Robotics Applications and Design

CSCE 274

Fall 2022

Instructor:	Ibrahim Salman	**Time:**	TR 04:25 PM - 05:40 PM
Email:	ijsalman@email.sc.edu	**Place:**	Swearingen 2A14
Lab:	Swearingen 1D49	**OH:**	TR 1:00 - 2:30 pm or by Appt

Course Pages: https://cse.sc.edu/~ijsalman/csce274/f22

Lab: Swearingen 1D49

Communication: Main method of communication is the course Discord channel. You will get an email with the invitation.

Description: This course aims to introduce robotics from a computing perspective. After the introduction, an overview of different types of robots, sensors, and locomotion, algorithms for robotic perception, planning, navigation, localization, and manipulation are presented. The students will have the chance to implement some of the concepts seen in class on a mobile robot (Duckiebot). The instructor would draw from his experiences in robotic research to enrich the material with aspects of active research problems, such as: multi-robot exploration for search and rescue; environmental coral reef monitoring using underwater robots; etc.

Course learning outcomes: After completing this course, you should be able to:

- Describe the components of modern robot systems.

- Apply robotic control architectures

- Implement autonomous navigation and planning on mobile robot platforms.

Prerequisites: CSCE 146 (Algorithmic Design II)

Required Textbook: Maja J. Mataric, The Robotics Primer. MIT Press, 2007

Academic Integrity: You are expected to practice the highest possible standards of academic integrity. Any deviation from this expectation will result in a minimum academic penalty of your failing the assignment, and will result in additional disciplinary measures. This includes improper citation of sources, using another student's work, and any other form of academic misrepresentation. University policies and procedures regarding academic integrity are defined in policy STAF 6.25, Academic Responsibility - The Honor Code (see http://www.sc.edu/policies/ppm/staf625.pdf). Prohibited behaviors include plagiarism, cheating, falsification, and complicity. All potential Honor Code violations will be reported to the Office of Student Conduct and Academic Integrity, which has the authority to implement non-academic penalties as described in STAF 6.25. Academic penalties for Honor Code violations in this course range from a zero on the assignment to failure of the course. Use of online resources that contain the solution to a homework/assignment/exam is strictly prohibited and will result to failure of the course

Late submissions: Not accepted.

Attendance: Encouraged and very essential! Not recorded. If you are absent, you are responsible for learning material covered in class

Important Dates:

Midterm .... Tuesday, Oct. 18 - 4:25 p.m.
Final Exam .... Thursday, Dec. 8 - 4:00 p.m.

Grading Policy:

- Labs/Homework (30%)

- Projects (40%)

- Midterm (10%)

- Final (20%)

Grading Scheme:

- $\geq 90\% : A$

- $\geq 87\% : B+$

- $\geq 80\% : B$

- $\geq 77\% : C+$

- $\geq 70\% : C$

- $\geq 60\% : D$

- $< 60\% : F$

Accommodating Disability: Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, contact the Office of Student Disability Services: 777-6142, TDD 777- 6744, email sasds@mailbox.sc.edu, or stop by LeConte College Room 112A. All accommodations must be approved through the Office of Student Disability Services.

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Changes to the Syllabus

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***The instructor reserves the right to make changes to the grading criteria, assignments, course outline, and office and lab hours to serve the needs of the class best. The latest syllabus will always be on the **course website**.*