

Intro Robotics

INEN-5358

Spring 2025 Section 01 3 Credits 01/16/2025 to 05/15/2025 Modified 01/16/2025

Meeting Times

Lecture

Week #1 - #15

Tuesday, Thursday, 2:00 PM to 3:25 PM, Cheery Engineering 2629

Lab Session

After week #7

Thursday, 2:00 PM to 3:25 PM, Lucas Engineering 143

Office Hours

Cherry Building 1608

Tuesday & Thursday after class

Wednesday 3 pm - 5 pm

Or by appointment via e-mail

Contact Information

Assistant Professor: Dr. Wenhao Yang

Email: wyang2@lamar.edu

Office: Cherry Building, Room 1608

Phone: 409-880-8876

Office Hours

- Wednesday, 3:00 PM to 5:00 PM, Cheery Building, Room 1608

Catalog Description

This course introduces students to robotics theory, sensors and actuators, kinematics and dynamics, path planning and algorithms for robotics.

Course Objectives

This course offers a foundational understanding of robotics, emphasizing the modeling, design, planning, operation, and control of robotic systems. Key topics include motors, sensors, and algorithms, with hands-on experience in robot operation, sensor integration, actuator functionality, and control algorithm development. This course covers a variety of multidisciplinary topics necessary to understand the fundamentals of designing, building, and programming robots.

Students will explore concepts from geometry, kinematics, statics, dynamics, and control, providing a comprehensive overview of robotics. The course fosters critical thinking and communication skills through interactive labs, projects, and discussions.

Prerequisites

You must be willing to code in **MATLAB**. You must be willing to use analytical tools drawn from linear algebra, differential calculus, and basic probability theory.

Course Materials

Slides are enough for assignment and exams

Textbook

1. [Introduction to Robotics: Mechanics and Control, Third Edition \(2005\)](#), by John J. Craig.
2. *Modern Robotics*, Lynch and Park, Cambridge University Press, 2017
 - authors' site (free version, video lectures): <http://lynchandpark.org>
 - publisher's site: Cambridge University Press <https://goo.gl/U5uZdu>

Course Policies

Late Submission

No late work will be accepted without prior arrangement and a compelling excuse. Assignments will be due at midnight on the specified due date.

Makeup exams

Makeup exams will not be provided unless prior arrangements have been made. Make up exams may be conducted as oral examinations at the instructor's discretion

Cheating and plagiarism

Unethical behavior, which includes cheating and plagiarism in all forms, as well as pirated software and textbooks, will result in '0' grading or an 'F' for the course.

Emails

Emails will be used as the primary communication tool beyond class meetings. Please make sure to put **INEN-5358** in the subject header.

✓ Grading and Assignments

Graded Assignments

Type	Weight	Topic	Notes
Attendance	15%		Attendance accounts for 15% of your total grade. The policy is as follows: 1. Excused Absences <ul style="list-style-type: none">◦ If you notify me in advance and provide a valid reason, your absence will be marked as "excused."◦ One excused absence is equivalent to 0.3 unexcused absences. 2. Late Attendance <ul style="list-style-type: none">◦ Arriving late to class will count as 0.5 unexcused absences. 3. Grading Criteria <ul style="list-style-type: none">◦ If you have fewer than 3 unexcused absences, you will receive full credit for attendance.◦ 3 unexcused absences: Your grade will drop by one letter grade.◦ 4 unexcused absences: Your grade will drop by two letter grades.◦ 5 or more unexcused absences: You will receive an F for this course.
Quizzes	20%		
Assignment	25%		
Mid-term exam	20%		
Final Exam	20%		

Grading Scale

Grade	Range	Notes
A	100-90	

Grade	Range	Notes
B	89-80	
C	79-70	
D	69-60	
F	59 and below	

Additional Items

Institutional Policies

Academic Honesty Policy

Lamar University expects all students to engage in academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in their academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action.

The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work that is to be submitted, plagiarism, collusion, and the abuse of resource materials.

All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include failure of the assignment and/or course up to suspension or expulsion from the university. The penalty may vary by instructor.

Additional information is available on the [Academic Policy website](https://www.lamar.edu/students/academic-policies.html) (<https://www.lamar.edu/students/academic-policies.html>).

Generative Artificial Intelligence Policy

"Students should not use Artificial Intelligence (AI) generative applications to complete course assignments or for any other academic activities unless permitted explicitly by the instructor. AI, or any other machine-generated information, should be used as a supplemental resource and should not replace traditional academic activities."

Note: Your faculty may have additional course-specific guidance regarding the use of AI within this syllabus or your course in the Blackboard Learning Management System (LMS).

LU guidelines regarding AI can be found on the Center for Teaching and Learning Enhancement website (<https://www.lamar.edu/lu-online/faculty-services/center-for-teaching-and-learning-enhancement/ai/index.html>). These guidelines will be updated regularly.

