PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH

LESSON PLAN

Session-2022-2023

Discipline: Electrical Engineering Engg. Semester: 4th

Name of the Teaching Faculty: Dharmendra Kumar Dash

Sub:- Electrical Measurement & Instrumentations

Subject: EMI (Electrical Measuring instruments and instrumentation) No. of Days/per week class allotted 5

Semester From Date : 14/02/2023 To Date : 23/05/2023 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
I	1	Definition of electrical instruments and its classification
	2	Various systems in an electrical instrument and their functions
	3	Various Torques w.r.t systems and torques equations
	4	According to systems, sketching instruments with labelling
	5	Tutorial
II	6	Types of electrical instruments w.r.t Construction and displaying and calibration.
	7	PMMC type instrument with figure.
	8	PMMC type ammeter and Voltmeter
	9	Extension of measurements
	10	Tutorial
III	11	EMMI type ammeters
	12	Errors in instruments and rectifications.

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Subject: EMI. No. of Days/per week class allotted 5

Semester From Date : 14/02/2023 To Date : 23/05/2023 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
	13	Advantages and disadvantages of instruments
	14	Mathematical problems based on mathematical expressions of instruments
	15	Tutorial.
IV	16	EMMC type instruments
	17	EMMC type power measurement meter (Wattmeter)
	18	Errors in EMME type instrument and rectifications,
	19	Extention of measurements Advantages and disadvantages
	20	Tutorial
V	21	Energymeters
	22	Induction type energymeter with figure.
	23	Advantages and disadvantages of this type energymeter
	24	Errors and rectifications Creeping, Compensation.

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Week	Class Day	Theory /Practical Topics
	25	Tutorial.
VI	26	Testing of ~~xxx~~ energymeters and its types.
	27	Tachometers and its classifications.
	28	Detail study of type of tachometers
	29	Frequencymeters.
	30	Tutorial
VII	31	Types of frequencymeters
	32	Reed type frequencymeter.
	33	Electrical resonance type frequencymeter (EMMC type)
	34	Working Principles and mathematical expressions.
	35	Tutorial.
VIII	36	Power factor definitions

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Week	Class Day	Theory /Practical Topics
	37	Types of powerfactor meters
	38	1-ϕ Moving Coil type powerfactor meter
	39	3-ϕ powerfactor meter and its connection.
	40	Tutorial
IX	41	Classification of resistances.
	42	Methods of measurement of types of resistances.
	43	Measurement of low resistance methods and potentiometer
	44	Measurement of medium resistance, Wheatstone Bridge (D.C Bridge).
	45	Tutorial.
X	46	Measurement of high resistance by loss of charge method
	47	Detail study of megger
	48	Earth tester for insulation

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Semester From Date : _____ To Date : _____ No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
	49	Measurement of insulation of cable by megger, measurement of earth resistance
	50	Tutorial
XI	51	Multimeters and types
	52	Analog and digital multimeters
	53	Measurement of inductance by a.c bridges (Maxwell's bridge)
	54	Measurement of capacitance by Schering bridge.
	55	Tutorial
XII	56	Definition of transducer and Sensing elements or detector elements or transduction elements
	57	Classification of transducers.
	58	Resistive transducers
	59	Linear and angular motion potentiometer
	60	Thermistor and resistance thermometers

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Subject: RMG. No. of Days/per week class allotted 5

Semester From Date : 14/02/2023 To Date : 23/05/2023 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
	61	Tutorial.
XIII	62	Strain gauges.
	63	Inductive Transducer.
	64	Detail study of LVDT.
	65	Uses of LVDT.
	66	Tutorial
XIV	67	Capacitive Transducer
	68	General principle of Capacitive transducer.
	69	Variable area Capacitive transducer.
	70	plate capacitive transducer.
	71	Tutorial.
XV	72	Piezo-electric transducer Hall-effect transducer and applications.

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Subject: EMI. No. of Days/per week class allotted 5

Semester From Date : 14/02/2023 To Date : 23/05/2023 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
	73	Oscilloscope and its construction detail.
	74	C.R.O's block diagram and operation, Measurement of Voltage, current, phase and frequency by CRO.
	75	Tutorial.

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