

# CIST 2452 - Cisco Routing and Switching Essentials ( version 201512L )

## Course Title                      Course Development      Learning Support

Cisco Routing and Switching Essentials      Standard                      No

### Course Description

This course describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. Topics include switched networks, routing concepts, routing in a switched network, static and dynamic routing, Single-Area OSPF, Access Control Lists, and IP Services (DHCP and NAT).

### Pre-requisites

Pre-requisites: None

### Co-requisites

Co-requisites: All Required

CIST 2451 - Introduction to Networks - CISCO ( 201412L )

### Course Length

	Minutes	Contact Hour	Semester Credit	WLU
<b>Lecture:</b>	<b>1500</b>	<b>30</b>		
<b>Lab 2:</b>	<b>3000</b>	<b>60</b>		
<b>Lab 3:</b>	<b>0</b>	<b>0</b>		
<b>Total:</b>	<b>4500</b>	<b>90</b>	<b>4</b>	
<b>Semester Credit Hours:</b>			<b>4</b>	<b>142.5</b>
<b>Breakout Detail of Lab 3</b>				
<b>Practicum/Internship</b>	<b>0</b>	<b>0</b>		
<b>Clinical</b>	<b>0</b>	<b>0</b>		

### Competencies & Outcomes

Order	Description	Lecture	Lab 2	Lab 3	Total Min	Credit Hrs	Pract Intern	Clinical
1	<b>Switched Networks</b>	270	550	0	820	0	0	0
Order	Description						Learning Domain	Level of Learning
1	Understand LAN design						Cognitive	Comprehension
2	Perform basic switch configuration						Psychomotor	Guided Response
3	Understand basic switch security						Cognitive	Comprehension
4	Explain VLANs						Cognitive	Comprehension
5	Perform VLAN configuration						Psychomotor	Guided Response
2	<b>Routing Concepts</b>	135	250	0	385	1	0	0
Order	Description						Learning	Level of

						Domain	Learning
1	Describe routing decisions					Cognitive	Knowledge
2	Understand router operation					Cognitive	Comprehension
3	Perform initial configuration of a router					Psychomotor	Guided Response

3 **Routing in a Switched Network** 135 275 0 410 1 0 0

Order	Description					Learning Domain	Level of Learning
1	Understand Inter-VLAN routing					Cognitive	Comprehension
2	Perform Inter-VLAN routing configuration					Psychomotor	Guided Response
3	Perform troubleshooting of Inter-VLAN routing					Psychomotor	Guided Response
4	Describe Layer 3 switching					Cognitive	Knowledge

4 **Static and Dynamic Routing** 275 550 0 825 0 0 0

Order	Description					Learning Domain	Level of Learning
1	Understand CIDR and VLSM					Cognitive	Comprehension
2	Perform configuring static routes					Psychomotor	Guided Response
3	Describe distance vector dynamic routing					Cognitive	Knowledge
4	Perform configuring RIP and RIPng routing					Psychomotor	Guided Response
5	Explain link state dynamic routing					Cognitive	Comprehension
6	Describe routing table lookup					Cognitive	Knowledge

5 **Single-Area OSPF** 135 275 0 410 0 0 0

Order	Description					Learning Domain	Level of Learning
1	Understand characteristics of OSPF					Cognitive	Comprehension
2	Perform configuring Single-Area OSPFv2					Psychomotor	Guided Response
3	Perform configuring Single-Area OSPFv3					Psychomotor	Guided Response

6 **Access Control Lists** 275 550 0 825 0 0 0

Order	Description					Learning Domain	Level of Learning
1	Understand IP ALC operation					Cognitive	Comprehension
2	Perform configuring standard IPv4 ACLs					Psychomotor	Guided

							Response		
	3	Perform configuring extended IPv4 ACLs					Psychomotor	Guided Response	
	4	Perform troubleshooting ACLs					Psychomotor	Guided Response	
	5	Understand IPv6 ACLs					Cognitive	Comprehension	
7	<b>IP Services (DCHP and NAT)</b>		275	550	0	825	1	0	0
Order	Description						Learning Domain	Level of Learning	
1	Understand DHCP operation						Cognitive	Comprehension	
2	Perform configuring DHCP for IPv4 and IPv6						Psychomotor	Guided Response	
3	Understand NAT operation						Cognitive	Comprehension	
4	Perform configuring and troubleshooting NAT						Psychomotor	Guided Response	
<b>Competency Totals:</b>			<b>Lecture</b> 1500	<b>Lab 2</b> 3000	<b>Lab 3</b> 0	<b>Total Min</b> 4500	<b>Cred Hrs</b> 4	<b>Pract Intern</b> 0	<b>Clinical</b> 0