

**UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA****Academic Lesson Plan for Winter semester- 2021****Name of the teaching faculty: Er. Amiya Ranjan Patra Department: Mechanical Engineering****Semester: 5th****Subject: REFRIGERATION AND AIR CONDITIONING****No. of periods per week: 4****Total Periods: 60****End semester exam: 80****Class test: 20****Total Marks : 100**

Sl. No.	Week	Period	Topic to be covered
1.	1 <sup>st</sup>	1 <sup>st</sup>	Definition of refrigeration and unit of refrigeration
2.		2 <sup>nd</sup>	Definition of COP, Refrigerating effect (R.E )
3.		3 <sup>rd</sup>	Principle of working of open and closed air system of refrigeration.
4.		4 <sup>th</sup>	Calculation of COP of Bell-Coleman cycle
5.	2 <sup>nd</sup>	1 <sup>st</sup>	Solve Numerical
6.		2 <sup>nd</sup>	schematic diagram of simple vapors compression refrigeration system'
7.		3 <sup>rd</sup>	About Types
8.		4 <sup>th</sup>	Cycle with dry saturated vapors after compression.
9.	3 <sup>rd</sup>	1 <sup>st</sup>	Cycle with wet vapors after compression.
10.		2 <sup>nd</sup>	Cycle with superheated vapors after compression.
11.		3 <sup>rd</sup>	Cycle with superheated vapors before compression.
12.		4 <sup>th</sup>	Cycle with sub cooling of refrigerant
13.	4 <sup>th</sup>	1 <sup>st</sup>	Representation of above cycle on temperature entropy and pressure enthalpy diagram
14.		2 <sup>nd</sup>	Solve Numerical
15.		3 <sup>rd</sup>	Do
16.		4 <sup>th</sup>	Simple vapor absorption refrigeration system
17.	5 <sup>th</sup>	1 <sup>st</sup>	Practical vapor absorption refrigeration system
18.		2 <sup>nd</sup>	Do
19.		3 <sup>rd</sup>	COP of an ideal vapor absorption refrigeration system

20.		4 <sup>th</sup>	Do
21.	6 <sup>th</sup>	1 <sup>st</sup>	Numerical on COP.
22.		2 <sup>nd</sup>	Do
23.		3 <sup>rd</sup>	About Refrigerant Compressor
24.		4 <sup>th</sup>	Do
25.	7 <sup>th</sup>	1 <sup>st</sup>	Do
26.		2 <sup>nd</sup>	Do
27.		3 <sup>rd</sup>	About Condenser
28.		4 <sup>th</sup>	Do
29.	8 <sup>th</sup>	1 <sup>st</sup>	About Evaporater
30.		2 <sup>nd</sup>	Do
31.		3 <sup>rd</sup>	About Expansion Valve
32.		4 <sup>th</sup>	Do
33.	9 <sup>th</sup>	1 <sup>st</sup>	About Refrigerant
34.		2 <sup>nd</sup>	Desirable properties of an ideal refrigerant.
35.		3 <sup>rd</sup>	Designation of refrigerant.
36.		4 <sup>th</sup>	Thermodynamic Properties of Refrigerants.
37.	10 <sup>th</sup>	1 <sup>st</sup>	Chemical properties of refrigerants.
38.		2 <sup>nd</sup>	commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717
39.		3 <sup>rd</sup>	Substitute for CFC
40.		4 <sup>th</sup>	About Application
41.	11 <sup>th</sup>	1 <sup>st</sup>	About Psychometric terms
42.		2 <sup>nd</sup>	Adiabatic saturation of air by evaporation of water
43.		3 <sup>rd</sup>	Psychometric chart and uses.
44.		4 <sup>th</sup>	Psychometric processes
45.	12 <sup>th</sup>	1 <sup>st</sup>	Do
46.		2 <sup>nd</sup>	Do

47.		3 <sup>rd</sup>	Do
48.		4 <sup>th</sup>	Solve numerical
49.	13 <sup>th</sup>	1 <sup>st</sup>	Do
50.		2 <sup>nd</sup>	Effective temperature and Comfort chart
51.		3 <sup>rd</sup>	Factors affecting comfort air conditioning. .
52.		4 <sup>th</sup>	Equipment used in an air-conditioning.
53.		14 <sup>th</sup>	1 <sup>st</sup>
54.	2 <sup>nd</sup>		Classification of air-conditioning system
55.	3 <sup>rd</sup>		Winter Air Conditioning System
56.	4 <sup>th</sup>		Summer air-conditioning system.
57.	15 <sup>th</sup>	1 <sup>st</sup>	Do
58.		2 <sup>nd</sup>	Solve Numerical
59.		3 <sup>rd</sup>	Do
<b>60.</b>		<b>4<sup>th</sup></b>	Do

