

CET1610 – Cisco Router Technology

T/R 6:00 – 9:20 PM Reference #: 523944

INSTRUCTOR: **Prof. Greg Ballinger**
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INSTRUCTOR OFFICE: Posted on instructor's website

C.I.S STUDY CENTER, ROOM 9103, HOURS:

Monday - Thursday 7:00am - 9:00pm

Friday 7:00am - 4:00pm

Saturday 9:00am - 4:00pm

C.I.S. Department URL: **http://www.cis.kendall.mdc.edu**

COURSE DESCRIPTION

This is a professional course taught at M-DCC in cooperation with Cisco. It is delivered via a combination of a web-delivered curriculum, hands-on experience and instructor lectures and demonstrations. This is the second course of the four-course Cisco curriculum that will lead the student toward the goal of achieving professional certification as a Cisco Certified Network Analyst (CCNA). Upon completion of CCNA2 students have an understanding of routers and routing including:

- Basics of configuring routers
- Routing protocols
- TCP/IP concepts
- Access lists
- Networking troubleshooting skills

E-CURRICULUM

This is a highly structured course which requires that you work your way through the E-curriculum (web-based material) for a lesson *before coming to class*. This curriculum is available on campus in the classroom or CIS Study Center on every CIS computer. From off-campus it is available at <http://cisco.netacad.net>.

TEXTBOOKS & MATERIALS

Required:

Title: **Routing Protocols and Concepts, CCNA Exploration Labs and Study Guide**

Author: Allan Johnson. Publisher: Cisco Press

ISBN-10: 1-58713-204-4; ISBN-13: 978-1-58713-204-9;

Home computer with internet access

Highly Recommended:

Title: **Routing Protocols and Concepts, CCNA Exploration Companion Guide**

Authors: Rick Graziani, Allan Johnson. Publisher: Cisco Press

ISBN-10: 1-58713-206-0; ISBN-13: 978-1-58713-206-3;

External hard drive (1GB Flash or better)

ATTENDANCE

This is a hands-on course and you must be in class to succeed. Roll will be taken at the *start* of each class – if you are late you will be counted absent. On days of group work, I reserve the right to *lock the door when class begins*. One of the required lab hours is included in our regularly scheduled class time. You are expected to spend *at least* one additional hour per week in the labs. It is the student's responsibility to obtain the information missed during an absence.

GRADING

Grading Criteria	number	weight each	percent of total		
Chapter exams**	11	2%	22%		
Homework	various	various	18%		
Hands-on final	1	30%	30%		
Final Exam	1	30%	30%		
Final Grading Scale	A	B	C	D	F
Percentage cut-off	90%	80%	70%	60	<60

* You must earn higher than 60 on the final exam in order to receive a Network Academy passing grade.

** There will be two opportunities to take each module exam. Any module exam not taken will result in a 0 grade for that exam.

USEFUL WEBSITES

Cisco Academy Home Page: <http://cisco.netacad.net>

Cisco Home Page: <http://www.cisco.com/>

Boson.com: <http://www.boson.com/> Sells a router simulator that many students have found helpful, also sells practice CCNA exams which I found contained some errors.

Cramsession.com: <http://cramsession.com/> .It is a good idea to subscribe to the CCNA question of the day.

Slashdot: News for nerds, stuff that matters: <http://slashdot.org/>

Google search engine: <http://www.google.com/>

WITHDRAWAL AND INCOMPLETE

The last date to drop the course is **11/25/2009**. All students that are listed on the final grade report will receive a final grade. Incomplete grades will be given only if a) you are up-to-date in class AND b) you have a passing grade AND c) you have an emergency or life change that occurred after the semester began that can be verified and is beyond your control.

Basic Router Configuration Tasks

Global

```
hostname
enable password/enable secret
banner motd
Define static routes (if necessary)
Define default network or gateway (if necessary)
```

Lines

```
con 0
    password
    login
vty 0 4
    password
    login
```

Interface (for each active interface)

```
ip address
no shutdown
description
clockrate (if necessary)
Any routing protocol specific configs
(timers, priorities, types,
etc.)
```

Routing (for each protocol being used)

```
router (followed by protocol and parameters for
that protocol)
network (for each directly connected network
that will use this routing protocol)
Set passive interfaces (if necessary)
Redistribute default network if appropriate
```

Optional

```
Enter IP Host table (for convenience – not
covered)
no ip domain lookup(for convenience,
eliminates waiting for dns lookup to timeout
after making a mistake)
logging synchronous (for convenience,
prevents router from interrupting your typing.
WARNING. Makes a denial of service attack
possible on routers that allow remote access)
```

Initial Course Calendar

This is a *tentative* calendar and adjustments are likely. Adjustments will be announced in class. Please work through the e-curriculum *before coming to class*. It will make all of our class time more productive and you will understand the material better.

