

El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA	<u>Engineering</u>
COURSE RUBRIC AND NUMBER	<u>ENGR 2304</u>
COURSE TITLE	<u>Programming for Engineers</u>
COURSE CREDIT HOURS	<u>3 3 : 0</u> Credits Lec Lab

I. Catalog Description

Studies the programming principles and techniques for matrix and array operations, equation solving, and numeric simulations applied to engineering problems and visualization of engineering information; platforms include spreadsheets, symbolic algebra packages, engineering analysis software, and laboratory control software. **Prerequisite: ENGR 1470 with a grade of “C” or better. (3:0).**

II. Course Objectives

Upon satisfactory completion of this course, the student will be able to:

- A. Identify the working components of a computer and how they relate to programming.
- B. Utilize programming concepts and constructs such as numbers, strings, assignments, sequential-versus selective execution, nesting, loops, functions, arrays, reference parameters, and file streams.
- C. Design, implement, and execute programs written in the C/C++ language; define and use functions; and design multiple-module programs.
- D. Use a variety of programming tools such as debuggers and make files for software developments
- E. Access text files directly in C language programs via I/O functions.

III. THECB Learning Outcomes (ACGM)

Upon successful completion of this course, students will:

1. Use matrix and array operations for equation solving.
2. Identify the strengths and weaknesses of the conventional programming languages.
3. Use spreadsheets and their built-in features to solve a variety of engineering problems, applying both quantitative and qualitative methodologies.
4. Describe methods for the design of programs that control equipment or analyze data.
5. Write computer programs to solve engineering problems and perform engineering simulations using common software tools.
6. Graphically present engineering data, results, and conclusions.

IV. Evaluation

A. Grading

It is recommended that four examinations be given, including the final examination. Quizzes and/or homework may also be assigned, and those grades may be included in the final average. The weight given to exams, quizzes, and homework is at the discretion of the instructor.

Grades will be assigned based on a student's average using the scale below:

A = 90 - 100%
B = 80 - 89%
C = 70 - 79%
D = 60 - 69%
F = Below 60%

B. I and W Grades

Incomplete (I) grades will be given at the instructor's discretion and only under special circumstances. The instructor is not obligated to issue a "W" (Withdrawal) grade. Students who wish to withdraw must submit the proper paperwork to the registrar prior to the "drop" deadline. A grade of "W" cannot be issued at the end of the semester.

V. Disability Statement (Americans with Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.