**The lesson plan prepared by the concerned faculty**

**Er. Amiya Ranjan Patra**

**PTGF,MECHANICAL DEPARTMENT**

**UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA****Academic Lesson Plan for Winter semester- 2021****Name of the teaching faculty: Er. Er. Dibyajyoti Panda****Department: Mechanical Engineering****Semester: 5th****Subject: MECHATRONICS****No. of periods per week: 4****Total Periods: 60****End semester exam: 80****Class test: 20****Total Marks : 100**

Sl. No.	Week	Period	Topic to be covered
1.	1 <sup>st</sup>	1 <sup>st</sup>	Definition of Mechatronics
2.		2 <sup>nd</sup>	Advantages & disadvantages of Mechatronics
3.		3 <sup>rd</sup>	Application of Mechatronics
4.		4 <sup>th</sup>	Scope of Mechatronics in Industrial Sector
5.	2 <sup>nd</sup>	1 <sup>st</sup>	Components of a Mechatronics System, Importance of mechatronics in automation
6.		2 <sup>nd</sup>	Defination of Transducers
7.		3 <sup>rd</sup>	Classification of Transducers
8.		4 <sup>th</sup>	Electromechanical Transducers
9.	3 <sup>rd</sup>	1 <sup>st</sup>	Transducers Actuating Mechanisms
10.		2 <sup>nd</sup>	Do
11.		3 <sup>rd</sup>	Displacement & Positions Sensors
12.		4 <sup>th</sup>	Do
13.	4 <sup>th</sup>	1 <sup>st</sup>	Velocity, motion, force and pressure sensors.
14.		2 <sup>nd</sup>	Do
15.		3 <sup>rd</sup>	Temperature and light sensors
16.		4 <sup>th</sup>	Mechanical Actuators
17.	5 <sup>th</sup>	1 <sup>st</sup>	Do
18.		2 <sup>nd</sup>	Do
19.		3 <sup>rd</sup>	Do
20.		4 <sup>th</sup>	Electrical Actuator

21.	6 <sup>th</sup>	1 <sup>st</sup>	Do
22.		2 <sup>nd</sup>	Do
23.		3 <sup>rd</sup>	Do
24.		4 <sup>th</sup>	Do
25.	7 <sup>th</sup>	1 <sup>st</sup>	Do
26.		2 <sup>nd</sup>	PLC Introduction
27.		3 <sup>rd</sup>	Do
28.		4 <sup>th</sup>	Advantages of PLC
29.	8 <sup>th</sup>	1 <sup>st</sup>	Do
30.		2 <sup>nd</sup>	Selection and uses of PLC
31.		3 <sup>rd</sup>	Do
32.		4 <sup>th</sup>	Architecture basic internal structures
33.	9 <sup>th</sup>	1 <sup>st</sup>	Do
34.		2 <sup>nd</sup>	Input/output Processing and Programming
35.		3 <sup>rd</sup>	Do
36.		4 <sup>th</sup>	Do
37.	10 <sup>th</sup>	1 <sup>st</sup>	Mnemonics
38.		2 <sup>nd</sup>	Do
39.		3 <sup>rd</sup>	Master and Jump Controllers
40.		4 <sup>th</sup>	Do
41.	11 <sup>th</sup>	1 <sup>st</sup>	Introduction to Numerical Control of machines and CAD/CAM
42.		2 <sup>nd</sup>	Do
43.		3 <sup>rd</sup>	Do
44.		4 <sup>th</sup>	About CAD/CAM
45.	12 <sup>th</sup>	1 <sup>st</sup>	Do
46.		2 <sup>nd</sup>	Do
47.		3 <sup>rd</sup>	Do

48.		4 <sup>th</sup>	Do
49.	13 <sup>th</sup>	1 <sup>st</sup>	elements of CNC machines
50.		2 <sup>nd</sup>	Do
51.		3 <sup>rd</sup>	Do
52.		4 <sup>th</sup>	Do
53.	14 <sup>th</sup>	1 <sup>st</sup>	Do
54.		2 <sup>nd</sup>	Do
55.		3 <sup>rd</sup>	Do
56.		4 <sup>th</sup>	Definition, Function and laws of robotics
57.	15 <sup>th</sup>	1 <sup>st</sup>	Types of industrial robots
58.		2 <sup>nd</sup>	Do
59.		3 <sup>rd</sup>	Robotic systems
60.		4 <sup>th</sup>	Advantages and Disadvantages of robots

