

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**DIPLOMA IN MECHATRONICS ENGINEERING**  
**Semester: 4**

**Subject Name: CONTROL DEVICES PRACTICES**

<b>SR NO.</b>	<b>COURSE CONTENT</b>
<b>1.</b>	Demonstrate method of measuring various input signals with help of different suitable sensors. Also demonstrate constructional features and working of each. Also list characteristics of each. ( laboratory to have all types of sensors with aids and sources generating signals. Demonstrate at least six to eight sensors). Also demonstrate characteristics of measurement and instrumentation system.
<b>2.</b>	Measure various parameters for following sensors (accuracy, repeatability, resolution and output) <ul style="list-style-type: none"><li>- Position and speed.</li><li>- Temperature</li><li>- Pressure</li><li>- Force and torque</li></ul>
<b>3.</b>	Demonstration, construction and understanding working of any one image-processing (vision sensors) sensor, specifically in medical (diagnostic / operative) field.
<b>4.</b>	Performance test and plotting various characteristics for . <ul style="list-style-type: none"><li>- Single and three phase induction motor</li><li>- AC Servomotor</li><li>- Torque control of extensively used motor</li><li>- Speed control of single phase induction motor using SCR</li><li>- DC Motor</li><li>- Stepper motor</li><li>-</li></ul>
<b>5.</b>	Demonstrate ADC & DAC systems. Also include demonstration with real applications
<b>6.</b>	Demonstration of hydraulic actuator.
<b>7.</b>	Demonstration of pneumatic actuator.

8.	Demonstrate any two control systems. Include working specification and characteristics of each elements.
9.	Select and prepare arrangement for two simple Mechatronics systems. The requirements for the system are to be given. If necessary, do simple design of electronics circuit.

#### NOTES:

1. Term work report content of each experience should also include following.
  - a. Experience description / data and objectives.
  - b. Skill/s which is / are expected to be developed in student after completion of experience.
  - c. Drawing of experience / setup with labels/nomenclature to carry out the experience
  - d. The specifications of machines / equipments / devices / tools / instruments /items/elements which is / are used to carry out and to check experience.
  - e. Process parameters / setup settings' values applied to carry out experience.
  - f. Steps / Process description to execute experience.
  - g. Observations
  - h. Information on recent machines / equipments / devices / tools / instruments /items available in market to carry out the experience.
  - i. Special / Additional notes or remarks.
2. Term work report of student of regular mode should exclude Distance Learning manual, photocopies , printed content, etc. Focus should be on developing the term work as original efforts of students.
3. Term work content of industrial visit report should also include following.
  - a. Brief details of industry visited.
  - b. Type ,location, products, rough layout, human resource, etc of industry.
  - c. Details, description and broad specifications of machineries/processes observed.
  - d. Safety norms and precautions observed.
  - e. Student's own observation on Industrial environment, culture and attitude.
  - f. Any other details / observations asked by accompanying faculty.
4. Term work also includes experience logbook duly certified by subject teachers.