Course Outline for ENGR 103: Introduction to Computers

Required
Civil and Mechanical Engineering

Bulletin Description
ENGR 103: Introduction to Computers (1 unit)
Prerequisite: ENGR 101, MATH 226

Textbooks

References
- Adam Drozdek. Data Structure in C++
- Richard Johnsonbaugh. Applications Programming in C++
- Roger Eggen. An Introduction to Computer Science C++

Coordinator
Amir M. Tabrizi, Lecturer and Computing Facility Manager

Prerequisites by Topic
- Basic experience in personal computer use
- Basic algebra and geometry

Course Objectives
1. To familiarize the student with computers (i.e. Microsoft Visual C++; University Unix Main Frame) and computer language. [A.1]
2. To introduce students to the grammar and basic rules of C++. [A.1]
3. To provide students with an opportunity to use computers to solve

¹ Numbers in brackets refer to the educational objectives and outcomes of the School of Engineering.
basic problems. [B.3]
4. To train students in the proper problem formulation and programming procedures in the solution of general programming problems. [A.1, B.3]

Topics
1. Getting familiar in the use of C++ compiler on PCs and main frame computers
2. Arithmetic operations
3. IF, FOR, WHILE, SWITCH structures
4. Formats
5. Array manipulation
6. I/O functions
7. Mathematical functions

Professional Component
Engineering Science ..................100%

Evaluation
1. Four homework assignments .......40%
2. Two mid-term exams ..............30%
3. Final exam .........................30%

Performance Criteria

Objective 1

1.1 The student will demonstrate an ability to use PC base computers and the university main frame. [1, 2]
1.2 The student will demonstrate an ability to use the C++ compiler with multiple operating systems by using PCs and the main frame. [1, 2]

Objective 2

2.1 The student will demonstrate knowledge of the basic grammar of C++ language. [1, 2, 3]

Objective 3

3.1 The student will demonstrate knowledge of "hands–on" practice in the engineering computer lab. [1, 2, 3]

Objective 4

4.1 The student will demonstrate knowledge of writing basic engineering problems. [1, 2, 3]

2 Numbers in brackets refer to evaluation methods used to assess students’ performance
Fall Semester, 2008
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Class/Laboratory Schedule
One 2-hour-45-minute lab session/week

Prepared by
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