

## Scaling Networks - Chapter 1, LAN Design

Page	NICE	NGSS	ITEA	DODEA	Exam Objective
Section 1.0 Introduction to LAN Design					
1.0.1 Introduction					
1.0.1.1 Introduction		HS-ETS1.	ITEA.6.	IT-NET 1	
1.0.1.2 Class Activity - Network by Design		HS-ETS1.	ITEA.6.	IT-NET 1 CCR.ELA-Literacy.RST.11-12.4.	
Section 1.1 Campus Wired LAN Designs					
1.1.1 Cisco Validated Designs					
1.1.1.1 The Need to Scale the Network	K0486	HS-ETS1.	ITEA.6.	IT-NET 1	
1.1.1.2 Hierarchical Network Design	K0486	HS-ETS1.	ITEA.6.	IT-NET 1	
1.1.2 Expanding the Network					
1.1.2.1 Design for Scalability	K0486	HS-ETS1.	ITEA.6.	IT-NET 1	
1.1.2.2 Planning for Redundancy	K0486	HS-ETS1.	ITEA.6.	IT-NET 1	
1.1.2.3 Failure Domains	K0486	HS-ETS1.	ITEA.6.	IT-NET 1	
1.1.2.4 Increasing Bandwidth	K0486	HS-ETS1.	ITEA.6.	IT-NET 1	
1.1.2.5 Expanding the Access Layer	K0221	HS-ETS1.	ITEA.6.	IT-NET 1	
1.1.2.6 Fine-tuning Routing Protocols	T0035	HS-ETS1.	ITEA.6.	IT-NET 1	
1.1.2.7 Activity - Identify Scalability Terminology		HS-ETS1.		IT-NET 1 CCR.ELA-Literacy.RST.11-12.4.	
Section 1.2 Selecting Network Devices					
1.2.1 Switch Hardware					2.1 Install and configure network components
1.2.1.1 Switch Platforms	K0011	HS-ETS1.	ITEA.8.	IT-NET 1	
1.2.1.2 Port Density	K0011	HS-ETS1.	ITEA.8.	IT-NET 1	
1.2.1.3 Forwarding Rates	K0011	HS-ETS1.	ITEA.8.	IT-NET 1	
1.2.1.4 Power Over Ethernet	K0011	HS-ETS1.	ITEA.8.	IT-NET 1	
1.2.1.5 Multilayer Switching	K0011	HS-ETS1.	ITEA.8.	IT-NET 1	
1.2.1.6 Activity - Selecting Switch Hardware	K0011	HS-ETS1.	ITEA.8.	IT-NET 1 CCR.ELA-Literacy.RST.11-12.4.	
1.2.1.7 Packet Tracer - Comparing 2960 and 3560 Switches	K0011	HS-ETS1.	ITEA.8.	IT-NET 1 CCR.ELA-Literacy.RST.11-12.9.	
1.2.2 Router Hardware					2.1 Install and configure network components
1.2.2.1 Router Requirements	K0011	HS-ETS1.	ITEA.8.	IT-NET 1	
1.2.2.2 Cisco Routers	K0011	HS-ETS1.	ITEA.8.	IT-NET 1	
1.2.2.3 Router Hardware	K0011	HS-ETS1.	ITEA.8.	IT-NET 1	
1.2.2.4 Activity - Identify the Router Category	K0011	HS-ETS1.	ITEA.8.	IT-NET 1 CCR.ELA-Literacy.RST.11-12.4.	
1.2.3 Managing Devices					
1.2.3.1 Managing IOS Files and Licensing	T0125	HS-ETS1.	ITEA.8.	IT-NET 1	
1.2.3.2 In-Band versus Out-of-Band Management	T0125	HS-ETS1.	ITEA.8.	IT-NET 1	
1.2.3.3 Syntax Checker - Basic Router CLI Commands		HS-ETS1.	ITEA.8.	IT-NET 1 CCR.ELA-Literacy.RST.11-12.9.	

1.2.3.4 Syntax Checker - Basic Router Show Commands		HS-ETS1.	ITEA.8.	IT-NET 1 CCR.ELA-Literacy.RST.11-12.9.	
1.2.3.5 Basic Switch CLI Commands	T0125	HS-ETS1.	ITEA.8.	IT-NET 1	
1.2.3.6 Basic Switch Show Commands	T0125	HS-ETS1.	ITEA.8.	IT-NET 1	
Section 1.3 Summary					
1.3.1 Summary					
1.3.1.1 Class Activity - Layered Network Design Simulation		HS-ETS1.	ITEA.8.	IT-NET 1 CCR.ELA-Literacy.RST.11-12.7.	
1.3.1.2 Syntax Checker - Basic Switch Configuration		HS-ETS1.	ITEA.8.	IT-NET 1 CCR.ELA-Literacy.RST.11-12.9.	
1.3.1.3 Packet Tracer - Skills Integration Challenge		HS-ETS1.	ITEA.8.	IT-NET 1 CCR.ELA-Literacy.RST.11-12.9.	
1.3.1.4 Summary		HS-ETS1.	ITEA.8.	IT-NET 1	

## Scaling Networks - Chapter 2, Scaling VLANS

Page	NICE	NGSS	ITEA	DODEA	Exam Objective
Section 2.0 Introduction					1.2.b DTP and VTP (v1&v2)
2.0.1 Welcome					
2.0.1.1 Introduction		HS-ETS1.	ITEA.2.	IT-NET 3	1.2.b DTP and VTP (v1&v2)
Section 2.1 VTP, Extended VLANs, and DTP					
2.1.1 VTP Concepts and Operation					
2.1.1.1 VTP Overview	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.2.b DTP and VTP (v1&v2)
2.1.1.2 VTP Modes	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.1.b Default VLAN 1.2.a Add and remove VLANs on a trunk 1.2.b DTP and VTP (v1&v2)
2.1.1.3 VTP Advertisements	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.2.a Add and remove VLANs on a trunk 1.2.b DTP and VTP (v1&v2)
2.1.1.4 VTP Versions	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.2.b DTP and VTP (v1&v2)
2.1.1.5 Default VTP configuration	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.1.b Default VLAN 1.2.b DTP and VTP (v1&v2)
2.1.1.6 VTP Caveats	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.1.b Default VLAN 1.2.a Add and remove VLANs on a trunk 1.2.b DTP and VTP (v1&v2)
2.1.1.7 Activity - Identify VTP Concepts and Operations		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	1.2.a Add and remove VLANs on a trunk 1.2.b DTP and VTP (v1&v2)
2.1.2 VTP Configuration					
2.1.2.1 VTP Configuration Overview	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.2.a Add and remove VLANs on a trunk 1.2.b DTP and VTP (v1&v2)
2.1.2.2 Step 1 – Configure the VTP Server	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.1.b Default VLAN 1.2.a Add and remove VLANs on a trunk 1.2.b DTP and VTP (v1&v2)
2.1.2.3 Step 2 – Configure the VTP Domain Name and Password	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.2.b DTP and VTP (v1&v2)
2.1.2.4 Step 3 – Configure the VTP Clients	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.2.b DTP and VTP (v1&v2)
2.1.2.5 Step 4 – Configure VLANs on the VTP Server	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.1.b Default VLAN 1.2.a Add and remove VLANs on a trunk
2.1.2.6 Syntax Checker - Step 5 – Verify that the VTP Clients Have Received the New VLAN Information	T0035	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.2.b DTP and VTP (v1&v2)
2.1.3 Extended VLANs	K0011				
2.1.3.1 VLAN Ranges on Catalyst Switches	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.7.a 802.1x
2.1.3.2 Syntax Checker - Creating a VLAN	T0035	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.2.a Add and remove VLANs on a trunk
2.1.3.3 Syntax Checker - Assigning Ports to VLANs	T0035	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.1.a Access ports 1.2.a Add and remove VLANs on a trunk
2.1.3.4 Syntax Checker - Verifying VLAN Information	T0035	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.1.a Access ports

