

## Master Syllabus

### CIS 1411 - Introduction to Networks

**Division:** Business and Public Services

**Department:** Computer Information Systems

**Credit Hour Total:** 3.0

**Lecture Hrs:** 3.0

**Date Revised:** December 2015

---

### Course Description:

The focus of this course is on the fundamentals of networking. Students will learn both the practical and conceptual skills that build the foundation for understanding basic networks. Students will understand: the human and network communications and see the parallels between them, the layers, functions and services associated with the two major models (OSI and TCP/IP) used to plan and implement networks, the various network devices, addressing schemes and media used in modern networks will be examined and how computers operate.

### General Education Outcomes:

- ▣ Critical Thinking/Problem Solving Competency
- ▣ Computer Literacy Competency
- ▣ Information Literacy Competency

### Course Outcomes:

#### Install, upgrade & troubleshoot computer systems

Identify and install or upgrade current versions of the Windows client operating system. Integrate the microcomputer and its operating system to a switched network in a basic operational level. Troubleshoot software and hardware malfunctions using various tools.

**Assessment Method:** Simulations

**Performance Criteria:**

Obtain score of 80% or higher on assignments.

**Assessment Method:** Standardized national examinations

**Performance Criteria:**

Correctly answer 80% or more of exam questions.

#### Principles and Structure of Internet Protocol (IP) addressing (IPv4 and IPv6)

Describe the importance of addressing and naming schemes. Identify the major classes of addresses. Become familiar with network addressing schemes. Design, calculate and apply subnet masks and addresses to fulfill given network requirements.

**Assessment Method:** Simulations

**Performance Criteria:**

Obtain score of 80% or higher on assignments.

**Assessment Method:** Standardized national examinations

**Performance Criteria:**

Correctly answer 80% or more of exam questions.

#### Networking Devices (routers and switches)

Employ basic cabling and network designs to connect devices in accordance with stated objectives. Demonstrate use of the command-line interface (CLI) to perform basic router and switch configuration and verification. Build a simple Ethernet network using routers, switches, and appropriate cabling. Access, explain and navigate router and switch IOS for configuration, security, performance, backup, restore and troubleshooting in a network environment.

**Assessment Method:** Simulations

**Performance Criteria:**

Obtain score of 80% or higher on assignments.

**Assessment Method:** Standardized national examinations

**Performance Criteria:**

Correctly answer 80% or more of exam questions.

#### Network protocol models

Understand the layered approach to networks. Describe the operations and features of the 7 layers of the OSI model. Examine and identify the applications and services provided by the OSI model and the TCP/IP protocol suite. Demonstrate how communication works in data networks and the Internet.

**Assessment Method:** Simulations

**Performance Criteria:**

Obtain score of 80% or higher on assignments.

**Assessment Method:** Standardized national examinations

**Performance Criteria:**

Correctly answer 80% or more of exam questions.

**Outline:**

Network protocol models.

Principles and Structure of Internet Protocol (IP) addressing with IPv4 and IPv6.

Network Devices (routers and switches).

Install, upgrade and troubleshoot hardware systems and microcomputers