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	15
2	CENTRIFUGAL PUMPS	5	6
3	PNEUMATIC SYSTEM	20	20
4	HYDRAULIC SYSTEM	20	20
	Total Period:	60	61

Discipline: MECHANICAL ENGINEERING	Semester: 5th	**Name of the Teaching Faculty:** Er.BISHNU CHARAN JENA
Week	**Class Day**	**Theory / Practical Topics**
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	CLASS TEST
	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.
	4th	Solve numerical on above
7th	1st	Solve numerical on above
	2nd	CLASS TEST
	3rd	PNEUMATIC CONTROL SYSTEM
	4th	PNEUMATIC CONTROL SYSTEM
8	1st	Elements –filter-regulator-lubrication unit
	2nd	Pressure control valves
	3rd	Pressure control valves
	4th	Pressure relief valves
9th	1st	Pressure relief valves
	2nd	Pressure regulation valves
	3rd	Pressure regulation valves
	4th	Direction control valves
10th	1st	3/2DCV,5/2 DCV,5/3DCV
	2nd	Flow control valves
	3rd	Throttle valves
	4th	ISO Symbols of pneumatic components
11th	1st	Direct control of single acting cylinder
	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
12th	1st	CLASS TEST
	2nd	HYDRAULIC CONTROL SYSTEM
	3rd	Hydraulic system, its merit and demerits
	4th	Hydraulic accumulators
13th	1st	Pressure control valves
	2nd	Pressure relief valves
	3rd	Pressure regulation valves
	4th	3/2DCV,5/2 DCV,5/3DCV

14th	1st	Throttle valves
	2nd	Fluid power pumps
	3rd	Vane pump ，ISO SYMBOL
	4th	ISO Symbols for hydraulic components.
15th	1st	Direct control of single acting cylinder
	2nd	Operation of double acting cylinder
	3rd	Operation of double acting cylinder with metering in and metering out control
	4th	Comparison of hydraulic and pneumatic system