FLORIDA POLYTECHNIC UNIVERSITY

EGN 1213 - Engineering Computing: MATLAB Applications for Engineers

Spring 2026

Course Information

- **Course Number and Title**: EGN 1213 - Engineering Computing: MATLAB Applications for Engineers
- **Credit Hours:** 3 Credit Hours
- **Academic Term:** Spring 2026

Instructor Information

- **Instructor:** Dr. Kais Jribi
- **Office Location:** BARC 1171
- **Office Hours**: TR 9:30 am – 10:30 am, W 2:00 pm – 3:00 pm
- **Email address**: Kjribi@floridapoly.edu

Course Delivery and Course Description

- **Delivery Mode**: In-Person
  - **Section 01:** TR 8:00 AM – 9:15 AM | Room: IST-1030
  - **Section 02:** TR 11:00 AM – 12:15 PM | Room: IST-1026
- **Official Catalog Course Description**: This course introduces students to engineering computing using MATLAB, tailored for mechanical, civil, industrial, environmental, and other non-electrical engineering disciplines. Students will learn programming fundamentals, data analysis, and visualization while applying these skills to solve practical engineering problems. The course emphasizes real-world applications and equips students with computational tools essential for success in their fields.
  - **Course Pre-Requisites**: None
  - **Communication/Computation Skills Requirement (6A-10.030)**: No
- **Required Software/Platform:**
  - MATLAB Academy: Access provided via the University's MathWorks Campus-Wide License.
  - MATLAB & Simulink (Latest Release) installed on a personal computer.

Course Objectives and Outcomes

- **Course Objectives**: This course combines hands-on programming exercises, real-world applications, and interdisciplinary problem-solving to engage students. MATLAB is a versatile and industry-relevant tool, and mastering it early prepares students for advanced coursework and professional roles. By focusing on practical challenges, the course builds confidence and computational proficiency.

Course Learning Outcomes:

By the end of this course, student will be able to…

CLO 1. Create and manipulate vectors and matrices to perform engineering calculations.

CLO 2. Visualize data effectively using 2D plots, annotations, and basic 3D graphs.

CLO 3. Write algorithms using logical operators (if/else) and loops (for/while) to automate repetitive tasks.

CLO 4. Develop modular code using user-defined functions to simplify complex problems.

CLO 5. Import data from Excel or text files for analysis.

CLO 6. Build a simple interactive graphical user interface (GUI) using App Designer.

Alignment with Program Outcomes:

Course Learning Outcome	Program Learning Outcome (ABET 1-7)
Create and manipulate vectors and matrices to perform engineering calculations.	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and math. (ABET 1)
Visualize data effectively using 2D plots, annotations, and basic 3D graphs.	An ability to communicate effectively with a range of audiences. (ABET 3)
Write algorithms using logical operators (if/else) and loops (for/while) to automate repetitive tasks.	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and math. (ABET 1)
Develop modular code using user-defined functions to simplify complex problems.	An ability to acquire and apply new knowledge as needed (ABET 7)
Import, clean, and analyze data from Excel or text files.	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. (ABET 6)
Build a simple interactive graphical user interface (GUI) using App Designer.	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. (ABET 2)

COURSE POLICIES

Attendance

Students are expected “to attend all of their scheduled University classes and to satisfy all academic objectives as defined by the instructor” (University Policy, FPU-5.0010AP). It is the student's responsibility to give the instructor notice prior to any anticipated absence and within a reasonable period after an unanticipated absence, ordinarily by the next scheduled class meeting.

Email Policy

Emails must be sent from your Florida Poly email account. Please start the subject line with [MATLAB] for a quicker response time and allow up to 36 hours for a reply on weekdays.

Assignment/Evaluation Methods

You are required to complete the assigned MATLAB Academy modules before attending class. Class time will not be used to lecture on syntax, failure to do so will result in a 50% penalty for the In-Class Projects grade.

MATLAB Academy (25%): Completion of "Onramps" and specific modules. This acts as your "homework" and ensures you are ready for the in-class projects.

In-Class Projects (25%): Weekly assignments completed during class time where you apply the concepts to "real" problems.

Exams (40%): Two exams (20% each) covering the core concepts of programming logic, syntax, and data manipulation.

Final Mini Project (10%): A creative project where students build a MATLAB App or solve a comprehensive engineering challenge.

