COURSE INFORMATION

Autonomous Mobile Robotics

<table>
<thead>
<tr>
<th>Course Title</th>
<th>CS404</th>
<th>Spring 2016</th>
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<tbody>
<tr>
<td>Meeting Time(s)</td>
<td>MW 4:00-5:15</td>
<td>Faner 1032</td>
</tr>
<tr>
<td>Meeting Location(s)</td>
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INSTRUCTOR INFORMATION

Henry Hexmoor

<table>
<thead>
<tr>
<th>Instructor Name</th>
<th><a href="mailto:hexmoor@cs.siu.edu">hexmoor@cs.siu.edu</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Office Hours</td>
<td>TR 9:00-11:00</td>
</tr>
<tr>
<td>Office Location</td>
<td>Faner 2130</td>
</tr>
<tr>
<td>Office Telephone</td>
<td>(618) 453-6047</td>
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COURSE GOALS AND TOPICS

Brief Summary of Course Goals and Topics

This course is a comprehensive introduction to modern robotics with an emphasis on autonomous mobile robotics. Fundamentals of sensors and actuators as well as algorithms for top level control are discussed. Multi-robotics and human-robot interaction issues are explored. A term project is an integral part of this course. Class lectures will closely track outline of the course textbook. Lectures and exams are theoretical. Class project is hands on, pragmatic and research oriented.

TEXTBOOKS AND MATERIALS

Required Textbook(s)


Required Materials and Equipment

Using course fee funds, robotic sensors and controllers will be purchased as needed.

Recommended Textbook(s)


Recommended Materials and Equipment


ASSIGNMENTS AND EVALUATIONS

Type and Number of Planned Assignments

Programming and project development throughout semester

Methods of Evaluation

Project grading plus exams

COURSE SCHEDULE OVERVIEW

General Outline of Course Topics

1 Introduction
2 Bug Algorithms
3 Configuration Space
4 Potential Functions
5 Road maps
6 Cell Decompositions
7 Sampling-Based Algorithms
8 Kalman Filtering