

THIS IS A REFERENCE SYLLABUS DESCRIBING AN NKU COURSE IN GENERAL. ENROLLED STUDENTS SHOULD CONSULT THE ACTUAL SYLLABUS OF THE COURSE IN WHICH THEY ARE REGISTERED.

## CSC 402 Advanced Programming Methods

### CATALOG DESCRIPTION:

**CSC 402 Advanced Programming Methods** (3,0,3) High-performance OO and generic programming in C++; concurrent and distributed programming; STL; multi-paradigm design patterns; extensive practice with sophisticated programming projects. PREREQ: C or better in CSC 362 and 364.

**LAST TAUGHT:** Spring 2009 (J. Ward)

**SCHEDULED LAB USAGE:** None

### STUDENT BACKGROUND EXPECTATIONS:

1. Familiarity with pointers, pointer arithmetic, and memory allocation (from CSC 362: Computer Systems).
2. Understanding of container types(stacks, queues, sets, maps, and priority queue) and algorithms for sorting and searching (from CSC 364: Data Structures and Algorithms).

### CORE TOPICS COVERED:

- Functions, array, strings, and parameter passing
- Pointers and reference variables
- Classes
- Operator overloading
- Inheritance
- Templates
- Abnormal control flow (exceptions)
- Input and output
- Standard template library
- Client-server programming
- Advanced event-driven GUI programming
- Introduction to design patterns

### MOST RECENT TEXTBOOK USED :

*C++ for Java Programmers*, Mark Allen Weiss, (Pearson Education, 2004).

Chapters Covered: 1- 10, and handouts for multithreaded programming, GUI programming with QT, and Introduction to design patterns.

### SOFTWARE REQUIRED:

Any standard C++ compiler.

QT C++ framework (free).

### STUDENT WORK

Programming projects include OO and generic programming in C++, multithreaded programming, and QT C++ programming. In-class tests and a final exam.

### LEARNER OUTCOMES

Students will be able to...

1. Write C++ programs that involve pointers, reference variables, classes, operator overloading, inheritance, exceptions, stream input and output, function and class templates, and Standard Template Library.
2. Create graphical user interfaces with QT.
3. Write multithreaded programs.
4. Understand basic design patterns.

### CROSS-LISTINGS

CSC 502