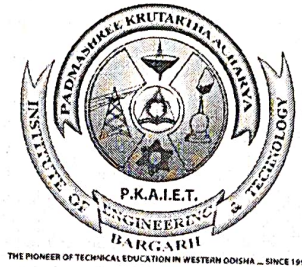


# PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



## LESSON PLAN Session-2024-2025

Semester: 4th Discipline: Electrical Engg.

Subject: Electrical Measurement and Instrumentation (EM9).

Name of the Teaching Faculty: Dharmendra Kumar Dash

Subject: EMI No. of Days/per week class allotted: 4

Semester From Date: 04/02/2025 To Date: 17/05/2025 No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
1	1	Definition of Electrical instruments and it's classification
	2	Various systems in an electrical instrument and their functions
	3	Various Torque w.r.t Systems and Torque equations
	4	According to systems Sketching instruments with Labelling
2	5	Type of electrical instruments w.r.t Construction and displaying and Calibration
	6	PMMC Type instrument with figure
	7	PMMC type ammeter and voltmeter
	8	Extension of Measurements
3	9	EMMI Type ammeters
	10	Errors in instruments and rectifications.
	11	Advantages and Disadvantages of Instruments
	12	Mathematical Problems based on Mathematical expression of Instruments

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Signature of the Faculty

Subject: EMI No. of Days/per week class allotted : 4

Semester From Date : 04/02/2025 To Date: 17/05/2025 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
4	13	EMMC type instruments
	14	EMMC type Power Measurement Meter (wattmeter)
	15	Error in EMMC type instrument and it's rectification.
	16	Extension of Measurement Advantage & Disadvantage
5	17	Energymeters
	18	Induction type Energymeter with figure.
	19	Advantage & Disadvantages of Induction type energymeter.
	20	Error and rectifications, creeping, Compensation.
6	21	Testing of Energymeters and it's type
	22	Tachometers and it's classifications
	23	Detail study of Type of Tachometers.
	24	Frequency meters.

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Semester From Date : 04/02/2025 To Date: 17/05/2025 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
7	25	Type of Frequency meters.
	26	Reed type of Frequency meters.
	27	Electrical Resonance type Frequency meter (EMMC type)
	28	Working principle and mathematical expression.
8	29	Power factor Definition, power factor meter.
	30	Type of power factor meter.
	31	1 $\phi$ moving coil type power factor meter.
	32	3- $\phi$ power factor meter and its connection.
9	33	Classification of resistances
	34	Method of measurement of type of resistances
	35	Measurement of low resistance and Potentiometer.
	36	Measurement of medium resistance (Wheatstone Bridge (D.C Bridge))

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Semester From Date : 04/02/2025 To Date: 17/05/2025 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
10	37	Measurement of high resistance by Loss of Charge method.
	38	Detail Study of megger.
	39	Earth Tester for Insulation.
	40	Measurement of Insulation of Cables by Megger, Measurement of earth resistance
11	41	Multimeter and it's type.
	42	Analog & Digital Multimeter
	43	Measurement of Inductance by AC Bridges (Maxwell's Bridge)
	44	Measurement of Capacitance by AC Bridge (Scherering Bridge)
12	45	Definition of transducer and Sensing element or Detector elements or transduction element
	46	Classification of Transducers.
	47	Resistive transducers
	48	Linear and angular Motion Potentiometer.

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Subject: EMI No. of Days/per week class allotted : 4

Semester From Date : 04/02/2025 To Date: 17/05/2025 No. of Weeks : 15

Week	Class Day	Theory / Practical Topics
13	49	Thermistor and Resistance thermometers
	50	Strain Gauges
	51	Induction Transducer
	52	Detail study of LVDT.
14	53	Uses of LVDT
	54	Capacitive Transducer
	55	General Principle of Capacitive Transducer
	56	Variable Area Capacitive Transducers.
15	57	Plate Capacitive Transducer
	58	Piezo-electric Transducers, Hall-effect Transducer and applications.
	59	Oscilloscope and its Construction Details.
	60	CRO's Block Diagram and Operation Measurement of voltage, current, Phase and frequency by CRO

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