BHUBANANDA ORISSA SCHOOL OF ENGINEERING

LESSON PLAN

BY: NIBEDITA RAY (Lecturer)

SUBJECT: ELECTRONICS MEASUREMENT & INSTRUMENTATION

SEMESTER: 3RD

BRANCH: E&TC

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Lesson Plan

Discipline: E&TC	Semester: 3rd	Name of the Teaching Faculty: NIBEDITA RAY
Subject: Electronics Measurement & Instrumentation	No of Days/ per week class allotted: 04 periods (MON,TUE, WED,FRI)	Semester from **01.07.2024 to 08.11.2024** No. of weeks:18
Week No.	**Class Day**	**Theory Topics**
1st	01-07-2024	**Unit 1: Qualities of Measurement**
		1.1 Discuss the Static Characteristics
		1.2 Accuracy, sensitivity, reproducibility & static error of instruments
	02-07-2024	1.3 Dynamic characteristics & speed of instruments
	03-07-2024	1.4 Errors of an instrument & explain various types
	05-07-2024	**Unit 2: Indicating Instruments** 2.1 Introduction to Indicator & Display devices & its types
2nd	08-07-2024	2.2 Basic principle of meter movement, permanent magnetic moving coil movement & itsadvantages & disadvantages
	09-07-2024	2.3 Operation of Moving Iron Instrument
	10-07-2024	2.4 Basic principle of operation of DC Ammeter and Multi range Ammeter
	12-07-2024	2.5 Basic principle of operation of AC Ammeter and Multi range Ammeter
3rd	15-07-2024	2.6 Basic principle of operation of DC Voltmeter and its applications
	16-07-2024	2.7 Basic principle of operation of AC Voltmeter and its application
	19-07-2024	2.8 Basic principle of Ohm Meter (Series & Shunt type)
4th	22-07-2024	2.9 Basic principle of Analog Multimeter, its types & applications
	23-07-2024	2.10 Operation of Q meter and its essentials
	24-07-2024	**Unit 3: Digital Instruments** 3.1 Principle of operation of Ramp type Digital Voltmeter & its applications
	26-07-2024	3.2 Operation of display of 3 1/2, 4 1/2– Digital Multimeter & its Resolution and Sensitivity

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5th	29-07-2024	3.3 Basic principle of operation of working of Digital Multimeter, its types & applications
	30-07-2024	3.4 Basic principle of operation of working of Digital Frequency Meter
	31-07-2024	3.5 Operation of working of Digital Measurement of Time .
	02-08-2024	3.6 Measurement of frequency.
6th	05-08-2024	3.7 Principle of operation of working of Digital Tachometer
	06-08-2024	3.8 Principle of operation of working of Automation in Digital Instruments (Polarity Indication, Ranging)
	07-08-2024	3.8 Principle of operation of working of Automation in Digital Instruments (Zeroing & Fully Automatic)
	09-08-2024	3.9 Block diagram of LCR meter & its working principle.
7th	12-08-2024	**1ST CLASS TEST**
	13-08-2024	**Unit 4: Oscilloscope** 4.1 Basic principle of Oscilloscope & its Block Diagram
	14-08-2024	4.2 Basic principle & Block diagram of CRO, Dual Trace Oscilloscope & its specification
	16-08-2024	4.3 CRO Measurements, Lissajous figures
8th	20-08-2024	4.4 Applications of Oscilloscope (Voltage, period & frequency measurement)
	21-08-2024	4.5 Operation of Digital Storage Oscilloscope& High frequency Oscilloscope
	23-08-2024	**Unit 5: Bridges** 5.1 Types of Bridges (DC & AC Bridges)
9th	27-08-2024	5.2 DC Bridges (Measurement of Resistance by Wheatstone's Bridge)
	28-08-2024	5.3 AC bridges (Measurement of inductance by Maxwell's Bridge).
	30-08-2024	5.3 AC bridges (Measurement of inductance by Hay's Bridge).

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10th	02-09-2024	5.4 Measurement of capacitance by Schering's Bridge .
	03-09-2024	5.4 Measurement of capacitance by DeSauty Bridge .
	04-09-2024	5.5 Working principle of Q meter, its circuit diagram & measurement of Low impedance
	06-09-2024	5.6 Measurement of frequency
11th	09-09-2024	5.7 LCR Meter & its measurements Transducer
	10-09-2024	**Unit 6: Transducer & Sensors** 6.1 Parameter, method of Selecting & advantage of Electrical Transducer & Resistive Transducer.
	11-09-2024	6.2 Working principle of Strain Gauges, define Strain Gauge (No mathematical Derivation)
	13-09-2024	6.3 Working principle of LVDT
12th	17-09-2024	6.4 Working principle of capacitive transducers (pressure)
	18-09-2024	**1st INTERNAL ASSESSMENT**
	20-09-2024	6.5 Working principle of Load Cell (Pressure Cell)
13th	23-09-2024	6.6 Working principle of Temperature Transducer RTD.
	24-09-2024	Working principle of Temperature Transducer Optical Pyrometer.)
	25-09-2024	6.6 Working principle of Temperature Transducer (Thermocouple)
	27-09-2024	Working principle of Temperature Transducer (Thermister)
14th	30-09-2024	6.7 Working principle of Current transducer
	01-10-2024	6.7 Working principle of KW Transducer.
	04-10-2024	6.8 Working principle of Proximity Sensor .
15th	14-10-2024	Working principle of Light sensors
	15-10-2024	**2ND CLASS TEST**
	18-10-2024	**Unit 7: Signal Generator, Wave Analyser & DAS** 7.1 General aspect & classification of Signal generators .

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16th	21-10-2024	7.2 Working principle of AF Sine wave generator
	22-10-2024	7.2 Working principle of AF Square wave generator
	23-10-2024	7.3 Working principle of the Function Generator.
	25-10-2024	7.4 Function of basic Wave Analyser
17th	28-10-2024	7.4 Function of basic Spectrum Analyser.
	29-10-2024	Application of spectrum and wave Analyser
	30-10-2024	7.5 Basic concept of Data Acquisition System (DAS)
	01-11-2024	Block diagram and application of DAS
18th	04-11-2024	OVERALL REVISION
	05-11-2024	OVERALL REVISION
	06-11-2024	PREVIOUS YEAR QUESTION & ANSWER DISCUSSION
	08-11-2024	PREVIOUS YEAR QUESTION & ANSWER DISCUSSION

Signature of Faculty

HOD,E&TC

Principal