

Northwest Arkansas Community College
Business and Computer Information Systems Division

Discipline Code

NTWK

Course Number

2084

Course Title

Network Hardware Support

Catalog Description

This course provides knowledge of routers, switches, and other network specific hardware and support and configuration. This course will assist students in preparing for the CCNA and Network+ exam which are industry recognized certifications. This course includes both theory and application and uses Cisco routers and switches. Students completing this course will progress with the preparation necessary for success in the following industry-recognized certifications: Cisco CCNA, Cisco Devnet+, CCNA Security, CCNA CyberOps, Cisco Certified Technician (CCT) and CompTIA Network+. This course is the 1st semester of preparation for CCNA and certification mentioned above. Preparation for the CCNA certification exam should include the following courses for CCNA training (NTWK 2014, NTWK 2084, NTWK 2214, NTWK 2224). Outside Lab time will be required.

Prerequisites

NTWK 2014-Network & Information Systems (CCNA1)

Credit Hours

4 credit hours

Contact hours

60 lecture/lab contact hours

Load hours

4 load hours

Semesters Offered

Spring, On Demand

ACTS Equivalent

N/A

Grade Mode

A-F

Learning Outcomes

Students will:

- Describe the functions of the hierarchical network design model.
- Use VLSM to define logical network topologies
- Identify and correct common network problems using a layered model approach
- Configure and manage
- Cisco switches
- VLANS
- 802.1q encapsulation and Trunks
- inter-VLAN routing
- Describe Static routing and Dynamic routing protocols
- Configure and manage Routing protocols RIP, OSPF, EIGRP
- Describe Network and Port Address Translations methods
- Configure and Troubleshoot NAT AND PAT
- Configure Application level protocols for managing IP addressing using DHCP
- SSH and GUI based device configuration, troubleshooting, and management
- Explain and write Access Control Lists and implementing ACLs with IPv4 and IPv6
- Network design and Intermediate troubleshooting for small and medium network

General Education Outcomes Supported

- Students can write clear, coherent, well-organized documents, substantially free of errors.
- Students can use computers proficiently.
- Students can employ a variety of sources to locate, evaluate, and use Information.

Standard Practices

Topics List

- Hierarchical network design
- VLSM
- Layered Network model
- Static Routing
- Dynamic Routing
- Route redistribution
- VLANs
- Inter-VLAN Routing

- Routing Protocol
- RIP
- OSPF
- EIGRP
- NAT and PAT
- DHCP
- ACLs
- IPv6 subnetting

Learning activities

- This course requires some in class, hands-on work and also additional hands-on work in a virtual or on-campus computer lab.
- Lab Assignments using Lab routers and Switches and Virtual NetLab
- Cisco Packet Tracer Activities
- Hands-on activities
- Quizzes
- Final Exam

Assessments

- On-line chapter Exams in Netacad
- Hands-on lab assignments
- Packet Tracer Activities
- Hands on final Skill Based Assessment
- Comprehensive online final exam

Grading guidelines

Overall Score will be based on the below given grading scale.

A = 90-100

B = 80-89

C = 70-79

D = 60-69

F = 59 & below

In addition, students will demonstrate proficiency by scoring 70% or above on The Final Skill Based Assessment to pass the class.

Revision Date

May 26, 2020