

Course Title: Computer Application to Engineering Technology I
Course CPET 1013 **Course No.:** 1013
Prefix:

Section No.: P01

Department of Engineering Technology

College of Roy G. Perry College of Engineering

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Hours:

Virtual Office

Hours:

Course Sam R. Collins Engr. Tech. Bldg.

Location:

Class Meeting Days & Times:

Catalog CPET 1013 – Computer Application to Engineering Technology I. (3-0) Credit 3 semester hours.
Description: Development of logical step by step approach to analyze and solve computing problems in Engineering Technology. Introduction of programming languages. Familiarization and use of software tools such as MATLAB in the area of electronics, signals, and telecommunications through assignments and team projects.

Prerequisites None

Co-requisites: None

Recommended Text/Readings: MATLAB: An Introduction with Applications, 4th Edition, By Amos Gilat, 2011, Wiley publisher, ISBN 978-0-470-76785-6

Access to Learning Resources: PVAMU Library:
phone: (936) 261-1500;
web: <http://www.pvamu.edu/library>
University Bookstore:
phone: (936) 261-1990;
web: <https://www.bkstr.com/Home/10001-10734-1?demoKey=d>
Office of Distance Learning: dlearning@pvamu.edu
Web Sites: Listed per Assignment

Course Goals or Overview:

The goal of this course is

- To enable students to understand modern techniques and skills in programming MATLAB tools.
- To enable students to have the ability to identify, analyze and solve technical problems in Engineering Technology.
- To foster students' critical thinking and communications skills to be able to solve technical problems and to produce reports using graphical forms methods in MATLAB.
- To familiarize students with symbolic Methods.
- To enable students to work in a team project and presentation.

Course Outcomes/Objectives

Course Outcomes:

At the end of the course, each student will be able to

Rubric a) Critical Thinking --- use the modern techniques and skills in programming MATLAB tools for computing and solving technical problems. This rubric will be measured through student's homework assignments and examinations in two aspects, "problem-solving" and "commands to analyze" in the scale of 0-to-4 (refer to the attached Rubric Measurement Table).

Rubric b) Communication --- use MATLAB tools to interpret and present technical information effectively and clearly. This rubric will be measured through student's homework assignments, classroom presentations, and examinations in two aspects; "Control of language" and "Format / Delivery final results in report by including graphical forms of the data" in the scale of 0-to-4 (refer to the attached Rubric Measurement Table).

Rubric c) Empirical and quantitative skills --- understand the computational programs with MATLAB applied to engineering technology fields. This rubric will be measured through homework assignments, classroom discussion, and examinations in three aspects, "Computational Methods," "Data analysis," "graphical analysis," in the scale of 0-to-4 (refer to the attached Rubric Measurement Table).

Rubric d) Team work --- collaborate effectively with team members to complete assigned tasks. This rubric will be measured through students' project assignments, classroom presentations and discussion in two aspects, "Individual contributions" and "Constructive climate and conflict resolution" in the scale of 0-to-4 (refer to the attached Rubric Measurement Table).

Weekly Schedule

Week One: Topic	Introduction to Programming
Chapter (s):	
Assignment (s):	
Week Two: Topic	Understanding MATLAB Capability
Chapter (s):	
Assignment (s):	
Week Three: Topic	Starting with MATLAB
Chapter (s):	
Assignment (s):	
Week Four: Topic	Creating Arrays
Chapter (s):	
Assignment (s):	
Week Five: Topic	Exam 1
Chapter (s):	
Assignment (s):	
Week Six: Topic	Mathematical Operations with Arrays
Chapter (s):	
Assignment (s):	
Week Seven: Topic	Using Script Files and Managing Data
Chapter (s):	
Assignment (s):	
Week Eight: Topic	Review
Chapter (s):	
Assignment (s):	
	Mid-Term Exam
Week Nine: Topic	Two-Dimensional Plots
Chapter (s):	
Assignment (s):	
Week Ten: Topic	Programming in MATLAB
Chapter (s):	

