

APC 450: Operating Systems Theory and Practice – Course Syllabus

IMPORTANT: This course syllabus document contains basic information about the course. A final syllabus with detailed guidelines, instructor information, project information, rubrics, course/university policies, and other course-related information will be provided to students upon course enrollment

Course Description and Objectives

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.

By the end of 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

Prerequisites

- **Concurrent Course: APC 430** (Students may take this course after completing APC 430 or they can take the two courses at the same time.)

Grading

Evaluation Methods

Your final grade will be based on your performance on the following:

Item(s)	Number of Items	Percentage of Final Grade
Discussions	7	30%
Quizzes	7	30%
Assignments	7	40%
Total		100%

Grading Scale

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

90–100%	A
80–89%	B
70–79%	C
60–69%	D
0–59%	F

Workload

Students should expect to spend 144 credit hours per semester to complete the activities and assignments in this course. In a fall or spring semester, the time to dedicate per credit will range between 7-10 hours per week and in summer semester between 10-13 hours.