University of Michigan-Dearborn Syllabus Template

ECE 370 - Advanced Software Techniques in Computer Engineering (4 cr. hrs.)

Prof. Dongming Zhao
Office Location: 218 ELB
Phone Number: 313 593-5527
E-Mail: dmzhao@umich.edu
Office Hours: 3:45 – 4:45 pm
Dearborn Discovery Core Category or Categories:
Course Meeting Times and Format(s): Monday, Wednesday: 2:00 – 3:45 PM

Class Room: 2165 SSB

Course Description:

Advanced concepts and techniques of modular object oriented and structured programming; representative real-world computer engineering applications including data structures, search and sorting. A term project is required. Four lecture hours per week. (F,W,S).

Program Goals / Student Outcomes:

PROGRAM EDUCATIONAL OBJECTIVES

http://umdearborn.edu/cecs/ECE/data/programs/ee-objectives.pdf

PROGRAM EDUCATIONAL OUTCOMES

http://umdearborn.edu/cecs/ECE/data/programs/ee-outcomes.pdf

Dearborn Discovery Core Goals:

[Insert information or link here]

Course Objectives:

1. Knowledge of advanced programming techniques and software concepts.
2. Knowledge of object oriented programming and structured programming, and their applications.
3. Knowledge of data structure concepts, linear lists, linked lists and processing, trees, search, sorting, graphs and their applications.

Required Materials and/or Technology:

Text: Data Structures with C++ Using STL (2nd Ed.)

W. Ford and W. Topp, *Prentice Hall*

Optional text reading: C++ Primer, 5th Ed.

S. Lippman, J. Lajoie, *Addison Wesley*

Assignment and Grading Distribution:

Grading:	5 programming assignments	50%
	Test 1	15%
	Test 2	25%
	Quizzes	10%

Topic Outline:

1. Introduction
2. Structure and applications
3. Object-oriented programming: class and programming
4. Linear data structures ---
   sequential storage, stacks, queues
5. Linked data structure
   a. linked lists; operations on lists -- insertion, deletion, merge,
   b. split, etc; list heads, circular lists, doubly-linked lists
6. Trees
   a. binary trees
   b. Huffman trees
   c. AVL trees
   d. path, nodes, branches, deletion, insertion of nodes
   e. traversal of binary trees
   f. application of tree
7. Searching
8. Sorting
9. Graphs
10. Algorithm analysis

It is expected that everyone complete the programming assignments independently. The tests are based on the material covered in class, homework, and programming assignments.

Grading for programming assignments:

1. 30% for completed code and pass the compiler.

2. 70% for running my test data correctly.

Submission of your programs:

1. File Name: 370-A#-YourLastName-YourFirstName.cpp
2. Only cpp file is accepted.
3. Submission is on Canvas.

University Attendance Policy:

A student is expected to attend every class and laboratory for which he or she has registered. Each instructor may make known to the student his or her policy with respect to absences in the course. It is the student's responsibility to be aware of this policy. The instructor makes the final decision to excuse or not to excuse an absence. An instructor is entitled to give a failing grade (E) for excessive absences or an Unofficial Drop (UE) for a student who stops attending class at some point during the semester.

Academic Integrity Policy:

The University of Michigan-Dearborn values academic honesty and integrity. Each student has a responsibility to understand, accept, and comply with the University's standards of academic conduct as set forth by the Code of Academic Conduct (http://umdearborn.edu/697817/), as well as policies established by each college. Cheating, collusion, misconduct, fabrication, and plagiarism are considered serious offenses and violations can result in penalties up to and including expulsion from the University.

Disability Statement:

The University will make reasonable accommodations for persons with documented disabilities. Students need to register with Disability Resource Services (DRS) every semester they are enrolled. DRS is located in Counseling & Support Services, 2157 UC (http://www.umd.umich.edu/cs_disability/). To be assured of having services when they are needed, students should register no later than the end of the add/drop deadline of each term. If you have a disability that necessitates an accommodation or adjustment to the academic requirements stated in this syllabus, you must register with DRS as described above and notify your professor.

Safety:

All students are strongly encouraged to register in the campus Emergency Alert System, for communications during an emergency. The following link includes information on registering as well as safety and emergency procedures information:

http://umemergencyalert.umd.umich.edu/ Finally, all students are also encouraged to program 911 and UM-Dearborn's Public Safety phone number (313) 593-5333 into personal cell phones. In case of emergency, first dial 911 and then if the situation allows call UM-Dearborn Public Safety.