

## EE 102 - Computers and Programming in Electrical Engineering - 2 Hours

### Required course

1. *2007-2008 Catalog description*  
Introduction to computers and operating systems; introduction to programming in a high level language appropriate to electrical engineering.
2. *Prerequisites by topic:* none
3. *Textbook (s) and/or other required material*  
Introduction to Programming with C++, Brief Edition, Y. Daniel Liang, Prentice Hall, 2006  
Set of complete programming examples developed to illustrate all features covered in the course – on Blackboard  
All course materials are posted on Blackboard allowing online student access.
4. *Class/Laboratory Schedule*  
Two sessions per week, each 50 minutes, for 14 weeks plus 2 hour final time slot
5. *Topics Covered (Outcomes influenced)*
  - Introduction to problem solving and software engineering (7a, 7c, 7e, 7f)
  - Data types, expressions and assignments, console program I/O (7a, 7b, 7c, 7e, 7f)
  - Conditional statements - if, else, nested, switch (7a, 7b, 7c, 7e, 7f)
  - Loops - while, do-while, for, forever for, break, continue (7a, 7b, 7c, 7e, 7f)
  - Functions - passing parameters, variable scope, overloading, intro to recursion (7a, 7c, 7d, 7b, 7e, 7f)
  - Files and streams - text mode only (7a, 7b, 7c, 7e, 7f)
  - Arrays: C-style arrays, some multidimensional arrays if time permits (7a, 7b, 7c, 7e, 7f)
  - Introduction to pointers (7a, 7e, 7f)
  - Char array based strings (7a, 7b, 7c, 7e, 7f)
6. *Contribution of course to meeting the curriculum components*  
Engineering science – 100%
7. *Course Outcomes (Program Outcome contributions):*  
*In learning the course topics, the student will attain the following outcomes*
  - a. The student will use an appropriate compiler: store work, compile, run and print programs (B, D)
  - b. The student will apply basic programming techniques with use of conditional and repetition statements (A, B, D)
  - c. The student will use basic problem solving techniques by creating and applying simple algorithms (A, B, D)
  - d. The student will apply concepts of structured programming by task partitioning (functions) (A, B, C)
  - e. The student will have basic understanding of software development process via numerous homework assignments (A, B, C, D, F, G)
  - f. The student will perform basic software troubleshooting (debugging) skills via numerous homework assignments (A, B, C, D, G)
8. *Grading policy and criteria:*  
The level to which students achieve the course objective is determined by the following grading policy: Homework - 20%, Exam 1 - 25%, Exam 2 - 25%, Final Exam - 30%. The final grades: A, B, C, D and F are determined by the total amount of points earned during the course using: 90%, 80%, 70% and 60% limits. Improvement in work and submission of all homework assignments will be used to determine the borderline cases. A grade of C corresponds to meeting the minimum competency required to understand course topics and attain course outcomes.

9. *Relationship of course to program outcomes*

Label	Program Outcomes (A Graduate from the program will:)	Contribution
A	have knowledge of the mathematical and scientific foundation of electrical engineering	Moderate
B	have knowledge of and the ability to apply techniques and technology of electrical engineering	Strong
C	complete a design project sequence, culminating in a capstone project at or near the professional level	Foundational
D	understand that acquisition of new knowledge is needed for success in the electrical engineering profession	Strong
E	meet Bradley's general education requirements which are based on the principles of liberal education	NA
F	have experience in communicating technical information and working on teams	Foundational
G	understand the importance of professional and ethical behavior	Moderate

10. *Prepared by:* Aleksander Malinowski *on* 3/19/2008