IE 431-01E – Manufacturing Support Systems

COURSE SYLLABUS: FALL 2025

INSTRUCTOR INFORMATION

Instructor: Jeremy Jenkins
Office Location: AG/ET 130
Office Hours: Monday-Wednesday 10-11, 12:15-1
Extra online office hours   Tuesday 2-4
Office Phone: 903-886-5474
University Email Address: jeremy.jenkins@etamu.edu
Preferred Form of Communication: Email
Communication Response Time: 48 hours
Course Times: MW 11am-12:15pm

COURSE INFORMATION

Textbook Required:

Groover, Mikell P. (2014). *Automation, Production Systems, and Computer-Integrated Manufacturing*, 5th edition, Pearson, Inc (ISBN- 978-0134605463).

Software Required:

Arena Simulation for Academics • Microsoft Office

Course Description

Concepts and principles of automation and automation control, including sensors, actuators, process variable conversion, programmable logic controllers (PLCs), logic controllers, microcontrollers, industrial robotics, NC technology, and flexible manufacturing systems. Prerequisites: Phys. 2426 with a minimum of C.

Student Learning Outcomes

After completing this course:

The syllabus/schedule are subject to change.

1. Explain various reasons for employing automation in a manufacturing environment   and describe various applications.
2. Describe the basic function of a sensor and an actuator in an automated system and give examples of both categories.
3. Select an appropriate sensor and/or actuator for a given automated application.
4. Describe the fundamentals of NC technology.
5. Use a Programmable Logic Controller (PLC) and embedded microcontroller, to perform specified control functions.
6. Describe the basic anatomy and attributes of an industrial robot.
7. Identify and distinguish the different components and interfaces in a Flexible Manufacturing System.
8. Troubleshoot a system and take appropriate action(s) to resolve the issue(s). 9. Design an automated system to meet defined operational specifications.

COURSE REQUIREMENTS

Minimal Technical Skills Needed
1. A scientific calculator for exams.
2. Microsoft Word, Excel, PowerPoint.

Instructional Methods
This course utilizes lectures, assignments to assist students in achieving the course learning outcomes.

Student Responsibilities or Tips for Success in the Course
Students should attend the lectures and deliver the assignment in a timely manner.
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GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% or Below

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Weights of the assessments in the calculation of the final letter grade.
Grading rubric

Exam 1:	25%
Exam 2:	25%
Exam 3:	25%
Term project:	25%
TOTAL	100%

Assessments

This course utilizes lectures and assignments to assist students in achieving the course learning outcomes. The assessment criteria for the stated student learning outcomes will include a term project, assignments, and exams.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by East Texas A&M University have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

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Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a ETAMU campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

Interaction with Instructor Statement

The instructor will response to your questions on D2L tools within 24 hours. For urgent questions, and for questions that are not answered within 24 hours, please prefer e-mail correspondence.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

One day late assignment is accepted with a 15% grade deduction; after this, no assignment will be accepted.
Assignments and labs will be given to support the instructional material (homework assignment). Students will have an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice. Students will have an ability to communicate effectively.

There will be three exams. Students will apply statistics to solve applied engineering problems. Exams will be used to assess a student's knowledge and skills related to applied statistics concepts.

The student project is devised to make students utilize their knowledge to solve real world problems. The types of projects will be left up to the student teams. The final report should be comprehensive, should describe methods used, and should show and

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illustrate the improvements and the final solution. A detail written procedure will be provided at the time of team member formation.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook. http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: https://www.britannica.com/topic/netiquette

ETAMU Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01. http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at East Texas A&M University are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03
Undergraduate Student Academic Dishonesty Form

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf

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Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
East Texas A&M University
Velma K. Waters Library Rm 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

East Texas A&M University will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in East Texas A&M University buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and East Texas A&M Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

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For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

Department or Accrediting Agency Required Content

COURSE OUTLINE / CALENDAR

Week	Date	Topics	Assignment
1	8/25	Introduction to Manufacturing Support Systems and Computer Integrated Manufacturing	Chs. 1
	8/27	Reading & Quiz 1	Q1
2	9/1	Labor Day	
	9/3	Manufacturing Operations	Ch.2
3	9/8	Manufacturing Metrics and Economics	CH.3
	9/10	Quiz 2	Q1
4	9/15	Manufacturing Metrics and Economics	CH.3
	9/17	Manufacturing Metrics and Economics	CH.3
5	9/22	Exam review	
	9/24	Exam 1	
6	9/29	Single-Station Manufacturing Cells	Ch. 14
	10/1	Single-Station Manufacturing Cells & Video and Quiz	Ch. 14
7	10/6	Single-Model Assembly Lines	Ch. 15
	10/8	Flexible Manufacturing Cells and Systems	Ch. 19
8	10/13	Exam review	
	10/15	Exam-2	
9	10/20	Automation and Control Technologies	Chs. 4, 5, 6
	10/22	Automation and Control Technologies &Video and Quiz	Chs. 4, 5, 6
10	10/27	Industrial Robotics	Ch. 8

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	10/29	Industrial Robotics &Video and Quiz	Ch. 8
11	11/3	Computer Numerical Control	Ch.7
	11/5	Computer Numerical Control &Video and Quiz	Ch.7
12	11/10	Exam Review	
	11/12	Exam 3	
13	11/17	Term Project	
	11/19	Term Project	
14	11/24	Term Project	
	11/26	Thanksgiving break (University closed)	
15	12/1	Presentation	
	12/3	Presentation	
16	12/8	**Final Exam(0ptional)**	

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