Bhoj Reddy Engineering College for Women: Hyderabad

Department of Electronics and Communication Engineering

Lesson plan of faculty member for the academic year 2020–21

Class: IV B Tech Branch-Section: ECE- A Semester: I

Subject: Electronic Measurements and Instrumentation Lectures per week: 3

Lecture Number	Topics to be covered	Date (s)
UNIT – I: Block Schematics of Measuring System		
1	Introduction to Measurements and Instruments	01 September 2020
2	Block Schematics of Measuring Systems, Performance Characteristics	04 September 2020
3	Static Characteristics: Accuracy, Precision, Resolution; Problems	07 September 2020
4	Dynamic Characteristics: Repeatability, Reproducibility, Fidelity, Lag	08 September 2020
5	Types of Errors, Gaussian Error, Root Sum Squares formula	11 September 2020
6	Measuring Instruments: DC Voltmeters and Current Meters	14 September 2020
7	D'Arsonval Movement; Problems related to errors	15 September 2020
8	AC Voltmeters and Current Meters; Problems related to Voltmeter and Ammeters	18 September 2020
9	Ohmmeters, Multimeters	21 September 2020
10	Meter Protection, Extension of Range	22 September 2020
11	True RMS Responding Voltmeters, Specification of Instruments	25 September 2020
UNIT-II: **Signal Analyzers**		
12	Wave Analyzers: AF and HF, Heterodyne Wave Analyzers	28 September 2020
13	Harmonic Distortion Analyzers, Spectrum Analyzers	29 September 2020
14	Applications of Spectrum Analyzers, Problems to determine Dynamic Range	05 October 2020
15	Power Analyzers, Capacitance-Voltage Meters	06 October 2020
16	Oscillators	09 October 2020
17	Signal Generators: AF and RF, Sweep Frequency Generators	12 October 2020
18	Function Generators, Pulse and Square wave Generators	13 October 2020
19	Arbitrary Waveform Generator, Video Signal Generators and Specifications	16 October 2020
UNIT-III: **Oscilloscopes and Special Purpose Oscilloscopes**		
20	Introduction, Oscilloscope Block Diagram	26 October 2020
21	Cathode Ray Tube (CRT), Lissajous Figures	27 October 2020
22	Time Base Circuits, CRO Probes, High Frequency CRO Considerations	09 November 2020
23	Delay lines, Applications, Measurement of Time	10 November 2020
24	Period and Frequency Specifications Dual Trace, Dual Beam CROs,	13 November 2020
25	Sampling Oscilloscopes, Storage Oscilloscopes, Digital Storage CROs	16 November 2020
UNIT-IV: **Transducers**		
26	Classification and Selection of Transducers	17 November 2020
27	Oscilloscopes, Strain Gauges: Bounded and unbounded	20 November 2020
28	Force Transducers, Displacement Transducers: Capacitive and Inductive	23 November 2020
29	Discussion on Thermistors, LVDT, Piezoelectric Transducers	24 November 2020
30	Resistance Thermometers, Hotwire Anemometers	27 November 2020
31	Thermocouples, Synchros, Special Resistance Thermometers	01 December 2020
32	Seminars Digital Temperature sensing system	04 December 2020
33	Variable Capacitance, Magneto Strictive Transducers	07 December 2020
UNIT-V: **Bridges and Measurement of Physical Parameters**		

34	Bridge Measurements: Wheat Stone Bridge	08 December 2020
35	Problems related to Bridges	11 December 2020
36	Kelvin Bridge, Maxwell Bridge	14 December 2020
37	Schering, Hay and Wien Bridge	15 December 2020
38	Flow measurement, Measurement of Humidity and Moisture	18 December 2020
39	Displacement Meters, Liquid level Measurement	21 December 2020
40	Velocity, Force, Pressure Measurements	22 December 2020
41	High Pressure, Vacuum level Measurements	28 December 2020
42	Temperature Measurements, Data Acquisition Systems	29 December 2020

Text books:

1. H.S. Kalsi, “Electronic instrumentation”, TMH, 2nd Edition, 2004.
2. A.D.Helbincs, W.D.Cooper, “Modern Electronic Instrumentation and Measurement Techniques, PHI 5th Edition 2003.
3. K. Lal Kishore, “Electronic Measurements and Instrumentation”, Pearson Education, 2010.
4. David A. Bell, “Electronic Instrumentation and Measurements”, Oxford Univ. Press, 1997.

Name and signature of the faculty: Shafia Tasneem ----

Name and signature of Head of the Department: Mrs N Shribala ----