ACADEMIC LESSON PLAN OF

Discipline: Electrical	**Semester: 4th (Section-A)**	**Name of the Teaching Faculty: Lucky Rani Behuria**

SUMMER 2022

Subject: Electrical measurement & instrumentation TH.3	No. of days/per week class allotted:4p/week Tutorial:1p/week	Semester From: 10th Mar 2022 to 10th June 2022
Week	**Class Day**	**Theory Topics**
1st	**14/3/22**	**Tutorial**
	15/3/22	**1. MEASURING INSTRUMENTS** **1.1**. Definition of accuracy, precision, errors, resolution sensitivity and toleran
	15/3/22	**1.2.** Classification of measuring instruments**.**
	16/3/22	**1.3.** Explaining Deflecting, controlling and damping arrangements in indicati
	16/3/22	**1.4.**Explaining Deflecting, controlling and damping arrangements in indicatin
2nd	**21/3/22**	**Tutorial**
	22/3/22	**1.5.** Calibration of instruments**.**
	22/3/22	2. ANALOG AMMETERS AND VOLTMETERS Describe Construction, principle of operation, errors, ranges merits and deme 2.1Moving iron type instruments.
	23/3/22	2.1 Moving iron type instruments.(contd.)
	23/3/22	2.2 Permanent Magnet Moving coil type instruments.
3rd	**28/3/22**	**Tutorial**
	29/3/22	2.3 Dynamometer type instruments
	29/3/22	2.4 Rectifier type instruments
	30/3/22	2.5 Induction type instruments
	30/3/22	2.6 Extend the range of instruments by use of shunts and Multipliers
4th	**4/4/22**	**Tutorial**
	5/4/22	2.6 Extend the range of instruments by use of shunts and Multipliers(contd.)
	5/4/22	2.7 Solving numerical
	6/4/22	2.7 Solve Numerical(contd.)
	6/4/22	3.WATTMETERS AND MEASUREMENT OF POWER 3.1 Described Construction Dynamometer type wattmeter. (LPF and UPF typ
5th	**11/4/22**	**Tutorial**
	12/4/22	3.2 Described principle of working of Dynamometer type wattmeter. (LPF an
	12/4/22	3.2 Described principle of working of Dynamometer type wattmeter. (LPF an
	13/4/22	3.2 Described principle of working of Dynamometer type wattmeter. (LPF an
	13/4/22	3.3 The Errors in Dynamometer type wattmeter and methods of their correctio
6th	**18/4/22**	**Tutorial**

	19/4/22	3.3 The Errors in Dynamometer type wattmeter and methods of their correctio
	19/4/22	3.5 Discuss Induction type watt meters
	20/4/22	3.5 Discuss Induction type watt meters(contd.)
	20/4/22	**4. ENERGYMETERS AND MEASUREMENT OF ENERGY** **4**.1.Introduction
7th	**25/4/22**	**Tutorial**
	26/4/22	4.2. Single Phase Induction type Energy meters – construction.
	26/4/22	4.3. Single Phase Induction type Energy meters – working principle
	27/4/22	4.3. Single Phase Induction type Energy meters – working principle (contd.)
	27/4/22	4.4 Single Phase Induction type Energy meters – their compensation and adju
8th	**2/5/22**	
	3/5/22	**HOLIDAY**
	3/5/22	**HOLIDAY**
	4/5/22	4.4 Single Phase Induction type Energy meters – their compensation and adju
	4/5/22	4.5.Testing of Energy Meters.
9th	**16/5/22**	**HOLIDAY**
	17/5/22	4.5.Testing of Energy Meters.(contd.)
	17/5/22	**5.MEASUREMENT OF SPEED, FREQUENCY AND POWER FACTOR** 5.1 Tachometers, types and working principles
	18/5/22	5.2 Principle of operation and construction of Mechanical resonance Type fre
	18/5/22	5.2 Principle of operation and construction of Mechanical Type frequency m 5.3 Principle of operation and construction of Electrical resonance Type frequ
10th	**23/5/22**	**Tutoria**l
	24/5/22	5.3 Principle of operation and construction of Electrical resonance Type frequ
	24/5/22	5.5 Principle of operation and working of Dynamometer type single phase and factor meters.(contd.)
	25/5/22	**6. MEASUREMENT OF RESISTANCE, INDUCTANCE& CAPACITA** 6.1. Classification of resistance
	25/5/22	6.2 Measurement of low resistance by potentiometer method. .
11th	**30/5/22**	**HOLIDAY**
	31/5/22	6.3 Measurement of medium resistance by wheat Stone bridge method.
	31/5/22	6.4 Measurement of high resistance by loss of charge method
	1/6/22	6.5 Construction, principle of operations of Megger & Earth tester for insulati resistance measurement respectively
	1/6/22	6.6 Construction and principles of Multimeter. (Analog and Digital)
12th	**6/6/22**	**Tutoria**l
	7/6/22	6.7 Measurement of inductance by Maxewell's Bridge method
	7/6/22	6.8 Measurement of capacitance by Schering Bridge method
	8/6/22	**7.SENSORS AND TRANSDUCER** 7.1. Define Transducer, sensing element or detector element and transduction
	8/6/22	7.2. Classify transducer. Give examples of various class of transducer
13th	**Extra class**	**Tutoria**l
	Extra class	7.3 Linear and angular motion potentiometer.
	Extra class	7.4Thermistor and Resistance thermometers.
	Extra class	7.5 Wire Resistance Strain Gauges
	Extra class	7.6 Principle of linear variable differential Transformer (LVDT) AND USES
14th	**Extra class**	**Tutoria**l
	Extra class	General principle of capacitive transducer AND 7.7 Variable area capacitive transducer.