Assignment (s):

Week Eleven: Topic

Three-Dimensional Plots

Chapter (s):

Assignment (s):

Week Twelve:

User-Defined Functions And Function Files

Topic

Chapter (s):

Assignment (s):

Week Thirteen:

Polynomials, Curve Fitting, And Interpolation

Topic

Chapter (s):

Assignment (s):

Week Fourteen:

Applications In Numerical Analysis

Topic

Chapter (s):

Assignment (s):

Week Fifteen Topic

Problem Solving Tools

Chapter (s):

Assignment (s):

Week Sixteen

Final Exam

Course Core Objectives:

- Critical thinking: creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- Communication: effective development, interpretation and expression of ideas through written, oral and visual communication.
- Empirical and quantitative skills: manipulate numerical data, knowledge of solving technical problems, and learn to do accurate data analysis.
- Teamwork: ability to connect choices, actions, and consequences to ethical decision-making.

Outcome Evaluation Method: each individual assignment will be weighted and aligned accordingly to the four core objectives/outcomes and evaluated at grading. For instance, a question may carry 25% weight of outcome one, 50% of outcome two, 10% of outcome three, and 15% of outcome four, and a student scores 80 points of this question, then quantitatively this student receives 20 points for outcome one, 40 points for outcome two, 8 points for outcome three, and 12 points for outcome four. The final outcome for a student will be calculated comprehensively based on this student's entire semester performance.

Grading Matrix

INSTRUMENTS	COUNT	%
Research Papers		10%
Assignments	10 assignments (# optional)	20%
Quizzes		10%
Exams	2 exams	20%
Team Project: report, implementation, presentation, and collaboration	1 reports; 1 pp handout;	10%
Final Examination		30%
TOTAL		100%

GRADING SYSTEM

Grade	Meaning	Score Range	Grade Values
A	Excellent	90 – 100	4
B	Good	80 – 89	3
C	Satisfactory	70 – 79	2
D	Passing	60 – 69	1
F	Failing	0 – 59	0
S	Satisfactory	70 – 100	0
U	Unsatisfactory	0 – 69	0
I	Incomplete		0
W	Withdrawal from a course		0
WV	Withdrawal from the University Voluntarily		0
MW	Military Withdrawal		0

The grading System is located in the University's undergraduate catalog, 2005-2007, p. 104.

TEACHING METHODS:

1. Lectures: This course uses the lecture format. PowerPoint slides, web sites, and handouts will be used to present the material from the textbook and the current events related to the *Lecture Topic*. Also, website (s) will be listed to cover current events related to the *Lecture Topic*. It is essential that all reading assignments are completed.

2. Assignments/Project:

Assignments, aligned with the core objectives in critical thinking and Empirical and quantitative skills, will be given to reinforce the materials presented in the lecture. Students are expected to work on a team project. Each team will be required to submit three reports (design report, implementation report, and final report) and PowerPoint presentation handout. Each team will need to do the final project presentation and demonstration in front of the class at the end of the semester. The project will be graded accordingly based on the quality of reports, implementation, presentation, and how the team members collaborate with each other .

Evaluation Method: see related part on page 1. The outcome weights for the project may be: 20% CT, 30% Communication, 10% SR, and 40% TW.

3. Test/Quizzes: The material that does not appear in the textbook will be presented in the PowerPoint Presentations. All test/Quizzes/Final Examination will be posted through e-course and submitted through e-course. The practice test will not be submitted for a grade. Students are encouraged to complete each practice test before taking the Quiz for that topic.

REMEMBER quizzes will come with a due date and a cut-off time submission.

4. Examination Policy: The *Final Examination* will be given according to the University Examination Schedule. (see University Final Examination Schedule attached)

The *Final Examination* will be administered through e-Course or in the computer lab.