Wk	Date	Ch.	Title	Topics	Assignments/Activities
1	22-Oct	1	Introduction to Routing and Packet Forwarding	<ul style="list-style-type: none"> • Router Boot-Up Process • CLI Configuration and Addressing • Building the Routing Table • Path determination and Switching Functions 	Lab 1.5.1: Cabling a Network and Basic Router Configuration Lab 1.5.2: Basic Router Configuration Lab 1.5.3: Challenge Router Configuration Week 1 Homework
2	27-Oct	2	Static Routing	<ul style="list-style-type: none"> • Router Configuration Review • Exploring Directly Connected Networks • Static Routes with "Next Hop" Addresses • Static Routes with Exit Interfaces • Summary and Default Static Routes • Managing and Troubleshooting Static Routes 	Lab 2.8.1: Basic Static Route Configuration Lab 2.8.2: Challenge Static Route Configuration Lab 2.8.3: Troubleshooting Static Routes
	29-Oct	3	Introduction to Dynamic Routing Protocols	<ul style="list-style-type: none"> • Classifying Dynamic Routing Protocols • Metrics • Administrative Distances • Routing Protocols and Subnetting Activities 	Activity 3.5.2 Subnetting Scenario 1 Activity 3.5.3 Subnetting Scenario 2 Activity 3.5.4 Subnetting Scenario 3 Lab 5.6.1: Basic RIP Configuration Week 2 Homework -- PT 3.6.1
3	3-Nov	4	Distance Vector Routing Protocols	<ul style="list-style-type: none"> • Distance Vector Technology • Network Discovery • Routing Table Maintenance • Routing Loops • RIP and EIGRP 	Lab 4.6.1: Routing Table Interpretation Lab
	5-Nov	5	RIP Version 1	<ul style="list-style-type: none"> • Distance Vector, Classful Routing Protocol • Basic RIPv1 Configuration • Verification and Troubleshooting • Automatic Summarization • Default Route and RIPv1 	Lab 5.6.2: Challenge RIP Configuration Lab 5.6.3: RIP Troubleshooting Week 3 Homework -- PT 5.6.2
4	10-Nov	6	VLSM and CIDR	<ul style="list-style-type: none"> • Classful and Classless Addressing • VLSM • CIDR • VLSM and Route Summarization Activity 	Activity 6.4.1 Basic VLSM calculation and addressing design Activity 6.4.2 Challenge VLSM calculation and addressing design Activity 6.4.3 Troubleshooting VLSM addressing design Activity 6.4.4 Basic route summarization Lab 7.5.1: RIPv2 Basic Configuration Lab

	12-Nov	7	RIPv2	<ul style="list-style-type: none"> • RIPv1 Limitations • Configuring RIPv2 • VLSM and CIDR • Verifying and Troubleshooting RIPv2 	Activity 6.4.5 Challenge route summarization Activity 6.4.6 Troubleshooting route summarization Lab 7.5.2: RIPv2 Challenge Configuration Lab 7.5.3: RIPv2 Troubleshooting Lab Week 4 Homework -- PT 7.6.1
5	17-Nov	8	The Routing Table: A Closer Look EIGRP	<ul style="list-style-type: none"> • The Routing Table Structure • Routing Table Lookup Process • Routing Behavior • Introduction to EIGRP • Basic EIGRP configuration 	Lab 8.4.1: Investigating the Routing Table Lookup Process Lab 9.6.1: Basic EIGRP Configuration Lab
	19-Nov		EIGRP	<ul style="list-style-type: none"> • EIGRP Metric Calculation • DUAL • More EIGRP Configuration 	Lab 9.6.2: Challenge EIGRP Configuration Lab Lab 9.6.3: EIGRP Troubleshooting Lab Week 5 Homework -- Lab 8.4.2: Show IP Route Challenge Lab
6	24-Nov	9	Link-State Routing Protocols	<ul style="list-style-type: none"> • Link-State Routing • Implementing Link-State Routing Protocols • Introduction to OSPF • Basic OSPF Configuration 	10.3.1: Packet Tracer Skills Integration Challenge Activity Lab 11.6.1: Basic OSPF Configuration Lab Week 6 Homework -- PT 9.7.1
	26-Nov	10	HOLIDAY		
7	1-Dec	11	OSPF	<ul style="list-style-type: none"> • The OSPF Metric • OSPF and Multi-access Networks • More OSPF Configuration 	Lab 11.6.2: Challenge OSPF Configuration Lab
	3-Dec		Review	More OSPF	Lab 11.6.3: OSPF Troubleshooting Lab Week 7 Homework -- PT 11.7.1
8	8-Dec		Skill-Based Exam		
	10-Dec		Skill-Based Exam		
9	15-Dec		Final Exam		

There is a secret to doing well in this class!

PRACTICE

PRACTICE

and MORE PRACTICE!

There is no substitute for time spent entering and troubleshooting router configurations.