		Extra class	7.8 Change in distance between plate capacitive transducer.
		Extra class	7.9 Piezo electric Transducer and Hall Effect Transducer with their applicatio
Discipline: Electrical	**Semester: 4th (Section-B)**	**Name of the Teaching Faculty: Lucky Rani Behuria**	
		Extra class	**8.OSCILLOSCOPE**
		Extra class	8.1. Principle of operation of Cathode Ray Tube.
Subject: Electrical	**No. of days/per week 15th**	**Tutorial**	**Semester From: 10th Mar 2022 to 10th June**
		Extra class	8.2. Principle of operation of Oscilloscope (with help of block diagram)
		Extra class	8.2. Principle of operation of Oscilloscope (with help of block diagram)(conto
		Extra class	8.3Measurement of DC Voltage and current
		Extra class	8.4 Measurement of AC voltage,current,phase and frequency

Signature of Teaching Faculty

ACADEMIC LESSON PLAN OF SUMMER 2022

measurement & instrumentation TH.3	class allotted:4p/week Tutorial:1p/week	2022
Week	**Class Day**	**Theory Topics**
1st	14/3/22	1. MEASURING INSTRUMENTS 1.1. Definition of accuracy, precision, errors, resolution sensitivity and tolerance
	14/3/22	1.2. Classification of measuring instruments.
	15/3/22	1.3. Explaining Deflecting, controlling and damping arrangements in indicating type of instruments
	15/3/22	1.4.Explaining Deflecting, controlling and damping arrangements in indicating type of instruments
	16/3/22	Tutorial
2nd	21/3/22	1.5. Calibration of instruments.
	21/3/22	2. ANALOG AMMETERS AND VOLTMETERS Describe Construction, principle of operation, errors, ranges merits and demerits of: 2.1Moving iron type instruments.
	22/3/22	2.1 Moving iron type instruments.(contd.)
	22/3/22	2.2 Permanent Magnet Moving coil type instruments.
	23/3/22	Tutorial
3rd	28/3/22	2.3 Dynamometer type instruments
	28/3/22	2.4 Rectifier type instruments
	29/3/22	2.5 Induction type instruments
	29/3/22	2.6 Extend the range of instruments by use of shunts and Multipliers
	30/3/22	Tutorial