Course Drop Policy

Students may drop a course and receive a grade of "Q" during the penalty-free period of the semester or session. For drops after this penalty-free period, grades are recorded as "Q" or "F," indicating the student was passing or failing at the time of the drop. A grade of "Q" may not be assigned unless an official drop has been processed through the Records Office. Students may drop a course online up to the census day by logging into Self-Service Banner. After the census day, courses must be dropped through the Records Office. For additional help, contact the academic advisor or the Records Office at registration@lamar.edu. **Students may not drop a course during the last 20 percent of the term.** Students should check the academic calendar at <https://www.lamar.edu/academic-calendar> (<https://www.lamar.edu/academic-calendar>) for specific dates.

Students with Disability Policy

Lamar University is committed to providing equitable access to learning opportunities for all students. The Accessibility Resource Center (ARC) is located in the Communication building, room 105. Office staff collaborate with students who have disabilities to provide and/or arrange reasonable accommodations.

If you have, or think you may have, a disability (e.g. mental health, attentional, learning, chronic health, sensory, or physical), please contact the ARC at 409-880-8347 or arc@lamar.edu to arrange a confidential appointment with the Director of the ARC to explore possible options regarding equitable access and reasonable accommodations.

If you are registered with the ARC and have a current letter requesting reasonable accommodations, we encourage you to contact your instructor early in the semester to review how the accommodations will be applied in the course.

Additional information is available at the [ARC website \(http://www.lamar.edu/disability-resource-center/\)](http://www.lamar.edu/disability-resource-center/).

Academic Support

Academic Support can be located at <https://www.lamar.edu/students/#acad-supp> (<https://www.lamar.edu/students/#acad-supp>).

There are many areas (i. e. Advising, Writing Center, etc.) of academic support. Each area provides their own specific contact information and days and hours of operation.

Student Services

*Lamar University recognizes that students may experience challenges that hinder success in their academics and/or college experience. We believe in giving all students access to resources that allow them to overcome these challenges. If you are struggling with stress, procrastination, anger management, depression, anxiety, substance abuse and/or eating disorders, please reach out to our counseling professionals at the **Student Health Center at 880-8466 to call for an appointment or visit***

our website <https://www.lamar.edu/students/student-engagement/student-health-center/index.html> (<https://www.lamar.edu/students/student-engagement/student-health-center/index.html>), for more information about our services.

Your information and situation will be treated with the utmost privacy and is protected by Texas law. These services are available to all currently enrolled students at Lamar University and Lamar Institute of Technology.

Information on Student Services can be located at <http://students.lamar.edu/index.html> (<http://students.lamar.edu/index.html>). There are many resources (i. e. Course schedules, important phone numbers, etc.) available. Each area provides their own specific contact information and days and hours of operation.

Academic Continuity Policy

In the event of an announced campus closure in excess of four days due to a hurricane or other disaster, students are expected to check Lamar University's website and login to LU Connect for instructions about continuing courses remotely.

Emergency Procedures

Many types of emergencies can occur on campus; instructions for severe weather or violence/active shooter, fire, or chemical release can be found at the [Office of Environmental Health/Safety and Risk Management \(https://www.lamar.edu/about-lu/administration/risk-management/index.html\)](https://www.lamar.edu/about-lu/administration/risk-management/index.html) webpage.

Severe Weather

Follow the directions of the instructor or emergency personnel.

Seek shelter in an interior room or hallway on the lowest floor, putting as many walls as possible between you and the outside.

If you are in a multi-story building and you cannot get to the ground floor, pick a hallway in the center of the building.

Stay in the center of the room, away from exterior walls, windows, and doors.

Violence/Active Shooter

CALL - 7777 from a campus phone (Text 409-241-8002 from a cell phone). Note: Calling 911 from either a campus or cell phone will contact the City of Beaumont dispatch rather than the LU police.

AVOID - If possible, self-evacuate to a safe area outside the building. Follow directions of police officers.

DENY - Barricade the door with desks, chairs, bookcases or any other items. Move to a place inside the room where you are not visible. Turn off the lights and remain quiet. Remain there until told by police it is safe.

DEFEND - Use chairs, desks, cell phones or whatever is immediately available to distract and/or defend yourself and others from attack.

Copyright Policy Statement

Copyright is defined as the ownership and control of the intellectual property in original works of authorship, which are subject to copyright law. As an institution of higher learning that values intellectual integrity, Lamar University prohibits the distribution of published materials (print or electronic) in violation of copyright law.

LU Connect Portal

Students are asked to obtain a Lamar Electronic Account username and password so they can log onto the LU CONNECT website. Students may get information on how to get into the LU CONNECT website from the University's homepage (<http://www.lamar.edu> (<http://www.lamar.edu>)) by clicking on the LU CONNECT link on the left top corner of the screen. Follow the steps to secure your LU CONNECT username and password.