**The lesson plan prepared by the concerned faculty**

**Er. Dibyajyoti Panda**

**PTGF,MECHANICAL DEPARTMENT**

**UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA**

**Academic Lesson Plan for Winter semester- 2021**

**Name of the teaching faculty: Er. RajendraMohanty**

**Department: Mechanical Engineering**

**Semester: 5th**

**Subject: HYDRAULIC MACHINES & INDUSTRIAL FLUID POWER**

**No. of periods per week: 4**

**Total Periods: 60**

**End semester exam: 80**

**Class test: 20**

**Total Marks : 100**

Sl. No.	Week	Period	Topic to be covered
1.	1 <sup>st</sup>	1 <sup>st</sup>	Definition and classification of hydraulic turbines
2.		2 <sup>nd</sup>	Construction and working principle of impulse turbine.
3.		3 <sup>rd</sup>	Do
4.		4 <sup>th</sup>	study Velocity diagram of moving blades & different important functions.
5.	2 <sup>nd</sup>	1 <sup>st</sup>	Do
6.		2 <sup>nd</sup>	Solve Numerical.
7.		3 <sup>rd</sup>	Study of Francis turbine
8.		4 <sup>th</sup>	study Velocity diagram of moving blades & different important functions Francis turbine.
9.	3 <sup>rd</sup>	1 <sup>st</sup>	Solve Numerical.
10.		2 <sup>nd</sup>	Study of Kaplan turbine.
11.		3 <sup>rd</sup>	study Velocity diagram of moving blades & different important functions Kaplan turbine.
12.		4 <sup>th</sup>	Solve Numerical.
13.	4 <sup>th</sup>	1 <sup>st</sup>	Distinguish between impulse turbine and reaction turbine.
14.		2 <sup>nd</sup>	Solve Numerical.
15.		3 <sup>rd</sup>	Solve Numerical.
16.		4 <sup>th</sup>	About Pump
17.	5 <sup>th</sup>	1 <sup>st</sup>	Construction and working principle of centrifugal pumps
18.		2 <sup>nd</sup>	work done and derivation of various efficiencies of centrifugal pumps.

19.		3 <sup>rd</sup>	Do
20.		4 <sup>th</sup>	Solve Numerical.
21.	6 <sup>th</sup>	1 <sup>st</sup>	Describe construction working of single acting reciprocating pump.
22.		2 <sup>nd</sup>	Describe construction, working of double acting reciprocating pump.
23.		3 <sup>rd</sup>	Derive the formula for power required to drive the pump
24.		4 <sup>th</sup>	Define Slip.State positive,negative, relation between slip & coefficient of Discharge
25.	7 <sup>th</sup>	1 <sup>st</sup>	Solve numerical
26.		2 <sup>nd</sup>	Avout Pnumetic System.
27.		3 <sup>rd</sup>	Elements –filter-regulator-lubrication unit
28.		4 <sup>th</sup>	Do
29.	8 <sup>th</sup>	1 <sup>st</sup>	Pressure control valves
30.		2 <sup>nd</sup>	Do
31.		3 <sup>rd</sup>	Direction control valves
32.		4 <sup>th</sup>	Do
33.	9 <sup>th</sup>	1 <sup>st</sup>	Do
34.		2 <sup>nd</sup>	ISO Symbols of pneumatic components
35.		3 <sup>rd</sup>	Do
36.		4 <sup>th</sup>	About Pneumatic circuits.
37.	10 <sup>th</sup>	1 <sup>st</sup>	Do
38.		2 <sup>nd</sup>	Do
39.		3 <sup>rd</sup>	Do
40.		4 <sup>th</sup>	Do
41.	11 <sup>th</sup>	1 <sup>st</sup>	About Hydraulic system, its merit and demerits
42.		2 <sup>nd</sup>	Do
43.		3 <sup>rd</sup>	Hydraulic accumulators



44.		4 <sup>th</sup>	Do
45.	12 <sup>th</sup>	1 <sup>st</sup>	Pressure control valves
46.		2 <sup>nd</sup>	Do
47.		3 <sup>rd</sup>	Pressure relief valves
48.		4 <sup>th</sup>	Do
49.	13 <sup>th</sup>	1 <sup>st</sup>	Pressure regulation valves
50.		2 <sup>nd</sup>	Direction control valves
51.		3 <sup>rd</sup>	Do
52.		4 <sup>th</sup>	Do
53.	14 <sup>th</sup>	1 <sup>st</sup>	Fluid power pumps
54.		2 <sup>nd</sup>	Do
55.		3 <sup>rd</sup>	ISO Symbols for hydraulic components.
56.		4 <sup>th</sup>	About Actuators
57.	15 <sup>th</sup>	1 <sup>st</sup>	Hydraulic circuits
58.		2 <sup>nd</sup>	Do
59.		3 <sup>rd</sup>	Do
60.		4 <sup>th</sup>	Comparison of hydraulic and pneumatic system

