HB
ORISSA
TRADE MARK

LION™

Teacher's Lesson Note

(2023-24)

Refrigeration & Air Conditioning
5th sem (Winter) - 2023-24
Mechanical - I & II
Name - Bhagaban Hansdah

Lion

TEACHERS LESSON NOTE

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used	Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14
04.08.23	1st	2nd	Air Refrigeration Cycle.	Definition of Refrigeration	About Refrigeration	Unit of Refrigeration			Introduction to R.A.C		Planned 04.08.23	S.K Mohan 04/08/23	
17.08.23	2nd					Defination of COP.			Unit of Refrigeration & Defination & Explaination.		Planned 17.08.23	S.K Mohan 17/08/23	
18.08.23	3rd					Refrigeration effect. (R.E)			Coefficient of performance * Refrigeration * Pump * Engine.		Planned 18.08.23	S.K Mohan 18/08/23	
21.08.23	4th					Principle of working of opens closed air system of Refrigeration.			Discuss and Explaination of open & closed air refrigeration system.		Planned 21.08.23	S.K Mohan 21/08/23	

TEACHERS

Date	Period	Class	Subject	Topic (Concept)	Sub Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used
1	2	3	4	5	6	7	8
23.08.23	First	4th				Calculation of cop of Bell-coleman cycle.	
24.08.23		2nd				Numericals on Bell-Coleman cycle.	
25.08.23		3rd				Practice & Discussion.	
28.08.23		4th				Class test on Refrigeration cycle.	

LESSON NOTE

Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
9	10	11	12	13	14
	Refrigeration Effect.		22.08.23		
	Calculation of COP of Bell-Coleman Cycle & Air refrigeration cycle.		29.08.23		
	Solve Some Numericals problem on Bell-Coleman Cycle.		25.08.23		
	-Revision Class —		26.08.23		

TEACHERS LESSON NOTE

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used	Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14
23.08.23	2nd VI&IX	IInd		Simple Vapour Compression Refrigeration System.	Schematic diagram of Simple Vapour Comp. Refrig. System.	Diagram overview & Explain.			Explaination of Simple vapour Compression Refrigeration System.		29.08.23	29/8/23	
31.08.23		IInd		Types		Types Explain.			Diagram overview & P.V, T H diagram of Vapour Compression Refrigeration System.		31.08.23	31/8/23	
01.09.23		IIIrd				Cycle with dry Saturated vapour after Compression.			VCRS cycle with dry Saturated vapour after compression and solve some Numericals.		01.09.23	01/09/23	
04.09.23		IVth				Cycle with wet vapours after Compression.			VCRS cycle with wet vapour after Compression PV & TS diagram and Solve some Numerical.		04.09.23	04/09/23	

TEACHERS LESSON NOTE

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used	Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14
07.09.23	4th Week	1st				Cycle with Superheated vapours after compression.			VCRS cycle with Superheated vapour after compression P-V, T-S diagram and Solve Numerical Problems.		07.09.23		
08.09.23	2nd	2nd				Cycle with Superheated vapours before Compression.			VCRS Cycle with Superheated vapour before compression P-V, T-S diagram and Solve Some numerical problems.		08.09.23		
11.09.23	2nd	2nd				Cycle with Sub-cooling of Refrigerant.			Discuss Sub-cooling or undercooling of Refrigerant.		11.09.23		
21.09.23	4th	2nd				Discuss all vapour compression System.			- Revision Class.		21.09.23		

TEACHERS LESSON NOTE

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used	Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14
22.09.23	5th Hour	1st				Representation of above cycle on temp. entropy & Pressure enthalpy Diagram.			Representation of above cycle on temp. entropy & pressure enthalpy Diagram.		Attended 22.09.23		
22.09.23		2nd				More explaination on entropy & enthalpy Diagram.			Detail explaination of entropy & enthalpy diagram.		Attended 28.09.23		
25.09.23		2nd				Numericals on vapours compression Refrigeration of COP.			find C.O.P of vapour compression refrigeration System.		Attended 25.09.23		
26.09.23	4th					Calculation to calculate Mass flow of V.C.C.			Calculation of Mass flow of V.C.C.		Attended 26.09.23		

TEACHERS

LESSON NOTE

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used	Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14
05.10.23	IIIth Week	1st		Refrigeration Equipment	Refrigerant Compressors.	Principle of Working & Constructional details of reciprocating & rotary compressors.			Study of Working Principle & Constructional detail of reciprocating and rotary Compressor.		Attended 05.10.23		
06.10.23		2nd				Centrifugal Compressor.			Discuss about Centrifugal Compressor.		Attended 06.10.23		
09.10.23		3rd				Important terms on Compressor.			Important terms of Compressor.		Attended 09.10.23		
		4th				Hermetically & Semi-Hermetically Sealed Compressor.			Study of Hermitically Semi-Hermitically Sealed Compressor.		Attended 09.10.23		

TEACHERS LESSON NOTE

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used	Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14
10.10.23	CW Work	1st		Condensers.		Principle of Working and constructional details of air cooled condenser.			Working and constructional detail of Air cooled Condenser.		Attended 16.10.23		
16.10.23		2nd				Heat Rejection Ratio.			Heat rejection Ratio.		Attended 16.10.23		
28.10.23		3rd				Cooling tower.			Cooling tower.		Attended 28.10.23		
		4th				Spray pond.			Spray pond.		Attended 28.10.23		

TEACHERS

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used
1	2	3	4	5	6	7	8
19.10.23	7th Hour	2nd			Evaporators	Principle of Working and constructional details of air cooled condenser.	
01.11.23	3rd					Types of Evaporator.	
	3rd					Bare tube coil evaporator. * finned Evaporator.	
03.11.23	2nd					Shell and tube Evaporator.	

