NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)

LESSON PLAN

SUBJECT: TH-3 (HYDRAULIC MACHINE & INDUSTRIAL FLUID POWER)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	HYDRAULIC TURBINES	15	16
2	CENTRIFUGAL PUMPS	5	5
3	PNEUMATIC SYSTEM	20	22
4	HYDRAULIC SYSTEM	20	20
	Total Period:	60	62

Discipline: MECHANICAL ENGINEERING	Semester: 5th	**Name of the Teaching Faculty:** Er.Bishnu Charan Jena	
		SESSION : 2023-24 **EXAMINATION :** 2023 (W)	
Week	**Class Day**	**To be Covered**	
1st	**1st**	1.1 Definition and classification of hydraulic turbines	
	2nd	1.1 Construction and working principle of impulse turbine.	
	3rd	1.1 Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.	
	4th	1.5 Velocity diagram of moving blades, work done and derivation of various efficiencies of Kaplan turbine	
2nd	**1st**	Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.	
	2nd	Numerical on above	
	3rd	Distinguish between impulse turbine and reaction turbine.	
	4th	Numerical on above	
3rd	**1st**	CENTRIFUGAL PUMPS	
	2nd	Construction and working principle of centrifugal pumps	
	3rd	Construction and working principle of centrifugal pumps	
	4th	work done and derivation of various efficiencies of centrifugal pumps	
4th	**1st**	Numerical on above	
	2nd	RECIPROCATING PUMPS	
	3rd	RECIPROCATING PUMPS	
	4th	Describe construction & working of single acting reciprocating pump.	
5th	**1st**	Describe construction & working of double acting reciprocating pump	
	2nd	Describe construction & working of double acting reciprocating pump	
	3rd	Derive the formula foe power required to drive the pum	
	4th	(Single acting & double acting)	
6th	**1st**	Define slip	
	2nd	State positive & negative slip & establish relation between slip & coefficient of discharge.	

	3rd	State positive & negative slip & establish relation between slip & coefficient of discharge.
Week	**Class Day**	**To be Covered**
6th	**4th**	State positive & negative slip & establish relation between slip & coefficient of discharge.
7th	**1st**	Solve numerical on above
	2nd	Solve numerical on above
	3rd	Solve numerical on above
	4th	PNEUMATIC CONTROL SYSTEM
8th	**1st**	PNEUMATIC CONTROL SYSTEM
	2nd	Elements –filter-regulator-lubrication unit
	3rd	**INTERNAL ASSESSMENT**
	4th	**INTERNAL ASSESSMENT**
9th	**1st**	Pressure relief valves
	2nd	Pressure relief valves
	3rd	Pressure regulation valves
	4th	Pressure regulation valves
10th	**1st**	Direction control valves
	2nd	3/2DCV,5/2 DCV,5/3DCV
	3rd	Flow control valves
	4th	Throttle valves
11th	**1st**	ISO Symbols of pneumatic components
	2nd	Direct control of single acting cylinder
	3rd	Direct control of single acting cylinder
	4th	*Operation of double acting cylinder*
12th	**1st**	Operation of double acting cylinder with metering in and metering out control
	2nd	CLASS TEST
	3rd	HYDRAULIC CONTROL SYSTEM

	4th	Hydraulic system, its merit and demerits
Week	**Class Day**	**To be Covered**
13th	**1st**	Hydraulic accumulators
	2nd	Pressure control valves
	3rd	Pressure relief valves
	4th	Pressure regulation valves
14th	**1st**	3/2DCV,5/2 DCV,5/3DCV
	2nd	Throttle valves
	3rd	Fluid power pumps
	4th	Vane pump , ISO SYMBOL
15th	**1st**	ISO Symbols for hydraulic components.
	2nd	Direct control of single acting cylinder
	3rd	Operation of double acting cylinder
	4th	Operation of double acting cylinder with metering in and metering out control
16th	**1st**	Operation of double acting cylinder with metering in and metering out control
	2nd	Comparison of hydraulic and pneumatic system
	3rd	Comparison of hydraulic and pneumatic system
	4th	Revision