

**CS 471 – Operating Systems — Teletechnet Course**  
**Course Outline**  
**Fall 2006**

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**Course Hours** 1125-1240 Tuesday, Thursday  
**Office Hours:** 1-2 PM Tuesday, Thursday  
6-7 PM Wednesday  
(or by appointment)

**Prerequisites:** CS270, CS361

**Texts:** A. Silberschatz, P.B. Galvin, and G. Gagne, **Operating System Concepts**, 7th Ed., John Wiley & Sons, Inc, 2005. ISBN: 0-471-69466-5

### 1. Course Objectives

1. To emphasize the need for an operating system
2. To describe the functionality of an operating system
3. To recognize the need for a variety of operating systems - e.g., batch, real-time, multiprogramming, etc.
4. To discuss the components of an operating system
5. To discuss the structure of some of the components in a greater detail - e.g., CPU scheduler, memory management system, secondary memory management, handling concurrent processes.
6. In depth discussion of issues in distributed systems
7. To discuss some existing operating systems with emphasis on Unix operating system
8. To provide a hands-on experience in building Operating systems through a project in C++.

By the end of the course, students are expected to know:

- What is an operating system?
- Why is it necessary?
- How does it control the operations in a computer system?
- What role does it play in the system performance?
- What are distributed systems?
- Why are operating systems for distributed systems more complex?
- How to analyze algorithms for different components of an operating system?
- Some expertise in writing operating system software.

### 2. Grading Criteria

Your grade will be based on the following:

Examination I	150 points	September 30 (8:30-11:30 am)
Examination II	150 points	November 11 (8:30-11:30 am)
Project	100 points	Due October 31
Non-programming Assignments	100 points	5 Homeworks
<b>Total</b>	<b>500 points</b>	

The final grade will be based on the following distribution. It is tentative in the sense that it is the **minimum grade** that you can expect for the obtained percentage. Depending on the performance of other students as well as other considerations such as the difficulty of the examinations or assignments, the grading criteria may be modified.

Percentage Range	Letter Grade
95-100	A
90-94	A-
87-89	B+
84-86	B
80-83	B-
76-79	C+
72-75	C
69-71	C-
62-68	D+
58-61	D
55-57	D-
0-54	F

### **3. Make-up Tests and Late Assignments**

You are expected to submit all assignments on the due date. **You cannot be assigned a grade unless you submit the project.**

For late assignments, 10% is deducted for each day late for the first week after an assignment is due. Each assignment is due at the end of the day of the date indicated. For computing a lateness penalty, the weekend counts as one day (from 5 p.m. Friday until 5 p.m. Monday). An assignment submitted beyond a week will not be accepted. If you cannot attend an examination at its scheduled time, you should contact me prior to the examination.

### **4. Academic Honesty**

Everything turned in for grading in this course must be your own work. The instructor reserves the right to question a student orally or in writing and to use his evaluation of the student's understanding of the assignment and of the submitted solution as evidence of cheating. Violations will be reported to the Honor Council for consideration for punitive action.

By CS Dept. policy, students found to be in violation of this rule will, at the very least, receive a failing grade in the course and may be subject to stiffer penalties.

### **5. Honor Code**

All students are expected to abide by the ODU Honor Code. This means that *all* exams and assignments are to be the exclusive work of the student. An honor pledge will be required on *all* work which is to be graded.

## 6. Project

The term project will require a significant amount of programming and several written reports. Descriptions of the term project will be distributed at the beginning of the semester. It will be graded using the following percentages:

Design	10%
Program structure	15%
Project Reports	15%
Correctness	60%

For all project components, the student can receive assistance from individuals other than the instructor **only** to ascertain the **cause** of errors. Thus you can get help if you need it to figure out why something doesn't work. You just can't get help from anyone, other than the instructor, to figure out how to make something work. All solutions turned in for credit are to be your individual work and should demonstrate your problem solving skills, not someone else's.

The following text should appear on all assignments: "I pledge that I have neither given nor received help from anyone other than the instructor for all program components included here." The student should sign his or her name under the pledge. Any deviation from this policy is an honor code violation and will be treated as such if detected.

## 7. Tentative Lecture and Homework Schedule

Day	Topics covered	Assignments
August 29	Chapter 3: Processes Chapter 4: Threads	
August 31	Chapter 5: CPU Scheduling	HW#1 assigned
September 5	Chapter 6: Process Synchronization	
September 7	Chapter 6 (Cont.)	HW#1 due
September 12	Chapter 7: Deadlocks	
September 14	Chapter 7 (Cont.)	HW#2 assigned
September 19	Chapter 8: Main memory	
September 21	Chapter 8 (Cont.)	HW#2 due
September 26	Chapter 9: Virtual Memory	
September 28	Chapter 9 (Cont.)	HW#3 assigned
<b>September 30</b>		<b>Exam I (Covers Ch. 3-9)</b>
October 3	Chapter 12: Mass Storage Structures	
October 5	Chapter 12 (Cont.)	HW#3 due; HW#4 assigned
October 12	Chapter 10: File System Interface	HW#4 Due
October 17	Chapter 11: File System Implementation	
October 19	Chapter 16: Distributed System Structures	
October 24	Chapter 17: Distributed File Systems	
October 26	Chapter 18: Distributed Coordination	
October 31	Chapter 18 (Cont.)	<b>Project due: October 31</b>
November 2	Chapters 14: Protection	HW#5 assigned
November 7	Chapter 15: Security	
November 9	Chapter 15 (Cont.)	HW#5 due
<b>November 11</b>		<b>Exam II (Covers Ch. 10-18)</b>