.	Analyze the importance of metering location an	(13)	BTL5	Evaluating	CO4
1 /	requirements in energy management.	(12)	DTI 6	Croating	COA
14.	Integrate metering techniques and practical	(13)	BTL6	Creating	CO4

	examples.								
15.	What types of metering to use explain in practical	(13)	BTL1	Remembering	CO4				
	considerations?			_					
16.	Interpret about linking meters to monitoring	(13)	BTL2	Understanding	CO4				
	systems.								
17.	Discover the need of Utility meters.	(13)	BTL3	Applying	CO4				
PART-C									
1.	Discriminate metering for energy management.	(15)	BTL5	Evaluating	CO4				
2.	Compose the importance of metering location	(15)	BTL5	Evaluating	CO4				
	and requirements in energy management.								
3.	Summarize Instrument transformer burdens	(15)	BTL6	Creating	CO4				
4.	Compose the steps involved in metering for	(15)	BTL6	Creating	CO4				
	energy management.								
5.	Analyze types of metering and uses in practical	(15)	BTL4	Analyzing	CO4				
	considerations.								

# UNIT-V ECONOMIC ANALYSIS AND MODELS

Economic analysis – Economic models - Time value of money - Utility rate structures – Cost of electricity – Loss evaluation, load management – Demand control techniques – Utility monitoring and control system – HVAC and energy management – Economic justification.

PART-A									
Q.	Questions	BT	Competence	CO					
No		Level	_						
1.	Examine the time value of money.	BTL1	Remembering	CO5					
2.	Describe the economic model of energy.	BTL2	Understanding	CO5					
3.	Demonstrate the advantages of load management.	BTL1	Remembering	CO5					
4.	Analyze the types of economic models.	BTL2	Understanding	CO5					
5.	Define energy cost	BTL3	Applying	CO5					
6.	Describe the time value of money.	BTL3	Applying	CO5					
7.	Demonstrate the disadvantages of load management.	BTL1	Remembering	CO5					
8.	Compose the role of models in economic analysis.	BTL5	Evaluating	CO5					
9.	Point out some examples of economic models.	BTL2	Understanding	CO5					
10.	How do you make an economic model?	BTL4	Analyzing	CO5					
11.	Describe the characteristics of economic model.	BTL1	Remembering	CO5					
12.	Analyse basic parts of the time value of money	BTL4	Analyzing	CO5					
13.	List elements of time value of money	BTL2	Understanding	CO5					
14.	Describe the rate structure.	BTL4	Analyzing	CO5					
15.	Demonstrate how to calculate electrical energy loss.	BTL3	Applying	CO5					
16.	List purposes for economic models.	BTL1	Remembering	CO5					

