



Deputy of training Plan and curriculums office

Job Training standard

Title

Cisco Certified Entry Networking Technician (CCENT) Routing And Switching ICND 2

Iran Technical and Vocational

T Occupational group

Information Technology (IT)

International code

2513-53-129-1

Date of standard compilation: 2016/03/05

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Revision Process:

- Scientific content
- According to market
- Equipment
- Tools

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Training Organization

Definitions:

Job standard:

The characteristics ' required competencies and abilities for Efficient Performance in work environment is called "the Job standard", and sometimes "The Occupational standard"

Training standard:

The Training Map for achieving the Job's subset Competencies.

Job title:

Is a set of Tasks and Abilities which is expected from an employed person in the defined level

Job description:

A statement covering the most important elements of a job, namely the position or title of the job, the duties, job's relation with other jobs in a occupational field, the responsibilities, workplace conditions and required performance standards.

Course duration:

The minimum of time which is required to achieve the training objects.

Admission requirements:

The minimum of competencies and abilities which are obligatory for a potential admission.

Evaluation:

The process of collecting evidence and judgment about wetter a competency is achieved or not. Include: written examination, practical examination

Required Qualifications for Trainers:

The minimum of Trainer's technical and vocational abilities which the trainer is required to have.

Competency:

The ability of efficient performing a duty in a variety of workplaces conditions

Knowledge:

The minimum set of facts and mental capacities which is necessary for achieving a competency. This can include science, (Mathematics, physics, chemistry or biology), technology or technical. Skill: UII \cup *I*(1) \cup (1) \cup (1)(

The minimum coordination between mind and body for achieving an ability or competency. It normally applied to practical skills. ganizailon

Attitude:

A set of emotional behaviors required for achieving a competency and can have non-technical skills and occupational ethics.

Safety:

The cases which doing or not doing something can cause harm or accident

Environmental Consideration:

A set of consideration about the act which should be done to minimize the environmental damage or pollution.

job title:

Cisco Certified Entry Networking Technician (ICND2 Routing And Switching)

Job description:

Cisco Certified Entry Networking Technician (CCENT) validates the ability to install, operate and troubleshoot a small enterprise branch network, including basic network security. With a CCENT, a network professional demonstrates the skills required for entry-level network support positions - the starting point for many successful careers in networking. The curriculum covers networking fundamentals, WAN technologies, basic security and wireless concepts, routing and switching fundamentals, and configuring simple networks. CCENT is the first step toward achieving CCNA, which covers medium-size enterprise branch networks with more complex connections.

admission requirements:

minimum degree of education: Post first year of high school

minimum physical and mental ability:

prerequisite skills: CCENT ICND1

Course duration:

Course duration: 180 hours

-Theoretical :60 Hours

-Practical :120 Hours

-Apprenticeship:... Hours

-Project:... Hours

Evaluation :(%)

IRANTVTO Evaluation :(%)

Written Examination:25%

Practical Examination:65%

Ethics:10%

Required Qualifications for Trainers:

CISCO CCNA degree holders with 2 years experiences

job/competency training standard

competencies /tasks

``	Title
1	Spanning Tree Protocol Concepts
2	Spanning Tree Protocol Implementation
3	Troubleshooting LAN Switching
4	Troubleshooting IPv4 Routing
5	Creating Redundant First-Hop Routers
6	Virtual Private Networks
7	Implementing OSPF for IPv4
8	Understanding EIGRP Concepts
9	Implementing EIGRP for IPv4
10	Troubleshooting IPv4 Routing Protocols
11	Implementing Point-to-Point WANs
12	Understanding Frame Relay Concepts
13	Implementing Frame Relay
14	Identifying Other Types of WANs
15	Troubleshooting IPv6 Routing
16	Implementing OSPF for IPv6
17	Implementing EIGRP for IPv6
18	Managing Network Devices
19	Managing IOS Files
20	Managing IOS Licensing

