Discipline : ETC	Semester:- 3rd	Name of the Teaching Faculty: - Nibedita Ray
Subject:- Electronics Measurement & instrumentation (TH-4)	No of Days/per Week Class Allotted :- 04	Semester From:- 15.09.2021 To:- 22.12.2022
Week	**Class Day**	**Theory**
1st	1st	Qualities of Measurement
	2nd	Discuss the Static Characteristics.
	3rd	Accuracy, sensitivity, reproducibility & static error of instruments
	4th	Dynamic characteristics& speed of instruments
2nd	1st	Errors of an instrument & explain various types.
	2nd	Introduction to Indicator & Display devices & its types
	3rd	Basic principle of meter movement, permanent magnetic moving coil movement & its advantages & disadvantages
	4th	Operation of Moving Iron Instrument
3rd	1st	Basic principle of operation of DC Ammeter and Multi range Ammeter
	2nd	Basic principle of operation of AC Ammeter and Multi range Ammeter
	3rd	Basic principle of operation of DC Voltmeter and its applications
	4th	Basic principle of operation of AC Voltmeter and its application
4th	1st	Basic principle of Ohm Meter (Series & Shunt type)
	2nd	Basic principle of Analog Multi meter, its types & applications
	3rd	Operation of Q meter and its essentials
	4th	Digital Instruments
5th	1st	Principle of operation of Ramp type Digital Voltmeter & applications
	2nd	Operation of display of 3 1/2, 4 1/2– Digital Multi meter & Resolution and Sensitivity
	3rd	Basic principle of operation of working of Digital Multi meter , its types & applications
	4th	Basic principle of operation of working of Digital Frequency Meter
6th	1st	Operation of working of Digital Measurement of Time
	2nd	Measurement of Frequency.
	3rd	Principle of operation of working of Digital Tachometer
	4th	Principle of operation of working of Automation in Digital Instruments (Polarity Indication, Ranging, Zeroing & Fully Automatic
7th	1st	Block diagram of LCR meter & its working principle.
	2nd	Oscilloscope
	3rd	Basic principle of Oscilloscope& its Block Diagram
	4th	Basic principle & Block diagram of CRO, its specification
8th	1st	Basic principle & Block diagram of Dual Trace Oscilloscope & its specification
8th	2nd	CRO Measurements,
	3rd	Lissajous figures
	4th	Applications of Oscilloscope (Voltage period & frequency measurement)
	1st	Operation of Digital Storage Oscilloscope& High frequency Oscilloscope
	2nd	Bridges

9th	3rd	Types of Bridges (DC& Ac Bridges)
	4th	DC Bridges (Measurement of Resistance by Wheatstone's Bridge)
10th	1st	AC bridges (Measurement of inductance by Maxwell's Bridge)
	2nd	AC bridges (Measurement of inductance by Hay's Bridge)
	3rd	Measurement of capacitance by Schering's Bridge
	4th	Measurement of capacitance by Debauty Bridge.
11th	1st	Working principle of Q meter its circuit diagram
	2nd	measurement of Low impedance
	3rd	Measurement of frequency
	4th	LCR Meter & its measurements
12th	1st	Transducers & Sensors
	2nd	Parameter, method of Selecting & advantage of Electrical Transducer & Resistive Transducer
	3rd	Working principle of Strain Gauges, define Strain Gauge (No mathematical Derivation)
	4th	Working principle of LVDT
13th	1st	Working principle of capacitive transducers (pressure)
	2nd	Working principle of Load Cell (Pressure Cell)
	3rd	Working principle of Temperature Transducer (RTD)
	4th	Working principle of Temperature Transducer (Optical Pyrometer)
14th	1st	Working principle of Temperature Transducer (Thermocouple, Thermister)
	2nd	Working principle of Current transducer and KW Transducer.
	3rd	Working principle of Proximity & Light sensors.
	4th	Signal Generator, Wave Analyser & DAS General aspect & classification of Signal generators
15th	1st	Working principle of AF Sine & Square wave generator.
	2nd	Working principle of the Function Generator
	3rd	Function of basic Wave Analysers& Spectrum Analyser
	4th	Basic concept of Data Acquisition System (DAS)

31/10/2022

Teaching Faculty

31/10/2022

HOD, ETC

31/10/2022

Principal
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Dhenkanal

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