Course Description


Course Objectives

This course focuses on the study of concepts and components of general purpose operating systems. Topics include:

- Architectural support for operating systems
- Process and processor management
- Process communication and coordination
- Deadlock and indefinite delay
- Physical and virtual memory
- Secondary storage devices
- File systems

The primary vehicles to achieve these objectives are the study of general concepts and the study of a specific operating system which illustrates these concepts. Students will develop programs in a Linux environment.

Instructor

Robert James
Office hours:
MWF 1:00-2:00 PM
jamesro4@msu.edu and by appointment

Teaching Assistants

Ding Wang (wangdin1@msu.edu)

Course Website

Information related to the course is available at:

http://www.cse.msu.edu/~cse410/

Textbook

Lecture Sessions

The lecture sessions will be conducted in 223 Natural Resources (MWF 10:20 AM - 12:10 PM). Regular attendance at lecture, while not mandatory, is critical to your success in this course.

Course Grades

Your course grade will be based on the sum of the points you earn in the following categories:

- Examinations (60% of total course points)
- Computer Projects (30% of total course points)
- Quizzes (10% of total course points)

To be eligible to earn a non-zero grade in the course, you must receive at least 50% of the total points available for the examinations and at least 50% of the total points available for the computer projects.

The following table gives the scale for course grades:

- 4.0 90% of points available
- 3.5 85% of points available
- 3.0 80% of points available
- 2.5 75% of points available
- 2.0 70% of points available
- 1.5 65% of points available
- 1.0 60% of points available

The scale will be adjusted at the end of the semester, if necessary.

Examinations

One midterm examination and a final examination will be conducted during the semester and will constitute 60% of the total course points.

- Midterm Exam (25%) Thursday, 6/4 (during lecture)
- Final Exam (35%) Thursday, 6/27 (during lecture)

Make-ups for examinations will be arranged if your absence is caused by documented illness or personal emergency. A written explanation (including supporting documentation) must be submitted to the instructor; if appropriate, an alternative to the examination will be arranged. Whenever possible, make-up arrangements must be completed in advance.

Quizzes

There will be five ten-point quizzes given throughout the semester. The precise date on which each quiz is to be given will not be announced ahead of time. These quizzes will be given during the last twenty minutes of the day’s lecture. It should be noted that the semester has five weeks that don’t contain an exam.
Computer Programming Projects

A series of computer projects will be assigned during the semester and will constitute 30% of the total course points. These projects will include the design, implementation and testing of assignment solutions using C++.

To be eligible for full credit, a solution to a computer project must conform to the specifications stated on the handout for that assignment. Solutions that conform to some, but not all, of the specifications will be eligible for partial credit.

To be eligible for any credit, a solution to a computer project must be submitted for grading by the deadline stated on the assignment handout. Solutions which are submitted after the deadline will not be accepted.

If you are unable to complete a computer project by the specified due date due to illness or personal emergency, contact the instructor. If appropriate, the assignment due date will be extended. All work handed in must build and compile on cse410.cse.msu.

Extra Credit Project

Students who so wish may partake in an extra credit exercise. The project will involve a presentation on the part of the student(s), with the duration of the presentation being no less than 40 minutes. The subject of the exercise is to be determined by the student with the caveat that it must directly relate to Operating Systems. Groups of no more than three students are encouraged. Anyone wishing to take advantage of this must make a written request to the instructor no later than 5PM, June 9th, 2018. The request should include the proposed topic (include a brief description), and the names of the students involved. The instructor retains the right to allow or disallow the project.
Academic Integrity

The Department of Computer Science and Engineering expects all students to adhere to General Student Regulation 1.00, Protection of Scholarship and Grades, which states:

The principles of truth and honesty are fundamental to the educational process and the academic integrity of the University; therefore, no student shall:

1.01 claim or submit the academic work of another as one's own.

1.02 procure, provide, accept or use any materials containing questions or answers to any examination or assignment without proper authorization.

1.03 complete or attempt to complete any assignment or examination for another individual without proper authorization.

1.04 allow any examination or assignment to be completed for oneself, in part or in total, by another without proper authorization.

1.05 alter, tamper with, appropriate, destroy or otherwise interfere with the research, resources, or other academic work of another person.

1.06 fabricate or falsify data or results

To summarize: anything which you submit for grading must be your own work.

For the computer projects, you are encouraged to discuss the specifications and problem-solving strategies with the instructor, the Teaching Assistants, and other students from the class. However, once you begin implementing your solution, you must work individually.

Under no circumstances should you share a project solution with another student. Each project solution is electronically compared to all other solutions to identify similar solutions. Students who submit solutions which are essentially identical will receive a penalty grade, such as a score of zero for that assignment or a grade of zero in the course.

Additional information is available at:

https://msu.edu/~ombud/academic-integrity/index.html

Notes

Any extenuating circumstances which impact on your participation in the course should be discussed with your instructor as soon as those circumstances are known (such as absences due to illness or religious observances).

All students are expected to be responsible users of the computer system provided for this course. Account usage guidelines published by the Department of Computer Science and Engineering are posted under:

http://www.cse.msu.edu/Facility/Policies/AUP.php

Commercialization of lecture notes and course materials is not permitted in this course.
Summer 2018
Lecture Schedule (tentative)

5/14 CSE 410 Intro, Operating Systems Overview (Stallings, 1.1-1.8, 2.1-2.4)
5/16 continued (Stallings, 2.7-2.10)
5/18 Processes and Threads (Stallings, 3.1-3.6, 4.1, 4.2, 4.6)
5/21 Processes and Threads continued
5/23 continued
5/25 Concurrency (Stallings 5.1-5.3, 5.6)
5/28 Memorial Day (No classes) ***
5/30 Concurrency cont.
6/01 Deadlock (Stallings, 6.1-6.6)
6/04 Memory Management (Stallings, 7.1-7.4)
6/06 Midterm Exam
6/08 Memory Management continued
6/11 Virtual Memory (Stallings, 8.1-8.4)
6/13 Virtual Memory continued
6/15 Processor Scheduling (Stallings, 9.1-9.3, 10.1-10.4)
6/18 Processor Scheduling continued
6/20 I/O Management (Stallings, 11.1-11.9)
6/22 File Management (Stallings, 12.1-12.9)
6/25
6/27 Final