LU Learn/Blackboard Learning Management System (LMS)

Students will utilize Lamar University's Learning Management System (LMS), Blackboard, for online courses.

For Blackboard technical support go to <https://blackboardsupport.lamar.edu> (<https://blackboardsupport.lamar.edu/>).

Phone: 866-585-1738

Phone and chat are available 24/7/365

Exams and quizzes taken within LULearn (Blackboard) may require online proctoring. For additional information about online proctoring, click [here](https://www.lamar.edu/lu-online/technology-support/index.html) (<https://www.lamar.edu/lu-online/technology-support/index.html>), and view details under proctoring services.

Network Use

ACCEPTABLE USE

Students must respect the integrity and security of Lamar University computer systems and network, and the privacy and preferences of other users. Responsibility for learning about and complying with Lamar University Acceptable Use Policy ultimately rests with the individual. The network may be used to download, copy, or store any software, shareware, digital media files or freeware, as long as the use complies with copyright law licensing agreements, and campus policies, such as storage space limitations and network bandwidth restrictions. The network may not be used for any activity, or to transmit any material, that violates United States or local laws.

UNACCEPTABLE USE

The network may not be used for commercial purposes. Advertising and sponsorships on Lamar University websites is restricted. In addition, students may not permit other persons to use their usernames, passwords, accounts or disk space, or disclose their usernames, passwords or account

information to any third party. Students may not log on to someone else's account, internet address, or other network codes, or attempt to access another user's files. Students may not create false or dummy accounts to impersonate someone else. Students may not try to gain unauthorized access ("hacking") to the files or computer systems of any other person or organization. Students may not impersonate another person by forging e-mail, web pages or other electronic media. Students who maliciously access, alter, delete, damage or destroy any computer system, computer network, computer program, or data will be subject to disciplinary action by Lamar University, and criminal prosecution as well. Students may not disrupt or attempt to disrupt network traffic, and they may not attempt to monitor or capture network traffic in any way. Finally, students may not intentionally create, store, display, print or transmit information that violates the university's Sexual Harassment Policy.

Netiquette (Online Etiquette) Statement

Please adhere to the same standards of behavior and professional respect online that you would follow in face-to-face communication with others, but most particularly when writing emails and when taking part in collaborative and discussion board activities. Lamar provides access to network resources, including the Internet, in order to support learning and to prepare students for the 21st century world. Students, however, are expected to adhere to the *Lamar University Acceptable Use Policies when Using Networks*. A more comprehensive student code of conduct can be found at <https://students.lamar.edu/academic-support/code-of-conduct.html> (<https://students.lamar.edu/academic-support/code-of-conduct.html>).

GENERAL GUIDELINES TO RESPECT ALL PARTICIPANTS

- Respect the right of each person to disagree with others.
- Treat people the same as you would face-to-face.
- Respect the time of others.

GUIDELINES WHEN COMMUNICATING WITH OTHERS (EMAIL, DISCUSSIONS, BLOGGING, AND ETC.)

- Always sign your name to any contribution you choose to make.
- Be constructive in your responses to others in the class.
- Do not use all caps (Doing so may be interpreted as shouting).
- Re-read your postings before sending them.
- Always think before you write.
- Respond respectfully.
- Use appropriate grammar and structure.
- Spell-check your postings.
- Use short paragraphs focused on one idea.
- Use appropriate business language at all times.

Technical Support

Technical Support can be located at <http://students.lamar.edu/it-services-and-support/index.html> (<http://students.lamar.edu/it-services-and-support/index.html>).

Phone: 409-880-2222

Email: servicedesk@lamar.edu

Hours of Operation (CST):

Monday - Thursday 7:30 a.m.-12:00 a.m.

Friday 7:30 a.m. - 7:30 p.m.

Saturday 9:00 a.m. - 6:00 p.m.

Sunday 3:00 p.m. - 12:00 a.m.

Attendance Verification

Students must complete an Attendance Verification Quiz for ALL COURSES - both on-campus and online - in which they are enrolled each term by the third class day to comply with U.S. Department of Education attendance requirements. Failure to complete this quiz by the deadline may result in loss of course enrollment and/or financial aid. The quiz is located in EVERY COURSE through LULearn (Blackboard), even if the course meets on campus.

Privacy Policies

Student data within Blackboard may be collected by third-party products that have been carefully reviewed for compliance to privacy and other standards and approved by Lamar University. Only products meeting our standards for data privacy, security, and educational value are approved. It's important to us that your data is protected, but please note that your data may be tracked or stored by these products as related to their use. [Privacy Policies for third-party products \(https://www.lamar.edu/lu-online/technology-support/privacy-policies.html\)](https://www.lamar.edu/lu-online/technology-support/privacy-policies.html)