



Soules College of Business
Department of Technology
TECH 3317 INDUSTRIAL ROBOTICS
Course Syllabus

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Office: COB 225.04
Time: T&R 12:30-1:50PM
Office Hours: T&R 2:00-5:00PM, and by appointment
(70% lecture – 30% lab)

FALL 2024
(903) 566-7186

Course Description

A study of robotic systems used by industry in the manufacture of products and services. Students will learn how to program robots with teach pendants/tablets and offline simulation software. In addition, students will have the opportunity to earn robotic certifications from various manufacturers.

Lecture Notes

A copy of the lecture notes is required and can be downloaded online via Canvas.

Textbook (Required):

Miller, Mark R. & Miller, Rex (2017). Robots and Robotics: Principles, Systems, and Industrial Applications. McGraw-Hill Education, New York, NY. ISBN: 9781259859786

Course Objectives

At the end of this course, participants will be able to:

1. Explore the fundamental concepts of robotics.
2. Develop safe working habits.
3. Become familiar with programming robots with a teach pendant and offline.
4. Develop skills working with automated equipment.

Student Learning Outcomes

1. Demonstrate how to use industrial robots by successfully programming them with a teach pendant.
2. Demonstrate a comprehensive knowledge of offline robotics programming by writing programs that will successfully run industrial robots.
3. Demonstrate an understanding of maintaining industrial robots by earning passing

- grades on quizzes and exams.
4. Demonstrate a fundamental knowledge of industrial robotics by earning passing scores on exams and quizzes.

Core Competencies

1. Computer-Based Skills – the student will complete written assignments using the word processor.
2. Communication Skills – the student will exhibit a mastery of both written and oral skills in completion and presentation of the assigned group projects.
3. Interpersonal Skills – the student will interact in class discussion regarding robotics and automation.
4. Problem Solving (Critical Thinking) – the student will use conceptual thinking to analyze and make determinations regarding the use of industrial robotics equipment.
5. Ethical Issues in Decision Making and Behavior- the student will gain an appreciation of the ethics of technology through examination of various processes.
6. Personal Accountability for Achievement – the student will complete assignments at the time designated by the instructor.
7. Competence in Technology Principles
 - a. Competence in major field and grounding in other major technology major core areas – the student will gain knowledge and skills related to automated production technology.
 - b. Exposure to and appreciation for industrial experiences such as industrial tours, work-study options and cooperative education, senior seminars – The student will be able to attend field trips to various industries in the area.

Tentative Course Requirements:

Daily Quizzes	200
Assignments	100
Projects	200
Midterm exam	200
Class Participation/Attendance	100
Final Exam	200

TOTAL POINTS = 1000

Grade Scale Breakdown:

- A=90 - 100%
- B=80 - 89%
- C=70 - 79%
- D=60 - 69%
- F=BELOW 60%

Note: 89.999999999999999999 is still a B.

Course Policies:

Content for examinations will be taken from lectures, demonstrations, reading assignments, laboratory exercises and any audio-visual materials used, i.e. films, tapes, slides, etc.

Make up examinations are the student's responsibility. No excuses will be accepted after the exam is given. The instructor must be notified **prior** to the scheduled exam. If not, the student forfeits his/her right to take the exam. Quizzes will not be made up unless a **prior** acceptable excuse for an absence has been received by the instructor.

Attendance:

Attendance is mandatory and will be taken at every scheduled class and laboratory period. No make-ups unless:

1. Organized university trip.
2. Illness or death in **immediate** family (mother, father, brother and/or sister).
3. Illness of student.

Each one of these will require either a **doctor's statement** or a **signed** statement from the individual in charge of the trip.

A student will lose a letter grade in the course each time s/he is absent or late 3 times. Any student entering the classroom 1 second after the scheduled starting time will be considered late unless accompanied with a valid excuse.

Late Work:

All work not turned in on time will have an automatic reduction in value to 50% of its full value. **Work that is not turned in by the next class will NOT be accepted.** Exceptions to this will be as per University Policy concerning absences from class. If you know an assignment will be late for a valid reason, inform your instructor in advance to avoid unnecessary penalty.

Format for Assignments (Textbook Chapters) and Reports:

Each Assignment or laboratory report will have a separate cover page that must contain the following:

1. Assignment Title in **BOLD** letters and the number of the chapter.
2. Prepared by: Your Name Here
3. Submitted to Dr. Mark Miller in partial fulfillment of the course
4. Course Name, TECH 3317 Industrial Robotics
5. The Date

Your grade will reflect the quality of the presentation.

