COURSE INFORMATION FORM

DISCIPLINE: Computer Science and Information Systems
COURSE TITLE: Networking Fundamentals
CR.HR: 3  LECT HR: 2  LAB HR: 2  CLIN/INTERN HR: 2  CLOCK HR: 2

CATALOG DESCRIPTION
This course introduces students to the knowledge and skills required to troubleshoot, configure, and manage common network wireless and wired devices, establish basic network design and connectivity, understand and maintain network documentation, identify network limitations and weaknesses, and implement network security, standards, and protocols. Students will also explore emerging technologies including unified communications, mobile, cloud, and virtualization technologies. This course helps prepare students for the current CompTIA Network+ certification exam.

PREREQUISITES
CSIS 110 with a grade of C or better

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)
Upon completion of this course, the student will be able to:
1. Describe fundamental components and uses for common network architectures.
2. Describe and apply basic network operations and monitoring fundamentals.
3. Describe and apply basic network security concepts.
4. Describe and apply fundamental network troubleshooting methodologies.
5. Describe industry standards, practices, and network theory.

GENERAL EDUCATION OUTCOMES (ESO)
Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.
PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

1. Use industry specific software and/or apply troubleshooting skills to solve problems. (5)
2. Create and defend solutions to real life business challenges. (5)
3. Recognize the need for continued professional development. (5)

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes may be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. Examination/Quizzes (1-5)
2. Class Discussion/Participation (1-5)
3. Exercises/Projects (1-5)
4. Written/Oral Reports (1-5)
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Network Architecture
   A. Functions and applications of various network devices
   B. Networking services and applications
   C. WAN technologies
   D. Cable termination and testing
   E. Network topologies
   F. Network infrastructure implementations
   G. Network addressing schemes
   H. Basic routing concepts and protocols
   I. Unified communications concepts
   J. Cloud and virtualization concepts
   K. Basic network implementation

II. Network Operations
   A. Common network monitoring tools and reports
   B. Configuration management
   C. Patches and Updates
   D. Basic switch configuration
E. Basic wireless LAN implementation and configuration

III. Network Security
   A. Basic risk concepts
   B. Common network vulnerabilities and threats
   C. Network hardening techniques
   D. Physical security controls
   E. Basic firewall configuration
   F. Basic network access control models
   G. Basic forensic concepts

IV. Troubleshooting
   A. Network troubleshooting methodology
   B. Troubleshooting tools
   C. Troubleshooting common wireless issues
   D. Troubleshooting common cabling issues
   E. Troubleshooting common network issues
   F. Troubleshooting common security issues
   G. Troubleshooting common WAN issues

V. Industry Standards, Practices, and Network Theory
   A. OSI Model
   B. Basic network and concepts
   C. Wired connectivity standards
   D. Wireless connectivity standards
   E. Policies and procedures
   F. Equipment installation best practices
   G. Change management
   H. Common ports and protocols