LESSON NOTE

Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
9	10	11	12	13	14
	Working and construction details of air cooled condenser.		Attended 19.10.23		
	Types of Evaporator.		Attended 01.11.23		
	Bare tube coil evaporator. Finned Evaporator		Attended 01.11.23		
	Shell and tube evaporator.		Attended 03.11.23		

TEACHERS LESSON NOTE

Date 1	Period 2	Class 3	Subject 4	Topic (Concept) 5	Sub-Topic (Sub-Concept) 6	Learning Activities to be taken up 7	TLM to be used 8	Evaluative Questions 9	Expected learning outcome 10	Project work to be assigned 11	Signature of the Teacher 12	Signature of the Headmaster 13	Remarks 14
06.11.23	10th Week 1st			Refrigerent flow controls & Refrigerents, Application of Refrigerents	Expansion Valves.	Capillary tube.			Discuss Capillary tube.		[signature] 06.11.23	06/11/23	
	2nd					Automatic Expansion Valve.			Automatic Expansion Valve.		[signature] 06.11.23	06/11/23	
09.11.23	2nd					Thermostatic Expansion Valve.			Thermostatic Expansion Valve.		[signature] 09.11.23	09/11/23	
	4th				Refrigerents	Classification of Refrigerents.			Discussion of Classification of Refrigerent.		[signature] 09.11.23	09/11/23	

TEACHERS LESSON NOTE

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used	Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14
10.11.23	4th Hour	IIY				Classification of Refrigerants. Describe properties of an ideal Refrigerent.			Study of properties of an ideal Refrigerent.		10.11.23		
	2nd					Designation of Refrigerent.			Designation of Refrigerent.		10.11.23		
16.11.23	2nd					Thermodynamic properties of Refrigerents.			Thermodynamic properties of Refrigerent.		16.11.23		
	4th					Discuss about different properties.			Discuss about different properties.		16.11.23		

TEACHERS LESSON NOTE

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used	Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14
20.11.23	12th Week 1st					chemical properties of Refrigerants.			Chemical properties of Refrigerants		20.11.23		
	2nd					Commonly used Refrigerants, R-11, R-12, R-22, R-134a, R-717			Commonly used Refrigerants.		20.11.23		
21.11.23	3rd					Substitute for CFC.			Substitute of CFC.		21.11.23		
	4th				Application of Refrigeration	Cold storage.			Study of Cold storage.		21.11.23		

TEACHERS

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used
1	2	3	4	5	6	7	8
23.11.23	13th Week 1st					Dairy Refrigeration.	
	2nd					Ice plant.	
24.11.23	3rd					Water cooler	
	4th					frust free Refrigeration.	

LESSON NOTE

Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
9	10	11	12	13	14
	Dairy Refrigeration.		23.11.23	23/11/23	
	Ice plant.		23.11.23	23/11/23	
	Water cooler.		24.11.23	24/11/23	
	Frust free Refrigeration.		24.11.23	24/11/23	

TEACHERS LESSON NOTE

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used	Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14
01.12.23	1914 Week	4th	[illegible]	Psychometry & comfort air conditioning system		Psychometric terms.			Introduction to psychometric chart and Terms.		01.12.23	01/12/23	
		2nd	[illegible]			Adiabatic saturation of air by evaporation of Water.			Adiabatic saturation of air by evaporation of Water.		01.12.23	01/12/23	
04.12.23		3rd	[illegible]			Psychometric chart & uses.			Psychometric chart & uses.		04.12.23	04/12/23	
		4th	[illegible]		Psychometric process.	Sensible heating & cooling. · Cooling & Dehumidification · Heating & Humidification. · Adiabatic cooling with humidification. · Total heating of a cooling process.			Sensible heating & cooling ×Discuss psychometric process.		04.12.23	04/12/23	

TEACHERS LESSON NOTE

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used	Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14
06.12.23	1st Hour	1st				SHF, BPF Adiabatic Mixing.			Sensible Heat factor & Bypass heat factor, Adiabatic Mixing.		06.12.23		
1	2nd					Problems on above. Psychometic chart.			Numerical problem		07.12.23		
1	2nd					Effective temperature & Comfort chart.			Numerical problem		08.12.23		
1	4th					Different problem solve.			Effective temperature & Comfort chart.		08.12.23		

TEACHERS

Date	Period	Class	Subject	Topic (Concept)	Sub-Topic (Sub-Concept)	Learning Activities to be taken up	TLM to be used
1	2	3	4	5	6	7	8
07.11.23	16th Week	DCA		Air-conditioning System.		Factors affecting comfort air conditioning. Equipment used in an air conditioning System.	
		2nd				classification of air-conditioning System. Winter air conditioning System.	
06.12.23		2nd				Summer air conditioning System.	
		4th				Numerical practice.	

LESSON NOTE

Evaluative Questions	Expected learning outcome	Project work to be assigned	Signature of the Teacher	Signature of the Headmaster	Remarks
9	10	11	12	13	14
	Introducing to air conditioning system. & components and equipment used on Air conditioning system.		07.12.23		
	Classification of Air conditioning system.		07.12.23		
	Summer air conditioning System.		06.12.23		
	Winter Air conditioning System.		06.12.23		