Cell Phones:

Cell phones are to be seen and not heard. Make sure you turn off your cell phone during class or turn it to the vibrator mode. A ringing cell phone is a distraction and is inappropriate for the classroom. Allowing your cell phone to ring and then answering it is very rude. It is not fair to your fellow classmates who have paid for this course. **Please be considerate and make sure your cell phone is turned off during any of your classes. Students will be asked to leave for the day if this behavior continues.**

Discrimination:

The policy of this department is to make your college experience as pleasant as possible. However, if at any time you feel that you are being discriminated against, belittled, or not treated appropriately, please notify the instructor either anonymously or in-person **immediately** after class. It is not the intention of any of the faculty in this department to make your college experience an unpleasant one. Remember, the first step in the process is to inform the instructor so s/he can be made aware of the problem and take corrective action. If the problem continues to

persist, please inform the chair of the department. The dean can then be notified if the problem continues to exist after a few days. A grievance can then be filed in the Office of Student Services if there has still been no change in the instructor's behavior. **It should be noted that filing a grievance is a serious act and should NOT be done so just because you received a bad grade on an exam or in the course. Communication is an effective tool to solve problems and is rarely used enough. Most people are not deliberately trying to upset you, they are just not aware of your vantage point.**

Talking:

While the instructor is talking, it is understood that no one should be talking. Students talking in class prevent other students from hearing the instructor and learning the material that is required to pass the course. If you are caught talking then you will **earn a zero on your daily quiz** grade. On the second offense, **you will be asked to leave**. This behavior is rude and disruptive and most students who talk in class typically earn lower grades. It should be noted, that students who have been granted permission to talk by the instructor should not be interrupted as well.

Offensive Language:

Any type of offensive language will not be tolerated in the classroom or laboratory. How you speak to your friends outside the classroom is your business, however, when you are in the classroom you must follow the University of Texas rules of conduct. **You will be asked to leave if your language or conduct is offensive.**

Required Activities Scheduled Outside of Regularly-Scheduled Class time (fees, tickets, procedures and/or forms required):

Read textbook, review notes, and complete assignments.

Department Website: <https://www.uttyler.edu/soules-college-of-business/technology/tech/>

Commencement: Saturday, December 14th.

Holidays: November 25-30 Thanksgiving Holiday

UT Tyler Honor Code

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

Students Rights and Responsibilities

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: <http://www.uttyler.edu/wellness/rightsresponsibilities.php>

Campus Carry

We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>

UT Tyler a Tobacco-Free University

All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors.

Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.

There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit www.uttyler.edu/tobacco-free.

Grade Replacement/Forgiveness and Census Date Policies

Students repeating a course for grade forgiveness (grade replacement) must file a Grade Replacement Contract with the Enrollment Services Center (ADM 230) on or before the Census Date of the semester in which the course will be repeated. (For Fall, the Census Date is Sept. 8.) Grade Replacement Contracts are available in the Enrollment Services Center or at <http://www.uttyler.edu/registrar>. Each semester's Census Date can be found on the Contract itself, on the Academic Calendar, or in the information pamphlets published each semester by the Office of the Registrar. Failure to file a Grade Replacement Contract will result in both the original and repeated grade being used to calculate your overall grade point average. Undergraduates are eligible to exercise grade replacement for only three course repeats during their career at UT Tyler; graduates are eligible for two grade replacements. Full policy details are printed on each Grade Replacement Contract.

The Census Date (Sept. 8th) is the deadline for many forms and enrollment actions of which students need to be aware. These include:

- Submitting Grade Replacement Contracts, Transient Forms, requests to withhold directory information, approvals for taking courses as Audit, Pass/Fail or Credit/No Credit.
- Receiving 100% refunds for partial withdrawals. (There is no refund for these after the Census Date)
- Schedule adjustments (section changes, adding a new class, dropping without a "W" grade)
- Being reinstated or re-enrolled in classes after being dropped for non-payment
- Completing the process for tuition exemptions or waivers through Financial Aid

State-Mandated Course Drop Policy

Texas law prohibits a student who began college for the first time in Fall 2007 or thereafter from dropping more than six courses during their entire undergraduate career. This includes courses dropped at another 2-year or 4-year Texas public college or university. For purposes of this rule, a dropped course is any course that is dropped after the census date (See Academic Calendar for the specific date). Exceptions to the 6-drop rule may be found in the catalog. Petitions for exemptions must be submitted to the Enrollment Services Center and must be accompanied by documentation of the extenuating circumstance. Please contact the Enrollment Services Center if you have any questions.