18. Compose the elements of time value of money.   BTL6   Creating   CO5     19. List the basic parts of the time value of money.   BTL6   Creating   CO5     20. Explain rate structure.   BTL5   Evaluating   CO5     21. State simple pay back period.   BTL1   Remembering   CO5     22. Give the relationship between present and future value.   BTL2   Understanding   CO5     23. Articulate return on investment.   BTL3   Applying   CO5     24. Analyze net present value.   BTL4   Analyzing   CO5     25. Illustrate about the various demand control   (13)   BTL1   Remembering   CO5     26. Illustrate about the various demand control   (13)   BTL2   Understanding   CO5     27. Illustrate about the various demand control   (13)   BTL3   Applying   CO5     31. Compose the different cost factors involved in   (13)   BTL3   Applying   CO5     42. Illustrate Economic justification.   (13)   BTL1   Remembering   CO5     43. Illustrate Economic justification.   (13)   BTL1   Remembering   CO5     44. Examine HVAC and energy management.   (13)   BTL1   Remembering   CO5     45. Examine HVAC and energy management.   (13)   BTL1   Remembering   CO5     46. Describe the demand control techniques.   (13)   BTL1   Remembering   CO5     47. Explain the different aspects of load   (13)   BTL1   Remembering   CO5     48. Examine HVAC and energy management.   (13)   BTL1   Remembering   CO5     49. Summarize about possibilities of demand control   (13)   BTL1   Remembering   CO5     40. Infer demand side management scheme.   (13)   BTL1   Remembering   CO5     41. Analyze the steps involved in cost of electricity.   (13)   BTL3   Applying   CO5     42. Analyze different aspects of load management.   (13)   BTL3   Applying   CO5     43. Explain demand side management scheme.   (13)   BTL3   Applying   CO5     44. Compose details of utility monitoring and control   (13)   BTL3   Applying   CO5     45. Compose the different methods of economic   (15)   BTL5   Evaluating   CO5     46. Compose the different methods of economic   (15)   BTL	17.	Explain how you calculate power loss in an AC cir	cuit.	BTL1	Remembering	CO5					
19. List the basic parts of the time value of money.   BTL6   Creating   CO5											
20. Explain rate structure.   BTL5   Evaluating   CO5											
State simple pay back period.   BTL1   Remembering   CO5		•			-						
22. Give the relationship between present and future value.   BTL2   Understanding   CO5		1									
23. Articulate return on investment.  24. Analyze net present value.  PART-B  1. Collect the different aspects of load management.  2. Illustrate about the various demand control possibilities to a load management  3. Compose the different cost factors involved in metering.  4. Identify various demand control techniques.  5. Illustrate Economic justification.  6. Describe the demand control techniques.  7. Explain the different aspects of load management.  8. Examine HVAC and energy management.  10. Infer demand side management scheme.  11. Describe various cost factors involved in metering.  12. Analyse the steps involved in cost of electricity.  13. BTL1 Remembering CO5  14. Analyze different aspects of load management.  15. Explain demand side management scheme.  16. Describe various cost factors involved in metering  17. Explain demand side management scheme.  18. Examine different aspects of load management.  19. Summarize about possibilities of demand control (13) BTL2 Understanding CO5  10. Infer demand side management scheme.  11. Describe various cost factors involved in metering  12. Analyse the steps involved in cost of electricity.  13. Examine different demand control techniques.  14. Analyze different demand control techniques.  15. Explain demand side management scheme.  16. Describe about implementation of energy (13) BTL3 Applying CO5  17. Compose details of utility monitoring and control (13) BTL1 Remembering CO5  18. Explain HVAC and energy management.  19. Describe about implementation of energy (13) BTL2 Understanding CO5  19. Explain HVAC and energy management.  10. Describe about implementation of energy (13) BTL2 Understanding CO5  19. Explain Economic justification.  10. Explain Economic justification.  11. Explain Economic justification.  12. Compose details about economic models.  13. Explain Economic justification.  14. Compose the different methods of economic (15) BTL5 Evaluating CO5  19. Explain Economic justification.		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1									
Analyze net present value.   BTL4   Analyzing   CO5	-	1									
PART-B				- * * · · ·	+						
Collect the different aspects of load management.   (13)   BTL1   Remembering   CO5											
2. Illustrate about the various demand control possibilities to a load management  3. Compose the different cost factors involved in metering.  4. Identify various demand control techniques.  5. Illustrate Economic justification.  6. Describe the demand control techniques.  7. Explain the different aspects of load management.  8. Examine HVAC and energy management.  9. Summarize about possibilities of demand control to a load management.  10. Infer demand side management scheme.  11. Describe various cost factors involved in cost of electricity.  12. Analyse the steps involved in cost of electricity.  13. Examine different aspects of load management.  14. Analyze different aspects of load management.  15. Explain demand side management scheme.  16. Describe about implementation of energy (13) BTL3 Applying CO5 Evaluating CO5  17. Explain demand side management.  18. Examine different aspects of load management.  19. Infer demand side management scheme.  10. Infer demand side management scheme.  11. Describe various cost factors involved in (13) BTL4 Remembering CO5 metering  12. Analyse the steps involved in cost of electricity.  13. BTL3 Applying CO5  14. Analyze different aspects of load management.  15. Explain demand side management scheme.  16. Describe about implementation of energy (13) BTL2 Understanding CO5 efficiency projects.  17. Compose details of utility monitoring and control (13) BTL3 Applying CO5 system.  PART-C  1. Explain HVAC and energy management.  1. Explain HVAC and energy management.  1. Explain HVAC and energy management.  1. Explain Economic justification.  1. Explain Economic justification.  1. Explain Economic justification.  1. Compose the different methods of economic (15) BTL6 Creating CO5	1.		(13)	BTL1	Remembering	CO5					
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5.	Analyze efficiency			mentatior	<b>1</b> O	f energy	(15	b) BTL	Analy	yzing	CO5
Course Outcome:											
Engineering students will have the ability to understand the basics of Energy audit process.											
>	Students cogenerate		ve an	ability t	o ur	derstand	the	basics of	energy	managemen	it by

- > Students will be able to acquire knowledge on Energy management in lighting systems
- > Students will be able to impact concepts behind economic analysis and Load management.
- > Students will have understanding on the importance of Energy management on various electrical equipment and metering and ability to acquire knowledge on HVAC.