

## COURSE DESCRIPTION

<b>Department and Course Number</b>	CS 245	<b>Course Coordinator</b>	Jiang Guo
<b>Course Title</b>	Using Operating Systems and Networks for Programmers	<b>Total Credits</b>	3

### Current Catalog Description:

Essential information about operating systems and computer networks for programmers. Topics include: the Windows operating system; Unix/Linux and their shell language(s), and wide area and local area networks.

### Textbook:

Sobell, Mark., *A Practice Guide to the Unix System, Third Edition*, Addison-Wesley, 1994.

Minasi, Mark., *Mastering Windows 2000 Server, Fourth Edition*, Sybex, 2001.

### References:

None

### Course Goals:

At the end of the course, students are able to

- Install Linux on a PC machine
- Install Apache on a Linux machine
- Install Windows Server on a PC machine
- Install a Web Server on a Windows Server
- Manage a Linux machine
- Use basic UNIX commands
- Manipulate UNIX processes
- Edit UNIX files, such as *vi*
- Use UNIX shell
- Use UNIX networking
- Setup Windows Domain
- Manage Windows Domain user account, web server,

These course goals contribute to the success of **Student Learning Outcomes 1.b, 1.f, 5, and 6.**

### Prerequisites by Topic:

Fluent in at least one programming language.

**Major Topics Covered in the Course:**

- UNIX Operating System
- UNIX Utilities
- UNIX File Structure
- The Shell
- UNIX Networking
- The vi Editor
- Programming Tools
- System Administration
- Windows Server and Domain
- Building Windows Server TCP/IP Infrastructure
- Using Active Directory
- Managing User Account
- Web Server Configuration

**Laboratory Projects (specify number of weeks on each):**

During the lab time, the students will practice what they learn in lecture time.

- Week 1: Install Linux
- Week 2: Install Apache
- Week 3: Practice the UNIX command
- Week 4: Use UNIX networking
- Week 5: Use UNIX programming tools
- Week 6: Install the Windows Server
- Week 7: Setup the Domain and TCP/IP Infrastructure
- Week 8: Managing User Account
- Week 9-10: Setup the Web Server

**Estimate Curriculum Category Content (Quarter Hours)**

Area	Core	Advanced	Area	Core	Advanced
Algorithms			Data Structures		
Software Design	1.0		Prog. Languages	1.0	
Comp. Arch.	1.0				

**Oral and Written Communications:**

No significant component.

**Social and Ethical Issues:**

No significant component.

**Theoretical Content:**

Regular Expression (1 week)

**Problem Analysis:**

In the first part of the course, students learn the basic concepts of the UNIX operating system, including its utilities, the file structure, the shell(s), networking, the vi editor, other programming tools, and system administration. In the latter part of the course, students learn the basic concepts of the Windows Server operating system, including domains, TCP/IP, Active Directory, user account management, and web server setup.

**Solution Design:**

Solution design in this course mostly involves installation of operating systems, such as Linux and Windows Server, setting up a network infrastructure, and a configuring web server. It also involves user account management, file structure management, and system administration.