Bhubanananda Orissa School of Engineering
Lesson Plan

Discipline: ETC ENGG	Semester: 3rd	Name of the Teaching Faculty: PRADEEP KUMAR DHAL SAMANT, LECTURER IN ETC
Subject: Electronics Measurement & Instrumentation	No of Days/ per week class allotted: 04 periods (Tue, Wed, Fri, Sat - 1 period each)	Semester from 01.10 2021 to 08.01.2022 No. of weeks:15
Week No.	**Class Day**	**Theory Topics**
1st	01-10-2021	**Unit 1: Qualities of Measurement**
		1.1 Discuss the Static Characteristics
		1.2 Accuracy, sensitivity, reproducibility & static error of instruments
2nd	05-10-2021	1.3 Dynamic characteristics & speed of instruments
	08-10-2021	1.4 Errors of an instrument & explain various types
	09-10-2021	**Unit 2: Indicating Instruments**
		2.1 Introduction to Indicator & Display devices & its types
3rd	22-10-2021	2.2 Basic principle of meter movement, permanent magnetic moving coil movement & itsadvantages & disadvantages
	23-10-2021	2.3 Operation of Moving Iron Instrument
4th	26-10-2021	2.4 Basic principle of operation of DC Ammeter and Multi range Ammeter
	27-10-2021	2.5 Basic principle of operation of AC Ammeter and Multi range Ammeter
	29-10-2021	2.6 Basic principle of operation of DC Voltmeter and its applications
	30-10-2021	2.7 Basic principle of operation of AC Voltmeter and its application
5th	02-11-2021	2.8 Basic principle of Ohm Meter (Series & Shunt type)
		2.9 Basic principle of Analog Multimeter, its types & applications
	03-11-2021	2.10 Operation of Q meter and its essentials
		1st Class Test
	05-11-2021	**Unit 3: Digital Instruments**
		3.1 Principle of operation of Ramp type Digital Voltmeter & its applications
	06-11-2021	3.2 Operation of display of 3 1/2, 4 1/2– Digital Multimeter & its Resolution and Sensitivity
6th	09-11-2021	3.3 Basic principle of operation of working of Digital Multimeter, its types & applications
	10-11-2021	3.4 Basic principle of operation of working of Digital Frequency Meter
	12-11-2021	3.5 Operation of working of Digital Measurement of Time
	13-11-2021	3.6 Measurement of Frequency.

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7th	16-11-2021	3.7 Principle of operation of working of Digital Tachometer
	17-11-2021	3.8 Principle of operation of working of Automation in Digital Instruments (Polarity Indication, Ranging, Zeroing & Fully Automatic)
	20-11-2021	3.9 Block diagram of LCR meter & its working principle
8th	23-11-2021	**Unit 4: Oscilloscope**
		4.1 Basic principle of Oscilloscope & its Block Diagram
	24-11-2021	4.2 Basic principle & Block diagram of CRO, Dual Trace Oscilloscope & its specification
	26-11-2021	4.3 CRO Measurements, Lissajous figures
	27-11-2021	4.4 Applications of Oscilloscope (Voltage, period & frequency measurement)
9th	30-11-2021	4.5 Operation of Digital Storage Oscilloscope & High Frequency Oscilloscope
	01-12-2021	**1st Internal Exam**
		Unit 5: Bridges
		5.1 Types of Bridges (DC & AC Bridges)
	03-12-2021	5.2 DC Bridges (Measurement of Resistance by Wheatstone's Bridge)
	04-12-2021	5.3 AC bridges (Measurement of inductance by Maxwell's Bridge & by Hay's Bridge)
10th	07-12-2021	5.4 Measurement of capacitance by Schering's Bridge & DeSauty Bridge.
	08-12-2021	5.5 Working principle of Q meter, its circuit diagram & measurement of Low impedance
	10-12-2021	5.6 Measurement of frequency
	11-12-2021	5.7 LCR Meter & its measurements
11th	14-12-2021	**Unit 6: Transducer & Sensors**
		6.1 Parameter, method of Selecting & advantage of Electrical Transducer & ResistiveTransducer
	15-12-2021	6.2 Working principle of Strain Gauges, define Strain Gauge (No mathematical Derivation)
	17-12-2021	6.3 Working principle of LVDT
	18-12-2021	6.4 Working principle of capacitive transducers (pressure)
12th	21-12-2021	6.5 Working principle of Load Cell (Pressure Cell)
	22-12-2021	6.6 Working principle of Temperature Transducer (RTD, Optical Pyrometer)
	24-12-2021	6.6 Working principle of Temperature Transducer (Thermocouple, Thermister)
13th	28-12-2021	6.7 Working principle of Current transducer and KW Transducer.
	29-12-2021	6.8 Working principle of Proximity & Light sensors.
		2nd Class Test
	31-12-2021	**Unit 7: Signal Generator, Wave Analyser & DAS**
		7.1 General aspect & classification of Signal generators
	01-01-2022	7.2 Working principle of AF Sine & Square wave generator

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14th	04-01-2022	7.3 Working principle of the Function Generator
	05-01-2022	7.4 Function of basic Wave Analyser & Spectrum Analyser
	07-01-2022	7.5 Basic concept of Data Acquisition System (DAS)
	08-01-2022	**2nd Internal Exam**
		OVERALL REVISION

Signature of Faculty

Head of Department

Academic Coordinator

Principal