**The lesson plan prepared by the concerned faculty**

**Er. RajendraMohanty**

**PTGF,MECHANICAL DEPARTMENT**

**UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA****Academic Lesson Plan for Winter semester- 2020****Name of the teaching faculty: Er. Bimbadhar Sahu****Department: Mechanical Engineering****Semester: 5th****Subject: DESIGN OF MACHINE ELEMENTS****No. of periods per week: 4****Total Periods: 60****End semester exam: 80****Class test: 20****Total Marks : 100**

Sl. No.	Week	Period	Topic to be covered
1.	1 <sup>st</sup>	1 <sup>st</sup>	Introduction to Machine Design and Classify it.
2.		2 <sup>nd</sup>	Different mechanical engineering materials used in design with their
3.		3 <sup>rd</sup>	uses and their mechanical and physical properties.
4.		4 <sup>th</sup>	Define working stress, yield stress, ultimate stress & factor of
5.	2 <sup>nd</sup>	1 <sup>st</sup>	safety and stress –strain curve for M.S & C.I.
6.		2 <sup>nd</sup>	Modes of Failure
7.		3 <sup>rd</sup>	Do
8.		4 <sup>th</sup>	State the factors governing the design of machine elements.
9.	3 <sup>rd</sup>	1 <sup>st</sup>	Do
10.		2 <sup>nd</sup>	Describe design procedure.
11.		3 <sup>rd</sup>	Do
12.		4 <sup>th</sup>	Do
13.	4 <sup>th</sup>	1 <sup>st</sup>	Joints and their classification.
14.		2 <sup>nd</sup>	State types of welded joints .
15.		3 <sup>rd</sup>	State advantages of welded joints over other joints.
16.		4 <sup>th</sup>	Design of welded joints for eccentric loads.
17.	5 <sup>th</sup>	1 <sup>st</sup>	State types of riveted joints and types of rivets.
18.		2 <sup>nd</sup>	Describe failure of riveted joints.
19.		3 <sup>rd</sup>	Determine strength & efficiency of riveted joints.
20.		4 <sup>th</sup>	Design riveted joints for pressure vessel.

21.	6 <sup>th</sup>	1 <sup>st</sup>	Solve numerical on Welded Joint and Riveted Joints
22.		2 <sup>nd</sup>	Do
23.		3 <sup>rd</sup>	Do
24.		4 <sup>th</sup>	Do
25.	7 <sup>th</sup>	1 <sup>st</sup>	State function of shafts.
26.		2 <sup>nd</sup>	State materials for shafts.
27.		3 <sup>rd</sup>	Design solid & hollow shafts to transmit a given power at given rpm based on
28.		4 <sup>th</sup>	Do
29.	8 <sup>th</sup>	1 <sup>st</sup>	State standard size of shaft as per I.S.
30.		2 <sup>nd</sup>	State function of keys, types of keys & material of keys.
31.		3 <sup>rd</sup>	Describe failure of key, effect of key way.
32.		4 <sup>th</sup>	Design rectangular sunk key considering its failure against shear & Crushing
33.	9 <sup>th</sup>	1 <sup>st</sup>	Design rectangular sunk key by using empirical relation for given diameter of shaft.
34.		2 <sup>nd</sup>	State specification of parallel key, gib-head key, taper key as per I.S
35.		3 <sup>rd</sup>	Solve numerical on Design of Shaft and keys
36.		4 <sup>th</sup>	Do
37.	10 <sup>th</sup>	1 <sup>st</sup>	Design of Shaft Coupling
38.		2 <sup>nd</sup>	Requirements of a good shaft coupling
39.		3 <sup>rd</sup>	Types of Coupling.
40.		4 <sup>th</sup>	Design of Sleeve or Muff-Coupling.
41.	11 <sup>th</sup>	1 <sup>st</sup>	Do
42.		2 <sup>nd</sup>	Design of Clamp or Compression Coupling.
43.		3 <sup>rd</sup>	Do
44.		4 <sup>th</sup>	Solve simple numerical on above.