		time		
Title: Spanning Tree Protocol Concepts	theoretical	practical	total	-
The spanning free frotocol concepts		1		
				Equipments
				Equipments
Knowledge ,skill ,attitude ,safety, Environmental Cons	sideration			,tools, materials ,books
Knowledge and Skill :	Detern	nined by t	he	From Cisco
LAN Switch Forwarding Logic		nstructor		
Switch Verification				-
Viewing the MAC Address Table				-
0				
Determining the VLAN of a Frame				
Verifying Trunks				
Spanning Tree Protocol (IEEE 802.1D)				-
What IEEE 802.1D Spanning Tree Does				
How Spanning Tree Works				
The STP Bridge ID and Hello BPDU				-
Electing the Root Switch				
Choosing Each Switch's Root Port	-			-
Choosing the Designated Port on Each LAN				
Segment				
Influencing and Changing the STP Topology			· · · · ·	
Making Configuration Changes to Influence the				
STP Topology				
Reacting to State Changes That Affect the STP	Ind	Lo	ant	ional n
Topology IN Lechnical C	ma	1.00	- ai	ionai
How Switches React to Changes with STP		+	1 *	
Changing Interface States with STP	gan	lZa	110	n
Optional STP Features				
EtherChannel				
PortFast				
BPDU Guard				
Rapid STP (IEEE 802.1w)				-
Attitude:				
Speed and accuracy in doing the right thing				
Health & Safety:				
Compliance with safety protection in the workpl	ace			
Environmental Consideration:				
Compliance with environmental protection				

Title: Spanning Tree Protocol Implementation theoretical practical total Knowledge ,skill, attitude ,safety, Environmental Consideration .tools, materials .books .tools, materials Knowledge and Skill : Determined by the instructor .tools, materials STP Configuration and Verification instructor From Cisco Stiling the STP Mode Image: Still Structor From Cisco Per-VLAN Configuration Settings Image: Still Structor From Cisco Per-VLAN Port Costs Image: Still Structor Image: Still Structor Configuring STP Operation Image: Still Structor Image: Still Structor Configuring Port Costs Image: Structor Image: Structor Configuring PortFast and BPDU Guard Image: Structor Image: Structor Configuring Dynamic EtherChannel Image: Structor Image: Structor Configuring Dynamic EtherChannels Image: Structor Image: Structor Structor Structor Image: Structor Image: Structor Suggestions for Attacking Root Port Problems Image: Structor Image: Structor Suggestions for Attacking Designated Port Image: Structor Image: Structor Suggestions on the channel			time		
Knowledge ,skill ,attitude ,safety, Environmental Consideration Equipments ,tools, materials ,books Knowledge and Skill : Determined by the instructor stools, materials ,books STP Configuration and Verification instructor From Cisco Setting the STP Mode instructor From Cisco Per-VLAN Configuration Settings instructor From Cisco The Bridge ID and System ID Extension instructor From Cisco Per-VLAN Port Costs instructor From Cisco Configuring STP Port Costs instructor From Cisco Configuring Priority to Influence the Root Election Configuring PortFast and BPDU Guard From Cisco Configuring PortFast and BPDU Guard Instructor Instructor From Cisco Configuring Portentiation Instructor Instructor Instructor STP Troubleshooting Instructor Instructor Instructor Suggestions for Attacking Root Port Problems Instructor Instructor Suggestions for Attacking Designated Port Instructor Instructor STP Convergence Instructor Instructor Instructor Troubleshooting EtherChannel Instructor <td< td=""><td></td><td>theoretical</td><td>practical</td><td>total</td><td></td></td<>		theoretical	practical	total	
Knowledge ,skill ,attitude ,safety, Environmental Consideration .tools, materials ,books Knowledge and Skill : Determined by the instructor .from Cisco STP Configuration and Verification instructor	Implementation				
Knowledge ,skill ,attitude ,safety, Environmental Consideration .tools, materials ,books Knowledge and Skill : Determined by the instructor .from Cisco STP Configuration and Verification instructor					Fauipments
Jooks Knowledge and Skill : Determined by the instructor STP Configuration and Verification instructor Setting the STP Mode instructor Per-VLAN Configuration Settings instructor The Bridge ID and System ID Extension instructor Per-VLAN Port Costs instructor Configuring STP Operation instructor Configuring PortFast and BPDU Guard instructor Configuring PortFast and BPDU Guard instructor Configuring PortFast and BPDU Guard instructor Configuring Dynamic EtherChannel instructor Configuring the Root Switch instructor Determining the Root Port on Nonroot Switches instructor StP Tiebreakers When Choosing the Root Port instructor Suggestions for Attacking Root Port on Each LAN instructor Segment instructor Suggestions for Attacking Designated Port instructor StP Toubleshooting EtherChannel instructor Incorret Options on the channel-group Command instructor Configuration Checks Before Adding Interfaces to EtherChannels instructor Attitude: instructor instructor Speed and accuracy in doing the right thing instructor Health & Safety: instructor	Knowledge skill attitude sefety Environmental Co	neideration			
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EtherChannels Attitude: Speed and accuracy in doing the right thing Health & Safety: Compliance with safety protection in the workplace Environmental Consideration:	Incorrect Options on the channel-group Command				
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Health & Safety: Compliance with safety protection in the workplace Environmental Consideration:	Attitude:			ı	
Compliance with safety protection in the workplace Environmental Consideration:	Speed and accuracy in doing the right thing				
Environmental Consideration:	Health & Safety:				
	Compliance with safety protection in the work	place			
Compliance with environmental protectio	Environmental Consideration:				
	Compliance with environmental protectio				