5. Makeup Policy: Exams should be taken as scheduled. No makeup examinations will be allowed except under documented emergencies (See Student Handbook). Contact your instructor as soon as possible.

6. Hands on training: Provides real life applications that make it easier to understand what is being taught because the students learning can see it first-hand rather than just hear about it in a lecture.

SOFTWARE: MATLAB

WEBSITES: Listed per assignment

REQUIRED MATERIALS:

- 1) Access to e-Course (<http://ecourses.pvamu.edu>)
- 2) USB: 256MB or 512 MB (Recommended)
- 3) Binder (Hold all documents generated pertaining to this course.)
Organize all documents according to Chapters.
- 4) Cloud Storage: <http://explore.live.com/windows-live-skydrive> or dropbox

Professional Organizations and Journals

- *IEEE*
- *ACM*

University Rules and Procedures

Disability statement (See Student Handbook):

Students with disabilities, including learning disabilities, who wish to request accommodations in class should register with the Services for Students with Disabilities (SSD) early in the semester so that appropriate arrangements may be made. In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

Academic misconduct (See Student Handbook):

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of academic dishonesty:

- Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
- Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
- Fabrication: use of invented information or falsified research.
- Plagiarism: unacknowledged quotation and/or paraphrase of someone else's words, ideas, or data as one's own in work submitted for credit. Failure to identify information or essays from the Internet and submitting them as one's own work also constitutes plagiarism.

Nonacademic misconduct (See Student Handbook)

The university respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise.

Campus behavior that interferes with either (1) the instructor's ability to conduct the class, (2) the inability of other students to profit from the instructional program, or (3) campus behavior that interferes with the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Dean of Students under nonacademic procedures.

Sexual misconduct (See Student Handbook):

Sexual harassment of students and employers at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

Attendance Policy:

Prairie View A&M University requires regular class attendance. Excessive absences will result in lowered grades. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class.

Student Academic Appeals Process

Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the Undergraduate Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint.

TECHNICAL CONSIDERATIONS

Minimum Recommended Hardware and Software:

- Pentium with Windows XP or PowerMac with OS 10
- High speed modem (cable modem) or Broadband network access
- Internet provider with SLIP or PPP
- 16X CD-ROM; 500 MB RAM; Hard drive with 40MB available space
- 15" monitor, 800x600, color or 16 bit; Sound card w/speakers
- Microphone and recording software; Keyboard & mouse
- Netscape Communicator ver. 4.61 or Microsoft Internet Explorer ver. 6.0 or Firefox 3.0
- Google Chrome is NOT recommended for use with eCourses

Note: Be sure to enable Java & pop-ups

Participants should have a basic proficiency of the following computer skills:

- Sending and receiving email
- A working knowledge of the Internet
- Proficiency in Microsoft Word (or a program convertible to Word)
- Proficiency in the Acrobat PDF Reader
- Basic knowledge of Windows or Mac O.S.

Netiquette (online etiquette):

Students are expected to participate in all discussions and virtual classroom chats as directed. Students are to be respectful and courteous to others on discussions boards. Foul or abusive language will not be tolerated.

Technical Support:

Students should call the Prairie View A&M University Helpdesk at 936-261-2525 for technical issues with accessing your online course. The Helpdesk is available 24 hours a day/7 days a week. For other technical questions regarding eCourses, call the Office of Distance Learning at 936-261-3283

Communication Expectations and Standards:

Emails or discussion postings will receive a response from the instructor, usually in less than 48 hours. Urgent emails should be marked as such. Check regularly for responses.

Discussion Requirement:

Because this is an online course, there will be no required face-to-face meetings on campus. However, we will participate in conversations about the readings, lectures, materials, and other aspects of the course in a true seminar fashion. We will accomplish this by use of the discussion board. The exact use of discussion will be determined by the instructor.

It is strongly suggested that students type their discussion postings in a word processing application and save it to their PC or a removable drive before posting to the discussion board.

This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, it should be copied and pasted to the forum board.