2.1.3.5 Syntax Checker - Configuring Extended VLANs	T0035	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	
2.1.4 Dynamic Trunking Protocol	T0035				
2.1.4.1 Introduction to DTP	T0035	HS-ETS1.	ITEA.2.	IT-NET 3	1.2.b DTP and VTP (v1&v2)
2.1.4.2 Syntax Checker - Negotiated Interface Modes	T0035	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.7.	1.2.b DTP and VTP (v1&v2)
2.1.4.3 Activity - Predict Dynamic Trunking Protocol (DTP) Behavior	T0035	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	1.2.b DTP and VTP (v1&v2)
2.1.4.4 Packet Tracer - Configure VTP and DTP	T0035	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.2.b DTP and VTP (v1&v2)
2.1.4.5 Lab - Configure Extended VLANs, VTP and DTP	T0035	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.3.	1.2.b DTP and VTP (v1&v2)
Section 2.2 Troubleshoot Multi-VLAN Issues	S0041				
2.2.1 Inter-VLAN configuration issues	S0041				
2.2.1.1 Deleting VLANs	S0041	HS-ETS1.	ITEA.12.	IT-NET 5	1.1.b Default VLAN 1.2.a Add and remove VLANs on a trunk
2.2.1.2 Switch Port Issues	S0041	HS-ETS1.	ITEA.12.	IT-NET 5	1.1.b Default VLAN 2.1.b Router on a stick
2.2.1.3 Verify Switch Configuration	S0041	HS-ETS1.	ITEA.12.	IT-NET 5	1.1.b Default VLAN 2.1.b Router on a stick
2.2.1.4 Interface Issues	S0041	HS-ETS1.	ITEA.12.	IT-NET 5	1.1.b Default VLAN 2.1.b Router on a stick
2.2.1.5 Verify Routing Configuration	S0041	HS-ETS1.	ITEA.12.	IT-NET 5	2.1.b Router on a stick
2.2.2 IP Addressing Issues					
2.2.2.1 Errors with IP Addresses and Subnet Masks	K0471	HS-ETS1.	ITEA.12.	IT-NET 5	
2.2.2.2 Verifying IP Address and Subnet Mask Configuration Issues	K0471	HS-ETS1.	ITEA.12.	IT-NET 5	
2.2.2.3 Activity - Identify the Troubleshooting Command for an Inter-VLAN Routing Issue	K0471	HS-ETS1.	ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.4.	
2.2.2.4 Packet Tracer - Troubleshooting Inter-VLAN Routing	K0471	HS-ETS1.	ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
2.2.2.5 Lab - Troubleshooting Inter-VLAN Routing	K0471	HS-ETS1.	ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.3.	
2.2.3 VTP and DTP Issues					
2.2.3.1 Troubleshoot VTP Issues	S0041	HS-ETS1.	ITEA.12.	IT-NET 5	1.2.b DTP and VTP (v1&v2)
2.2.3.2 Troubleshoot DTP Issues	S0041	HS-ETS1.	ITEA.12.	IT-NET 5	1.2.b DTP and VTP (v1&v2)
2.2.3.3 Packet Tracer - Troubleshoot VTP and DTP Issues	S0041	HS-ETS1.	ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	1.2.b DTP and VTP (v1&v2)
Section 2.3 Layer 3 Switching					
2.3.1 Layer 3 Switching Operation and Configuration					
2.3.1.1 Introduction to Layer 3 Switching	K0011	HS-ETS1.	ITEA.12.	IT-NET 5	1.7.b SVI
2.3.1.2 Inter-VLAN Routing with Switch Virtual Interfaces	K0011	HS-ETS1.	ITEA.12.	IT-NET 5	1.1.a Access ports (data and voice) 1.7.b SVI

2.3.1.3 Inter-VLAN Routing with Switch Virtual Interfaces (Cont.)	K0011	HS-ETS1.	ITEA.12.	IT-NET 5	1.1.a Access ports (data and voice) 1.7.a 802.1x 1.7.b SVI
2.3.1.4 Inter-VLAN Routing with Routed Ports	K0011	HS-ETS1.	ITEA.12.	IT-NET 5	1.1.a Access ports (data and voice) 1.7.b SVI
2.3.1.5 Packet Tracer - Configure Layer 3 Switching and Inter-VLAN routing	K0011	HS-ETS1.	ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	1.7.b SVI
2.3.2 Troubleshoot Layer 3 Switching					
2.3.2.1 Layer 3 Switch Configuration Issues	K0011	HS-ETS1.	ITEA.12.	IT-NET 5	1.7.b SVI
2.3.2.2 Example: Troubleshooting Layer 3 Switching	K0011	HS-ETS1.	ITEA.12.	IT-NET 5	1.7.b SVI
2.3.2.3 Activity - Troubleshoot Layer 3 Switching Issues	K0011	HS-ETS1.	ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.4.	1.7.b SVI
Section 2.4 Summary					
2.4.1 Summary					
2.4.1.1 Conclusion		HS-ETS1.	ITEA.12.	IT-NET 3	1.2.b DTP and VTP (v1&v2)

