



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

MECHANICAL ENGINEERING

ASSIGNMENT

Course Name	:	INSTRUMENTATION AND CONTROL SYSTEMS
Course Code	:	A70343
Class	:	IV B. Tech I Semester
Branch	:	Mechanical Engineering
Year	:	2018 – 2019
Course Coordinator	:	Mr B D Y Sunil, Assistant Professor, Department of ME
Course Faculty	:	Mr B D Y Sunil, Assistant Professor Mr M Prashanth Reddy, Assistant Professor

OBJECTIVES

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited.

In line with this, Faculty of Institute of Aeronautical Engineering, Hyderabad has taken a lead in incorporating philosophy of outcome-based education in the process of problem solving and career development. So, all students of the institute should understand the depth and approach of course to be taught through this question bank, which will enhance learner's learning process.

S. No	Question	Blooms Taxonomy Level	Course Outcome
ASSIGNMENT-I UNIT-I, II & III			
1	Draw the block diagram of a generalized measurement system and explain its various elements.	Understand	1
2	With the help of an example, explain the generalized measurement system.	Apply	1
3	a) Classify measuring instruments. b) What are the desired, modifying and interfering inputs for a measurement system? Give examples for each of these quantities. What is the influence of these on the final output?	Apply	2
4	Discuss the following transducers with respect to their construction, working and characteristics: a) Piezo-electric b) Capacitance c) Ionization	Understand	1
5	a) List electrical transducers for measurement of linear and angular displacement. b) Explain the construction and working of a photo-electric transducer.	Analyze	2
6	a) Distinguish between RTD and Thermistor. b) State the laws of thermocouples. How are the laws useful in construction of thermocouple thermometers?	Apply	2
7	Explain the working of a bourdon tube pressure gauge.	Understand	3
8	a) Explain the working principle of ultrasonic flow meter. b) Explain the construction and working principle of turbine flow meter with a neat sketch. State its advantages and limitations.	Apply	3
9	Explain in detail with neat sketches: a) Bubbler level indicator b) Ultrasonic level method c) Capacitive level method	Apply	3
10	With the help of a neat diagram, explain the construction, working and special features of Laser Doppler anemometer.	Apply	3
ASSIGNMENT – II UNIT III, IV & V			

S. No	Question	Blooms Taxonomy Level	Course Outcome
1	Explain with neat sketch the working of moving magnet type and moving coil type velocity transducer	Understand	3
2	Explain with neat sketch the working of linear and rotational seismic displacement sensing accelerometer	Understand	3
3	Explain how hydraulic load cells are used to measure force	Understand	4
4	Explain briefly how a stroboscope is used to measure torque	Understand	4
5	Explain with a neat diagram, the working of a Prony brake for estimating power	Understand	4
6	Write the types of dynamometers and Enumerate the examples for absorption dynamometers	Understand	4
7	Explain automatic control system and the advantages and limitations of automatic control system	Understand	5
8	Differentiate between the open-loop and closed-loop control systems	Evaluate	5
9	Explain the block diagram of the feedback control system	Understand	5
10	Explain the features of servo-mechanism	Understand	5

Prepared By: Mr B D Y Sunil, Assistant Professor

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