



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

## ELECTRONICS AND COMMUNICATION ENGINEERING

### ASSIGNMENT

<b>Course Name</b>	:	<b>Electronic Measurements and Instrumentation</b>
<b>Course Code</b>	:	A50422
<b>Class</b>	:	III - B. Tech
<b>Branch</b>	:	ECE
<b>Year</b>	:	2017 – 2018
<b>Course Coordinator</b>	:	C.Deepthi, Asst.Prof, Dept of ECE
<b>Course Faculty</b>	:	L.Shruthi,S.Rambabu,M.Lakshmi RaviTeja

## OBJECTIVES

This course is an introduction to Electronic Measurements and Instrumentation in which student will able to learn the measurement techniques and measurement systems and it teaches signal analyzers, signal generators and different types of oscilloscopes and their functioning and also teaches the operation of different types of electrical transducers and bridge measurement and also deals the measurement of physical parameters. Student gains the thorough knowledge in the measuring instruments and their functioning.

S.No	Question	Blooms Taxonomy Level	Course Outcome
<b>ASSIGNMENT-I</b> <b>UNIT-I</b> <b>Block Schematic of Measuring Systems, Measuring Instruments</b>			
1	Define precision and accuracy. Explain the difference between them.	Remember	1
2	List out the characteristics of a precision.	Understand	1
3	Explain the types of errors possible in an instrument?	Understand	1
4	Discuss about dynamic characteristics of a system?	Understand	1
5	Explain the static characteristics of instruments.	Understand	1

S.No	Question	Blooms Taxonomy Level	Course Outcome
6	Explain about different types of errors that occur in measurements.	Understand	1
7	Explain the working of True RMS voltmeter.	Understand	5
8	Discuss the basic performance characteristics of a system? Explain.	Understand	1
9	List the different types of static errors in a system? Explain.	Understand	1
10	Describe the function of the DC-Voltmeter.	Understand	5
<b>UNIT-II</b> <b>Signal Analyzers, Signal Generators</b>			
1	Define a Signal Analyzer?	Remember	7
2	Explain spectrum analyzer?	Understand	7
3	List out the applications of the spectrum analyzers?	Understand	7
4	Distinguish between the oscillators and function generators.	Analyze	2
5	Distinguish between square and pulse wave generators?	Analyze	2
6	Describe the functioning of signal generator.	Understand	2
7	Explain how can a square wave be generated using signal generator?	Understand	2
8	Explain how can a pulse wave be generated using signal generator?	Understand	2
9	Draw the Block Schematic of AF Wave analyzer and explain its principle and Working?	Apply	7
10	Explain the working of the harmonic distortion analyzer?	Understand	2
<b>ASSIGNMENT – II</b> <b>UNIT-III</b> <b>Oscilloscopes</b>			
1	Discuss vertical amplifier with a neat block diagram?	Understand	6
2	Describe the roles of horizontal vertical amplifiers?	Remember	6
3	Explain vertical section of CRT?	Understand	6
4	Discuss about horizontal section of CRT.	Understand	6
5	Discuss about dual beam CRO?	Understand	6
6	Draw the block diagram of the Sampling oscilloscope and explain in detail?	Apply	6
7	Draw the Block diagram of oscilloscope and explain its basic operation	Apply	6
8	Explain about storage oscilloscope with block diagram?	Understand	6
9	Draw the block Diagram of a Dual Trace CRO and explain it?	Apply	6
10	Explain with neat block diagram of Digital Storage	Understanding	6

S.No	Question	Blooms Taxonomy Level	Course Outcome
	oscilloscope?		
<b>UNIT-IV Transducers</b>			
1	Explain about strain gauges?	Understand	4
2	Discuss about LVDT?	Understand	4
3	Explain thermocouples?	Understand	4
4	Discuss principle of operation of strain gauges?	Understand	4
5	Explain the desirable characteristics of strain gauge?	Understand	4
6	Explain Piezo-electric effect?	Understand	4
7	Explain the desirable characteristics of thermocouples?	Understand	4
8	Discuss about Displacement transducers.	Understand	4
9	Explain the resistance thermometers.	Understand	4
10	Explain the Magneto Strictive transducers	Understand	4
<b>UNIT-V Bridges, Measurement of Physical parameters</b>			
1	Describe the operation of the wheat stone bridge?	Remember	3
2	Explain the method of measurement of displacement	Understand	4
3	Discuss the method of measurement of force?	Understand	4
4	Explain the method of measurement of pressure.	Understand	4
5	Explain about the measurement of velocity.	Understand	4
6	Explain general Data Acquisition System (DAS) with a neat block diagram?	Understand	4
7	Define a transducer? Write the classifications of transducers?	Remember	4
8	Discuss about Flow measurement.	Understand	4
9	Discuss about Digital Temperature sensing system.	Understand	4
10	Explain the method of measurement of humidity.	Understand	4

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