ESE 344 SOFTWARE TECHNIQUES FOR ENGINEERS
Spring 2011, Stony Brook University, ECE, Prof. Murali Subbarao
Time: TuTh 11.20 am to 12.40 Pm, Credits 3
Prerequisites: ESE 218; CSE 230 or ESE 224.

Course description:
Trains students to use computer systems to solve engineering problems.
It covers: C++ programming language, UNIX programming environment,
basic data structures and algorithms, and object oriented programming.

Text books:
1. Datastructures and Program Design in C++,
   R. L. Kruse and A. J. Ryba, Prentice-Hall, Inc., 1999, ISBN 0-13-768995-0
2. C++ by Dissection, Ira Pohl, Addison-Wesley, 2002, 0-201-74396-5 (pbk)
   Visual C++ tutorial handout

Syllabus:

Part I: Datastructures and Algorithms
   1. Arrays
   2. Stacks and Queues
   3. Linked lists
   4. Trees
   5. Graphs
   6. Recursion
   7. Searching and sorting

Part II. The C++ Programming Language
   1. Introduction and overview
   2. Native types and statements
   3. Functions, Pointers, and Arrays
   4. Classes and Abstract Data Types
   5. Constructors, Destructors, and Operator overloading
   6. Templates and Generic Programming
   7. Standard Template Library
   9. Inheritance and Object Oriented Programming
  10. Input and output

Part III. UNIX Operating System
   1. Introduction
   2. File system
   3. Using Shell

This course will have about five programming projects. On average, a student may have
to spend about 9 hours per week on this course.