

**University of Arkansas – Fort Smith**  
**5210 Grand Avenue**  
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**Fort Smith, AR 72913**  
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## **General Syllabus**

### **CS 1033 Foundations of Operating Systems I**

Credit Hours: 3

Lecture Hours: 3

Laboratory Hours: 0

Prerequisite or corequisite: CS 1044 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