

NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE

COURSE SYLLABUS

Course Title: Operating Systems

Course #: CST* 210

Course Description: 3 Credits. The major operating systems of the microcomputer will be analyzed, including Linux, Android, Unix, and Microsoft Windows OS. Topics will include disk access, file transfer, hard disk management, peripheral devices, memory management, and data integrity.

Pre-requisite/Co-requisite: ENG*101 or equivalent with the consent of the instructor.

Goals: The goals of this course are

- Introduce students to the various operating system platforms
- Foster a team approach to problem solving
- Develop an understanding of the management of memory by an operating system
- Expand students understanding by providing hands on use of various platforms
- Provide students with activities that demonstrate the use of various operating systems
- Develop an understanding of the management of hardware by the operating system
- Develop an understanding of security at the operating system level
- Increase professional communication, analysis and presentation skills
- Develop skills in selecting the appropriate operating system for an environment

Outcomes: Upon successful completion of this course students will be able to:

- Describe innovations in operating system development
- Describe the basic role of an operating system
- Describe the major operating system software subsystem managers and their functions
- Describe the types of machine hardware on which operating systems run
- Describe multiprocessing and its impact on the evolution of operating system software
- Describe the virtualization and core architecture trends in new operating systems
- Describe the basic functionality of various memory allocation schemes
- Describe how memory keeps track of available space
- Describe the role of compaction
- Describe the functionality of memory allocation schemes
- Describe various page replacement policies
- Describe the mechanics of paging
- Describe the use of cache memory
- Describe the workings of virtual memory
- Describe the difference between job scheduling and process scheduling
- Describe various processing scheduling algorithms
- Describe the causes of deadlock and how to avoid it
- Describe the concept of process starvation
- Describe the basic concepts of multi-core processor technology
- Describe the differences between processes and threads
- Describe the processes of device management
- Describe the fundamentals of file management
- Describe network topologies and types of networks

- Describe the differences between network and distributed operating systems
- Describe the role of the operating system with regard to system security
- Describe the role of education and ethical practices in system security
- Describe the major features and components in UNIX
- Describe the major features and components in MS-DOS
- Describe the major features and components in WINDOWS
- Describe the major features and components in LINUX