45.	12 <sup>th</sup>	1 <sup>st</sup>	Do
46.		2 <sup>nd</sup>	Do
47.		3 <sup>rd</sup>	Do
48.		4 <sup>th</sup>	Do
49.	13 <sup>th</sup>	1 <sup>st</sup>	Materials used for helical spring.
50.		2 <sup>nd</sup>	Standard size spring wire. (SWG).
51.		3 <sup>rd</sup>	Terms used in compression spring.
52.		4 <sup>th</sup>	Stress in helical spring of a circular wire.
53.	14 <sup>th</sup>	1 <sup>st</sup>	Do
54.		2 <sup>nd</sup>	Deflection of helical spring of circular wire.
55.		3 <sup>rd</sup>	Surge in spring.
56.		4 <sup>th</sup>	Solve numerical on design of closed coil helical compression spring
57.	15 <sup>th</sup>	1 <sup>st</sup>	Do
58.		2 <sup>nd</sup>	Do
59.		3 <sup>rd</sup>	Do
60.		4 <sup>th</sup>	Do

**The lesson plan prepared by the concerned faculty**

**Er. Bimbardhar Sahu  
LECTURER, MECHANICAL DEPARTMENT**

**UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA**

**Academic Lesson Plan for Winter semester- 2021**

**Name of the teaching faculty: Er. Dibyajyoti Panda Department: Mechanical Engineering**

**Semester: 5th**

**Subject: ENTREPRENEURSHIP & MANAGEMENT & ST**

**No. of periods per week: 4**

**Total Periods: 60**

**End semester exam: 80**

**Class test: 20**

**Total Marks : 100**

Sl. No.	Week	Period	Topic to be covered
1.	1 <sup>st</sup>	1 <sup>st</sup>	Concept /Meaning of Entrepreneurship
2.		2 <sup>nd</sup>	Need of Entrepreneurship
3.		3 <sup>rd</sup>	Characteristics, Qualities and Types of entrepreneur, Functions
4.		4 <sup>th</sup>	Barriers in entrepreneurship
5.	2 <sup>nd</sup>	1 <sup>st</sup>	Entrepreneurs vrs. Manager
6.		2 <sup>nd</sup>	Forms of Business Ownership: Sole proprietorship, partnership forms and others
7.		3 <sup>rd</sup>	Types of Industries, Concept of Start-ups
8.		4 <sup>th</sup>	Entrepreneurial support agencies at National, State, District Level( Sources): DIC, NSIC,OSIC,
9.	3 <sup>rd</sup>	1 <sup>st</sup>	SIDBI, NABARD, Commercial Banks, KVIC etc.
10.		2 <sup>nd</sup>	Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks
11.		3 <sup>rd</sup>	Business Planning
12.		4 <sup>th</sup>	SSI, Ancillary Units, Tiny Units, Service sector Units
13.	4 <sup>th</sup>	1 <sup>st</sup>	Time schedule Plan, Agencies to be contacted for Project Implementation
14.		2 <sup>nd</sup>	Do
15.		3 <sup>rd</sup>	Assessment of Demand and supply and Potential areas of Growth
16.		4 <sup>th</sup>	Identifying Business Opportunity
17.	5 <sup>th</sup>	1 <sup>st</sup>	Do
18.		2 <sup>nd</sup>	Final Product selection

19.		3 <sup>rd</sup>	Preliminary project report
20.		4 <sup>th</sup>	Detailed project report, Techno economic Feasibility
21.	6 <sup>th</sup>	1 <sup>st</sup>	Do
22.		2 <sup>nd</sup>	Project Viability
23.		3 <sup>rd</sup>	Definitions of management
24.		4 <sup>th</sup>	Principles of management
25.	7 <sup>th</sup>	1 <sup>st</sup>	Functions of management
26.		2 <sup>nd</sup>	Do
27.		3 <sup>rd</sup>	Level of Management in an Organisation
28.		4 <sup>th</sup>	Production management
29.	8 <sup>th</sup>	1 <sup>st</sup>	Do
30.		2 <sup>nd</sup>	Inventory Management
31.		3 <sup>rd</sup>	Do
32.		4 <sup>th</sup>	Financial Management
33.	9 <sup>th</sup>	1 <sup>st</sup>	Do
34.		2 <sup>nd</sup>	Marketing Management
35.		3 <sup>rd</sup>	Do
36.		4 <sup>th</sup>	Human Resource Management
37.	10 <sup>th</sup>	1 <sup>st</sup>	Do
38.		2 <sup>nd</sup>	About Leadership
39.		3 <sup>rd</sup>	Do
40.		4 <sup>th</sup>	Do
41.	11 <sup>th</sup>	1 <sup>st</sup>	About Motivation
42.		2 <sup>nd</sup>	Do
43.		3 <sup>rd</sup>	Do
44.		4 <sup>th</sup>	Human relationship and Performance in Organization
45.	12 <sup>th</sup>	1 <sup>st</sup>	Relations with Peers, Superiors and Subordinates

