ENGR 6 Course Outline as of Fall 2006

CATALOG INFORMATION

Dept and Nbr: ENGR 6   Title: MATLAB FOR ENGINEERS
Full Title: Programming in MATLAB for Engineers
Last Reviewed: 12/12/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	17.5	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00   Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable
Grading: Grade or P/NP
Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:
Formerly:

Catalog Description:
Engineering problem solving using the MATLAB computer programming environment.
Designed to meet computer programming requirements for engineering transfer students.
Students outline, write, test, and debug computer programs to solve engineering problems and
display results. Emphasis on proper documentation of computer code and reports.

Prerequisites/Corequisites:
Completion of MATH 1A or higher (V2) OR Concurrent Enrollment in MATH 1A

Recommended Preparation:
One year of high school physics or PHYS 1 completed or in progress.

Limits on Enrollment:

Schedule of Classes Information:
Description: Engineering problem solving using the MATLAB computer programming
environment. (Grade or P/NP)
Prerequisites/Corequisites: Completion of MATH 1A or higher (V2) OR Concurrent Enrollment
in MATH 1A
Recommended: One year of high school physics or PHYS 1 completed or in progress.

Limits on Enrollment:
Transfer Credit: CSU;UC.
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

			Effective:	Inactive:
AS Degree:	**Area**		Effective:	Inactive:
CSU GE:	**Transfer Area**		Effective:	Inactive:
IGETC:	**Transfer Area**		Effective:	Inactive:
CSU Transfer:	Transferable	Effective:	Fall 2000	Inactive:
UC Transfer:	Transferable	Effective:	Fall 2000	Inactive:

CID:

Certificate/Major Applicable:
Major Applicable Course

COURSE CONTENT

Outcomes and Objectives:
Upon completion of this course, students will be able to:
1. Utilize a methodical approach to attack computational problems.
2. Design algorithms and flowcharts to facilitate programming and problem solution.
3. Create computer programs to analyze data and generate tables, charts, and graphs.
4. Solve engineering related computational problems by applying computer tools, specifically MATLAB.
5. Document reports and assignments in a careful and complete manner so as to effectively communicate the results of the analysis.
6. Document computer programs in a careful and complete manner so as to facilitate analysis and debugging by another programmer.
7. Iterate refinements of a solution algorithm to solve partially defined problem statements.

Topics and Scope:

1. Engineering Problem Solving Methodology
   a. Problem definition and specifications
   b. Input and output information and variables
   c. Working a special case by hand
   d. Design and implementation of computer algorithm
   e. Test of algorithm
2. Technical Computing Environment
   a. MATLAB interactive workplace
   b. MATLAB documentation, help, and resources
   c. Common mathematical functions
   d. Designing, editing, and executing scripts

14. Object oriented programming
   a. MATLAB's graphical user interface objects
   b. Object generation and parameter modification

Assignment:

1. Textbook reading to supplement and reinforce lecture material.
2. In-class exercises and homework assignments outside of the MATLAB computing environment, such as: short answer exercises, flowcharts, work schedules, and program outlines.
3. In-class exercises and homework assignments using the MATLAB computing environment, such as: tables, charts, graphs, and programs.
4. Group project to generate a complex computer program.
5. Objective examinations including quizzes, mid-terms and a final of problems corresponding to the exercise and assignment examples shown in #2 and #3 above.

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments are more appropriate for this course.

Writing 0 - 0%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework problems, Group Project

Problem solving 40 - 70%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None

Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Multiple choice, Completion, Short answer and programming

Exams 30 - 60%

Other: Includes any assessment tools that do not logically fit into the above categories.

None

Other Category 0 - 0%

Representative Textbooks and Materials:

W. Palm, Introduction to Matlab 7 for Engineers, 1st Ed.McGraw-Hill, 2005