		Time		
Title: Troubleshooting LAN Switching	4		4 . 4 . 1	
The Troubleshooting LAN Switching	theoretical	practical	total	
				Equipments
Knowledge skill ettinde sefety Environmental Co	naidanation			,tools, materials
Knowledge ,skill ,attitude ,safety, Environmental Co	onsideration			,books
Knowledge and Skill :	Determ	ined by th	ne	From Cisco
Generalized Troubleshooting Methodologies		structor		
Analyzing and Predicting Normal Network				
Operation				
Data Plane Analysis				
Control Plane Analysis				
Problem Isolation				
Root Cause Analysis				
Troubleshooting the LAN Switching Data Plane				
Confirm the Network Diagrams Using CDP				
Isolate Interface Problems				
Interface Status Codes and Reasons for				
Nonworking States				
The notconnect State and Cabling Pinouts				
Determining Switch Interface Speed and Duplex	7			. 7
Issues Related to Speed and Duplex	nd	00	cai	tional
Isolate Filtering and Port Security Problems				
Isolate VLAN and Trunking Problems	gan	$i\pi m$	tin	11
Access VLANs Not Being Defined or Not Being	Sun	1201	10	I b
Active				
Identify Trunks and VLANs Forwarded on				
Those Trunks				
Data Plane Problems				
Verify the Accuracy of the Diagram Using CDP				
Check for Interface Problems				
Check for Port Security Problems				
Check for VLAN and VLAN Trunk Problems				
Data Plane Behavior				
ARP Request (Broadcast)				
ARP Reply (Unicast)				

Attitude:	
Speed and accuracy in doing the right thing	
Health & Safety:	-
Compliance with safety protection in the workplace	
Environmental Consideration:	-
Compliance with environmental protection	



	time			
Title: Troubleshooting IPv4 Routing	theoretical	practical	total	
				Equipment's
				,tools,
Knowledge ,skill ,attitude ,safety, Environmental Cons	sideration			materials
				,books
Knowledge and Skill :	Detern	nined by t	he	From
Host IPv4 Routing Logic		structor		Cisco
Routing Logic Used by IPv4 Routers				CISCO
IP Routing Logic on a Single Router				-
IP Routing from Host to Host				-
Building New Data Link Headers Using ARP				
Information				-
Problem Isolation Using the ping Command				-
Ping Command Basics			h	-
Strategies and Results When Testing with the ping				-
Command				
Testing Longer Routes from Near the Source of			/	-
the Problem				-
Using Extended Ping to Test the Reverse Route				-
Testing LAN Neighbors with Standard Ping				-
Testing LAN Neighbors with Extended Ping	7 7	-		7
Testing WAN Neighbors with Standard Ping	$nd \perp$	OC	ati	onal
Using Ping with Names and with IP Addresses	101 1	~~~	~~~~	CIPCPE
Problem Isolation Using the traceroute Command traceroute Basics	ani	zati	İ01	2
How the traceroute Command Works				
Standard and Extended traceroute				
Using traceroute to Isolate the Problem to Two				
Routers				
Problems Between the Host and the Default				
Router				
Root Causes Based on a Host's IPv4 Settings				
Mismatched Masks Impact Route to Reach Subnet				
Typical Root Causes of DNS Problems				
Wrong Default Router IP Address Setting				
Root Causes Based on the Default Router's				
Configuration				

