

University of Arkansas – Fort Smith
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General Syllabus

CPSI 10303 Foundations of Operating Systems I

Credit Hours: 3

Lecture Hours: 3

Laboratory Hours: 0

Prerequisite or corequisite: CSCE 10404 Foundations of

Networking Effective Catalog: 2018-2019

I. Course Information

A. Catalog Description

Introduces how operating systems work and examines the building blocks of all modern operating systems including processes, threads, file systems, input/output, memory architecture and memory management, buses, storage devices, graphics subsystems, and security. Specific examples of mobile and personal computer operating systems will be used to illustrate the concepts.

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of the course, the student will be able to:

1. Describe the necessary components and functions of mainframe, server, desktop and mobile operating systems.
2. Compare operating systems and evaluate their suitability to a given task or goal.
3. Explain various operating system concepts and how they are implemented in various platforms.
4. Use virtualization to install multiple current operating systems; validate that the installations were successful.
5. Describe the advantages and issues associated with virtualization.

B. University Learning Outcomes

This course enhances student abilities in the following area:

Analytical Skills

Critical Thinking Skills - Students will identify needs (issues and/or problems). They will research and evaluate the capabilities of an operating

system to support that issue or solve that problem. They will generate a solution, then assess and justify that solution.

III. Major Course Topics

- A. Operating system principles
- B. User interface
- C. Managing hardware
- D. Managing storage – files and folders
- E. Managing applications
- F. Process management
- G. Inter-process communication
- H. Scheduling and dispatch
- I. Threads
- J. CPU Scheduling
- K. Memory management
- L. Swapping
- M. Paging
- N. Segmentation
- O. Storage management
- P. Files and Folders
- Q. Mass Storage
- R. Device management
- S. Plug and Play
- T. Management
- U. Security and protection
- V. Accounts
- W. Groups
- X. Authentication / Authorization
- Y. File systems
- Z. Types and capabilities