



Course Syllabus
School of Science, Technology, Engineering, and Mathematics

Course Name:	Intro to Industrial Robotics
Course & Section Number:	MET150-XXX
Meeting Day(s) & Time(s):	
Credits:	3
Contact Hours:	5
Instructor's Name:	
Office Hours & Location:	
OCC Phone:	
OCC Email: *	

*Please use only Owens email for course communications.

Catalog description:

Introduction to Industrial Robotics is an introduction to the principles, systems, and applications for industrial robotics or autonomous machines. The technical aspects of industrial robotics are covered in four units: Principles of Robotics; Power Supplies and Movement Systems; Sensing and End-of-Arm Tooling; and Control Systems and Maintenance. Also, this course will cover the skills needed for an operator, technician, engineer, or programmer who must set up, record, and/or troubleshoot industrial robot programs. Included will be jogging the robot, programming the robot, file manipulation, and program creation. Program elements covered will include motion, branching, and input/output instructions. Recommended safety practices will be integrated into all training exercises.

Prerequisite/Corequisites:

MTH091 or equivalent

Course Materials:

FANUC Academy Handling Tool Manual (MATAGHAND0318CE Rev. F)
by ISTOHIO
ISBN13: 8780000157134
ISBN10: 0000157139
Format: Lab Manual
Pub. Date: 2020-01-01
Publisher(s): IST Ohio

*If a **print book, e-book, or access code** is required for class, you can access the Owens Community College e-Campus Bookstore by accessing the online link, called “Find Books” on the course schedule for each course section. See the example below.*

OER and Owens Community College Library Resources (Open Educational Resources are free online materials for instructor and student use. Some OER material may be available in print in the Owens Community College Library.)

Inclusive Access (I.A.) Materials are included in the cost of the course to save students money through lower negotiated rates with publishers. Courses containing I.A. materials will have it noted on the online class schedule. If your course includes I.A. digital materials, you will receive an email with subject line, “Your inclusive Access Materials,” and it will include any codes or digital links.

The email will come to your Owens Community College email from the Owens e-Campus Bookstore on the first day of class, if not before. Be sure to check your spam (junk email) if you do not find it in your inbox. If the email is not in your inbox or spam folder, contact your instructor immediately. You may also see a folder at the top of your course labelled “Course Materials by eCampus.” This folder will contain any needed codes or links to needed materials.

If the I.A. materials also include a printed book or are in print form, the item will be shipped to your address of record automatically based on your enrollment in the course. Please note that some courses do not include printed materials in I.A and those materials would need to be purchased separately using the link on the course schedule. When you access the Find Books link you will see which items in a course are included in I.A.

What You Will Learn in the Course

Course Objectives:

1. This course will provide an overview of industrial robotics.
2. This course will instruct the student in robot motions instructions and frames.
3. This course will provide the student with the ability to perform basic programming of an industrial robot.
4. This course will incorporate industry standard safety practices.
5. This course will teach students how to do basic file manipulation.

Student Learning Outcomes:

Students will:

Outcome	Where Assessed
1. identify the main components of an industrial robot	Ch 1- 2 BB 1, 2 Midterm & Final
2. predict the robot motion direction and speed while jogging a robot based upon the jog coordinate system selected, the speed setting, and other motion parameters.	Ch 3- 6, 10, 12, 17 BB 1, 4, 6, 11 Midterm & Final
3. demonstrate the required file manipulation techniques to backup and restore individual files and the entire operating system.	Ch 7 & 8 BB 2 Midterm & Final
4. program a robot using motion, branching, and I/O instructions.	CH 11-15 BB 5-9 Final Final Lab
5. determine the correct steps to take to clear common fault conditions.	Ch 9 BB 3 Midterm & Final Final Lab
6. explain different frames coordinate systems and select the appropriate frame for different needs.	Ch 10 BB 4 Final Final Lab

Institutional General Education Competencies:

As a student at Owens Community College, you will take General Education courses as part of your degree program. While specific to the General Education courses, will be reinforced in many of your degree program major courses and may be measured in your capstone course(s) and others as identified.

