<table>
<thead>
<tr>
<th>Module code</th>
<th>SS-4313</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module Title</td>
<td>Machine Perception</td>
</tr>
<tr>
<td>Degree/Diploma</td>
<td>Bachelor of Science (Computer Science)</td>
</tr>
<tr>
<td>Type of Module</td>
<td>Major Option</td>
</tr>
<tr>
<td>Modular Credits</td>
<td>4</td>
</tr>
<tr>
<td>Total student Workload</td>
<td>10 hours/week</td>
</tr>
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<td>Contact hours</td>
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<tr>
<td>Prerequisite</td>
<td>SS-2202 Algorithms and Data Structures</td>
</tr>
<tr>
<td></td>
<td>SS-2207 Introduction to Artificial Intelligence and Soft Computing</td>
</tr>
<tr>
<td>Anti-requisite</td>
<td>None</td>
</tr>
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**Aims**

This module covers the principles, approaches and techniques of machine perception, encompassing the different sensing mechanisms including motion capture.

This module is a compulsory module for Soft Computing stream.

**Learning Outcomes**

*On successful completion of this module, a student will be expected to be able to:*

**Lower order:** 20%
- understand machine perception using sensors and vision
- discuss different sensing mechanisms, vision/motion capture/tracking systems used
- understand data acquiring and pre-processing using sensors and motion capture/tracking system
- understand 3-dimensional multi-model sensing mechanisms

**Middle order:** 60%
- evaluate and appreciate the performance of machine perception using sensors and vision

**Higher order:** 20%
- design simple bio-interfacing devices in laboratory environment
- apply machine perception real world applications

**Module Contents**

- Introduction to Machine Perception and its applications; Wired and wireless Sensor integration for perception
- Motion capture/tracking systems integration for perception; Wearable sensing mechanisms; Sensor/vision data acquisition and pre-processing
- 3-dimensional modelling for perception; Bio-Interfacing Devices using sensors and vision; Information fusion using sensors and vision; Real world applications: machine and human perception

**Assessment**

**Formative assessment**
- Interactive Quizzes and Feedback

**Summative assessment**
- Examination: 50%
- Coursework: 50%
  - 2 class tests (20%)
  - 1 written assignment (15%)
  - 1 laboratory exercise (15%)