Disability/Accessibility Services

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including non-visible a disability diagnosis such as a chronic disease, learning disorder, head injury or ADHD, or you have a history of modifications or accommodations in a previous educational environment you are encouraged to contact the Student Accessibility and Resources office and schedule an interview with an Accessibility Case Manager. If you are unsure if the above criteria applies to you, but have questions or concerns please contact the SAR office. For more information or to set up an appointment please visit the SAR webpage (<http://www.uttyler.edu/disabilityservices/>) or the SAR office located in the University Center, Room 3150 or call 903.566.7079. You may also send an email to saroffice@uttyler.edu.

Student Absence due to Religious Observance

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester. Revised 09/16

Student Absence for University-Sponsored Events and Activities

If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

Social Security and FERPA Statement

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

Emergency Exits and Evacuation

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

Student Standards of Academic Conduct

Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

i. "Cheating" includes, but is not limited to:

- copying from another student's test paper;
- using, during a test, materials not authorized by the person giving the test;
- failure to comply with instructions given by the person administering the test;
- possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed "crib notes". The presence of textbooks

constitutes a violation if they have been specifically prohibited by the person administering the test;

- using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
- collaborating with or seeking aid from another student during a test or other assignment without authority;
- discussing the contents of an examination with another student who will take the examination;
- divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructor has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
- substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
- paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
- falsifying research data, laboratory reports, and/or other academic work offered for credit;
- taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
- misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.

ii. “Plagiarism” includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another’s work and the submission of it as one’s own academic work offered for credit.

iii. “Collusion” includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.

iv. All written work that is submitted will be subject to review by plagiarism software available on Canvas.

UT Tyler Resources for Students

- UT Tyler Writing Center (903.565.5995), writingcenter@uttyler.edu
- UT Tyler Tutoring Center (903.565.5964), tutoring@uttyler.edu
- The Mathematics Learning Center, RBN 4021, this is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.

Lecture/Laboratory Materials:

Students will be required to provide the following:

1. Textbook, notebook, and paper to take notes
2. Pen and pencil
3. ASTM or OSHA approved safety glasses & Hearing protection

Tentative Schedule

August

Administrative concerns, about the course, assignments
Introduction to industrial robotics
Robot parts and systems

September

Robot drive systems
Types of sensors and sensing
Straight and contour cutting
Robot controllers

October

Robot function
Uses of robots

Midterm Exam

Lab activities

November

Brands of robots
Troubleshooting robots
Present and future of robotics
Lab activities

December

Final Exam will be online the last week of the semester. (December 9-12)

IMPORTANT DATES:

August

- 23 Payment Deadline, 5:00PM CST, Opening Convocation, New Student Convocation
- 26 Classes begin for 15-Week session

October

- 1 Final Filing Deadline for Fall 2024 Graduation
- 4 Textbook orders due from Faculty for Spring 2025
- 21 Last Day to enter Mid-Term Grades

November

- 4 Last Day to Withdraw from one or more 15-Week courses
Registration for Spring 2025 begins for graduate/senior/Presidential
- 5 Fellow/Honors/SI Leader/NCAA students.
Registration for Spring 2025 begins for juniors
- 6 Registration for Spring 2025 begins for sophomores
- 7 Registration for Spring 2025 begins for freshmen
- 11 Last day to schedule thesis or dissertation defense for Fall 2024 Graduation
- 22 Last day to submit completed thesis or dissertation for Fall 2024 Graduation

25-30 Thanksgiving holidays for faculty and students
28-29 Thanksgiving holidays for staff, all offices closed

December

9-13 Final exams for all 15-Week session classes
10 Final grade roster open for 15-Week session
13-14 Fall Commencement
14 End of 15-Week session
17 Final 15-Week grades due in Faculty Center by 12:00PM CST
24-26 Christmas Holiday, all offices closed.

Important Health-Related Information for Classrooms and Laboratories

Students who are feeling ill or experiencing symptoms such as sneezing, coughing, or a higher than normal temperature will be excused from class and should stay at home and may join the class remotely. Students who have difficulty adhering to the safety policies for health reasons are also encouraged to join the class remotely. Students needing additional accommodations may contact the Office of Student Accessibility and Resources at University Center 3150, or call (903) 566-7079 or email saroffice@uttyler.edu.

Recording of Class Sessions

Class sessions may be recorded by the instructor for use by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission.

Students may be **allowed to record the class if they have permission from the instructor.**