

Course Number and Name												
BEI406 - ELECTRONIC INSTRUMENTATION												
Credits and Contact Hours												
3 and 45												
Course Coordinator's Name												
Mr. D.Sridharn Raja												
Text Books and References												
TEXT BOOKS:												
1. Rangan C.S., " Instrumentation Devices and Systems ", Tata McGraw Hill,1998.												
2. Cooper, " Electronic Instrumentation and Measurement Techniques ", Prentice Hall of India, 1988.												
References:												
1. H.S.Kalsi, "Electronic Instrumentation", Tata Mc Graw-Hill Education, 2004.												
2. J.B.Gupta, "Measurements and Instrumentation", S K Kataria & Sons, Delhi, 2003.												
3. Oliver and Cage, " Electronic Measurements and Instrumentation ", McGraw Hill, 1975.												
4. https://www.nptel.ac.in												
Course Description												
<ul style="list-style-type: none"> • Explain basic concepts and definitions in measurement. • Describe the bridge configurations and their applications. • Elaborate discussion about the importance of signal generators and analyzers in Measurement. 												
Prerequisites						Co-requisites						
BEE101-Basic Electrical & Electronics Engineering						BEC405-Linear Integrated Circuits						
required, elective, or selected elective (as per Table 5-1)												
required												
Course Outcomes (COs)												
CO1: Recognize the evolution and history of units and standards in Measurements.												
CO2 : Identify the various parameters that are measurable in electronic instrumentation.												
CO3 : Employ appropriate instruments to measure given sets of parameters.												
CO4 : Practice the construction of testing and measuring set up for electronic systems.												
CO5: To have a deep understanding about instrumentation concepts which can be applied to Control systems.												
CO6 : Relate the usage of various instrumentation standards.												
Student Outcomes (SOs) from Criterion 3 covered by this Course												
	COs/SOs	A	b	c	d	E	F	G	h	i	J	K
	CO1		M									
	CO2	H		H		M	L		M	M		
	CO3	M	M	H	H				M		M	
	CO4	H		H	H	H			M			
	CO5				M					M		
	CO6	H	L				H				L	

List of Topics Covered**UNIT I TRANSDUCERS****9**

Measurements, Instrumentation, Errors in measurements, Calibration and standard, Classification and characteristics of Transducers, Digital, Electrical, Electronic Weighing System, AC / DC Bridge measurement and their applications.

UNIT II SIGNAL GENERATOR AND SIGNAL ANALYZERS**9**

A.F. Generator, Pulse Generator, AM/FM Signal generator, Function generator, Sweep frequency generator, wave analyzers, Spectrum Analyzers, Logic Analyzers, Distortion Analyzers.

UNIT III DIGITAL INSTRUMENTS**9**

Digital Voltmeters and Multimeters, Automation in Voltmeters, Accuracy of DVM, Guarding Techniques, frequency, period, time interval and pulsewidth measurements, automatic vector voltmeter.

UNIT IV DATA DISPLAY AND RECORDING SYSTEM**9**

CRO, single beam, dual trace, double beam CRO, Digital storage and Analog storage Oscilloscope, sampling Oscilloscope, Power scope, Curve Tracer, Analog, Digital Recorders and Printers.

UNIT V COMPUTER CONTROLLED TEST SYSTEM**9**

Testing and Audio amplifier, Testing a Radio Receiver, Instrument used in Computer Controlled Instrumentation, Digital Control Description, Microprocessor based measurements, Isolation and safety standards of Electronic equipments, Case studies in Instrumentation.