## Scaling Networks - Chapter 3, STP

Page	NICE	NGSS	ITEA	DODEA	Exam Objective
Section 3.0 Lan Redundancy					
3.0.1 Introduction					
3.0.1.1 Introduction		HS-ETS1.	ITEA.12.	IT-NET 2	
3.0.1.2 Class Activity - Stormy Traffic		HS-ETS1.	ITEA.12.	IT-NET 2 CCR.ELA-Literacy.WHST.11-12.7.	
Section 3.1 Spanning Tree Concepts					
3.1.1 Purpose of Spanning Tree					
3.1.1.1 Redundancy at OSI Layers 1 and 2	K0221	HS-ETS1.	ITEA.12.	IT-NET 2	
3.1.1.2 Issues with Layer 1 Redundancy: MAC Database Instability	K0221	HS-ETS1.	ITEA.12.	IT-NET 2	
3.1.1.3 Issues with Layer 1 Redundancy: Broadcast Storms	K0221	HS-ETS1.	ITEA.12.	IT-NET 2	
3.1.1.4 Issues with Layer 1 Redundancy: Duplicate Unicast Frames	K0221	HS-ETS1.	ITEA.12.	IT-NET 2	
3.1.1.5 Packet Tracer - Examining a Redundant Design	K0221	HS-ETS1.	ITEA.12.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.9.	
3.1.2 STP Operation					
3.1.2.1 Spanning Tree Algorithm: Introduction	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.7.a 802.1x
3.1.2.2 Spanning Tree Algorithm: Port Roles	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.b STP root bridge selection 1.7.a 802.1x
3.1.2.3 Spanning Tree Algorithm: Root Bridge	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.b STP root bridge selection
3.1.2.4 Spanning Tree Algorithm: Path Cost	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.b STP root bridge selection
3.1.2.5 Port Role Decisions for RSTP	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.b STP root bridge selection
3.3.2.6 Designated and Alternate Ports	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.b STP root bridge selection
3.1.2.7 802.1D BPDU Frame Format	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.b STP root bridge selection 1.7.a 802.1x
3.1.2.8 802.1D BPDU Propagation and Process	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.b STP root bridge selection 1.7.a 802.1x
3.1.2.9 Extended System ID	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.b STP root bridge selection 1.7.a 802.1x
3.1.2.10 Activity - Identify 802.1D Port Rules	K0011	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	1.7.a 802.1x
3.1.2.11 Video - Observing Spanning Tree Protocol Operation	K0011	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.7.	
3.1.2.12 Lab - Building a Switched Network with Redundant Links	K0011	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.3.	1.3.b STP root bridge selection
Section 3.2 Varieties of Spanning Tree Protocols					
3.2.1 Overview					1.3.a spanning tree modes
3.2.1.1 Types of Spanning Tree Protocols	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.4.a PortFast 1.4.b BPDU guard 1.7.a 802.1x

3.2.1.2 Characteristics of the Spanning Tree Protocols	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.b STP root bridge selection 1.4.a PortFast 1.4.b BPDU guard 1.7.a 802.1x
3.2.1.3 Activity - Identify Types of Spanning Tree Protocols	K0011	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
3.2.2 PVST+	K0011				1.3.a spanning tree modes 1.3.a STP mode (PVST+ and RPVST+)
3.2.2.1 Overview of PVST+	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.a STP mode (PVST+ and RPVST+) 1.3.b STP root bridge selection 1.7.a 802.1x
3.2.2.2 Port States and PVST+ Operation	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.a STP mode (PVST+ and RPVST+) 1.3.b STP root bridge selection
3.2.2.3 Extended System ID and PVST+ Operation	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.a STP mode (PVST+ and RPVST+) 1.3.b STP root bridge selection
3.2.2.4 Activity - Identify PVST+ Operations	K0011	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	1.3.a STP mode (PVST+ and RPVST+)
3.2.3 Rapid PVST+	K0011				
3.2.3.1 Overview of Rapid PVST+	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.a STP mode (PVST+ and RPVST+) 1.3.b STP root bridge selection 1.7.a 802.1x
3.2.3.2 RSTP BPDU	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.a STP mode (PVST+ and RPVST+) 1.3.b STP root bridge selection 1.7.a 802.1x
3.2.3.3 Edge Ports	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.1.a Access ports (data and voice) 1.3.a STP mode (PVST+ and RPVST+) 1.4.a PortFast 1.7.a 802.1x
3.2.3.4 Link Types	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.a STP mode (PVST+ and RPVST+) 1.3.b STP root bridge selection
3.2.3.5 Activity - Compare PVST+ and Rapid PVST+	K0011	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	1.3.a STP mode (PVST+ and RPVST+)
Section 3.3 Spanning Tree Configuration					
3.3.1 PVST+ Configuration					
3.3.1.1 Catalyst 3960 Default Configuration	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.a STP mode (PVST+ and RPVST+)
3.3.1.2 Syntax Checker - Configuring and Verifying the Bridge ID	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.3.a STP mode (PVST+ and RPVST+) 1.3.b STP root bridge selection
3.3.1.3 Syntax Checker - PortFast and BPDU Guard	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.1.a Access ports (data and voice) 1.3.a STP mode (PVST+ and RPVST+) 1.4.a PortFast 1.4.b BPDU guard 1.7.a 802.1x
3.3.1.4 Syntax Checker - PVST+ Load Balancing	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.3.a STP mode (PVST+ and RPVST+) 1.3.b STP root bridge selection 1.7.a 802.1x

3.3.1.5 Packet Tracer - Configuring PVST+	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.3.a STP mode (PVST+ and RPVST+) 1.4.a PortFast 1.4.b BPDU guard
3.3.3 Rapid PVST+ Configuration					
3.3.2.1 Spanning-Tree Mode	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.a STP mode (PVST+ and RPVST+)
3.3.2.2 Packet Tracer - Configuring Rapid PVST+	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.3.a STP mode (PVST+ and RPVST+) 1.4.a PortFast 1.4.b BPDU guard
3.3.2.3 Lab - Configuring Rapid PVST+, PortFast and BPDU Guard	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.3.	1.3.a STP mode (PVST+ and RPVST+) 1.3.b STP root bridge selection 1.4.a PortFast 1.4.b BPDU guard
3.3.3 STP Configuration Issues					
3.3.3.1 Analyzing the STP Topology	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.b STP root bridge selection
3.3.3.2 Expected Topology versus Actual Topology	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	
3.3.3.3 Overview of Spanning Tree Status	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	1.3.b STP root bridge selection
3.3.3.4 Spanning Tree Failure Consequences	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	
3.3.3.5 Repairing a Spanning Tree Problem	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	
3.3.3.6 Activity - Troubleshoot STP Configuration Issues	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
3.3.4 Switch Stacking and Chassis Aggregation		HS-ETS1.	ITEA.2.	IT-NET 3	
3.3.4.1 Switch Stacking Concepts	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	
3.3.4.2 Spanning Tree and Switch Stacks	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	
3.3.4.3 Activity - Identify Switch Stacking Concepts	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
Section 3.4 Summary					
3.4.1 Summary					
3.4.1.1 Class Activity - Documentation Tree		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.WHST.11-12.7.	
3.4.1.2 Summary		HS-ETS1.	ITEA.2.	IT-NET 3	



