

**University of Texas at San Antonio**  
**Department of Computer Science**  
**Syllabus for**  
**CS 2073-002 - Computer Programming with Engineering Applications**  
**Fall 2009**  
**Part A – Course Outline**

**Catalog Description:**

CS 2073 Computer Programming with Engineering Applications (3-0) 3 hours credit.  
Algorithmic approaches to problem solving and computer program design for engineers. Engineering and mathematically-oriented problem sets will be emphasized, including nonnumeric applications. Searching, sorting, linked lists, and data typing will be introduced. May not be applied toward a major in computer science.

**Prerequisite:**

Prerequisites: MAT 1214 and completion of or concurrent enrollment in MAT 1223.

**Textbook:**

Engineering Problem Solving with C, 3rd Edition, Delores Etter, Prentice Hall, 2004

**References:**

C How to Program, Fifth Edition, P. J. Deitel and H. M. Deitel, Prentice Hall, 2007.

**Major Prerequisites by Topics:**

1. The ability to create and manage plain text files.
2. Knowledge of basic math as covered in MAT 1214.

**Course Outcomes:**

1. Understand and use five-step problem solving technique [Correlates to Program Outcomes A & E].
2. Demonstrate competency in the fundamental principles, concepts and methods of programming in C language [Correlates to Program Outcomes B & E].
3. Develop structured C programs to solve simplified engineering problems [Correlates to Program Outcomes A, B & E].
4. Use modular decomposition to reduce the complexity of engineering problems [Correlates to Program Outcomes A & E].
5. Understand software development cycle, testing and validation of programs [Correlates to Program Outcome B].

**Topics:**

- |  |             |     |
|--|-------------|-----|
| 1. Engineering Problem Solving                   | (2 classes) | 1wk |
| 2. Simple C Programs                             | (4 classes) | 2wk |
| a. Constants, Variables, Assignments, Operators, |             |     |
| b. Basic I/O functions, and                      |             |     |
| c. Math functions                                |             |     |
| 3. Control Structures                            | (6 classes) | 3wk |
| a. Conditions, Selections, Loops                 |             |     |
| 4. Data Files                                    | (4 classes) | 2wk |
| 5. Modular Programming with Functions            | (4 classes) | 2wk |
| 6. Arrays and Matrices                           | (6 classes) | 3wk |
| a. One-dimensional Arrays, sorting, searching,   |             |     |
| b. Two-dimensional arrays, matrix multiplication |             |     |
| 7. Programming with Pointers                     | (2 classes) | 1wk |
| 8. Review and Midterm Test                       | (2 classes) | 1wk |

**Class Schedule:**

Two 75-minute lecture sessions/week

**Contribution of Course to Professional Components:**

Computer Programming with Engineering Applications (CS 2073) is a sophomore level electrical engineering supporting course that builds on topics covered primarily in freshmen level math, science and engineering courses.

**Relationship to Electrical Engineering Program Outcomes:**

This course primarily contributes to the Electrical Engineering Program Outcomes:

- A. An ability to apply knowledge of mathematics, science, and engineering.
- B. An ability to design and conduct experiments, as well as to analyze and interpret data
- E. An ability to identify, formulate, and solve engineering problems..

This course secondarily contributes to the Electrical Engineering Program Outcomes:

- G. An ability to communicate effectively.

Students have to submit well-documented programming assignments.

**Evaluation Methods:**

1. Two 75-minutes exam
2. Quizzes and attendance
3. Weekly programming assignments
4. Final exam

**Performance Criteria:** (Numbers in brackets refer to evaluation methods used to asses student performance)

1. Students understand and use five-step problem solving technique [1, 3, 4].
2. Students demonstrate competency in the fundamental principles, concepts and methods of programming in C language [1,2,4].
3. Students develop structured C programs to solve simplified engineering problems [2,3].
4. Students use modular decomposition to reduce the complexity of engineering problems [1,3,4].
5. Students understant software development cycles, testing and validation of programs [3].

**Course Content:**

Basic Science: Computer Science – 3 credits (100%)

**Relationship to Other Courses:**

This is a sophomore level electrical engineering supporting course.

**Instructor:**

Turgay Korkmaz, Associate Professor of CS

## Part B – General Course Information and Policies

### Fall 2009:

Instructor: Turgay Korkmaz  
Office: SB 4.01.13  
Office Hours: TR 2:00pm-3:30pm (or by appointment)  
Phone: (210) 458-7346  
Email: [korkmaz@cs.utsa.edu](mailto:korkmaz@cs.utsa.edu)  
Lecture hours: TR 3:30 pm - 4:45 pm  
Lecture room: SB 3.02.10A

### Grading Policy:

Midterm exams	20%
Quizzes and attendance	10%
Weekly Programming Assignmnets	40%
Final exam	30%

### Final Grade Assignment

90-100	A
80-89	B
70-79	C
60-69	D
below 60	F

### Class Rules:

1. Class attendance is mandatory, students are responsible for content of the course and class notes. Reading of material prior to the lecture is highly encouraged.
2. Under NO circumstances make-up exams will be given. Unless evidence of serious incidents is presented. (Flat tires, driving the neighbor to hospital, etc... will NOT be accepted).
3. Discussion of course material during office hours is highly encouraged. If the office door is widely open after office hours, appointment is unnecessary. However, if door is semi-closed please do not disturb.
4. Programming homework should be submitted using WebCT on the due date before the lecture. Under no circumstances will late homework be accepted.
5. Final grade will be based on student's performance and instructor's discretion, NOT on class average (i.e., no drastic curves).
6. Instructor is open for exam scores discussion; however, bargaining will not be tolerated.
7. Discussion of homework solutions among fellow students is highly encouraged. Experience has proven that carbon copies of homework will only guarantee failure in the course.
8. Eating, drinking, smoking, and sleeping are not allowed during lecture time.
9. Late comers will be welcomed only if no more than 15 minutes of class lecture have elapsed. The student should take the first seat available closest to the entrance.
10. It is the student's responsibility to take care of any personal needs before exam time. No one will be allowed to leave the room after exam begins.

**Academic Dishonesty:**

As an entity of The University of Texas at San Antonio, the Department of Electrical Engineering is committed to the development of its students and to the promotion of personal integrity and self-responsibility. The assumption that a student's work is a fair representation of the student's ability to perform forms the basis for departmental and institutional quality. All students within the Department are expected to observe appropriate standards of conduct. Acts of scholastic dishonesty such as cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designated to give unfair advantage to a student, or the attempt to commit such acts will not be tolerated. The Coordinator for Student Judicial Affairs or faculty may initiate disciplinary proceedings against any student accused of scholastic dishonesty. Consequences of academic dishonesty may be as severe as dismissal from the University. See the website for the Students Code of Conduct at <http://www.utsa.edu/infoguide/appendiceb.cfm> for more information.