46.		2 <sup>nd</sup>	TQM concepts
47.		3 <sup>rd</sup>	Do
48.		4 <sup>th</sup>	Accidents and Safety, Cause, preventive measures, General Safety Rules , PPE
49.	13 <sup>th</sup>	1 <sup>st</sup>	Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights
50.		2 <sup>nd</sup>	Do
51.		3 <sup>rd</sup>	Features of Factories Act 1948 with Amendment
52.		4 <sup>th</sup>	Do
53.	14 <sup>th</sup>	1 <sup>st</sup>	Features of Payment of Wages Act 1936
54.		2 <sup>nd</sup>	Do
55.		3 <sup>rd</sup>	Concept of IOT, How IOT works
56.		4 <sup>th</sup>	Components of IOT, Characteristics of IOT, Categories of IOT
57.	15 <sup>th</sup>	1 <sup>st</sup>	Do
58.		2 <sup>nd</sup>	Applications of IOT
59.		3 <sup>rd</sup>	Do
60.		4 <sup>th</sup>	Smart Industry, Smart Agriculture, Smart Energy Management .

**The lesson plan prepared by the concerned faculty**

**Er. Dibyajyoti Panda**

**PTGF,MECHANICAL DEPARTMENT**

**UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA**  
**Academic Lesson Plan for Winter semester- 2021**

**Name of the teaching faculty: Er. Dibyajyoti Panda**    **Department: Mechanical Engineering**  
**Semester: 5th**    **Subject: CAD/CAM LAB**  
**No. of periods per week: 4**    **Total Periods: 60**  
**End semester exam: 50**    **Sessional: 25**  
**Total Marks : 75**

Sl. No.	Week	Period	Topic to be covered
1.	1 <sup>st</sup>	1 <sup>st</sup>	About Cad Software
2.		2 <sup>nd</sup>	Do
3.		3 <sup>rd</sup>	Part modelling, Datum plane, Datum plane; constraint;
4.		4 <sup>th</sup>	Do
5.	2 <sup>nd</sup>	1 <sup>st</sup>	Do
6.		2 <sup>nd</sup>	Do
7.		3 <sup>rd</sup>	dimensioning; extrude;
8.		4 <sup>th</sup>	revolve; sweep
9.	3 <sup>rd</sup>	1 <sup>st</sup>	Do
10.		2 <sup>nd</sup>	Do
11.		3 <sup>rd</sup>	protrusion; extrusion;
12.		4 <sup>th</sup>	Do
13.	4 <sup>th</sup>	1 <sup>st</sup>	rib; shell; hole; round; chamfer;
14.		2 <sup>nd</sup>	Do
15.		3 <sup>rd</sup>	copy; mirror; assembly; align; orient
16.		4 <sup>th</sup>	Do
17.	5 <sup>th</sup>	1 <sup>st</sup>	Practice Exercises



18.		2 <sup>nd</sup>	Do
19.		3 <sup>rd</sup>	Do
20.		4 <sup>th</sup>	Do
21.	6 <sup>th</sup>	1 <sup>st</sup>	Do
22.		2 <sup>nd</sup>	Do
23.		3 <sup>rd</sup>	Do
24.		4 <sup>th</sup>	Do
25.	7 <sup>th</sup>	1 <sup>st</sup>	Do
26.		2 <sup>nd</sup>	Do
27.		3 <sup>rd</sup>	Do
28.		4 <sup>th</sup>	Do
29.	8 <sup>th</sup>	1 <sup>st</sup>	CNC Programming and Machining
30.		2 <sup>nd</sup>	Do
31.		3 <sup>rd</sup>	Do
32.		4 <sup>th</sup>	Do
33.	9 <sup>th</sup>	1 <sup>st</sup>	Do
34.		2 <sup>nd</sup>	Do
35.		3 <sup>rd</sup>	Do
36.		4 <sup>th</sup>	Do
37.	10 <sup>th</sup>	1 <sup>st</sup>	Do
38.		2 <sup>nd</sup>	Do
39.		3 <sup>rd</sup>	Practice Exercises
40.		4 <sup>th</sup>	Do
41.	11 <sup>th</sup>	1 <sup>st</sup>	Do

