

COURSE SYLLABUS

IME 3460 – PROGRAMMING FOR CAD

Spring 2008

Catalog Description: Modular software development for interactive CAD. Topics include human interface for interactive design, programming structure for modular entity creation, storing and retrieving object data, utilizing peripheral input and output devices, attribute regulation and control, and software transfer and documentation specifications. Prerequisites: IME 246 and CS 111.

Prerequisites by Topic:

1. A basic understanding of C++ programming that includes functions, classes, and file I/O (CS 111).
2. A basic understanding of CAD systems and entity manipulation (IME 246).

Texts:

Suggested References -
The student's C++ reference from CS 111
Visual C++ Version 6.0 (for the student's home computer)

Course Coordinator:

Dr. M. J. Keil, Parkview Campus, Room F-221, Phone: 276-3365,
mitchel.keil@wmich.edu Office hours: Monday, Wednesday 12:30-1:30

Objectives:

(Letters in parentheses refer to TAC of ABET 2001 criteria)

Students should:

1. Learn to apply C++ programming techniques to solve problems related to graphics. (a,b,d,f)
2. Understand basic concepts in data retrieval. (a,b,d,f)
3. Understand the basics of converting between data formats including coordinate transformations. (a,b,d,f)
4. Develop an initial understanding of developing a graphical interface. (a,b,d,f)

Laboratory and Class Policy:

- Food and drink are not allowed in the classroom or lab.
- The computers are to be used for class or lab work only. Web surfing and e-mail are not allowed during class or lab.
- Students are expected to be awake during class.

Academic Honesty:

You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate (pp. 274-276) Catalog that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s). If you believe you are not responsible, you will have the opportunity for a hearing. You should consult with me if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test.

Topics (tentative and subject to change based on class needs):

Lecture and laboratory

- Introduction, workspaces and projects, file management. (1 week)
- File I/O (1 week)
- Extracting graphic entities from files (1 week)
- File format conversion (3 weeks)
- midterm February 27
- Window graphics (1 week)
- Controlling multiple graphic entities (1 week)
- Translating entities (1 week)
- Rotation around screen center (1 week)
- Dialog boxes (2 weeks)
- Rotate perpendicular to drag direction (1 week)
- Final, Thursday April 24, 10:15-12:15

Late Work Policy:

There will be no late homework, quizzes, or labs. They will be either on time or excused. Excused work will simply be omitted from the calculation of the grade. Unexcused work will be given a grade of zero.

Evaluation:

1.	Homework & Quizzes	10%
2.	Projects	40%
3.	Midterm exam	25%
4.	Final exam	25%

Performance Criteria: (Numbers in brackets are the evaluation methods listed in previous section)

The student should demonstrate proficiency in the following areas:

- File management (workspaces, projects, files). [1,2,3,4]
- File I/O for different data types. [1,2,3,4]
- Coordinate conversion techniques (translation, rotation, and coordinate system conversion. [1,2,3,4]
- Basic graphical user interface functions within the Windows environment. (buttons, menus, graphical rendering) [1,2,3,4]

Computer Usage:

Computers are the basis for all assignments in this class

Laboratory Projects:

All laboratory assignments will be based on the C++ programming language.

Oral and Written Communications:

There will be a report related to graphics. The report is expected to be in clear English with proper punctuation. Hand written reports will not be accepted.

Calculus Usage:

Calculus is not an emphasis in this course.