DHCP Relay Issues	
Router LAN Interface and LAN Issues	
Problems with Routing Packets Between Routers	
IP Forwarding by Matching the Most Specific Route	
Using show ip route and Subnet Math to Find the	
Best Route	
Using show ip route address to Find the Best Route	
Routing Problems Caused by Incorrect Addressing	
Plans	
Recognizing When VLSM Is Used or Not	
Overlaps When Not Using VLSM	
Overlaps When Using VLSM	
Configuring Overlapping VLSM Subnets	
Router WAN Interface Status	
Filtering Packets with Access Lists	
Attitude:	
Speed and accuracy in doing the right thing	
Health & Safety:	
Compliance with safety protection in the workplace	
Environmental Consideration:	
Compliance with environmental protection	
]

		time		
Title : Creating Redundant First-Hop Routers	theoretical	practical	total	
Kouters				
	I	I		Equipments
Knowledge ,skill ,attitude ,safety, Environmental C	Consideratio	on		,tools, materials
				,books
Knowledge and Skill :	Detern	nined by t	he	From Cisco
FHRP Concepts	in	structor		
First Hop Redundancy Protocol				
HSRP Concepts				-
HSRP Failover				-
HSRP Load Balancing				
GLBP Concepts				
FHRP Configuration and Verification			7	-
Configuring and Verifying HSRP				-
Configuring and Verifying GLBP				
Iran Technical a	ind	To	са	tional
Attitude: Training Or	'gar	iiza	tic	n
Speed and accuracy in doing the right thing	0			
Health & Safety:				-
Compliance with safety protection in the work				
Environmental Consideration:				
Compliance with environmental protection				

		time				
Title: Virtual Private Networks	theoretical	practical	total			
				Equipments		
Knowledge ,skill ,attitude ,safety, Environmental C	Consideratio	n		,tools, materials		
	1			,books		
Knowledge and Skill :	Determ	ined by th	ne	From Cisco		
VPN Fundamentals	ins	structor				
IPsec VPNs						
SSL VPNs						
GRE Tunnels						
GRE Tunnel Concepts						
Routing over GRE Tunnels						
GRE Tunnels over the Unsecured Network						
Configuring GRE Tunnels						
Verifying a GRE Tunnel						
Attitude:						
Speed and accuracy in doing the right thing	7	77				
Health & Safety: echnical and oca tional						
Compliance with safety protection in the work	-					
Environmental Consideration:	on	iza	ti	011		
Compliance with environmental protection	541	1120	110	211		

		time		
Title: Implementing OSPF for IPv4	theoretical	practical	total	
				Equipments
Knowladza skill attituda safatu Environmental Co	ncidaration			,tools, materials
Knowledge ,skill ,attitude ,safety, Environmental Co		L		,books
Knowledge and Skill :	Determ	ined by th	ne	From Cisco
OSPF Protocols and Operation		structor		
Maintaining Neighbors and the LSDB				
Using Designated Routers on Ethernet Links				
Scaling OSPF Using Areas				
OSPF Areas				
How Areas Reduce SPF Calculation Time				
OSPF Area Design Advantages				
Link-State Advertisements				
Router LSAs Build Most of the Intra-Area Topology				
Network LSAs Complete the Intra-Area Topology	-			
LSAs in a Multi-Area Design				
Calculating the Best Routes with SPF				
Administrative Distance			/	
OSPF Configuration and Verification				
OSPFv2 Configuration				
Single-Area Configurations		TT-	-	ti and T
Single-Area Configurations Multi-Area Configuration	ina	1.00	ca.	nonai
Verifying the Multi-Area Configuration				
Verifying the Correct Areas on Each Interface on an	gan	iza	tio	n
ABR Varifying Which Bouter Is DB and BDB	0			1 1
Verifying Which Router Is DR and BDR Verifying the Number and Type of LSAs				
Verifying OSPF Routes				
OSPF Metrics (Cost)				
Setting the Cost Based on Interface Bandwidth				
OSPF Load Balancing				
Attitude:				
Speed and accuracy in doing the right thing				
Health & Safety:				
Compliance with safety protection in the work	place			
Environmental Consideration:	Pure			
Compliance with environmental protection				
compliance with environmental protection				

