



LONDON CAPITAL COMPUTER COLLEGE

Advanced Diploma in Routing & Switching (112) – Advanced IP Routing

Prerequisites: Networking knowledge.	Corequisites: A pass or higher in Diploma in IP Routing or equivalence.
<p>Aim: Candidates learn to use VLSM, private addressing, and NAT to optimise IP address utilisation. The majority of the course content relate to implementing the RIPv2, EIGRP, OSPF, IS-IS, BGP routing protocols, and important techniques used for route filtering and route redistribution. The course focus on development of knowledge and skills needed to manage Internet Protocol (IP) traffic and access, designing Wide Area Networks (WANs), understanding scalable internetworks and Quality of Service (QoS), configuring advanced routing protocols (Routing Internet Protocol version 2 [RIPv2], Border Gateway Protocol [BGP], Intermediate System to Intermediate System [IS-IS], Enhanced Interior Gateway Routing Protocol [EIGRP], Open Shortest Path First [OSPF]), and performing advanced IP addressing (Network Address Translation [NAT] and Variable Length Subnet Masking [VLSM]).</p>	
Required Materials: Recommended Learning Resources.	Supplementary Materials: Lecture notes and tutor extra reading recommendations.
Special Requirements: The course requires a combination of lectures, demonstrations, discussions, and hands-on labs.	
<p>Intended Learning Outcomes:</p> <p>1 Analyse the fundamental principles of routing and describe the differences between static and dynamic routing.</p> <p>2 Demonstrate how to configure and enable EIGRP routing protocol.</p> <p>3 Demonstrate how to configure OSPF in a single-area and describe the characteristics and features of OSPF.</p> <p>4 Demonstrate how to configure OSPF in multiple-area and analyse issues associated with interconnecting multiple areas.</p>	<p>Assessment Criteria:</p> <p>1.1 Describe classful and classless routing protocols</p> <p>1.2 Describe advantages and disadvantages of classless routing</p> <p>1.3 Describe advantages and disadvantages of classful routing</p> <p>1.4 Define link state routing</p> <p>1.5 Describe the difference between distance vector and link state protocols</p> <p>1.6 Define VLSM</p> <p>1.7 Describe route summarisation</p> <p>2.1 Describe EIGRP features and implementation</p> <p>2.2 Define how EIGRP maintain routes</p> <p>2.3 Identify how EIGRP support summarisation</p> <p>2.4 Explain how EIGRP operates in NBMA</p> <p>3.1 Describe OSPF features</p> <p>3.2 Define how OSPF discover and maintain routes</p> <p>3.3 Demonstrate how to configure OSPF in a single area</p> <p>3.4 Demonstrate how to configure OSP on NBMA</p> <p>4.1 Describe the different types of areas</p> <p>4.2 Describe how OSPF operates in multi-areas</p>




Tel: 0044 7423211037

Email: info@londoncomputercollege.co.uk Website: www.londoncomputercollege.co.uk

Registered No: 3267009 (England)

	4.3 Describe how OSPF operates in multi-area NBMA environment
	4.4 Demonstrate how to configure multi-area OSPF network
5 Describe Intermediate System to Intermediate System intra-domain routing (IS-IS) routing	5.1 Describe IS-IS characteristics 5.2 Describe how networks are represented in IS-IS 5.3 Identify the types of IS-IS routers 5.4 Describe the IS-IS hierarchical structure 5.5 Describe the concepts of routing traffic and database synchronisation
6 Describe the concept of using multiple routing protocols and define how they will be able to communicate.	6.1 Define route update 6.2 Describe route distribution 6.3 Define policy based routing
7 Describe BGP features and operation and demonstrate BGP implementation.	7.1 Describe BGP 7.2 Describe how BGP policy-based routing functions within an AS 7.3 Describe how to configure internal and external BGP 7.4 Identify synchronisation in BGP
8 Outline scalability challenges and concerns associated with both internal and external BGP.	8.1 Explain and configure BGP router reflectors 8.2 Describe and configure policy control in BGP using prefix lists 8.3 Demonstrate how to configure multiple ISPs using BGP 8.4 Describe BGP redistribution

**Recommended Learning Resources:
Advanced Routing**

Text Books	<ul style="list-style-type: none"> • CCNP 1: Advanced Routing Lab Companion. ISBN-10: 158713134X • IP Routing Protocols - RIP, OSPF, BGP, PNNI & Cisco routing protocols by Uyles N Black. ISBN-10: 0130142484 • Advanced Routing: Techniques for Better Woodworking by Nick Engler. ISBN-10: 0762101970
Study Manuals 	BCE produced study packs
CD ROM 	Power-point slides
Software 	Cisco IOS