Dongseo University

Division of Computer Engineering

Operating Systems

Instructor(s): Elena Tsomko
Office:
Phone:
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Classroom:
Class Time:
Office Hours:

Course Description:

This course introduces the principles of operating systems design and implementation. The operating systems provide an established, convenient, and efficient interface between user programs and the bare hardware of the computer on which they run. The course will start, first, with an introduction of what an operating systems is, following with a brief historical perspective of the evolution of operating systems over the last fifty years and then cover the major components of most operating systems. Particular emphasis will be given to three major OS subsystems: process management (processes, threads, CPU scheduling, synchronization, and deadlock), memory management (segmentation, paging, swapping), and file systems.

Course Goals & Objectives:

The goal of the course is to understand how operating systems work and how to use them properly. This knowledge will help students to more effectively use and manipulate computers and computer programs.

Course Outline:

- **Week 1: Introduction**
- **Week 2: Kernels and Processes. The Kernel Abstraction**
- **Week 3: The Programming Interface**
- **Week 4: Concurrency. Concurrency and Threads**
- **Week 5: Synchronizing Access to Shared Objects**
- **Week 6: Advanced Synchronization**
- **Week 7: Scheduling**

- **Week 8:** Mid-Term Week
- **Week 9: Memory Management. Address Translation**
- **Week 10: Caching and Virtual Memory**
- **Week 11: Applications of Memory Management**
- **Week 12: Persistent Storage. File systems: Introduction and Overview**
- **Week 13: Storage Devices. Files and Directories**
- **Week 14: Reliable Storage**
- **Week 15:** Final Week

Textbook(s)

- Required: ***Operating Systems: Principles and Practice***, by Thomas Anderson and Michael Dahlin, Second Edition, Publisher: Recursive Books, Ltd., 2014.

Class Website: e-Class

Course Assignments & Grading:

- *Mid-term exam : 35%*
- *Final exam : 35%*
- *Quizzes*: *10%*
- *Assignments* : *10%*
- *Participation 10%*

Grading Policies:

- Missed Exams: Make-up exams will be given only for valid and verifiable excuses. It is important to notify me before an exam that you must miss.
- Late work: All assignments must be submitted on the due time. Late assignments will not be accepted without the prior permission of the instructor.

Course Policies:

- Attendance: If a student makes an unexcused absent, he/she gets a loss 1 point per 50 min class from the participation scores 20. If a student misses more than one-fourth of class contact hours for any reason, he/she cannot receive credit for the course.

- Academic Misconduct Policy: Academic misconduct or violation of engineering ethics is unacceptable in the practice of engineering. When you graduate and practice as an engineer, you will be subject to the Code of Ethics of Engineers. While preparing to be an engineer, you are subject to specific rules regarding academic misconduct. Any form of academic misconduct will be penalized and may result in failing the course or eviction from the university.