EEN 318 Advanced Computer Programming
3 credits
Required for CE

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

Textbook: Algorithms in C++ parts 1-5, Robert Sedgewick, ISBN 020172684X or 978-0201726848, 2002.
Other supplementary material:
a. Class web site, http://rabbit.eng.miami.edu/class/een318

2012-2013 University of Miami Academic Bulletin Description: Continuation of the programming sequence. Object oriented programming with C++, emphasizing the skills required of a professional programmer. Essential data structures and algorithms: graphs, hash tables, parsing, and text processing. Advanced sorting and data management algorithms. Advanced features of C++.
Prerequisites or co-requisites: EEN 218

Specific outcomes of instruction: The student will be able to:
1. Design and implement complete working programs making suitable use of complex data structures and algorithms.
2. Determine which techniques are appropriate for use in given circumstances.
3. Make use of the advanced features of object oriented programming as provided by C++

Topics
1. Inheritance and code reuse; protected and private members
2. Virtual methods and polymorphism; static and dynamic typing
3. Fast (O(NlogN) or better) sorting algorithms
4. Hashing, hash tables, and other fast data retrieval methods
5. Advanced tree structures and related algorithms
6. Graph structures and basic graph algorithms
7. Analysis of data structures and algorithms
8. ANSI C standard input, output, and string functions.