

## Introduction

Instructor: Hiba Al Najjar  
Office Phone: 972-675-3120 ext. 61248

Email: halnajjar@garlandisd.net

## Course Description

### **Cisco CCNA Routing & Switching Scaling Network**

CCNA R&S: Introduces the architecture, structure, functions, components, and operations of routers and switches in a larger and more complex network. You will learn how to configure routers and switches for advanced functionality. By the end of this course, you will be able to configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, STP, and VTP in both IPv4 and IPv6 networks.

## Prerequisites

Prerequisite for this course is taking CCNA introduction to the network same school year or done with an advanced level of understanding of personal computers and operating systems approved by designated Information Technology personnel.

## Learning Outcomes

**It is our goal in this course to train knowledgeable students who can achieve the entry-level CCNA (which requires passing multiple-choice exams), to produce empowered students who can design, install, and maintain networks, and who will be successful in the job market.**

Students in this course will obtain the first level of knowledge required for these objectives. Completion of the course is the first phase of preparation for the certification exams. **Students should be prepared to invest significant additional time for intense preparation prior to taking the exams.**

Basic competency in English Language Arts is necessary for student success in this course. Written and oral communications will be key elements for completion of the course.

Skills and techniques in critical thinking, decision-making, and problem solving will be applied.

## Learning Objectives

**Students who complete Introduction to Networks will be able to perform the following functions:**

- Explain network technologies and how devices access local and remote networks.
- Describe router hardware.
- Explain how switching operates in a small to medium-sized business network.
- Design an IPv4 and IPv6 addressing scheme to provide network connectivity for a small to medium-sized business network.
- Configure initial settings on a network device using Cisco command-line interface (CLI).
- Implement basic network connectivity between devices.
- Explain LAN redundancy and spanning-tree concept.
- Explain Ether channel and HSRP and link aggregation concept, configuration, and first hop redundancy protocols.
- Explain dynamic routing protocols and distance vector dynamic routing.
- Understand the configuration of EIGRP, tuning, and troubleshooting.

- Understand the configuration of single-area OSPF, multi-area OSPF, and OSPF tuning and troubleshooting.

## Class Attendance and Participation

**Class attendance and participation in class discussions are an important part of this course. Students are expected to attend classes regularly and be on time. As with any course, preparation is essential.**

You should read and review the material for the class session prior to the class meeting. This class curriculum is provided on-line at <http://netacad.com>. Students will find it convenient to access the Internet at any time from any location to view the materials. There are a number of Labs to be completed in this class. Students must allocate significant time outside the classroom in order to complete the required reading, perform the labs, and accomplish the learning.

Your ability to work with people and contribute to a team is an integral part of the business world. Students in this class will participate in team assignments and in a cooperative learning environment.

## Course Content

**The instructor reserves the right to amend this syllabus as necessary.**

### On-Line Tests

Upon completion of each chapter in the online curriculum, students will be required to complete a chapter test.

### The Comprehensive Lab final

Students will apply their knowledge of Networks, IP Addressing, and Subnetting to solve a problem in a paper LAB activity. **Attendance is mandatory.**

### The Comprehensive Final

The Comprehensive Final Exam must be taken on the last day of the course. Prior to completing the exam, students must complete a course survey form online. **Attendance is mandatory.**

### Packet Tracer

Packet Tracer is very powerful network simulation software that is provided without charge via download from the Cisco Academy website. The link to the download site is on the left side of the initial login screen at <http://netacad.net>. *The proficient use of Packet tracer is fundamental to successfully completing the CCNA curriculum.*

## Cooperative Learning

Cooperative learning is the instructional participation in small groups, allowing students to work together to maximize the quality of their own instruction and that of the other group members. The objective is to produce a higher academic achievement and build more positive relationships among the students than would be possible outside this environment. This will result in valuable preparation for the student in future business world environments.

## Evaluation

Students will be evaluated on their performance in the course. The final grade will be based upon the elements and weights listed here.

Description	Category	Weight
Cisco On-line Chapter Tests & Quizzes	Tests	40%
Class Participation & Packet Tracer Simulations	Class-Work	30%
Labs	Projects	30%

The final grade is determined as follows:

A	90 - 100%
B	80-89%
C	70 - 79%
D	60-69%
F	59% and below

**Note: A passing grade on the final exam and completion of all the above work is required in order to progress to the next Cisco course.**

## General Information

**Institution Policies ([www.richlandcollege.edu/syllabipolicies](http://www.richlandcollege.edu/syllabipolicies) )**

## Tentative Schedule - Course Outline

The class material is provided on-line and is organized into 11 chapters. This is a **tentative** schedule. Your instructor reserves the right to change the above schedule as needed to complete the material on time.