4th	4/4/22	2.6 Extend the range of instruments by use of shunts and Multipliers(contd.)
	4/4/22	2.7 Solving numerical
	5/4/22	2.7 Solve Numerical(contd.)
	5/4/22	3.WATTMETERS AND MEASUREMENT OF POWER 3.1 Described Construction Dynamometer type wattmeter. (LPF and UPF type)
	6/4/22	Tutorial
5th	11/4/22	3.2 Described principle of working of Dynamometer type wattmeter. (LPF and UPF type)
	11/4/22	3.2 Described principle of working of Dynamometer type wattmeter. (LPF and UPF type)(contd.)
	12/4/22	3.2 Described principle of working of Dynamometer type wattmeter. (LPF and UPF type)(contd)
	12/4/22	3.3 The Errors in Dynamometer type wattmeter and methods of their correction.
	13/4/22	Tutorial
6th	18/4/22	3.3 The Errors in Dynamometer type wattmeter and methods of their correction. (contd)
	18/4/22	3.5 Discuss Induction type watt meters
	19/4/22	3.5 Discuss Induction type watt meters(contd.)
	19/4/22	4. ENERGYMETERS AND MEASUREMENT OF ENERGY 4.1.Introduction
	20/4/22	Tutorial
7th	25/4/22	4.2. Single Phase Induction type Energy meters – construction.
	25/4/22	4.3. Single Phase Induction type Energy meters – working principle
	26/4/22	4.3. Single Phase Induction type Energy meters – working principle (contd.)
	26/4/22	4.4 Single Phase Induction type Energy meters – their compensation and adjustment
	27/4/22	Tutorial
8th	2/5/22	4.4 Single Phase Induction type Energy meters – their compensation and adjustment(contd.)

	2/5/22	4.5.Testing of Energy Meters.
	3/5/22	HOLIDAY
	3/5/22	HOLIDAY
	4/5/22	Tutorial
9th	9/5/22	4.5.Testing of Energy Meters.(contd.)
	9/5/22	5.MEASUREMENT OF SPEED, FREQUENCY AND POWER FACTOR 5.1 Tachometers, types and working principles 5.2 Principle of operation and construction of Mechanical resonance Type frequency meters.
	10/5/22	5.3 Principle of operation and construction of Electrical resonance Type frequency meters.
	10/5/22	5.3 Principle of operation and construction of Electrical resonance Type frequency meters.(contd)
	11/5/22	Tutorial
10th	16/5/22	HOLIDAY
	16/5/22	HOLIDAY
	17/5/22	5.4.Principle of operation and working of Dynamometer type single phase and three phase power factor meters.(contd.) 5.5 Principle of operation and working of Dynamometer type single phase and three phase power factor meters.(contd.)
	17/5/22	6. MEASUREMENT OF RESISTANCE, INDUCTANCE& CAPACITANCE 6.1. Classification of resistance 6.2 Measurement of low resistance by potentiometer method. .
	18/5/22	Tutorial
11th	23/5/22	6.3 Measurement of medium resistance by wheat Stone bridge method.
	23/5/22	6.4 Measurement of high resistance by loss of charge method
	24/5/22	6.5 Construction, principle of operations of Megger & Earth tester for insulation resistance and earth resistance measurement respectively
	24/5/22	6.6 Construction and principles of Multimeter. (Analog and Digital)

	25/5/22	Tutorial
12th	30/5/22	HOLIDAY
	30/5/22	HOLIDAY
	31/5/22	6.7 Measurement of inductance by Maxewell's Bridge method 6.8 Measurement of capacitance by Schering Bridge method
	31/5/22	7.SENSORS AND TRANSDUCER 7.1. Define Transducer, sensing element or detector element and transduction elements 7.2. Classify transducer. Give examples of various class of transducer
	1/6/2022	Tutorial
13th	6/6/2022	7.3 Linear and angular motion potentiometer.
	6/6/2022	7.4Thermistor and Resistance thermometers.
	7/6/2022	7.5 Wire Resistance Strain Gauges
	7/6/2022	7.6 Principle of linear variable differential Transformer (LVDT) AND USES OF LVDT
	8/6/2022	Tutorial
14th	Extra class	General principle of capacitive transducer AND 7.7 Variable area capacitive transducer.
	Extra class	7.8 Change in distance between plate capacitive transducer.
	Extra class	7.9 Piezo electric Transducer and Hall Effect Transducer with their applications.
	Extra class	8.OSCILLOSCOPE 8.1. Principle of operation of Cathode Ray Tube.
	Extra class	Tutorial
15th	Extra class	8.2. Principle of operation of Oscilloscope (with help of block diagram)
	Extra class	8.2. Principle of operation of Oscilloscope (with help of block diagram)(contd.).
	Extra class	8.3Measurement of DC Voltage and current
	Extra class	8.4 Measurement of AC voltage,current,phase and frequency
	Extra class	Tutorial

Signature of Teaching Faculty