

Syllabus for APC 450 Operating Systems Theory and Practice

NOTE: This syllabus document contains the basic information of this course. The most current syllabus is available in the full course.

Course Description

This course provides introduction to important operating systems concepts such as processes, threads, scheduling, concurrency control and memory management. The students will learn these concepts via systems programming using POSIX API.

Prerequisite(s)

APC 430: Applied Data Structures and Algorithms

Course Outcomes

Upon completing this course, you will be:

- familiar with the concepts of processes and threads
- able to implement systems programs involving `fork()`, `wait()` and `exec()`
- familiar with different types of scheduling policies used in operating systems
- able to write systems programs involving Files I/O, pipes and signals
- familiar with the need for concurrency control and various concurrency control mechanisms including semaphores
- able to implement systems programs involving multiple processes/threads synchronized via POSIX concurrency control mechanisms
- familiar with the concept of deadlocks and various ways to deal with deadlocks
- familiar with the concepts of paging and segmentation
- familiar with the concepts of virtual memory and how operating systems use virtual memory

Course Requirements/Components

- Discussions
- Quizzes
- Assignments

Grading

The following grading scale will be used to evaluate all course requirements and to determine your final grade:

| Grade | Percentage Range |
|-------|------------------|
| A | 90% - 100% |
| B | 80% - 89% |
| C | 70% - 79% |
| D | 60% - 69% |
| F | 0% - 59% |

| Evaluation Methods | Percentage of final grade |
|--------------------|---------------------------|
| Discussions | 30% |
| Quizzes | 30% |
| Assignments | 40% |