## Scaling Networks - Chapter 4, EtherChannel and HSRP

Page	NICE	NGSS	ITEA	DODEA	Exam Objective
Section 4.0 Introduction					
4.0.1 Introduction					
4.0.1.1 Introduction		HS-ETS1.	ITEA.2.	IT-NET 3	1.5.b PAGP 1.5.c LACP
4.0.1.2 Class Activity - Imagine This		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.WHST.11-12.7.	
Section 4.1 Link Aggregation Concepts					
4.1.1 Link Aggregation					
4.1.1.1 Introduction to Link Aggregation	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	
4.1.1.2 Advantages of EtherChannel	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.5.a Static 1.5.b PAGP
4.1.2 EtherChannel Operation					
4.1.2.1 Implementation Restrictions	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	
4.1.2.2 Port Aggregation Protocol	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.5.b PAGP 1.5.c LACP
4.1.2.3 Link Aggregation Control Protocol	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	1.5.b PAGP 1.5.c LACP
4.1.2.4 Activity - Identify the PAGP and LACP Modes	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	1.5.b PAGP 1.5.c LACP
Section 4.2 Link Aggregation Configuration					
4.2.1 Configuring EtherChannel					
4.2.1.1 Configuration Guidelines	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	1.5.c LACP
4.2.1.2 Syntax Checker - Configuring Interfaces	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.5.c LACP
4.2.1.3 Packet Tracer - Configuring EtherChannel	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	1.5.b PAGP 1.5.c LACP
4.2.1.4 Lab - Configuring EtherChannel	S0041	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.3.	1.5.b PAGP 1.5.c LACP
4.2.2 Verifying and Troubleshooting EtherChannel					
4.2.2.1 Syntax Checker - Verifying EtherChannel	S0041	HS-ETS1.	ITEA.2.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	1.5.c LACP
4.2.2.2 Troubleshooting EtherChannel	S0041	HS-ETS1.	ITEA.2.	IT-NET 5	1.5.b PAGP 1.5.c LACP
4.2.2.3 Packet Tracer - Troubleshooting EtherChannel	S0041	HS-ETS1.	ITEA.2.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
4.2.2.4 Lab - Troubleshooting EtherChannel	S0041	HS-ETS1.	ITEA.2.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.3.	
Section 4.3 First Hop Redundancy Protocols					
4.3.1 Concept of First Hop Redundancy Protocols					
4.3.1.1 Default Gateway Limitations	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.1.2 Router Redundancy	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	

4.3.1.3 Steps for Router Failover	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.1.4 Activity - Identify FHRP Terminology	S0041	HS-ETS1.	ITEA.2.	IT-NET 3CCR.ELA-Literacy.RST.11-12.4.	
4.3.1.5 First Hop Redundancy Protocols	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.1.6 Activity - Identify the Type of FHRP	S0041	HS-ETS1.	ITEA.2.	IT-NET 3CCR.ELA-Literacy.RST.11-12.4.	
4.3.2 HSRP Operations					
4.3.2.1 HSRP Overview	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.2.2 HSRP Versions	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.2.3 HSRP Priority and Preemption	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.2.4 HSRP States and Timers	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.2.5 Activity - Identify HSRP Terminology and States	S0041	HS-ETS1.	ITEA.2.	IT-NET 3CCR.ELA-Literacy.RST.11-12.4.	
4.3.3 HSRP Configuration	S0041				
4.3.3.1 HSRP Configuration Commands	T0125	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.3.2 HSRP Sample Configuration	T0125	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.3.3 Syntax Checker - HSRP Verification	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.3.4 Lab - Configure HSRP	S0041	HS-ETS1.	ITEA.2.	IT-NET 3CCR.ELA-Literacy.RST.11-12.3.	
4.3.4 HSRP Troubleshooting					
4.3.4.1 HSRP Failure	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.4.2 HSRP Debug Commands	S0041	HS-ETS1.	ITEA.2.	IT-NET 3	
4.3.4.3 Syntax Checker - Common HSRP Configuration Issues	S0041	HS-ETS1.	ITEA.2.	IT-NET 3CCR.ELA-Literacy.RST.11-12.9.	
4.3.4.4 Packet Tracer - Troubleshoot HSRP	S0041	HS-ETS1.	ITEA.2.	IT-NET 3CCR.ELA-Literacy.RST.11-12.9.	
Section 4.4 Summary					
4.4.1 Summary					
4.4.1.1 Class Activity - Linking Up	S0041	HS-ETS1.	ITEA.2.	IT-NET 3CCR.ELA-Literacy.WHST.11-12.7.	
4.4.1.2 Packet Tracer - Skills Integration Challenge	S0041	HS-ETS1.	ITEA.2.	IT-NET 3CCR.ELA-Literacy.RST.11-12.9.	

## Scaling Networks - Chapter 5, Dynamic Routing

Page	NICE	NGSS	ITEA	DODEA	Exam Objective
Section 5.0 Introduction					
5.0.1 Welcome					
5.0.1.1 Dynamic Routing	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	
5.0.1.2 Class Activity - How Much Does This Cost	K0470	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.WHST.11-12.7.	
5.1.1 Types of Routing Protocols					
5.1.1.1 Classifying Routing Protocols	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols 2.3 Compare and contrast interior and exterior routing protocols
5.1.1.2 IGP and EGP Routing Protocols	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.3 Compare and contrast interior and exterior routing protocols
5.1.1.3 Distance Vector Routing Protocols	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.1.1.4 Link-State Routing Protocols	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.1.1.5 Classful Routing Protocols	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	
5.1.1.6 Classless Routing Protocols	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	
5.1.1.7 Routing Protocol Characteristics	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	
5.1.1.8 Routing Protocol Metrics	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	
5.1.1.9 Activity - classify Dynamic Routing Protocols	K0470	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
5.1.1.10 Activity - Compare Routing Protocols	K0470	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
5.1.1.11 Activity - Match the Metric to the Protocol	K0470	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
Section 5.2 Distance Vector Dynamic Routing					
5.2.1 Distance Vector Fundamentals					
5.2.1.1 Dynamic Routing Protocol Operation	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.2.1.2 Cold Start	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.2.1.3 Network Discovery	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.2.1.4 Exchanging the Routing Information	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.2.1.5 Achieving Convergence	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.2.1.6 Packet Tracer - Investigating Convergence	K0470	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.2 Compare and contrast distance vector and link-state routing protocols
5.2.2 Distance Vector Routing Protocol Operation					
5.2.2.1 Distance Vector Technologies	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols

