MEC510 – Object-Oriented Programming for Scientists and Engineers
Fall 2007

Course Description
http://me.eng.sunysb.edu/~mec510

Instructor

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Time and Place

Physic 122
6:50-9:40 PM Tuesday

Assignments and Project

Course Objective

Object Oriented Analysis, Design, and Programming is the most widely used paradigm for development of software systems in industry and is also the preferred way for implementing research work in academics. C++ is a high performance programming language that embodies the techniques of Object Oriented Programming (OOP) very well and therefore, we will use this language for demonstrating the many concepts of OOP, such as abstract data types (ADT), encapsulation, inheritance, composition, polymorphism, operator and function overloading besides studying UML (Unified Modeling Language) as a graphical representational design technique. As one of its key advantages, C++ has an extensive set of standard libraries readily available with any installation, thus providing support for Stream I/O, String and STL that will be covered in this class too. Besides these, the traditional topics coming from C - data types, control structures, functions, arrays, strings, data structures, pointers, dynamic memory allocation and preprocessor will be covered briefly for making way for our main course - i.e., C++ programming.

By the end of this course, you should feel comfortable writing C++ programs using object oriented methodology, thinking in terms of objects and classes and doing fair amount of abstraction for the implementation.

Required Text


Recommended Texts

We will be using a few other books and references too in addition to the required one.
Grading

Assignments 60%
Project (Coding and Presentation) 40%

Assignments and Homework

All submissions will be due at the beginning of the class. Deadlines for the programming assignments will be posted as they are assigned. You would submit assignments electronically at the university provided BlackBoard services. (If you don't have a BlackBoard account, please go to SINC site and request one.)

You would be using MS Visual Studio, Qt for user interface development, and OpenGL for 3D graphics programming for writing your programs. You can get a licensed copy of MS Visual Studio 2005 for no charge from MSDNAA, if you are a registered student. I have secured a grant from Trolltech for using Qt 4 for academic purposes, and OpenGL 3D graphics API is free.

ACADEMIC INTEGRITY SYLLABUS STATEMENT

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Any suspected instance of academic dishonesty will be reported to the Academic Judiciary.

For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at http://www.stonybrook.edu/uaa/academicjudiciary/

Special Note

If you have a physical, psychological, medical or learning disability that may impact on your ability to carry out assigned course work, I would urge that you contact the staff in the Disabled Student Services office (DSS), Room 133 Humanities, 632-6748/TDD. DSS will review your concerns and determine, with you, what accommodations are necessary and appropriate. All information and documentation of disability is confidential.