Prerequisites:
Completion of 306 and 316, or 501, or equivalents with grades of C- or better.

Text:

Bulletin Description:
Introduction to various types of operating systems: batch processing systems, multiprogramming systems and interacting processes: storage management; process and resource control; deadlock problem. Course is independent of any particular operating system.

Detailed Description:
Operating systems define a user’s view of a computer and define the environment in which programs run. The course focuses on those aspects of o.s. design and construction which affect the behavior of application programs.

Course Goals:
To understand the abstractions and services provided by an o.s., which are the basic building blocks of applications.

Topics:
1. Introduction: how an o.s. fits into technology.
2. How to use an o.s., particularly how to write multithreaded programs.
3. Fundamental o.s. organization and implementation strategies.
4. Review of computer organization, including interrupts.
5. Device management
   a. general techniques
   b. buffering
   c. device drivers
6. Process, thread and resource management
   a. basic tasks
   b. organization of process and resource managers
   c. process scheduling
   d. synchronization methods and examples
   e. deadlock
7. Memory management
   a. virtual memory
   b. paging and segmentation
c. page replacement algorithms
8. File and directory management
9. Protection mechanisms and security policies

**Computer Usage:**
Typically 3 programming assignments involving exploration of o.s. aspects.

**References:**