

Cisco Networking Semester 3 & 4

COURSE OUTLINE

1. Course Title: Cisco Discovery 3, 4

2. CBEDS Title: Networking

3. CBEDS Number: 4604

4. Job Titles:

Network Support Specialist Network Control Technician LAN/WAN Technicians Network Specialists Network Systems Technician Cisco-Certified Network Technician

5. Course Description:

This instructional program provides a broad-based foundation in the engineering and administration of computer network systems. Emphasis is placed on PC and network hardware and operating systems, architecture, protocols, design and security, and career development. Simulations, projects, work-based learning opportunities, teamwork, and career technical student organization (CTSO) leadership activities, meetings, conferences, and competitions provide opportunities for application of instructional content.

The CCNA Discovery 3, 4 curriculum is composed of two courses: Introducing Routing and Switching in the Enterprise, and Designing and Supporting Computer Networks. Networking for Home and Small Businesses is the first course and has no prerequisites. It is a prerequisite for the other three courses. These courses should be taken sequentially.

This curriculum presents basic networking education to equip students with knowledge and skills that can be applied toward entry-level careers in IT networking and CCNA certification. CCNA Discovery is a blended curriculum with online and classroom learning. The course is designed for students with basic PC skills and offers a hands-on, career-oriented approach to learning networking that emphasizes practical experience. The course covers key networking concepts according to the types of practical network environments students may encounter, ranging from small office or home office (SOHO) networking to more complex enterprise environments and theoretical networking models later in the curriculum.

The curriculum helps students develop the skills needed to obtain entry-level networking jobs. It provides a hands-on approach to networking education that allows students to gain practical experience early in the curriculum. Students complete engaging instructional labs that help them understand the general theory needed to build networks.

Student Outcomes and Objectives:

Upon Completion for this course students will be able to perform the following tasks:

- Implement a LAN for an approved network design
- Configure a switch with VLANs and inter-switch communication
- Implement access lists to permit or deny specific traffic
- Implement WAN links
- Configure routing protocols on Cisco devices
- Perform LAN, WAN, and VLAN troubleshooting using a structured methodology and the OSI model
- Gather customer requirements

- Design a simple Interwork using Cisco technology
- Design an IP addressing scheme to meet LAN requirements
- Create an equipment list to meet LAN design requirements
- Create and present a proposal to a customer
- Install and configure a prototype Internetwork
- Obtain and upgrade Cisco IOS® software in Cisco devices

Pathway

Recommended Sequence	Courses
Introductory	Computer Foundations
Skill Building	Cisco Discovery Semester 1 & 2
Advanced Skill	Cisco Discovery Semester 3 & 4 <u>SRJC</u> Cisco Exploration

6. Hours: *Students receive up to 180 hours of classroom instruction*

7. Prerequisites: Cisco Discovery 1, 2

8. Date (of creation/revision): July 2010

9. Course Outline

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Upon successful completion of this course, students will be able to demonstrate the following skills necessary for entry-level employment.				
Instructional Units and Competencies	Course Hours	Model Curr. Standards	CA Academic Content Standards	CAHSEE
<p>I. CAREER PREPARATION STANDARDS</p> <p>A. Career Planning and Management.</p> <ol style="list-style-type: none"> 1. Know the personal qualifications, interests, aptitudes, knowledge, and skills necessary to succeed in careers. <ol style="list-style-type: none"> a. Students will identify skills needed for job success b. Students will identify the education and experience required for moving along a career ladder. 2. Understand the scope of career opportunities and know the requirements for education, training, and licensure. <ol style="list-style-type: none"> a. Students will describe how to find a job. b. Students will select two jobs in the field and map out a timeline for completing education and/or licensing requirements. 3. Develop a career plan that is designed to reflect career interests, pathways, and postsecondary options. <ol style="list-style-type: none"> a. Students will conduct a self—assessment and explain how professional qualifications affect career choices. 4. Understand the role and function of professional organizations, industry associations, and organized labor in a productive society. <ol style="list-style-type: none"> a. Contact two professional organization and identify the steps to become a member. 5. Understand the past, present and future trends that affect careers, such as technological developments and societal trends, and the resulting need for lifelong learning. <ol style="list-style-type: none"> a. Students will describe careers in the information technology industry sector. b. Students will identify work-related cultural differences to prepare for a global workplace. 6. Know the main strategies for self-promotion in the hiring process, such as completing job applications, resume writing, interviewing skills, and preparing a portfolio. <ol style="list-style-type: none"> a. Students will write and key a resume, cover letters, thank you letters, and job applications. b. Students will participate in mock job interviews. <p>B. Technology.</p> <ol style="list-style-type: none"> 1. Understand past, present and future technological advances as they relate to a chosen pathway. 2. Understand the use of technological resources to gain access to, manipulate, and produce information, products and services. 3. Understand the influence of current and emerging technology on selected segments of the economy. 4. Use appropriate technology in the chosen career pathway. <p>C. Problem solving and Critical Thinking.</p> <ol style="list-style-type: none"> 1. Apply appropriate problem-solving strategies and critical thinking to work-related issues and tasks. 2. Understand the systematic problem-solving models that incorporate input, process, outcome and feedback components. 	<p>20</p> <p>Additional hours are integrated throughout the course.</p>	<p>Information Technology Industry Sector, Model Curriculum Standards</p> <p>2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0</p>	<p><u>Language Arts</u> (8)</p> <p>R 1.3, 2.6 W1.3, 2.5, LC 1.4,1.5 1.6 LS1.2, 1.3, (9/10) R2.1,2.3,2 W2.5 LC1.4 LS 1.1, 2.3 (11/12) R2.3 W2.5 LC1.2 <u>Math</u> (7) NS1.2, 1.7 MR 1.1,1.3 2.7,2.8, 3.1</p>	<p>Lang. Arts R 8.2.1 (9/10) R 2.1, 2.3 W2.5 Math (7) NS 1.2, 1.3, 1.7 MR 1.1, 2.1, 3.1</p>