42.		2 <sup>nd</sup>	Do
43.		3 <sup>rd</sup>	Do
44.		4 <sup>th</sup>	Do
45.	12 <sup>th</sup>	1 <sup>st</sup>	Do
46.		2 <sup>nd</sup>	Do
47.		3 <sup>rd</sup>	Do
48.		4 <sup>th</sup>	Do
49.	13 <sup>th</sup>	1 <sup>st</sup>	Do
50.		2 <sup>nd</sup>	Do
51.		3 <sup>rd</sup>	Do
52.		4 <sup>th</sup>	Do
53.	14 <sup>th</sup>	1 <sup>st</sup>	Do
54.		2 <sup>nd</sup>	Do
55.		3 <sup>rd</sup>	Do
56.		4 <sup>th</sup>	Do
57.	15 <sup>th</sup>	1 <sup>st</sup>	Do
58.		2 <sup>nd</sup>	Do
59.		3 <sup>rd</sup>	Do
60.		4 <sup>th</sup>	Do

The lesson plan prepared by the concerned faculty

Er. Dibyajyoti Panda

PTGF,MECHANICAL DEPARTMENT

**UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA**

**Academic Lesson Plan for Winter semester- 2021**

Name of the teaching faculty: Er. RajendraMohanty      Department: Mechanical Engineering

Semester: 5th

Subject: HYDRAULIC MACHINES & INDUSTRIAL FLUID POWER LAB

No. of periods per week: 4

Total Periods: 60

End semester exam: 50

Sessional: 25

Total Marks : 75

Sl. No.	Week	Period	Topic to be covered
1.	1 <sup>st</sup>	1 <sup>st</sup>	Performance test on impulse turbine and to find out the efficiency
2.		2 <sup>nd</sup>	Do
3.		3 <sup>rd</sup>	Do
4.		4 <sup>th</sup>	Do
5.	2 <sup>nd</sup>	1 <sup>st</sup>	Do
6.		2 <sup>nd</sup>	Do
7.		3 <sup>rd</sup>	Do
8.		4 <sup>th</sup>	Do
9.	3 <sup>rd</sup>	1 <sup>st</sup>	Performance test on Kaplan turbine and to find out the efficiency
10.		2 <sup>nd</sup>	Do
11.		3 <sup>rd</sup>	Do
12.		4 <sup>th</sup>	Do
13.	4 <sup>th</sup>	1 <sup>st</sup>	Do
14.		2 <sup>nd</sup>	Do
15.		3 <sup>rd</sup>	Do
16.		4 <sup>th</sup>	Do
17.	5 <sup>th</sup>	1 <sup>st</sup>	Performance test on Francis turbine and to find out the efficiency
18.		2 <sup>nd</sup>	Do
19.		3 <sup>rd</sup>	Do

20.		4 <sup>th</sup>	Do
21.	6 <sup>th</sup>	1 <sup>st</sup>	Do
22.		2 <sup>nd</sup>	Do
23.		3 <sup>rd</sup>	Do
24.		4 <sup>th</sup>	Do
25.	7 <sup>th</sup>	1 <sup>st</sup>	Performance test on centrifugal pump and to find out the characteristic curves
26.		2 <sup>nd</sup>	Do
27.		3 <sup>rd</sup>	Do
28.		4 <sup>th</sup>	Do
29.	8 <sup>th</sup>	1 <sup>st</sup>	Do
30.		2 <sup>nd</sup>	Do
31.		3 <sup>rd</sup>	Direct operation of single & double acting pneumatic cylinder.
32.		4 <sup>th</sup>	Do
33.	9 <sup>th</sup>	1 <sup>st</sup>	Do
34.		2 <sup>nd</sup>	Do
35.		3 <sup>rd</sup>	Do
36.		4 <sup>th</sup>	Do
37.	10 <sup>th</sup>	1 <sup>st</sup>	Operating double acting pneumatic cylinder with quick exhaust valve
38.		2 <sup>nd</sup>	Do
39.		3 <sup>rd</sup>	Do
40.		4 <sup>th</sup>	Do
41.	11 <sup>th</sup>	1 <sup>st</sup>	Do
42.		2 <sup>nd</sup>	Do
43.		3 <sup>rd</sup>	Speed control double acting pneumatic cylinder using metering in and metering out circuits.

44.		4 <sup>th</sup>	Do
45.	12 <sup>th</sup>	1 <sup>st</sup>	Do
46.		2 <sup>nd</sup>	Do
47.		3 <sup>rd</sup>	Direct operation of single & double acting hydraulic cylinder
48.		4 <sup>th</sup>	Do
49.	13 <sup>th</sup>	1 <sup>st</sup>	Do
50.		2 <sup>nd</sup>	Do
51.		3 <sup>rd</sup>	Direct operation of hydraulic motor
52.		4 <sup>th</sup>	Do
53.	14 <sup>th</sup>	1 <sup>st</sup>	Do
54.		2 <sup>nd</sup>	Do
55.		3 <sup>rd</sup>	Speed control double acting hydraulic cylinder using metering in & metering out circuits.
56.		4 <sup>th</sup>	Do
57.	15 <sup>th</sup>	1 <sup>st</sup>	Do
58.		2 <sup>nd</sup>	Do
59.		3 <sup>rd</sup>	Do
60.		4 <sup>th</sup>	Do

