Computer Operating Systems (COP 4610) – Fall 2009

Catalog description: An introduction to what makes up a digital computer operating systems, includes developing an understanding of interrupts, interrupt handling, processes, process management, file and device management, and other features of control programs. A team design project is required.

Prerequisites: CDA 3331C Introduction to Microprocessor Systems
COP 3530 Data Structures and Algorithms Analysis


COP4610 001 (CRN: 80902) Instructor: Tami Sorgente

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Class Location and Time: GS 208 --- M/W 12:30 pm – 1:50 pm

Office Location and hours: SE 356
M & W  2:00 pm – 3:00 pm
R  10:00 am – 2:00 pm
F  10:00 am – 2:00 pm

Objectives:
• To provide fundamental concepts applied in modern operating systems, including process management, memory organization and management, and I/O management
• To apply the design of collaborative processes and threads and their synchronization using semaphores
• To understand the problem of deadlock and their solutions
• To provide knowledge of basic principles of I/O management
• To develop simulation program for evaluation of CPU schedulers
• To complete and present operating system projects

Grading:
Homework (10%)
Midterm (25%)
Final Exam (35%)
Programming simulation assignment (up to 2 people) (15%)
Team design project (up to 4 people) (15%)

Attendance Policy: It is your responsibility to attend each and every class, but if for some reason you cannot, you are still responsible for all material presented in class. Missed tests will be rescheduled only with documented evidence, verifying that the student was unable to attend class that day due to causes beyond their control.

Important Information:
• This course uses Blackboard: http://bb.fau.edu for notes, assignments, announcements and all course information (restricted to enrolled students)
• Students need to check myFAU email regularly
• The last day to drop and receive a “W” is Friday, October 16, 2009
Assignment Submissions and policies on make-up exams and late work:
Reading assignments will be given on for each lecture – see the Class Notes section on Blackboard for topics covered in class and suggested reading. There will be four or five Homework assignments. There will be one programming simulation with a report, a term project and two exams. Details about exams, assignments and projects will be discussed in class and available on Blackboard. All HW and Assignments will have a FINAL due date at which time they will NO LONGER BE ACCEPTED.

Cheating:
Cheating will not be tolerated in this class. All work in this course must be INDIVIDUAL effort, unless otherwise specified. Please take the time to read FAU Honor Code documentation. You are responsible for the information outlined in it. Please see the instructor, any teaching assistant, or Engineering Student Services tutor for assistance.

Topics:

1. Functions and characteristics of operating system
2. Process management -processes and threads
3. Resource allocation and scheduling
4. Process collaboration and synchronization
5. Deadlocks and their prevention
6. Memory organization and management
7. Virtual memory organization
8. Virtual memory management
9. Input/ output management and disk scheduling
10. Case studies

Accommodations for students with disabilities:
In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton - SU 133 (561-297-3880), in Davie - MOD I (954-236-1222), in Jupiter - SR 117 (561-799-8585), or at the Treasure Coast - CO 128 (772-873-3305), and follow all OSD procedures.

FAU Honor Code:
Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including cheating and plagiarism, is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see http://www.fau.edu/regulations/chapter4/4.001_Honor_Code.pdf
Program outcomes 2 and 5 are tested

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<tr>
<th>PROGRAM OUTCOME</th>
<th>DESCRIPTION OF THE TOOL (TEST METHOD)</th>
<th>CRITERIA</th>
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| Program Outcome 2 | Project 1: Team simulation project - Simulation and evaluation of CPU scheduling algorithms (software design, testing, documentation) | Project 1:  
- Correctness of code  
- Clarity of code and program structure  
- Demonstrates ability to choose and implement data structures  
- Demonstrates understanding of the overall structure of an operating system, and the data structures and programming constructs used in operating systems |
|                      | Project 2: Team design project to analyze an operating system for specific application | Project 2:  
- Demonstrates understanding of the overall structure of an operating system, and the data structures and programming constructs used in operating systems |
|                      | Final Exam: Design of concurrent threads and their synchronization using semaphores and monitors | Final Exam:  
- Demonstrates understanding of the overall structure of an operating system, and the data structures and programming constructs used in operating systems |
| Program Outcome 5   | Project 1: Team simulation project - Simulation and evaluation of CPU scheduling algorithms (software design, testing, documentation) | Project 1:  
- Demonstrates contribution to team project, and the ability to listen to and take into consideration the suggestions of fellow team members, as verified by peer evaluations |
|                      | Project 2: Presentation of results in the class Several design groups were formed consisting of 2 students | Project 2:  
- Clarity of voice in oral presentation  
- Clarity of structure of oral presentation  
- Demonstrates ability to handle questions in oral presentation  
- Demonstrates proper use of references and footnotes in written report  
- Demonstrates contribution to team project, and the ability to listen to and take into consideration the suggestions of fellow team members, as verified by peer evaluations |