Title: Understanding FICDD	time			
Title: Understanding EIGRP	theoretical	practical	total	
Concepts				
	10 11			Equipments, tools,
Knowledge ,skill ,attitude ,safety, Environmenta	al Consider	ation		materials ,books
EIGRP and Distance Vector Routing Protocols	Determ	ined by th	ne	From Cisco
Basic Distance Vector Routing Protocol	in	structor		
Features				
The Concept of a Distance and a Vector				
Full Update Messages and Split Horizon				
Route Poisoning				
EIGRP Sends Partial Update				
MessagesEIGRP Maintains Neighbor				
Status Using Hello			\	
Interior Routing Protocol Features				
EIGRP Neighbors				
Exchanging EIGRP Topology Information				
Calculating the Best Routes for the Routing				
Table				
The EIGRP Metric Calculation				
Caveats with Bandwidth on Serial Links				
EIGRP Convergence				_
Feasible Distance and Reported Distance	and	11	oc	ational
EIGRP Successors and Feasible Successors	CUILC	a) '	50	<i>cutonat</i>
The Query and Reply Process	man	miz	at	ion
Attitude:	184	1112	Cit	ion
Speed and accuracy in doing the right thing				
Health & Safety:				
Compliance with safety protection in the v	vorkplace			
Environmental Consideration:				
Compliance with environmental protection	n			

		time		
Title: Implementing EIGRP for	theoretical	practical	total	
IPv4				
Knowledge ,skill ,attitude ,safety, Environmen	ntal Conside	ration		Equipments ,tools, materials ,books
Knowledge and Skill :	Determ	ined by th	ne	From Cisco
Core EIGRP Configuration and	ins	structor		
Verification				
Configuring EIGRP Using a Wildcard				
Mask				
Verifying EIGRP Core Features				
Finding the Interfaces on Which EIGRP is				
Enabled				
Displaying EIGRP Neighbor Status				
Displaying the IPv4 Routing Table				
EIGRP Metrics, Successors, and Feasible	R			
Successors				
Viewing the EIGRP Topology Table				
Finding Successor Routes				
Finding Feasible Successor Routes				
Convergence Using the Feasible Successor				
Route				
Other EIGRP Configuration Settings				
Load Balancing Across Multiple EIGRP	7	7 7	-	
Routes IN 1 echnica	l an	$a \vdash$	00	ational
Tuning the EIGRP Metric Calculation	-			
Autosummarization and Discontiguous)voi	miz	m	tion
Classful Networks	1.50		CUI	1011
Automatic Summarization at the Boundary				
of a Classful Network				
Discontiguous Classful Networks				
Attitude:		1		
Speed and accuracy in doing the right thin	g			
Health & Safety:				
Compliance with safety protection in the	workplace			
Environmental Consideration:				
Compliance with environmental protection	on			

	time				
Title: Troubleshooting IPv4 Routing Protocols	theoretical	practical	total		
Knowledge ,skill ,attitude ,safety, Environmental	Equipments ,tools, materials ,books				
Troubleshooting Routing Protocol Problems	Determ	ined by th	ne	From Cisco	
Interfaces Enabled with a Routing Protocol	ins	structor			
EIGRP Interface Troubleshooting					
Examining Working EIGRP Interfaces					
Examining the Problems with EIGRP Interfaces					
OSPF Interface Troubleshooting					
Neighbor Relationships					
EIGRP Neighbor Verification Checks					
OSPF Neighbor Troubleshooting					
Finding Area Mismatches	7				
Finding Duplicate OSPF Router IDs					
Finding OSPF Hello and Dead Timer	7				
Mismatches					
Other OSPF Issues					
Mismatched OSPF Network Types			r		
Mismatched MTU Settings					
Attitude: Toolania al	ana	TZ	201	ational	
Speed and accuracy in doing the right thing	ana	1.0	100	monai	
Health & Safety:	14.00 × 11	ai -	at i	0.14	
Compliance with safety protection in the workplace					
Environmental Consideration:					
Compliance with environmental protection					

