

LESSION PLAN

NAME OF THE FACULTY : - HIMANSHU YADAV

DISCIPLINE : - ECE

SEMESTER : - FOURTH

SUBJECT : - INSTRUMENTATION

LESSON PLAN DURATION : - 15 weeks (from 22 Mar 2021 to 2 July 2021)

WORK LOAD (LECTURE/PRACTICAL) PER WEEK (IN HOURS):- LECTURE-03, PRACTIACL-06

WEEK	THEORY		PRACTICAL	
	LECTURE DAY	TOPIC (including assignment/test)	PRACTICAL DAY	TOPIC
1 st	1 st	Importance of measurement	1 st Group-1	To measure the level of a liquid using a transducer
	2 nd	basic measuring systems		
	3 rd	Advantages and limitations of each measuring systems and display devices • assignments	2 nd Group-2	To measure the level of a liquid using a transducer
2 nd	4 th	Transducers: Theory, construction	3 rd Group-1	To measure temperature using a thermo-couple
	5 th	use of various transducers (resistance type)		
	6 th	use of various transducers (inductance type)	4 th Group-2	To measure temperature using a thermo-couple
3 rd	7 th	use of various transducers (capacitance type),	5 th Group-1	Study and use of digital temperature controller
	8 th	use of various transducers (electromagnetic type)		
	9 th	use of various transducers (piezo electric type) • assignments	6 th Group-2	Study and use of digital temperature controller

4 th	10 th	Displacement Measuring Devices: wire wound potentiometer	7 th Group-1	Use of thermistor in ON/OFF transducer
	11 th	LVDT,		
	12 th	strain gauges and their different types such as inductance type, resistive type, wire and foil type etc.	8 th Group-2	Use of thermistor in ON/OFF transducer,
5 th	13 th	Gauge factor, Gauge materials and their selections.	9 th Group-1	Study of variable capacitive transducer
	14 th	Use of electrical strain gauges		
	15 th	Strain gauge bridges and amplifiers. • assignments	10 th Group-2	Study of variable capacitive transducer
6 th	16 th	Different types of force measuring devices and their principles	11 th Group-1	Draw the characteristics of a potentiometer
	17 th	load measurements by using elastic transducers		
	18 th	load measurements by using elastic transducers and electrical strain gauges.	12 th Group-2	Draw the characteristics of a potentiometer
7 th	19 th	Load cells	13 th Group-1	To measure linear displacement using LVDT
	20 th	measurements of torque by brake, dynamometer, electrical strain gauges,		
	21 th	Speed measurements; different methods, devices.	14 th Group-1	To measure linear displacement using LVDT

8 th	22 th	<ul style="list-style-type: none"> • assignments • Class Test 	15 th Group-1	Revision
	23 th	Pressure Measurement: Bourdon pressure gauges,		
	24 th	electrical pressure pick-ups and their principle, construction and application	16 th Group-2	Revision
9 th	25 th	electrical pressure pick-ups and their principle, construction and application	17 th Group-1	To study the use of electrical strain gauge
	26 th	Use of pressure cells <ul style="list-style-type: none"> • assignments 		
	27 th	Flow Measurement: introduction	18 th Group-2	To study the use of electrical strain gauge
10 th	28 th	Basic principles of magnetic flow meters	19 th Group-1	To study weighing machine using load cell
	29 th	Basic principles of ultrasonic flow meters		
	30 th	<ul style="list-style-type: none"> • assignments • Class Test 	20 th Group-2	To study weighing machine using load cell
11 th	31 th	Measurement of Temperature: introduction	21 th Group-1	To study pH meter.
	32 th	Bimetallic thermometer		
	33 th	Thermoelectric thermometers	22 th Group-2	To study pH meter.
12 th	34 th	Resistance thermometers	23 th Group-1	Revision
	35 th	Thermocouple		
	36 th	Thermistors	24 th Group-2	Revision
13 th	37 th	Pyrometer.	25 th Group-1	Test
	38 th	Temperature recorders <ul style="list-style-type: none"> • assignments 		
	39 th	Measurement of other non-electrical quantities :- introduction	26 th Group-2	Test

14 th	40 th	Humidity	27 th Group-1	Revision
	41 th	pH level		
	42 th	Vibrations	28 th Group-2	Revision
15 th	43 th	<ul style="list-style-type: none"> • assignments • Class Test 	29 th Group-1	Revision
	44 th	<ul style="list-style-type: none"> • Class Test 		
	45 th	<ul style="list-style-type: none"> • Class Test 	30 th Group-2	Revision