5.2.2.2 Distance Vector Algorithm	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.2.2.3 Activity - Identify Distance Vector Terminology	K0491	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.2 Compare and contrast distance vector and link-state routing protocols
5.2.3 Types of Distance Vector Routing Protocols					
5.2.3.1 Routing Information Protocol	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.2.3.2 Enhanced Interior-Gateway Routing Protocol	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols 2.3 Compare and contrast interior and exterior routing protocols
5.2.3.3 Activity - Compare RIP and eIGRP	K0491	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.2 Compare and contrast distance vector and link-state routing protocols
5.2.3.4 Packet Tracer - Comparing RIP and EIGRP Path Selection	K0491	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.2 Compare and contrast distance vector and link-state routing protocols
Section 5.3 Link-State Dynamic Routing					
5.3.1 Link-State Routing Protocol Operation					
5.3.1.1 Shortest Path First Protocols	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.1.2 Dijkstra's Algorithm	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.1.3 SPF Example	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.2 Link-State Updates					
5.3.2.1 Link-State Routing Process	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.2.2 Link and Link-State	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.2.3 Say Hello	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.2.4 Building the Link-State Packet	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.2.5 Flooding the LSP	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.2.6 Building the Link-State Database	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.2.7 Building the SPF Tree	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.2.8 Adding OSPF Routes to the Routing Table	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.2.9 Activity - Building the Link-State Database and SPF Tree	K0491	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.3 Link-State Routing Protocol Benefits					
5.3.3.1 Why Use Link-State Protocols?	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols

5.3.3.2 Disadvantages of Link-State Protocols	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
5.3.3.3 Protocols that Use Link-State	K0491	HS-ETS1.	ITEA.2.	IT-NET 3	2.2 Compare and contrast distance vector and link-state routing protocols
Section 5.4 Summary					
5.4.1 Conclusion					
5.4.1.1 Summary		HS-ETS1.	ITEA.2.	IT-NET 3	

## Scaling Networks - Chapter 6, EIGRP

Page	NICE	NGSS	ITEA	DODEA	Exam Objective
Section 6.0 Introduction					
6.0.1 Welcome			ITEA.2.		
6.0.1.1 EIGRP		HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.0.1.2 Class Activity - Classless EIGRP		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.WHST.11-12.7.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
Section 6.1 EIGRP Characteristics					
6.1.1 EIGRP Basic Features					
6.1.1.1 Features of EIGRP	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.1.1.2 Protocol Dependent Modules	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.1.1.3 Reliable Transport Protocol (RTP)	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.1.1.4 Authentication	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.1.2 EIGRP Packets Types					
6.1.2.1 EIGRP Packet Types	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.1.2.2 EIGRP Hello Packets	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.1.2.3 EIGRP Update and Acknowledgement Packets	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.1.2.4 EIGRP Query and Reply Packets	K0471	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.1.2.5 Activity - Identify the EIGRP Packet Type	K0471	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.1.2.6 Video - Observing EIGRP Protocol Communications		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.7.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.1.3 EIGRP Messages					
6.1.3.1 Encapsulating EIGRP Messages	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)

6.1.3.2 EIGRP Packet Header and TLV	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
Section 6.2 Implement EIGRP for IPv4					
6.2.1 Configure EIGRP with IPv4					
6.2.1.1 EIGRP Network Topology	K0565	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.1.2 Autonomous System Numbers	K0565	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.1.3 The router eigrp Command	K0565	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.1.4 EIGRP Router ID	K0565	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.1.5 Syntax Checker - Configuring the EIGRP Router ID		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.1.6 The Network Command	S0178	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.1.7 Syntax Checker - The network Command and Wildcard Mask	S0178	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.1.8 Syntax Checker - Passive Interface	S0178	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.2 Verify EIGRP with IPv4					
6.2.2.1 Verifying EIGRP: Examining Neighbors	S0178	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.2.2 Verifying EIGRP: show ip protocols Command	S0178	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.2.3 Verifying EIGRP: Examine the IPv4 routing table	S0178	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.2.4 Packet Tracer - Configuring Basic EIGRP with IPv4	S0178	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.2.2.5 Lab - Configuring Basic EIGRP with IPv4	S0178	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.3.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
Section 6.3 EIGRP Operation					
6.3.1 EIGRP Initial Route Discovery					

6.3.1.1 EIGRP Neighbor Adjacency	K0393	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.1.2 EIGRP Topology Table	K0393	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.1.3 EIGRP Convergence	K0393	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.1.4 Activity - Identify the Steps in Establishing EIGRP Neighbor Adjacencies	K0393	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.2 EIGRP Metrics					
6.3.2.1 EIGRP Composite Metric	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.2.2 Examining Interface Values	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.2.3 Bandwidth Metric	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.2.4 Delay Metric	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.2.5 How to Calculate the EIGRP Metric	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.2.6 Calculating the EIGRP Metric	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.2.7 Activity - Calculate the EIGRP Metric	K0470	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.3 Dual and the Topology Table					
6.3.3.1 DUAL Concepts	K0255	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.3.2 Introduction to DUAL	K0255	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.3.3 Successor and Feasible Distance	K0255	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.3.4 Feasible Successors, Feasibility Condition, and Reported Distance	K0255	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)



6.3.3.5 Topology Table: show ip eigrp topology Command	K0255	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.3.6 Topology Table: show ip eigrp topology Command (Cont.)	K0255	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.3.6 Topology Table: No Feasible Successor	K0255	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.3.8 Activity - Determine the Feasible Successor	K0255	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.4 Dual and Convergence					
6.3.4.1 DUAL: Finite State Machine (FSM)	K0255	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.4.2 DUAL: Feasible Successor	K0255	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.4.3 DUAL: No Feasible Successor	K0255	HS-ETS1.	ITEA.2.	IT-NET 3	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.3.4.4 Packet Tracer - Investigating DUAL FSM	K0255	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.6 Configure, verify, and troubleshoot EIGRP for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub)
Section 6.4 Implement EIGRP for IPv6					
6.4.1 EIGRP for IPv6					
6.4.1.1 EIGRP for IPv6	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.4.1.2 Comparing EIGRP for IPv4 and IPv6	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.4.1.3 IPv6 Link-local Addresses	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.4.1.4 Activity - Compare EIGRPv4 and EIRGPv6	K0470	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.4.2 Configure EIGRP for IPv6					
6.4.2.1 EIGRP for IPv6 Network Topology	K0470	HS-ETS1.	ITEA.2.	IT-NET 3	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.4.2.2 Syntax Checker - Configuring IPv6 Link-local Addresses	K0470	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)