		time		
Title: Implementing Point-to-	theoretical	practical	total	
Point WANs				
Knowledge ,skill ,attitude ,safety, Environment	Equipments ,tools, materials ,books			
Leased Line WANs with HDLC	Determ	ined by th	ne	From Cisco
Layer 1 Leased Lines	ins	structor		
The Physical Components of a Leased Line				
Leased Lines and the T-Carrier System				
The Role of the CSU/DSU				
Layer 2 Leased Lines with HDLC				
Configuring HDLC				
Leased-Line WANs with PPP				
PPP Concepts				
PPP Framing	R			
PPP Control Protocols				
PPP Authentication				
Configuring PPP				
CHAP Configuration and Verification				
Troubleshooting Serial Links				
Troubleshooting Layer 1 Problems				
Troubleshooting Layer 2 Problems				
Keepalive Failure PAP and CHAP Authentication Failure	an	d F	00	ational
Troubleshooting Layer 3 Problems	h			. +
Attitude: 17anne C	rgo	m_2	ai	1011
Speed and accuracy in doing the right thing				
Health & Safety:				
Compliance with safety protection in the workplace				
Environmental Consideration:				
Compliance with environmental protection	n			

Titles Understanding France Deler-		time			
Title: Understanding Frame Relay	theoretical	practical	total		
Concepts					
Knowledge ,skill ,attitude ,safety, Environment	tal Conside	ration		Equipments ,tools, materials ,books	
Knowledge and Skill :	Determ	ined by th	ne	From Cisco	
Virtual Circuits	ins	structor			
LMI and Encapsulation Types					
Frame Relay Encapsulation and Framing					
Frame Relay Addressing					
Frame Relay Local Addressing					
Frame Forwarding with One DLCI Field					
Network Layer Addressing with Frame Relay					
Frame Relay Layer 3 Addressing: One			\sim		
Subnet Containing All Frame Relay DTEs	K \				
Frame Relay Layer 3 Addressing: One					
Subnet Per VC					
Frame Relay Layer 3 Addressing: Hybrid					
Approach					
Attitude:					
Speed and accuracy in doing the right thing	5				
Health & Safety:					
Compliance with safety protection in the	$\overline{\Omega}$	ational			
Environmental Consideration:					
Compliance with environmental protection	'n	viai=		tion	
<i>i raining</i> C	rga	IIIZ	all	1011	

		time		
Title: Implementing Frame Relay	theoretical	practical	total	
				Equipments
Knowledge, skill, attitude, safety, Environmenta	al Consider	ation		,tools, materials
		ution		,books
Knowledge and Skill :	Deter	mined by	the	From Cisco
Frame Relay Configuration and Verification	i	nstructor		
Planning a Frame Relay Configuration				
Configuring Using Physical Interfaces and				-
One IP Subnet				
Configuring the Encapsulation and LMI				
Frame Relay Address Mapping				
Configuring Point-to-Point Subinterfaces				-
Configuring with Multipoint Subinterfaces				
OSPF Issues on Frame Relay Multipoint				
and Physical Interfaces				
Frame Relay Troubleshooting	5/			
Layer 1 Issues on the Access Link				
Layer 2 Issues on the Access Link				
PVC Problems and Status				
Frame Relay Mapping Issues				
End-to-End Encapsulation		.7 T 7		4:
Mismatched Subnet Numbers	and	210	oca	nonal
Attitude:				
Speed and accuracy in doing the right thing	Irga	niz	atic	n
Health & Safety:	- 0-1			
Compliance with safety protection in the v	vorkplace			
Environmental Consideration:				
Compliance with environmental protection	n			