Competency	Where Assessed
Communicate effectively.	Lab time & reports
Act with professional responsibility.	Lab time
Think analytically, critically, and creatively.	Lab time, final project

Academic Support

Disability Services Resource Center: If you have a disability or acquire one, you may be entitled to receive reasonable accommodations intended to assure you an equal opportunity to participate in and benefit from the program. To receive more information or to register for

accommodations, please contact the Disability Resource Center at 567-661-7007, email disability@owens.edu, visit <https://www.owens.edu/disability/>, or stop by College Hall 124.

Tutoring Services: Owens Community College offers academic tutoring and assistance in a variety of subjects including: accounting, computing, economics, mathematics, science, and writing. For more information go to: <https://www.owens.edu/successcenters/>.

Counseling Services: Counseling Services provides assistance to students experiencing personal, educational, interpersonal/relationship, family, social, or psychological difficulties. If you feel you may benefit from this service, please contact them at counselingservices@owens.edu. More information is at <https://www.owens.edu/counseling/>.

Campus and Community Connections: The Center for Campus and Community Connections (College Hall 151) is a walk-in office created to provide retention support through resource stability initiatives and community connections. Go here for more information: <https://www.owens.edu/connection/> or contact connections@owens.edu

Owens Library: The Owens Library offers two locations (Toledo and Findlay) as well as online resources. For more information visit <https://www.owens.edu/library/>.

Students can find more information on campus resources, student support, student life, and security at this [link](#).

General Information

Student Code of Conduct: All students are expected to follow Owens Community College's [Student Code of Conduct](#), which includes academic honesty, encompassing plagiarism. See the [Board Policy](#) for more information.

Anti-Discrimination and Harassment & Title IX/Sexual Misconduct: All students, faculty, and staff are expected to follow Owens Community College's [Anti-Discrimination and Harassment Policy](#) and the College's [Title IX Policy](#)/Sexual Misconduct Procedures and Guidelines. The College strictly prohibits and will not tolerate harassment, discrimination, intimidation, or hostile/offensive working or learning environments.

Religious Accommodations: A student seeking an accommodation for an absence permitted under Ohio's Testing Your Faith Act must provide the instructor with a written email notice with the specific dates for an absence, and must do so not later than fourteen (14) days after the first day of instruction. Alternative accommodations are not retroactive, and no academic penalty will be imposed for an absence under the policy*. The request for an alternative accommodation will be kept confidential. Students with questions about a religious accommodation under Ohio's Testing your Faith Act may contact the College's Office of Academic Affairs: provost@owens.edu. The policy may be found on the Owens website: [3358:11-2-63 Accommodation for a Student Absence for the Observance of Religious Beliefs and Practices Policy](#)

Document Collection: Throughout the semester, your instructors may ask for a variety of assignments including tests and/or quizzes for student learning of institutional general education

competencies or program assessment. Please save all your class materials until the end of the semester.

Classroom Admittance: OCC classes shall only be attended by the officially registered OCC students or perspective students, instructor of record, guest lecturer, or substitute. Visitors are not permitted to be in the classroom and should not be invited to attend or participate in the class. See [FERPA](#) regulations for more information.

Use of AI Tools: This course requires you to complete various assignments that assess your understanding and application of the course content. You are expected to do your own work and cite any sources you use properly. You are not allowed to use any artificial intelligence (AI) tools, such as chatbots, text generators, paraphrasers, summarizers, or solvers, to complete any part of your assignments. Any attempt to use these tools will be considered academic misconduct and will be dealt with according to the Owens Community College academic integrity policy. Students are expected to complete all work independently and without the assistance of AI-generated content. If you have any questions about what constitutes acceptable use of AI tools, please consult with the instructor *before* submitting your work.

Student Responsibilities & Instructor Expectations

Student Responsibilities:

1. Students are expected to conduct themselves in a professional manner during class and lab. It is expected that you will treat me and other students respectfully, participate actively, and refrain from distracting behavior, such as:
 - Using electronic devices for non-class activities (phones, laptops, etc.)
 - Working on homework or other class work during lecture or class discussions
 - Slouching, putting head down, sleeping, etc.
2. The student is responsible for obtaining any missed notes, handouts or assignments, and turning them in on time. Lecture notes will generally be available on Blackboard.
3. Students who added the class after the first day are responsible for arranging for the missed work to be made up.
4. Class attendance is not mandatory but is recorded. Participation in class and labs is expected and counts to the final grade.
5. No labs can be handed in past the last regular class day.
6. Tests, assignments and labs will be scheduled at the discretion of the instructor. Changes from the schedule given in this syllabus will generally be communicated in class at least a week before the test.
7. All general rules presented in the student handbook will be observed. If plagiarism is detected on a written assignment or lab report, you will receive a zero for that assignment. If it is detected a second time, you will fail the course.
8. NO direct copying and pasting into your lab
9. Classroom attire will be casual.
10. If you have an issue that may interfere with this class, early communication is important to allow solutions to be implemented.

