

### COSC 2365 | System Administration I

The focus of System Administration I is on Linux operating systems. This course provides students with essential knowledge and skills to implement, administer, and troubleshoot servers in a networked environment. Operating system concepts, such as installing a standalone system, file systems authentication, and user support services are explored. Students will start the semester building Fedora server environments supporting company services such as, DHCP, DNS, SSH, email, web, live web chat, wiki, log aggregation, unified login, etc. As the semester progresses they will build similar environments with Ubuntu and Debian. In addition, students will work extensively with the Linux command line. Prerequisite: COSC 1435.

### COSC 2366 | Network Administration I

This course focuses on the standards and technologies used to establish inter-network structures that will support a TCP/IP data stream for higher-level services to operate over. This course introduces local area networks (LAN) and wide area networks (WAN). Topics include the TCP/IP and open system interconnection (OSI) models, switches, routers, protocols, subnetting, and networking hardware and software. Students will construct and configure local and wide area networks. Prerequisite: COSC 1435.

### COSC 3365 | Cyber Defense I

This course introduces the student in the identification of vulnerabilities, forms of attack, appropriate countermeasures, and the detection and defense of the same. Tools and techniques for the securing of hardware, software and data, including physical security are covered. The issues and facilities available to both the intruder and administrator will be examined and evaluated with appropriate exercises to illustrate their effect. Prerequisites: COSC 2365, COSC 2366.

### COSC 4365 | System Administration II

This course focuses on advanced system administration topics. An in depth understanding of various concepts such as server operating systems, file systems authentication, and user support services are explored. Topics include security issues, user and group administration, server and work-station integration, central repositories for updates, Active directory, DMZ, web servers, email servers, electronic system update and maintenance, backup and restoration strategies and techniques, integrated mass storage technologies and alternative client technologies. Prerequisite: COSC 3365.

### COSC 4366 | Network Administration II

This course focuses on advanced networking topics. Technologies available to large enterprises to build a large intranet infrastructure are explored in depth. Topics include intermediate switch and routing configuration, IP addressing techniques, VLANs, spanning tree protocol and trunking. Wide area networking (WAN) technology; PPP, frame relay, HDLC, and optical networking will be examined and evaluated. Prerequisite: COSC 3365.

### COSC 4368 | Cyber Defense II

This course focuses to increase the students understanding of how to recognize a potential cyber attacker and identify vulnerabilities through the use of vulnerability analysis tools. Students will audit, monitor, and revise system security to ensure appropriate levels of protection are achieved. Incident response and handling, security log analysis, attacker identification, system recovery and postmortem procedures will be addressed. Prerequisites: COSC 4365, COSC 4366.

### COSC 4590 | Firewall and IDS

This course focuses to increase the students understanding of how to prevent a potential cyber attack from occurring. Topics include IPTables, Check Point Firewall, Cisco ASA, Snort intrusion detection and prevention, active response, stateful inspection, and different forms of attacks and defense. Appropriate exercises will require students to construct and configure various network based firewalls to support topical industry environments.

### COSC 4590 | Incident Response

This course focuses on providing students with essential knowledge and skills to perform incident response, disaster recovery, business continuity, and crisis management.