<ul style="list-style-type: none"> 3. Use critical thinking skills to make informed decisions and solve problems. 4. Apply decision-making skills to achieve balance in the multiple roles of personal, home, work and community life. <p>D. Health and Safety.</p> <ul style="list-style-type: none"> 1. Know policies, procedures, and regulations regarding health and safety in the workplace, including employers' and employees' responsibilities. 2. Understand critical elements of health and safety practices related to a variety of business environments. <p>E. Responsibility & Flexibility.</p> <ul style="list-style-type: none"> 1. Understand the qualities and behaviors that constitute a positive and professional work demeanor. 2. Understand the importance of accountability and responsibility in fulfilling personal, community, and workplace roles. 3. Understand the need to adapt to varied roles and responsibilities. 4. Understand that individual actions can affect the larger community. <p>F. Ethics and Legal Responsibilities</p> <ul style="list-style-type: none"> 1. Know the major local, district, state, and federal regulatory agencies and entities that affect the industry and how they enforce laws and regulations. 2. Understand the concept and application of ethical and legal behavior consistent with workplace standards. <ul style="list-style-type: none"> a. Contact a business and obtain a copy of their rules for employment. b. Role play difference ethical scenarios. 3. Understand the role of personal integrity and ethical behavior in the workplace. <p>G. Leadership and Teamwork.</p> <ul style="list-style-type: none"> 1. Understand the characteristics and benefits of teamwork, leadership, citizenship in the school, community, and workplace settings. 2. Understand the ways in which professional associations, such as ITPA (Information Technology Professional) and competitive career development activities enhance academic skills, career choices, and contribute to promote employability. 3. Understand how to organize and structure work individually and in teams for effective performance and attainment of goals. 4. Know multiple approaches to conflict resolution and their appropriateness for a variety of situations in the workplace. 5. Understand how to interact with others in ways that demonstrate respect for individual and cultural differences and for the attitudes and feelings of others. 				
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Instructional Units and Competencies	Course Hours	Model Curr. Standards	CA Core Academic Standard	CAHSEE
INTRODUCING ROUTING AND SWITCHING IN THE ENTERPRISE	10	Information Technology Sector Network Communication Pathway C1.1, 1.4 C2.1, 2.2, 2.4, 2.5, 2.7 C4.1, 4.2, 4.3	1.1M(7) (1.1) (2.2) 1.1M(8-12) (1.1) 1.2Sci(9-12) (1.a), (1.d) 2.0Comm. 2.1(9-10) (2.1) (2.6) 2.2W(9-12) (2.6) (11-12) (1.1) (2.5) 2.4L&S(9-12) 5.0 PS 5.1, 5.2 6.0 H&S 6.2 8.0 E 8.310T1.5 ..6.,7	(10)WA1.2 (10)R2.1 (10)WS1.2 (7)NS1.2 (6)P3.5 (7)MR3.3
II. Networking in the Enterprise				
III. Enterprise Network Infrastructure	15			
IV. Addressing in an Enterprise Network	10			
V. Routing in an Enterprise Network	15			
VI. Implementing WAN links	15			
VII. Switching in an Enterprise Network	10			
VIII. Filtering Traffic Using Access Control Lists	10			
IX. Troubleshooting an Enterprise Network	15			
DESIGNING AND SUPPORTING COMPUTER NETWORKS	5			
X. Concepts of Network Design				
XI. Gathering Information from Clients	5			
XII. Impact of Various Application on Network Design	5			
XIII. IP Address Design Considerations	5			
XIV. Creating a Network Design	15			
XV. Building and Testing a Prototype Network	15			
XVI. Selecting Equipment and Planning for Installation	10			

10. Additional recommended/optional items

a. Articulation: None

b. Academic credit: None

c. Instructional strategies:

Methods of Instruction:

a. Lecture

b. Audio Visual Materials

c. Research Readings and Written Presentations

d. Homework Assignments

e. Group & Individual Activities

f. Discussion & Group Dynamics

g. Quizzes, Tests & Final Exam

h. Guest Speakers

i. Internet Exploration

d. Instructional materials:

e. Certificates: Certified Cisco Network Associate