CSCE 274 - Robotic Applications and Design

- **Credit Hours:** 3 hours
- **Contact Hours:** 3 lecture hours
- **Instructor:** Drs. O’Kane and Rekleitis
- **Bulletin Description:** Design and control of robots. Interactions between robots, sensing, actuation, and computation.
- **Prerequisites:** CSCE 146
- **Required Course in CE**
- **Course Outcomes:** Students will be able to:
  1. Describe the components of modern robot systems.
  2. Apply robotic control architectures.
  3. Implement autonomous navigation and planning on mobile robot platforms.

**Student Outcomes addressed by course**

<table>
<thead>
<tr>
<th>Program</th>
<th>Student Outcomes Addressed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Engineering</td>
<td>1, 2, 6</td>
</tr>
<tr>
<td>Computer Information Systems</td>
<td>N/A</td>
</tr>
<tr>
<td>Computer Science</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Topics covered**

1. History (2 hours)
2. Control architectures (10 hours)
3. Sensing (8 hours)
4. Robot motion (5 hours)
5. Robot programming (4 hours)
6. Uncertainty (5 hours)
7. Multi-robot systems (2 hours)
8. Biomemetic robots (2 hours)
9. Reviews and Exams (4 hours)