

**IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE**

COURSE OUTLINE

DIVISION: Science, Mathematics, and Engineering

DATE: 11/22/04

COURSE TITLE: Mathematics Software - MATLAB

COURSE NO.: MATH 241

UNITS: 1

LEC HRS: 1 **LAB HRS:** 0 **HRS. TBA:** 0

If cross-referenced, please complete the following:

COURSE NO.(s): _____ **COURSE TITLE:** _____

I. COURSE/CATALOG DESCRIPTION: An introduction to MATLAB. MATLAB will be used to perform tasks in Algebra, Calculus, and Linear Algebra. There will be an emphasis on writing programs using MATLAB to perform these tasks

II. A. PREREQUISITES, IF ANY: MATH 192

B. CO-REQUISITES, IF ANY:

C. RECOMMENDED PREPARATION, IF ANY:

Any one of the following:

CIS 12, CIS 13, CIS 15, OR CIS 16

III. GRADING CRITERIA:

X Course must be taken on a "letter-grade" basis only.

_____ Course may be taken on a "credit" basis or for a letter grade.

_____ Course must be taken on a "credit" basis only.

IV. MEASURABLE COURSE OBJECTIVES AND MINIMUM STANDARDS FOR GRADE OF "C":

A. To be familiar with the basic commands and syntax of MATLAB.

B. To use MATLAB to accomplish the following tasks:

1. Find the zero of a function using various algorithms.

2. Find the solution to a system of equations using an algorithm.

3. To use known data to create an interpolating function.

4. To manipulate polynomials using the four operations.

5. To perform recursive operations such as the factorial function.

6. To plot and analyze common two and three-dimensional graphs.

C. To write simple programs to perform common mathematical algorithms using the following programming techniques:

1. Creating and Calling Functions

2. File Management

3. If- then statements

4. For-next loops

5. While-do loops

6. Recursion

V. CORE CONTENT TO BE COVERED IN ALL SECTIONS:

	<u>CORE CONTENT</u>	<u>APPROX % OF COURSE</u>
1.	Commands and Syntax	20%
2.	Use pre-existing MATLAB programs	50%
3.	Write programs using MATLAB.	30%

VI. METHOD OF EVALUATION TO DETERMINE IF OBJECTIVES HAVE BEEN MET BY STUDENTS: (Check all that apply.)

Essay	<u> X </u>	Class Activity	<u> X </u>	Written Assignments	<u> X </u>
Problem Solving Exercise	<u> X </u>	Final Exam	<u> X </u>	Oral Assignments	<u> X </u>
Skill Demonstration	<u> X </u>	Objective	<u> X </u>	Quizzes	<u> X </u>
Other	_____.				

INSTRUCTIONAL METHODOLOGY: (Check all that apply.)

Lecture	<u> X </u>	Discussion	<u> X </u>	Demonstration	<u> X </u>
Audio Visual	<u> X </u>	Group Activity	<u> X </u>	Lab Activity	<u> X </u>
Computer Assisted Instruction	<u> X </u>	Individual Assistance	<u> X </u>	Simulation/ Case Study	<u> X </u>

Two (2) hours of independent work done out of class per each hour of lecture or class work, or 3 hours lab, practicum, or the equivalent per unit.

VII. TEXTBOOK(S) AND SUPPLEMENT(S):

1. *Getting Started With Matlab*, Rudra Pratrap, Oxford University Press, 2002
2. *A guide to MATLAB for beginners and experienced user*, Brian R. Hunt, Ronald L. Lipsman, and Jonathan M. Rosenburg, Cambridge University Press, 2001.
3. *The MATLAB project book for Linear Algebra*, Rick L. Smith, Prentice Hall, 1997.
4. *Mastering Matlab 6*, Bruce Littlefield, Prentice Hall, 2000
5. *MATLAB: An Introduction with Applications*, Amos Gilat, Wiley, 2003