6.4.2.3 Syntax Checker - Configuring the EIGRP for IPv6 Routing Process	K0470	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.4.2.4 Syntax Checker - The ipv6 eigrp Interface Command	K0470	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.4.3 Verifying EIGRP for IPv6					
6.4.3.1 IPv6 Neighbor Table	K0393	HS-ETS1.	ITEA.2.	IT-NET 3	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.4.3.2 The show ip protocols Command	K0393	HS-ETS1.	ITEA.2.	IT-NET 3	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.4.3.3 The EIGRP for IPv6 Routing Table	K0393	HS-ETS1.	ITEA.2.	IT-NET 3	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.4.3.4 Packet Tracer - Configuring Basic EIGRP with IPv6	K0393	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
6.4.3.5 Lab - Configuring Basic EIGRP for IPv6	K0393	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.3.	2.7 Configure, verify, and troubleshoot EIGRP for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub)
Section 6.5 Summary					
6.5.1 Summary					
6.5.1.1 Class Activity - Portfolio RIP and EIGRP		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.WHST.11-12.7.	
6.5.1.2 EIGRP		HS-ETS1.	ITEA.2.	IT-NET 3	

## Scaling Networks - Chapter 7, EIGRP Tuning and Troubleshooting

Page	NICE	NGSS	ITEA	DODEA	Exam Objective
Section 7.0 Introduction					
7.0.1 Welcome			ITEA.10. ITEA.12.		
7.0.1.1 EIGRP Tuning and Troubleshooting	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.0.1.2 Class Activity - EIGRP - Back to the Future	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3 CCR.ELA-Literacy.WHST.11-12.7.	
Section 7.1 Tune EIGRP					
7.1.1 Automatic Summarization					
7.1.1.1 Network Topology	K0489	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.1.2 EIGRP Automatic Summarization	K0470	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.1.3 Syntax Checker - Configuring EIGRP Automatic Summarization	K0470	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	
7.1.1.4 Verifying Auto-Summary: show ip protocols	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.1.5 Verifying Auto-Summary: Topology Table	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.1.6 Verifying Auto-Summary: Routing Table	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.1.7 Summary Route	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.1.8 Summary Route (Cont.)	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.1.9 Activity - Determine the Classful Summarization	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
7.1.1.10 Activity - Determine the Exit Interface for a Given Packet	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
7.1.2 Default Route Propagation					
7.1.2.1 Propagating a Default Static Route	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.2.2 Verifying the Propagated Default Route	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.2.3 EIGRP for IPv6: Default Route	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.2.4 Packet Tracer - Propagating a Default Route in EIGRP for IPv4 and IPv6	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	

7.1.3 Fine-tuning EIGRP Interfaces	K0565				
7.1.3.1 Syntax Checker - EIGRP Bandwidth Utilization	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	
7.1.3.2 Syntax Checker - Hello and Hold Timers	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	
7.1.3.3 Load Balancing IPv4	T0645	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.3.4 Load Balancing IPv6	T0645	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3	
7.1.3.5 Activity - Determine the EIGRP Fine Tuning Commands	T0645	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
7.1.3.6 Lab – Configuring Advanced EIGRP for IPv4 Features	T0645	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.3.	
Section 7.2 Troubleshoot EIGRP					
7.2.1 Components of Troubleshooting EIGRP					
7.2.1.1 Basic EIGRP Troubleshooting Commands	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	2.3 Compare and contrast interior and exterior routing protocols
7.2.1.2 Components		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
7.2.1.3 Activity - Identify the Troubleshooting Command		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.4.	
7.2.2 Troubleshoot EIGRP Neighbor Issues					
7.2.2.1 Layer 3 Connectivity		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
7.2.2.2 EIGRP Parameters	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
7.2.2.3 EIGRP Interfaces	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
7.2.2.4 Activity - troubleshoot EIGRP Neighbor Issues	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.4.	
7.2.3 Troubleshoot EIGRP Routing Table Issues					
7.2.3.1 Passive Interface	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
7.2.3.2 Missing Network Statement	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
7.2.3.3 Automatic Summarization	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
7.2.3.4 Activity - Troubleshoot EIGRP Routing Table Issues	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.4.	

7.2.3.5 Packet Tracer - Troubleshooting EIGRP for IPv4	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
7.2.3.6 Lab - Troubleshooting Basic EIGRP for IPv4 and IPv6	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.3.	
7.2.3.7 Lab - Troubleshooting Advanced EIGRP	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.3.	
Section 7.3 Summary					
7.3.1 Conclusion					
7.3.1.1 Class Activity - Tuning EIGRP	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.WHST.11-12.7.	
7.3.1.2 Packet Tracer - Skills Integration Challenge	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
7.3.1.3 EIGRP Tuning and Troubleshooting	K0565	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	

## Scaling Networks - Chapter 8, Single-Area OSPF

Page	NICE	NGSS	ITEA	DODEA	Exam Objective
Section 8.0 Introduction					
8.0.1 Welcome					
8.0.1.1 Single-Area OSPF	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.0.1.2 Class Activity - Can Submarines Swim?		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.WHST.11-12.7.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
Section 8.1 OSPF Characteristics					
8.1.1 Open Shortest Path First	K0296				
8.1.1.1 Evolution of OSPF	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.1.2 Features of OSPF	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.1.3 Components of OSPF	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.1.4 Link-State Operation	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.1.5 Single-Area and Multiarea OSPF	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.1.6 Activity - Identify OSPF Features and Terminology		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.2 OSPF Messages					
8.1.2.1 Encapsulating OSPF Messages	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.2.2 Types of OSPF Packets	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.2.3 Hello Packet	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.2.4 Hello Packet Intervals	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)

