COCONINO COMMUNITY COLLEGE
COURSE OUTLINE

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Revised by: Dave Bowman — Spring 2004
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Effective Term: Fall 2017

A. Identification:
   1. Subject Area: Computer Information Systems (CIS)
   2. Course Number: 140
   3. Course Title: Cisco Networking Academy Semester I
   4. Credit Hours: 4
   5. Course Description: This is the first of a four semester curriculum series designed to provide students with classroom discussions, and hands-on experience and virtual network simulations in current and emerging networking technologies to enter employment and/or further education in the networking field. This course introduces the architecture, structure, functions, components, and models of the Internet and other digital networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple local area networks (LANs), perform basic configurations for routers and switches, and implement IP addressing schemes. In addition, instruction and training are provided in the proper care, maintenance, and use of networking software, tools, and equipment. Prior computer knowledge strongly recommended. Four lecture. May be taken for S/U credit. Fall.

B. Course Goals: Provide students with essential network infrastructure knowledge and hands- on experience with network infrastructure design, in network data traffic patterns, data network cabling, cable codes and regulations and basic router and switch configuration. Furthermore, the class will provide the logical background for understanding, design, and implementation of small to medium of data networks. This first semester of the Cisco Networking Academy will help students enter the data networking world.

C. Course Outcomes
   Upon successful completion of this course, students will:
   1. explain the basic characteristics of a network that supports data communication in a small to medium-sized business;
   2. identify the trends in networking that will affect the use of networks in small to medium-sized businesses;
   3. configure initial settings on network devices: Routers and Switches;
   4. configure digital devices to access networks;
   5. explain the role of protocols and standards organizations in facilitating interoperability in network communications;
   6. explain how ‘network layer’ and ‘transport layer’ protocols and services support communications across data networks;
   7. explain how routers enable end-to-end connectivity in a small to medium-sized business network;
   8. explain the use of IPv4 and IPv6 addresses to provide connectivity in small to medium-sized business networks;
   9. design and build IPv4 and IPv6 networks;
   10. demonstrate common testing utilities to verify and test network connectivity;
   11. explain how TCP/IP application layer protocols operate;

12. configure security settings for switches and routers;
13. and troubleshoot a network.

D. Course Outcomes Assessment will include:
   1. self-assessment chapter quizzes;
   2. web based chapter exams;
   3. hands-on lab assessment for each applicable chapter;
   4. web Final Exam covering material from the entire semester;
   5. and final Practical Exam (using routers and switches).

E. Course Content will include:
   1. digital devices for end users, network switches and network routers;
   2. network infrastructure models;
   3. network operating systems;
   4. network protocols;
   5. data communications;
   6. digital device access to the network;
   7. Ethernet;
   8. network layer;
   9. IP addressing;
   10. subnetting IP networks;
   11. transport layer protocols;
   12. application layer services;
   13. router and switch network models;
   14. network Design;
   15. network troubleshooting tools and methodologies;
   16. network security;
   17. and network performance.