



GOVERNMENT POLYTECHNIC, BALASORE

Government of Odisha

ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ, ବାଲେଶ୍ଵର

ACADEMIC LESSON PLAN FOR WINTER SEMESTER - 2025

DEPT. OF ELECTRONICS & TELECOMMUNICATION, GOVT. POLYTECHNIC, BALASORE

NAME OF THE FACULTY: ER. LIPIKA SANDHA (LECT. STAGE -I, E & TC)

TH4: - Electronics Measurement and Instrumentation

DISCIPLINE: ELECTRONICS & TELECOMMUNICATION ENGINEERING	SEMESTER: 3 RD	NAME OF THE TEACHING FACULTY: ER. LIPIKA SANDHA (LECT. STAGE -I)
SUBJECT: TH4:	NO. OF DAYS/PER WEEK CLASS ALLOTTED: 3	SEMESTER FROM DATE: 14 TH , JULY 2025 NO. OF WEEKS: 15
WEEK	CLASS DAY	THEORY TOPICS
1 ST	1 ST	Qualities of Measurement 1.1 Discuss the Static Characteristics
	2 ND	1.2 Accuracy, sensitivity, reproducibility and static error of instruments
	3 RD	1.3 Dynamic characteristics and speed of instruments.
2 ND	1 ST	1.3 Dynamic characteristics and speed of instruments.
	2 ND	Indicating Instruments 2.1 Introduction 2.2 Types of Indicating Instruments
	3 RD	2.3 Basic operating principle of Indicating Instruments 2.4 Working principle of permanent magnetic moving coil Instruments
3 RD	1 ST	2.5 Working principle of Moving Iron Instrument 2.6 Basic principle of operation of DC Ammeter and Multi range Ammeter
	2 ND	2.7 Basic principle of operation of AC Ammeter and Multi range Ammeter 2.8 Basic principle of operation of DC Voltmeter and its applications

	3 RD	2.9 Basic principle of operation of AC Voltmeter and its application 2.10 Basic principle of Ohm Meter (Series & Shunt type)
4 TH	1 ST	2.11 Basic principle of Analog Multimeter and its types & applications
	2 ND	2.12 Operation of Q meter and its essentials
	3 RD	Digital Instruments 3.1 Principle of operation of Ramp type Digital Voltmeter & applications
5 TH	1 ST	3.2 Operation of display of Digital Multimeter & Resolution and Sensitivity
	2 ND	3.3 Basic Operating principle of Digital Multimeter, its types & applications
	3 RD	3.4 Basic Operating principle of Digital Frequency Meter
6 TH	1 ST	3.5 Digital Measurement of Time 3.6 Measurement of Frequency
	2 ND	3.7 Operating principle of Digital Tachometer
	3 RD	3.8 LCR meter & its working principle
7 TH	1 ST	Oscilloscope 4.1 Basic Operating principle of Oscilloscope & its Block Diagram
	2 ND	4.2 Basic Operating principle of Dual Trace Oscilloscope & its specification
	3 RD	4.3 CRO Measurements
8 TH	1 ST	4.4 Lissajous figures
	2 ND	4.5 Applications of Oscilloscope in measurement of Voltage and frequency
	3 RD	4.6 Basic Operating principle of Digital Storage Oscilloscope
9 TH	1 ST	4.7 Basic Operating principle of High frequency Oscilloscope
	2 ND	Bridges 5.1 Types of Bridges (DC & AC Bridges) 5.2 DC Bridges (Measurement of Resistance by Wheatstone's Bridge)

	3 RD	5.3 AC bridges (Measurement of inductance by Maxwell's Bridge & Hay's Bridge)
10 TH	1 ST	5.4 Measurement of capacitance by Schering's Bridge & DeSauty Bridge
	2 ND	5.5 Working principle of Q meter its circuit diagram & measurement of Low impedance
	3 RD	5.6 Measurement of frequency
11 TH	1 ST	5.7 LCR Meter & its measurements
	2 ND	Transducers & Sensors 6.1 Define Transducer and Sensor 6.2 Type of Transducer 6.3 Parameters and advantages of Transducer .
	3 RD	6.4 Working principle of Strain Gauges, 6.5 Define Strain Gauge (No mathematical Derivation)
12 TH	1 ST	6.6 Working principle of LVDT
	2 ND	6.7 Working principle of capacitive transducers (pressure) 6.8 Working principle of Load Cell (Pressure-Cell)
	3 RD	6.9 Working principle of Temperature Transducer (RTD, Optical Pyrometer, Thermocouple, and Thermister)
13 TH	1 ST	6.10 Working principle of Current transducer.
	2 ND	6.11 Working principle of Proximity & Light sensors.
	3 RD	Signal Generator, Wave Analyser & DAS 7.1 General aspect & classification of Signal generators
14 th	1 ST	7.2 Working principle of AF Sine and Square wave generator
	2 ND	7.3 Working principle of the Function Generator
	3 RD	7.4 Function of basic Wave Analyser and Spectrum Analyser
15 TH	1 ST	7.5 Basic concept of Data Acquisition System (DAS)
	2 ND	Doubt Clearing and Revision
	3 RD	Doubt Clearing and Revision

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16/08/23
Faculty

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H.O.D 16/08/23