		time		
Title: Identifying Other Types of WANs	theoretical	practical	total	
WANS				
Knowledge ,skill ,attitude ,safety, Environmen	Equipments ,tools, materials ,books			
Knowledge and Skill :	Determ	ined by th	ne	From Cisco
Private WANs to Connect Enterprises	ins	structor		
Leased Lines				
Frame Relay				
Ethernet WANs				
MPLS				
VSAT				
Public WANs and Internet Access				
Internet Access (WAN) Links				
Dial Access with Modems and ISDN	\mathbf{K}			
Digital Subscriber Line				
Cable Internet				
Mobile Phone Access with 3G/4G				
PPP over Ethernet				
Attitude:				
Speed and accuracy in doing the right thing	5			
Health & Safety:	_		_	
Compliance with safety protection in the workplace				
Environmental Consideration:				
Compliance with environmental protection	m The control	mis	- cri	tion
<u> </u>	ngu	m_{2}	CU	1011

		time		
Title: Troubleshooting IPv6	theoretical	practical	total	
Routing				
Knowledge, skill, attitude, safety, Environment	al Consider	ration		Equipments ,tools, materials ,books
Knowledge and Skill :	Deterr	nined by	the	From Cisco
Unicast IPv6 Addresses and IPv6 Subnetting	ir	nstructor		
Assigning Addresses to Hosts				
Stateful DHCPv6				
Stateless Address Autoconfiguration				
Router Address and Static Route Configuration				
Configuring IPv6 Routing and Addresses				
on Routers				
IPv6 Static Routes on Routers	\mathbb{R}^{+}			
Verifying IPv6 Connectivity				
Verifying Connectivity from IPv6 Hosts				
Verifying IPv6 from Routers	57			
Troubleshooting IPv6				
Problems Using Any Function That				
Requires DNS				
Host Is Missing IPv6 Settings: Stateful				
DHCP Issues Host Is Missing IPv6 Settings: SLAAC Issues	an	dT	000	tional
Traceroute Shows Some Hops, But Fails	~ P I I V	- T - T	~~~	PDP O I POPP
Routing Looks Good, But Traceroute Still	marc	ıniz	ati	010
Fails	180	trit_	CIII	ON
Attitude:	<u> </u>	1	1	
Speed and accuracy in doing the right thing				
Health & Safety:				
Compliance with safety protection in the v				
Environmental Consideration:				
Compliance with environmental protection	n			

Title: Implementing OSPF for		time		
IPv6	theoretical	practical	total	
11 v0				
Knowledge ,skill ,attitude ,safety, Environment	Equipments ,tools, materials ,books			
Knowledge and Skill :	Determ	ined by th	ne	From Cisco
OSPFv3 Configuration	ins	tructor		
Multi-Area OSPFv3 Configuration				
Single Area Configuration				
Adding Multi-Area Configuration on the				
Area Border Router				
Other OSPFv3 Configuration Settings				
Setting OSPFv3 Interface Cost to				
Influence Route Selection				
OSPF Load Balancing				
Injecting Default Routes				
OSPF Concepts, Verification, and				
Troubleshooting				
OSPFv3 Interfaces				
Verifying OSPFv3 Interfaces				
Troubleshooting OSPFv3 Interfaces		-		
OSPFv3 Neighbors				
Verifying OSPFv3 Neighbors				
Troubleshooting OSPFv3 Neighbors OSPFv3 LSDB and LSAs	an	d F	00	ational
Verifying OSPFv3 LSAs Troubleshooting OSPFv3 LSAs	rge	iniz	at	ion
OSPFv3 Metrics and IPv6 Routes				
Verifying OSPFv3 Interface Cost and				
Metrics				
Troubleshooting IPv6 Routes Added by				
OSPFv3				
Attitude:	1	I	1	
Speed and accuracy in doing the right thing	Ş			
Health & Safety:				
Compliance with safety protection in the	workplace			
Environmental Consideration:				
Compliance with environmental protection	n			