CCNA 3 2018 -2019 Tentative Timeline		
Chapters Covered	Days	Dates
1 – Course introduction	5	8/20-9/4
2 – LAN design	7	9/4-9/20
3 – Scaling VLANs	7	9/24-10/10
4 – STP	7	10/17-11/2
5 – Ether Channel and HSRP	7	11/2-11/30
6 – Dynamic Routing	7	12/3-12/21
7 – EIGRP	7	1/9-1/30
8 – EIGRP tuning and troubleshooting	10	2/1-2/28
9 – Single-area OSPF	7	3/1-3/19
10 – Multi-area OSPF	7	3/21-4/8

11 – OSPF tuning and troubleshooting	7	4/10-4/29
Cisco Online Review	3	5/1-5/7
Cisco Online Final Exam	3	5/9-5/13
Cisco Skills Final Review	3	5/15-5/23
Cisco Skills Final Exam	3	5/23-5/30

## Richland College Scans Statement

### What are SCANS skills?

These are the skills that employers need the most from their workers. SCANS (Secretary's Commission on Achieving Necessary Skills) are the predictors of success in the workplace.

### Who defined these skills?

In 1989, the U.S. Department of Labor and Education jointly surveyed U.S. employers to find out the most important skills and competencies needed by workers. The results of that survey identified SCANS.

### Richland College Students and SCANS

Richland College is committed to the preparation of our students for success in the workplace.

All Richland College courses provide learning outcomes, which result in the mastery of SCANS skills. Although each course will not include every SCANS skill, each course syllabus will identify the specific SCANS skills and competencies taught in that course. Throughout a formal program of study (Degree or Transfer Program) a student will have the opportunity to master all SCANS skills and competencies. \*\*Skills Underlined below are the specific SCANS for Unix II ITSC 2437.

### SCANS WORKPLACE COMPETENCIES

RESOURCES. ALLOCATING.	INTERPERSONAL SKILLS	Information	SYSTEMS	TECHNOLOGY
<u>1.a.1 Time</u>	<u>1.b.1. Working on teams</u>	<u>1.c.1. Acquiring &amp; evaluating data</u>	<u>1.d.1. Understanding social, technological, &amp; organizational systems</u>	<u>1.e.1. Selecting equipment &amp; tools</u>
1.a.2. Money	<u>1.b.2. Teaching others</u>	<u>1.c.2. Organizing &amp; maintaining files</u>	<u>1.d.2. Monitoring &amp; correcting performance</u>	<u>1.e.2. Applying technology to specific tasks</u>
<u>1.a.3. Materials and facilities</u>	1.b.3. Serving customers	<u>1.c.3. Interpreting &amp; communications</u>	<u>1.d.3. Designing and/or improving systems</u>	<u>1.e.2. Maintaining &amp; troubleshooting technologies</u>
1.a.4. Space	<u>1.b.4. Leading</u>	<u>1.c.4. Processing information with computers</u>		

1.a.5. Staff	1.b.5. Negotiating			
	<u>1.b.6. Working with different cultures</u>			

SCANS Foundation/Competencies	Courses											
	I T C C	I T C C	I T C C	I T C C	I T C C	I T C C						
Computer Information Systems, CISCO	1 4 0 2	1 4 0 6	1 4 4 2	1 4 4 6	2 4 3 2	2 4 3 6						
1. SCANS COMPETENCIES												
a. Resources. Allocating:												
(1) Time	X	X	X	X	X	X						
(2) Money												
(3) Materials				X	X							
(4) Space												
(5) Staff												
b. Interpersonal Skills:												
(1) Working on teams	X	X	X	X	X	X						
(2) Teaching others												
(3) Serving customers												
(4) Leading												
(5) Negotiating	X	X	X	X	X	X						
(6) Working with different cultures	X	X	X	X	X	X						
c. Information												
(1) Acquiring and evaluating data	X	X	X	X	X	X						
(2) Organizing and maintaining files	X	X	X	X	X	X						
(3) Interpreting and communication	X	X	X	X	X	X						
(4) Processing Information with computers												
d. Systems:												
(1) Understanding social, technological, & organizational systems	X	X	X	X	X	X						
(2) Monitoring & correcting performance				X	X	X						
(3) Designing and/or improving systems				X	X	X						
e. Technology:												
(1) Selecting equipment & tools				X	X	X						
(2) Applying technology to specific tasks	X	X	X	X	X	X						
(3) Maintaining & troubleshooting technologies		X	X	X	X	X						
2. SCANS FOUNDATIONS												
a. Basic Skills:												
(1) Reading	X	X	X	X	X	X						
(2) Writing	X	X	X	X	X	X						
(3) Arithmetic/Mathematics	X	X	X	X	X	X						
(5) Speaking	X	X	X	X	X	X						
(6) Listening	X	X	X	X	X	X						
b. Thinking Skills:												
(1) Thinking creatively	X	X	X	X	X	X						
(2) Making decisions	X	X	X	X	X	X						
(3) Solving problems	X	X	X	X	X	X						
(4) Seeing with the mind's eye	X	X	X	X	X	X						
(5) Knowing how to learn and reason	X	X	X	X	X	X						