The lesson plan prepared by the concerned faculty

Er. Rajendra Mohanty

PTGF, MECHANICAL DEPARTMENT

**UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA**

**Academic Lesson Plan for Winter semester- 2021**

Name of the teaching faculty: Er. Amiya Ranjan Patra      Department: Mechanical Engineering

Semester: 5th

Subject: REFRIGERATION AND AIR CONDITIONING LAB

No. of periods per week: 4

Total Periods: 60

End semester exam: 50

Sessional: 25

Total Marks : 75

Sl. No.	Week	Period	Topic to be covered
1.	1 <sup>st</sup>	1 <sup>st</sup>	Study the construction features of Domestic Refrigerator.
2.		2 <sup>nd</sup>	Do
3.		3 <sup>rd</sup>	Do
4.		4 <sup>th</sup>	Do
5.	2 <sup>nd</sup>	1 <sup>st</sup>	Do
6.		2 <sup>nd</sup>	Do
7.		3 <sup>rd</sup>	Study the construction features of water cooler.
8.		4 <sup>th</sup>	Do
9.	3 <sup>rd</sup>	1 <sup>st</sup>	Do
10.		2 <sup>nd</sup>	Do
11.		3 <sup>rd</sup>	Do
12.		4 <sup>th</sup>	Do
13.	4 <sup>th</sup>	1 <sup>st</sup>	Study the construction features of window air conditioner
14.		2 <sup>nd</sup>	Do
15.		3 <sup>rd</sup>	Do
16.		4 <sup>th</sup>	Do
17.	5 <sup>th</sup>	1 <sup>st</sup>	Do
18.		2 <sup>nd</sup>	Do
19.		3 <sup>rd</sup>	Study the construction features of split air conditioner

20.		4 <sup>th</sup>	Do
21.	6 <sup>th</sup>	1 <sup>st</sup>	Do
22.		2 <sup>nd</sup>	Do
23.		3 <sup>rd</sup>	Do
24.		4 <sup>th</sup>	Do
25.	7 <sup>th</sup>	1 <sup>st</sup>	Determine the capacity and cop of vapour compression Refrigerator test rig
26.		2 <sup>nd</sup>	Do
27.		3 <sup>rd</sup>	Do
28.		4 <sup>th</sup>	Do
29.	8 <sup>th</sup>	1 <sup>st</sup>	Do
30.		2 <sup>nd</sup>	Do
31.		3 <sup>rd</sup>	Determine the capacity and cop of water cooler
32.		4 <sup>th</sup>	Do
33.	9 <sup>th</sup>	1 <sup>st</sup>	Do
34.		2 <sup>nd</sup>	Do
35.		3 <sup>rd</sup>	Do
36.		4 <sup>th</sup>	Do
37.	10 <sup>th</sup>	1 <sup>st</sup>	Determine the capacity and cop of window air conditioner
38.		2 <sup>nd</sup>	Do
39.		3 <sup>rd</sup>	Do
40.		4 <sup>th</sup>	Do
41.	11 <sup>th</sup>	1 <sup>st</sup>	Do
42.		2 <sup>nd</sup>	Do

43.		3 <sup>rd</sup>	Determine the capacity and cop of split air conditioner
44.		4 <sup>th</sup>	Do
45.	12 <sup>th</sup>	1 <sup>st</sup>	Do
46.		2 <sup>nd</sup>	Do
47.		3 <sup>rd</sup>	Do
48.		4 <sup>th</sup>	Do
49.	13 <sup>th</sup>	1 <sup>st</sup>	Determine the capacity and cop of vapour absorption Refrigerator test rig.
50.		2 <sup>nd</sup>	Do
51.		3 <sup>rd</sup>	Do
52.		4 <sup>th</sup>	Do
53.	14 <sup>th</sup>	1 <sup>st</sup>	Do
54.		2 <sup>nd</sup>	Do
55.		3 <sup>rd</sup>	Complete charging of a domestic refrigerator and its leak test.
56.		4 <sup>th</sup>	Do
57.	15 <sup>th</sup>	1 <sup>st</sup>	Do
58.		2 <sup>nd</sup>	Do
59.		3 <sup>rd</sup>	Do
60.		4 <sup>th</sup>	Do

The lesson plan prepared by the concerned faculty

Er. Amiya Ranjan Patra

PTGF,MECHANICAL DEPARTMENT