8.1.2.5 Link-State Updates	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.2.6 Activity - Identify the OSPF Packet Types	K0296	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.3 OSPF Operation	K0296				
8.1.3.1 OSPF Operational States	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.3.2 Establish Neighbor Adjacencies	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.3.3 OSPF DR and BDR	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.3.4 Synchronizing OSPF Databases	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.3.5 Activity - Identify the OSPF States for Establishing Adjacency	K0443	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.1.3.6 Video - Observing OSPF Protocol Communications		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.7.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
Section 8.2 Single-Area OSPFv2					
8.2.1 OSPF Router ID					
8.2.1.1 OSPF Network Topology	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.1.2 Syntax Checker - Router OSPF Configuration Mode	K0443	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.1.3 Router IDs	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.1.4 Syntax Checker - Configuring an OSPF Router ID	K0296	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.1.5 Syntax Checker - Modifying a Router ID	K0443	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)

8.2.1.6 Using a Loopback Interface as the Router ID	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.2 Configure Single-Area OSPFv2	K0296				
8.2.2.1 Enabling OSPF on Interfaces	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.2.2 Wildcard Mask	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.2.3 Syntax Checker - The network Command	K0443	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.2.4 Passive Interface	K0296	HS-ETS1.	ITEA.2.	IT-NET 3	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.2.5 Syntax Checker - Configuring Passive Interfaces	K0296	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.2.6 Activity - Calculate the Subnet and Wildcard Masks	K0443	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.2.7 Packet Tracer - Configuring OSPFv2 in a Single-area	K0443	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.3 OSPF Cost	K0296				
8.2.3.1 OSPF Metric = Cost	K0296	HS-ETS1.	ITEA.2.	IT-NET 1	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.3.2 OSPF Accumulates Costs	K0443	HS-ETS1.	ITEA.2.	IT-NET 1	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.3.3 Adjusting the Reference Bandwidth	K0443	HS-ETS1.	ITEA.2.	IT-NET 1	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.3.4 Default Interface Bandwidths	K0296	HS-ETS1.	ITEA.2.	IT-NET 1	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.3.5 Syntax Checker- Adjusting the Interface Bandwidth	K0296	HS-ETS1.	ITEA.2.	IT-NET 1 CCR.ELA-Literacy.RST.11-12.9.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)



8.2.3.6 Manually Setting the OSPF Cost	K0443	HS-ETS1.	ITEA.2.	IT-NET 1	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.4 Verify OSPF	K0443				
8.2.4.1 Syntax Checker - Verify OSPF Neighbors	K0296	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.4.2 Syntax Checker - Verify OSPF Protocol Settings	K0296	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.4.3 Syntax Checker - Verify OSPF Process Information	K0443	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.4.4 Syntax Checker - Verify OSPF Interface Settings	K0443	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.2.4.5 Lab - Configuring Basic Single-Area OSPFv2	K0296	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.3.	2.4 Configure, verify, and troubleshoot single area and multiarea OSPFv2 for IPv4 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
Section 8.3 Single-Area OSPFv3					
8.3.1 OSPFv2 vs. OSPFv3					
8.3.1.1 OSPFv3	K0470	HS-ETS1.	ITEA.2.	IT-NET 2	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.1.2 Similarities Between OSPFv2 and OSPFv3	K0470	HS-ETS1.	ITEA.2.	IT-NET 2	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.1.3 Differences Between OSPFv2 and OSPFv3	K0470	HS-ETS1.	ITEA.2.	IT-NET 2	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.1.4 Link-Local Addresses	K0443	HS-ETS1.	ITEA.2.	IT-NET 2	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.1.5 Activity - Compare and Contrast OSPFv2 and OSPFv3	K0443	HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.4.	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.2 Configuring OSPFv3					
8.3.2.1 OSPFv3 Network Topology	K0255	HS-ETS1.	ITEA.2.	IT-NET 2	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)

8.3.2.2 Link-Local Addresses	K0443	HS-ETS1.	ITEA.2.	IT-NET 2	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.2.3 Syntax Checker - Assigning Link-Local Addresses	K0443	HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.9.	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.2.4 Syntax Checker- Configuring the OSPFv3 Router ID	K0296	HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.9.	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.2.5 Syntax Checker - Configuring the OSPFv3 Router ID	K0296	HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.9.	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.2.6 Syntax Checker - Enabling OSPFv3 on Interfaces	K0443	HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.9.	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.3 Verify OSPFv3	S0041				
8.3.3.1 Syntax Checker - Verify OSPFv3 Neighbors	S0041	HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.9.	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.3.2 Syntax Checker - Verify OSPFv3 Protocol Settings	S0041	HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.9.	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.3.3 Syntax Checker - Verify OSPFv3 Interfaces	S0041	HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.9.	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.3.4 Syntax Checker - Verify the IPv6 Routing Table	S0041	HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.9.	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.3.5 Packet Tracer - Configuring Basic OSPFv3 in a Single Area	S0041	HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.9.	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
8.3.3.6 Lab - Configuring Basic Single-Area OSPFv3	S0041	HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.3.	2.5 Configure, verify, and troubleshoot single area and multiarea OSPFv3 for IPv6 (excluding authentication, filtering, manual summarization, redistribution, stub, virtual-link, and LSAs)
Section 8.4 Summary					
8.4.1 Conclusion					
8.4.1.1 Class Activity - Stepping Through OSPFv3		HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.WHST.11-12.7.	
8.4.1.2 Packet Tracer - Skills Integration Challenge		HS-ETS1.	ITEA.2.	IT-NET 2 CCR.ELA-Literacy.RST.11-12.9.	
8.4.1.3 Single-Area OSPF		HS-ETS1.	ITEA.2.	IT-NET 2	