Instructor Expectations:

Class will be split into two parts, Lecture, and Lab. Homework and tests will be provided online

via Blackboard. Any changes to class time or location will be communicated via Owens email as soon as possible.

Classroom Environment:

No work can be conducted on the robots or robot controllers unless the instructor has given the go ahead and is in the room. No smoking (including vaping), chewing (tobacco or otherwise), eating, or drinking is allowed in the robot cells

How Grades and Determined and Major Assignments

Evaluation Measure The grade points for the areas of work are as follows.	Student Learning Outcomes Assessed	Value
BB HW (ch1- 17) 12x10pts	1-6	120 points
Labs 12x35pts	1-6	420 points
Midterm	1, 2, 5	150 points
Final Lab	1-6	100 points
Final	1-6	150 points
Attendance & Participation	1-6	60 points
Total	1-6	1000 points

The final course grade is to be computed using the following weights.

Evaluation Measure	Value	Student Learning Outcome Assessed
Class Attendance & Participation:	6 %	1-6
Robot Labs:	42%	1-6
Homework:	12%	1-6
Midterm Quiz:	15%	1, 2, 5
Final Lab Project:	10%	1-6
Final Exam:	15%	1-6

Grading Scale

Grade	Points
A	900-1000
B	800-899
C	700-799
D	600-699
F	0-599

Grading Procedure:

Grades will be calculated on the following scale.

90% and Above	A
80% to Less than 89%	B
70% to Less than 79%	C
60% to Less than 69%	D
Less Than 60%	F

MET150 Intro to Industrial Robotics SEMESTER

Lecture Topic	Reading	Lab Topic	Due
DATE			
Safety, Robot System, Teach Pendant, Jogging the Robot	Chapters 1 - 6	#1) Robot System, Jogging the Robot	
DATE			
TBD			
DATE			
File Manipulation Initial Setup	Chapters 7 – 8	#2) File Manipulation & Setup	Lab #1 & BB HW 1
DATE			
Alarms, Intro to Frames	Chapters 9 - 10	#3) Alarms and Intro to Frames	Lab #2 & BB HW 2
DATE			
Frames	Chapter 10	#4) Frames	Lab #3 & BB HW 3
DATE			
Creating a Program	Chapter 11	#5) Creating a Program	Lab #4 & BB HW 4
DATE			
Motion Instructions	Chapter 12	#6) Motion Instructions	Lab #5 & BB HW 5
DATE			
iHMI & i key Industrial Robot Applications	Chapter 13	#7) iHMI and i key	Lab #6 & BB HW 6
DATE			
Edit Command Robot Applications and Tooling	Chapter 14 (part)	#8) Editing	Lab #7 & BB HW 7
DATE			
Inputs and Outputs Unconditional Branching	Chapter 14 & 15 (part)	#9) Inputs and Outputs	Lab #8 & BB HW 8
DATE			
Branching	Chapter 15	#10) Branching	Lab #9 & BB HW 9
DATE			
Macros	Chapter 16	#11) Macros	Lab #10 & BB HW 10
DATE			
Position Register Offsets and Misc Instructions	Chapter 17	#12) PR Offsets & Misc Start Final Project	Lab #11 & BB HW 11
DATE			
Review Final Project	Review	#13) Review Final Project	Lab #12 & BB HW 12
DATE			
Start final Project		Final Project	Lab #12 & BB HW 12
DATE			
Finish final Project		Last day for turn ins	Final Project

Disclaimer: The instructor reserves the right to amend this syllabus as deemed necessary and will communicate such amendment to the students in the course. Please note that while unlikely, there is a possibility courses might need to change the delivery method due to external issues like public health concerns, weather issues, etc. If this happens, the college will communicate any changes via email and/or other communication methods.