EEN 118 Introduction to Programming
3 credits
Required for EE and CE

Course Instructor or Coordinator: Stephen Murrell   **3rd June 2013**

Textbook: C++ programming: Program design including data structures, D. S. Malik, Course Technology inc., ISBN 1418836400, 2006
Other supplementary material:
 a.   Class web site, http://rabbit.eng.miami.edu/class/een118

2012-2013 University of Miami Academic Bulletin Description: Introduction to computing, problem solving, program design, C++ language fundamentals, and software engineering principles. Software design projects are included.
Prerequisites or co-requisites: None

Specific outcomes of instruction: The student will:
1.   Understand the fundamental concepts of computer systems.
2.   Know and understand the fundamentals of programming, algorithms, data, and software engineering.
3.   Be able to program in C++.
4.   Have hands-on experience in problem solving and software design.

Topics
1.   Graphical programming in a windowing environment
2.   Text-mode programming in a unix environment
3.   C++: Functions, constants, local declarations, recursive design
4.   C++: Strings, arrays, objects
5.   C++: Variables and loops
6.   C++: Input and output - graphical, iostreams, files
7.   Structured design: blocks, locality, pure functions
8.   Modular design: abstraction, independence
9.   Data visualization, interactive graphics
10. Simulation and modelling
11. Searching and sorting, managing data collections
12. Algorithms and specifications
13. Timing: function and algorithm speed estimation and analysis
14. Data representation, types, declarations, scope