

Computer Science and Engineering CSE 1213, 1233, 1273
Computer Programming with Fortran, C, Java

REQUIRED/ELECTIVE:

Designate whether the course is required in the curriculum or elective. This appears to be a new requirement that did not appear in our syllabi for the last visit.

CATALOG DATA:

(Prerequisite: MA 1313 or equivalent). Three hours lecture. Problem-solving methods, algorithm development, debugging and documentation in the (Fortran/C/Java) programming language; applications. (Not recommended to students with credit in CS 1213 or CS 1273 or equivalent.)

PREREQUISITE BY TOPIC:

1. Simple problem solving skills
2. Basic algebraic equation solutions.

TEXTBOOKS AND OTHER REQUIRED MATERIAL:

Chapman, S., *Fortran 90/95 for Scientists and Engineers*, 2nd Ed., McGraw Hill, 2004. (CS1213)
Hanley and Koffman, *Problem Solving & Program Design in C*, Addison-Wesley, 2004. (CS 1233)
Gaddis, T., *Starting Out with Java Alternate*, Scott Jones, 2004. (CS 1273)

COORDINATOR:

Dr. David A. Dampier

COURSE OBJECTIVES:

1. To introduce principles and practice of software development using the structured programming approach.
2. To introduce develop the problem solving skills necessary to develop software solutions to problems.
3. To develop knowledge of the data and control structures available in the structured programming paradigm and their appropriate uses.

TOPICS COVERED:

1. Course introduction (2 hours)
2. Creating a program (2 hours)
3. Language conventions and rules (3 hours)
4. Data types and operators (4 hours)
5. Control flow, selection and iteration (6 hours)
6. Arrays (and pointers, when language-appropriate) (6 hours)
7. Functions and program structure (6 hours)
8. File I/O (3 hours)
9. The structure/record/object data type (3 hours)
10. Standard system functions (3 hours)
11. Debugging (2 hours)
12. Software development process (2 hours)
13. Exams (3 hours)

CONTRIBUTION TO PROFESSIONAL COMPONENT:

List Professional component appropriate for this course: Math & Basic Sciences, Engineering Topics or General Education. There is no need to break down hours of engineering science and/or design. If program specific criteria are addressed in the course, they should be listed here as well.

ASSESSMENTS:

1. Quizzes
2. Exams
3. Programming assignments

RELATIONSHIP TO PROGRAM OUTCOMES:

The performance criteria in this class all address ABET outcomes c and e, CPE outcome 2, and SE outcomes 3 and 5.

1. Demonstrate the ability to use flow control language constructs appropriately to solve a state problem.
2. Demonstrate the ability to use single- and multi-dimensional arrays where appropriate to represent repetitive data.
3. Demonstrate the ability to decompose problems into modules for solution.
4. Demonstrate the ability to pass information between modules in a program appropriately.
5. Demonstrate the ability to use standard built-in functions to perform simple tasks.

PREPARED BY:

Dr. David A. Dampier, Department of Computer Science and Engineering, January 1, 2005