

ESG111 PROGRAMMING FOR ENGINEERS (REQUIRED)

Credit: 3

COURSE CATALOG DESCRIPTION:

The course is designed to assist undergraduates in learning the basics of programming in general and programming MATLAB® in particular. Only the very basics of programming in MATLAB will be covered, with the goal of having students become comfortable enough to continue learning MATLAB and other programming languages on their own.

PRE- OR COREQUISITE(S): AMS 151C Applied Calculus I or MAT 125C Calculus A or MAT131C Calculus I or MAT141C Honors Calculus I; PHY125E Classical Physics A or PHY131 Classical Physics I and PHY133 Classical Physics Laboratory I or PHY141E Classical Physics I: Honors

TEXT(S) OR OTHER REQUIRED MATERIAL:

COURSE LEARNING OUTCOMES	SOS	ASSESSMENT TOOLS
Problem solving using computers	a e k	Homework problems, Exams
Design of computational algorithms	a e	Homework problems, Exams
Ability to translate mathematical and scientific knowledge into a computer algorithm	a e k	Homeowork problems. Exams

COURSE TOPICS:

Week 1. Introduction to Programming
Week 2. Programing concept
Week 3. Introduction to MATLAB Programming
Week 4. Selection Statement ~IF, IF-ELSE
Week 5. LOOP statement
Week 6. User-Defined Functions
Week 7. Midterm

Week 8. String Manipulation
Week 9. Cell Arrays and Structures
Week 10. Advanced File Input and Output
Week 11. Advanced Functions
Week 12. Advanced Plotting Techniques
Week 13. Basic Statistics, Sets, Sorting and Indexing
Week 14. Advanced Mathematics

CLASS/ LABORATORY SCHEDULE:

ESG Spring	111	PROG ENGINEERS	FOR	LEC	1	TUTH	8:20 AM	9:40 AM
ESG Spring	111	PROG ENGINEERS	FOR	LEC	1	MF	2:20 PM	3:40 Pm

CURRICULUM

This course contributes 3 credit hours toward meeting the required 48 hours of engineering topics.

STUDENT OUTCOMES (SCALE 1-3):

A	B	C	D	E	F	G	H	I	J	K
2				3						1

3 – Strongly supported

2 – Supported

1-Minimally supported

LEAD COORDINATOR(S) WHO PREPARED THIS DESCRIPTION AND DATE OF PREPARATION:

Dilip Gersappe, May 19, 2010