## Scaling Networks - Chapter 9, Multiarea OSPF

Page	NICE	NGSS	ITEA	DODEA	Exam Objective
Section 9.0 Introduction					
9.0.1 Welcome					
9.0.1.1 Multiarea OSPF	K0516	HS-ETS1.	ITEA.2.	IT-NET 3	
9.0.1.2 Class Activity - Leaving on a Jet Plane		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.WHST.11-12.7.	
Section 9.1 Multiarea OSPF Operation					
9.1.1 Why Multiarea OSPF?					
9.1.1.1 Single Area OSPF	K0516	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.1.2 Multiarea OSPF	K0516	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.1.3 OSPF Two-Layer Area Hierarchy	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.1.4 Types of OSPF Routers	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.1.5 Activity - Identify the Multiarea OSPF Terminology	K0011	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
9.1.2 Multiarea OSPF LSA Operation					
9.1.2.1 OSPF LSA Types	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.2.2 OSPF LSA Type 1	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.2.3 OSPF LSA Type 2	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.2.4 OSPF LSA Type 3	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.2.5 OSPF LSA Type 4	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.2.6 OSPF LSA Type 5	K0443	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.2.7 Activity - Identify the OSPF LSA Type	K0443	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
9.1.3 OSPF Routing Table and Types of Routes					
9.1.3.1 OSPF Routing Table Entries	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.3.2 OSPF Route Calculation	K0011	HS-ETS1.	ITEA.2.	IT-NET 3	
9.1.3.3 Activity - Order the Steps for OSPF Best Path Calculations	K0011	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.4.	
Section 9.2 Configuring Multiarea OSPF					
9.2.1 Configuring Multiarea OSPF					
9.2.1.1 Implementing Multiarea OSPF	A0052	HS-ETS1.	ITEA.2.	IT-NET 3	
9.2.1.2 Syntax Checker - Configuring Multiarea OSPFv2	K0516	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	
9.2.1.3 Syntax Checker - Configuring Multiarea OSPFv3	K0516	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	
9.2.2 Verifying Multiarea OSPF					
9.2.2.1 Verifying Multiarea OSPF	A0052	HS-ETS1.	ITEA.2.	IT-NET 3	
9.2.2.2 Syntax Checker - Verify General Multiarea OSPFv2 Settings	A0052	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	
9.2.2.3 Syntax Checker - Verify the OSPFv2 Routes	A0052	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	
9.2.2.4 Syntax Checker - Verify the Multiarea OSPFv2 LSDB	A0052	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	
9.2.2.5 Verify Multiarea OSPFv3	A0052	HS-ETS1.	ITEA.2.	IT-NET 3	

9.2.2.6 Packet Tracer - Configuring Multiarea OSPFv2	A0052	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	
9.2.2.7 Packet Tracer - Configuring Multiarea OSPFv3	A0052	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.9.	
9.2.2.8 Lab - Configuring Multi-area OSPFv2	A0052	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.3.	
9.2.2.9 Lab - Configuring Multi-area OSPFv3	A0052	HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.RST.11-12.3.	
Section 9.3 Summary					
9.3.1 Conclusion					
9.3.1.1 Class Activity - Digital Trolleys		HS-ETS1.	ITEA.2.	IT-NET 3 CCR.ELA-Literacy.WHST.11-12.7.	
9.3.1.2 Multiarea OSPF		HS-ETS1.	ITEA.2.	IT-NET 3	

## Scaling Networks - Chapter 10, OSPF Tuning and Troubleshooting

Page	NICE	NGSS	ITEA	DODEA	Exam Objective
Section 10.0 Introduction					
10.0.1 Welcome					
10.0.1.1 OSPF Tuning and Troubleshooting	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.0.1.2 Class Activity - DR and BDR Election	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.WHST.11-12.7.	
Section 10.1 Advanced Single-Area OSPF Configurations					
10.1.1 OSPF in Multiaccess Networks					
10.1.1.1 OSPF Network Types	T0291	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.1.2 Challenges in Multiaccess Networks	K0300	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.1.3 OSPF Designated Router	K0011	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.1.4 Verifying DR/BDR Roles		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.1.5 Verifying DR/BDR Adjacencies		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.1.6 Default DR/BDR Election Process		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.1.7 DR/BDR Election Process		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.1.8 The OSPF Priority		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.1.9 Syntax Checker - Changing the OSPF Priority		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
10.1.1.10 Activity - Identify OSPF Network Type Terminology		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.4.	
10.1.1.11 Activity - Select the Designated Router		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.4.	
10.1.1.12 Packet Tracer - Determining the DR and BDR		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
10.1.1.13 Lab - Configuring OSPFv2 on a Multiaccess Network		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.3.	
10.1.2 Default Route Propagation					
10.1.2.1 Propagating a Default Static Route in OSPFv2	K0296	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.2.2 Syntax Checker - Verifying the Propagated IPv4 Default Route	K0296	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
10.1.2.3 Propagating a Default Static Route in OSPFv3	K0296	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	

10.1.2.4 Syntax Checker - Verifying the Propagated IPv6 Default Route	K0296	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
10.1.2.5 Packet Tracer - Propagating a Default Route in OSPFv2	K0296	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
10.1.3 Fine-tuning OSPF Interfaces					
10.1.3.1 OSPF Hello and Dead Intervals	K0443	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.3.2 Modifying OSPFv2 Intervals	K0443	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.3.3 Modifying OSPFv3 Intervals	K0443	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.1.3.4 Packet Tracer – Configuring OSPFv2 Advanced Features	K0443	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
10.1.3.5 Lab - Configuring OSPFv2 Advanced Features	K0443	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.3.	
Section 10.2 Troubleshooting Single-Area OSPF Implementations					
10.2.1 Components of Troubleshooting Single-Area OSPF					
10.2.1.1 Overview	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.2.1.2 OSPF States	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.2.1.3 OSPF Troubleshooting Commands	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.2.1.4 Components of Troubleshooting OSPF	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.2.1.5 Activity - Identify the Troubleshooting Command	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.4.	
10.2.2 Troubleshoot Single-Area OSPFv2 Routing Issues					
10.2.2.1 Troubleshooting Neighbor Issues	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.2.2.2 Troubleshooting OSPF Routing Table Issues	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.2.2.3 Packet Tracer - Troubleshooting Single-Area OSPFv2	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
10.2.3 Troubleshoot Single-Area OSPFv3 Routing Issues					
10.2.3.1 OSPFv3 Troubleshooting Commands	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.2.3.2 Troubleshooting OSPFv3	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.2.3.3 Lab - Troubleshooting Basic Single-Area OSPFv2 and OSPFv3	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.3.	

10.2.3.4 Lab - Troubleshooting Advanced Single-Area OSPFv2	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.3.	
10.2.4 Troubleshoot Multiarea OSPFv2 and OSPFv3	S0041				
10.2.4.1 Multiarea OSPF Troubleshooting Skills	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.2.4.2 Multiarea OSPF Troubleshooting Data Structures	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	
10.2.4.3 Packet Tracer – Troubleshooting Multiarea OSPFv2	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
10.2.4.4 Packet Tracer – Troubleshooting Multiarea OSPFv3	S0041	HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
10.2.4.5 Lab - Troubleshooting Multiarea OSPFv2 and OSPFv3		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.3.	
Section 10.3 Summary					
10.3.1 Conclusion					
10.3.1.1 Class Activity - OSPF Troubleshooting Mastery		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.WHST.11-12.7.	
10.3.1.2 Packet Tracer - Skills Integration Challenge		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5 CCR.ELA-Literacy.RST.11-12.9.	
10.3.1.3 OSPF Tuning and Troubleshooting		HS-ETS1.	ITEA.10. ITEA.12.	IT-NET 5	