Title: Implementing EIGRP for		time		
IPv6	theoretical	practical	total	
Knowledge ,skill ,attitude ,safety, Environmental	Considera	tion		Equipments ,tools, materials ,books
EIGRPv6 Configuration	Determ	ined by th	ne	From Cisco
EIGRPv6 Configuration Basics		structor		
Other EIGRPv6 Configuration Settings				
Setting Bandwidth and Delay to Influence				
EIGRPv6 Route Selection				
EIGRP Load Balancing				
EIGRP Timers				
EIGRPv6 Concepts, Verification, and			1	
Troubleshooting				
EIGRPv6 Interfaces				
EIGRPv6 Neighbors				
EIGRPv6 Topology Database				
EIGRPv6 IPv6 Routes				
Attitude:		7 7 7		
Speed and accuracy in doing the right thing	ana	110	C(ational
Health & Safety:		-		
Compliance with safety protection in the w	ati	011		
Environmental Consideration:	. 80			U 1 P
Compliance with environmental protection				

		time		
Title: Managing Network Devices	theoretical	practical	total	
Knowledge ,skill ,attitude ,safety, Environment	Equipments ,tools, materials ,books			
Knowledge and Skill :	Determ	ined by th	ne	From Cisco
Simple Network Management Protocol	ins	tructor		
The Management Information Base				
Configuring SNMP Version 2c				
SNMP Version 3				
System Message Logging (Syslog)				
System Message Format				
System Message Severity Levels				
Configuring and Verifying Syslog				
Using a Syslog Server	\mathbf{K}			
NetFlow				
Network Flows				
Configuring NetFlow				
Verifying and Using NetFlow				
The NetFlow Collector				
Attitude:				
Speed and accuracy in doing the right thing	ç			
Health & Safety: Compliance with safety protection in the	workplace	d T	00	eational
Environmental Consideration:)			the second
Compliance with environmental protection	irge	INIZ	al	1011

		time		
Title: Managing IOS Files	theoretical	practical	total	
Knowledge ,skill ,attitude ,safety, Environment	al Conside	ration		Equipments ,tools, materials ,books
Managing Cisco IOS Files	Determ	ined by th	ne	From Cisco
Upgrading a Cisco IOS Software Image	ins	structor		
into Flash Memory				
The Cisco IOS Software Boot Sequence				
The Three Router Operating Systems				
The Configuration Register				
How a Router Chooses Which OS to Load				
Recovering If the IOS Does Not Load				
Verifying the IOS Image Using the show				
version Command				
Password Recovery				
The General Ideas Behind Cisco Password				
Recovery/Reset			7	
Managing Configuration Files			/	
Configuration File Basics				
Copying and Erasing Configuration Files				
Initial Configuration (Setup Mode)				
Attitude: Speed and accuracy in doing the right thing	an	d T'	00	ational
Health & Safety:		_ *		
Compliance with safety protection in the workplace				tion
Environmental Consideration:	0	<i>i</i>	~ 1/ 1	P 🗸 I P
Compliance with environmental protectio	n			

		time		
Title: Managing IOS Licensing	theoretical	practical	total	
				Equipments ,tools,
Knowledge ,skill ,attitude ,safety, Environment	al Conside	ration		materials ,books
Knowledge and Skill :	Determ	ined by th	ne	From Cisco
IOS Packaging	ins	structor		
IOS Images per Model, Series, and per				
Software Version/Release				
Original Packaging: One IOS Image per				
Feature Set Combination				
New IOS Packaging: One Universal Image				
with All Feature Sets				
IOS Software Activation with Universal				
Images				
Managing Software Activation with Cisco				
License Manager				
Manually Activating Software Using				
Licenses				
Showing the Current License Status				
Adding a Permanent Technology Package				
License				
Right-to-Use Licenses	an	d T'	0	ational
Attitude:	CIII	$\mathcal{A} \rightarrow$	00	anonai
Speed and accuracy in doing the right thing	h.			. *
Health & Safety:	rge	<u>IHIZ</u>	al	10N
Compliance with safety protection in the	workplace			
Environmental Consideration:				
Compliance with environmental protectio	n			

Equipment standard form

	Title	Technical specification	Quantity
١	Computer	Ram:2G VGA:Intel CPU:i3 HDD:256	7
2	Switch	Switch Cisco 2960 & 2950	1
3	Router	Router Cisco 2911 & 2901 & 2811	1
4	Console Cable		2
5	Ethernet Cable		2
6	Packet Tracer	Last Version	7
7	Video Projector		1
8	Smart Board &		1
	Whiteboard		

*Required quantity for each 15 Trainees

Resources (books, site, software...)

Boson NetSim Software				
GNS 3				
ndell Odom	Cisco press			
	ndell Odom			

