### Purpose
To impart knowledge of understanding the characteristics of key elements of mechatronics system.

### Instructional Objectives
At the end of the course, student will be able to

1. Recall the key elements of mechatronics system.  
2. Analyze the characteristics of various sensors. 
3. Apply the sensors and actuators into various applications.

### Sl. No. | Description of experiments | Contact hours | C-D-I-O | IOs | Reference
--- | --- | --- | --- | --- | ---
1. | Introduction to Labview (Simple Labview programs). | 3 | C | 1 | 1
2. | Introduction to Labview (Usage of loops, structures). | 3 | C | 1 | 1
3. | Calibration of strain gauge, infrared sensor and sonar sensor (Quanser QNET). | 3 | C,I,O | 2 | 1
4. | Calibration of pressure sensor ad potentiometer (Quanser - QNET). | 3 | C,I,O | 2 | 1
5. | Calibration of magnetic field sensor, temperature sensor and piezo film sensor (Quanser QNET). | 3 | C,I,O | 2 | 1
6. | Determination the performance characteristics of analog to digital converter (3 bit and 4 bit converters). | 3 | C,I,O | 2 | 1
7. | Determination of performance characteristics of digital to analog characteristics (unipolar, bipolar-3bit converter). | 3 | C,I,O | 2 | 1
8. | Coin operated car park barrier using electro pneumatic. | 3 | D,I,O | 3 | 1
9. | Machine vision system. | 3 | C,I,O | 3 | 1
10. | DC motor control (Quanser QNET). | 3 | C,I,O | 3 | 1
11. | Performance characteristics of (K, J Type) thermocouple using multifunctional DAC card (Test rig). | 3 | C | 2 | 1
12. | Measurement of thermal conductivity using multifunctional DAC card (Test rig). | 3 | C | 2 | 1
13. | Extra practice session. | 3 | C | 2 | 1
14. | Extra practice session. | 3 | C | 2 | 1
15. | Model examination. | 3 | C | 2 | 1
**Total contact hours** | 45 |

### Learning Resources
- Mechatronics Laboratory Manual

### Course nature
Practical

<table>
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<th>Assessment Method (Weightage 100%)</th>
<th>In-semester</th>
<th>Total</th>
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<tr>
<td>Assessment tool</td>
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<td>Experiments</td>
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<td>MCQ/Quiz/Viva Voce</td>
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### End semester examination Weightage: 40%