

Name of the Faculty: Sh. Vivek gandhi
Discipline: Instrumentation & Control
Semester: 1 Sem
Subject: FIE

15 weeks(from Aug to Dec 2024)

Lesson Plan Duration:

Work Load (lecture/practical)per week (in hours) : Lectures- 03, practical- 04

Week		Theory		Practicals
		Topic (inculding assignment/test)		Topic
1st	1st	Unit : 1 : Defintion of measurements and its significance	1	Familiarization with the process of calibration. To study the measurement system using example.
	2nd	Methods of mesurements : Direct methods,Indirect methods		Calibrate the given Ammeter with the standard Ammeter of same range.
	3rd	Scope and necessity of instruments		Calibrate the given Voltmeter with the standard Voltmeter of same range.
2nd	4th	Elements of a Generalized Measurement system : Primary sensing element	2	Familiarization with the process of calibration. To study the measurement system using example.
	5th	Variable conversion element		Calibrate the given Ammeter with the standard Ammeter of same range.
	6th	Data presentation element		Calibrate the given Voltmeter with the standard Voltmeter of same range.
3rd	7th	introduction of transducers ,Definition of sensors & transducers	3	Identification of various types of Instruments. All Practical files checked.
	8th	Difference b/w sensor & transducer		To study and operate different types of printers.
	9th	Class test of Unit-1		Demonstration and operation of strip chart recorder
4th	10th	Unit : 2 : types of instrumentation systems : Intelligent instrumentation system	4	Demonstration of Circular chart recorder. All Practical files checked.
	11th	Dump instrumentation system		To study and operate different types of printers.
	12th	Clasification of instruments : Absolute instruments		Demonstration and operation of strip chart recorder
5th	13th	Secondary instrumentation		Demonstration of Circular chart recorder. All Practical files checked.

	14th	Function of instruments : Indicating function	5	To assemble seven segment display using LEDs.
	15th	Recording function		Calculate parallax error in analog meter.
6th	16th	Controlling function	6	Detection and removal of Systematic error in an Instrument.
	17th	Modes of operation of secondary Instruments:Analog mode		Identification of various types of Sensors and transducers.
	18th	Digital mode		To assemble seven segment display using LEDs.
7th	19th	Class test of Unit-2	7	Calculate parallax error in analog meter.
	20th	Unit :3:Performance characteristics: Static characteristics of instruments-		All Practical files checked.
	21st	Dynamic characteristics-time constant, response time, natural frequency, damping coefficient		Detection and removal of Systematic error in an Instrument.
8th	22nd	Selection criteria of instruments.	8	Identification of various types of Sensors and transducers.
	23rd	Definition and importance of calibration.		To prepare laboratory equipment maintenance check list.
	24th	Process of calibration.		To study safety precautions in handling laboratory equipments.
9th	25th	Class test of Unit-3	9	To assemble seven segment display using LEDs.
	26th	Unit: 4:Need of Recorders in Instrumentation system		Calculate parallax error in analog meter.
	27th	Classification of Recorders: XY, Strip chart recorder, magnetic tape recorder		Detection and removal of Systematic error in an Instrument.
10th	28th	Digital display units: Light Emitting Diode (LED)	10	Familiarization and use of Fluorescent display.
	29th	Liquid Crystal Display (LCD)		All Practical files checked.
	30th	Segmental displays		To prepare laboratory equipment maintenance check list.
11th	31st	Dot matrices		To study safety precautions in handling laboratory equipments.
				viva voce

		Dot matrices		
			11	viva voce
	32nd	Class test of Unit-4		viva voce
	33rd	Unit :5: Fluorescent Displays		viva voce
12th	34th	Limiting errors	12	viva voce
				viva voce
	35th	Relative limiting error		viva voce
	36th	known error		viva voce
13th	37th	Sources of errors: Gross error	13	viva voce
				viva voce
	38th	Systematic error		viva voce
	39th	Instrumental error		viva voce
14th	40th	Environmental error	14	viva voce
				viva voce
	41st	Observational error		viva voce
	42nd	Random error		viva voce
15th	43rd	Normal distribution of errors	15	viva voce
				viva voce
	44th	Class test of Unit-5		viva voce
	45th	Revision		viva voce