Grading Scale

Grading Scale (%)	
93-100	A
90-92	A-
86-89	B+
83-85	B
80-82	B-
76-79	C+
70-75	C
60	D
0-59	F

Grade Breakdown	
MATLAB Academy	25%
In-Class Projects	25%
Exam 1	20%
Exam 2	20%
Final Mini Project	10%
Total	100 %

Note: Grades for each assignment will be posted to Canvas, and students should make sure they are recorded correctly.

Late Work/Make-up work

Late work will not be accepted. Make-up opportunities will only be granted for exams in exceptional, documented circumstances and at the discretion of the professor.

University Policies

Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The Office of Disability Services (ODS), facilitates reasonable accommodations for students with disabilities and documented eligibility. It is the student's responsibility to self-identify as a student with disabilities and register with ODS to request accommodations. If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course through the ODS student portal, and communicate with your instructor about your approved accommodations as soon as possible. Arrangements for testing accommodations must be made in advance. Accommodations are not retroactive. If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible: DisabilityServices@floridapoly.edu; (863) 874-8770; www.floridapoly.edy/disability.

Accommodations for Religious Observances, Practices and Beliefs

The University will reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. (See University Policy.)

Title IX

Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. Resources are available if you or someone you know needs assistance. Any faculty or staff member you speak to is required to report the incident to the Title IX Coordinator. Please know, however, that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University Ombuds Office, BayCare's Student Assistance Program, 1-800-878-5470 and locally within the community at Peace River Center, 863-413-2707 (24-hour hotline) or 863-413-2708 to schedule an appointment. The Title IX Coordinator is available for any questions to discuss resources and options available.

Academic Integrity

Violations of academic integrity regulation include actions such as cheating, plagiarism, use of unauthorized resources (including but not limited to use of Artificial Intelligence tools), illegal use of intellectual property, and inappropriately aiding other students. Such actions undermine the central mission of the university and negatively impact the value of your Florida Poly degree. Suspected violations will be fully investigated, possibly resulting in sanctions up to and including expulsion from the university.

Recording Lectures

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. Recordings may not be used as a substitute for class participation or class attendance. Recordings may not be published or shared in any way, either intentionally or accidentally, without the written consent of the faculty member. Failure to adhere to these requirements is a violation of state law (subject to civil penalty) and the student code of conduct (subject to disciplinary action). *Recording class activities including, but not limited to, lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), and invited guest speakers is* ***prohibited****.*

Academic Support Resources

- **Library**: Students can access the Florida Polytechnic University Library through the University website and Canvas, on and off campus. Students may direct questions to library@floridapoly.edu.
- **Tutoring and Learning Center**: The Tutoring and Learning Center (The TLC) provides tutoring to all Florida Poly students who may need additional academic support. The TLC is staffed by students who have excelled in the courses they tutor. They offer support by reviewing concepts and materials from class, clarifying points of confusion and providing assistance with learning strategies. While the focus of TLC is to provide support to students in freshman-level courses, upper-level courses are also tutored at the Center. The TLC is located in the IST Commons (second floor).
    - **Knack Tutoring**: Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Florida Polytechnic University has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit floridapoly.joinknack.com and sign in with your student account.
- **Academic Success Coaches**: All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
- **Writing Center**: Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more detail, visit floridapoly.edu/writing center.

Tentative Course Schedule

Week	Day	Topic	Preparation
1	Jan 13 / 15	Intro to MATLAB	MATLAB Onramp (Sec 1-8)
2	Jan 20 / 22	Scripts & Math	MATLAB Onramp (Finish)
3	Jan 27 / 29	Vectors & Matrices	Make & Manipulate Matrices
4	Feb 3 / 5	Array Math	Calculations with Vectors
5	Feb 10 / 12	Visualization	Explore Data with MATLAB Plots
6	Feb 17 / 19	Intro to Logic	Programming Constructs (Intro/Interaction)
7	Feb 24 / 26	Logic (Decisions) Exam 1	Programming Constructs (If-Else)
8	Mar 3 / 5	Loops (Repetition)	Programming Constructs (Loops)
9	Mar 10 / 12	Functions I	Writing Functions
Break	Mar 16 - 20	SPRING BREAK	No Classes
10	Mar 24 / 26	Functions II	User-Friendly Functions
11	Mar 31 / Apr 2	Importing Data Exam 2	Import Data OR Tables
12	Apr 7 / 9	Data Analysis	Common Analysis Techniques
13	Apr 14 / 16	App Building	App Building Onramp
14	Apr 21 / 23	Work on Final Mini Project	Work on Final Mini Project
15	Apr 28	Project Presentations	