CCNA Syllabus:

1. Networking Fundamentals
2. TCP/IP and OSI Networking Model
3. Same-Layer Interaction and Adjacent Interaction
4. OSI Layer and Their Functions
5. Fundamentals of LAN
6. Cable Types
7. Ethernet UTP Cabling
8. Fundamentals of IPv4 Addressing and Routing
9. RFC 1918 Private Address Space
10. 3 Math Operations for Subnetting
11. Analyzing Subnet Mask
12. Analyzing Existing Subnets
13. Choosing the Subnets of a Classful Network/Subnet Zero
14. Choosing a Subnet Mask that Meets Design Requirements
15. Ethernet LAN Switching Concepts
16. Switching Logic
17. Internal Processing on Cisco Switches
18. Collision Domains
19. Broadcast Domains
20. Campus LAN Design Terminology
21. Operating Cisco LAN Switches
22. Cisco LEDs Status
23. Main Parts of a Switch or Router
24. Accessing Switch and Router for Configuration
25. Verifying the Network Topology with CDP
26. Basic Configuration Laboratory and Troubleshooting
27. VLAN Configuration
28. VLAN Configuration Laboratory and Troubleshooting
29. Multi VLAN Configuration
30. Multi VLAN Configuration Laboratory and Troubleshooting
31. Trunking Mode Options with Switchport mode command
32. Expected Trunking Operational Mode Based on the Configured Administrative Modes
33. Trunk Encapsulation
34. More Detail Comparing ISL and 802.1Q
35. Controlling Which VLANs Can Be Supported on a Trunk
36. VLAN Trunking Protocol (VTP)
37. Requirements for VTP to Work Between Two Switches

38. VTP Messages
39. Storing VLAN Configuration
40. VTP Laboratory and Troubleshooting
41. Port Security Configuration
42. Port Security Configuration Laboratory and Troubleshooting
43. Spanning Tree Protocol (IEEE 802.1d)
44. Three Classes of Problems Caused by Not Using STP
45. Elections – BID
46. Spanning Tree Roles and Status
47. Reacting to Changes in the Network (STP Timer)
48. Rapid STP (IEEE 802.1w)
49. RSTP Link Type & RSTP Edge Type
50. STP and RSTP Roles Comparison
51. STP Configuration
52. Optional STP Features
    - Port Fast
    - Ether Channel
    - STP Security
53. STP Laboratory and Troubleshooting
54. Router Configuration
55. Differences Between Router and Switch
56. Interface Configuration
57. Routing Protocols Concept and Configuration
58. Routing & Routed Protocol
59. Static Routing Protocol
    - Static Route
    - Default Route
60. Dynamic Routing Protocol
61. Routing Protocol Algorithms
62. Metric
63. Administrative Distance
64. Classless and Classful Routing Protocols
65. Distance Vector Routing Protocol Features
66. Link State Routing Protocol Features
67. OSPF Neighbor
68. OSPF Hello Packet
69. OSPF DR
70. OSPF BDR
71. OSPF Area
72. OSPF Conditions for Being a Neighbor

73. OSPF Neighbor States
74. OSPF Configuration
75. Configuring OSPF with Authentication
76. Changing Interface Hello Interval and Dead Interval Timer
77. OSPF Metric
78. Change Default Metric on OSPF
79. Tuning Interface Cost and Bandwidth
80. Changing Reference Bandwidth
81. OSPF Load Balancing
82. OSPF Configuration Laboratory and Troubleshooting
83. EIGRP Features
84. EIGRP Neighbor Discovery
85. EIGRP Topology Exchange
86. EIGRP Choosing Route
87. EIGRP Configuration
88. EIGRP Changing Interface Hello Timer and Hold Timer
89. Default EIGRP Interface Bandwidth and Delay
90. Change Default Metric on EIGRP
91. OSPF and EIGRP Tables in Summary
92. EIGRP Configuration Laboratory and Troubleshooting
93. Typical Combinations of Interface Status Codes
94. Route Summarization
95. Auto and Manual Summarization
96. Telnet and SSH Configuration
97. IP Access Control List
98. IP ACL Concept
99. Types of ACL
100. Standard ACL Configuration
101. Extended ACL Configuration
102. Operators Used When Matching Port Numbers
103. Popular Applications and Their Well-Known Port Numbers
104. Some Extended access-list Commands and Logic Explanations
105. Practice Building Access List Commands
106. Finding IP Addresses/Ranges Matching by Existing ACLs
107. Advances in Managing ACL Configuration
108. Named IP Access Lists
109. Sequence Number in ACL
110. ACL Configuration Laboratory and Troubleshooting
111. WAN Concepts and Configuration
112. Network Address Translation (NAT)

113. Port Address Translation (PAT)
114. Types of NAT
115. Static NAT Configuration
116. Dynamic NAT Configuration
117. PAT Configuration
118. NAT and PAT Laboratory and Troubleshooting
119. Frame Relay Concepts
120. Internet Protocol Version 6 (IPV6)
121. IPV6 Addressing and Summarization Rules
122. Common Multicast Addresses
123. IPv6 Address Configuration Options
124. IPV6 Extended Unique Identifier 64 (EUI64)
125. IPV6 Configuration
126. IPv6 Routing Protocols
127. OSPFv3 Configuration
128. Static IPv6 Routing Configuration
129. IPV6 SHOW Commands
130. IPV6 Laboratory and Troubleshooting
131. Wireless LANs
132. WLAN Standards
133. Encoding Classes and IEEE Standard WLANs
134. WLAN Modes and Names
135. FCC Unlicensed Frequency Bands of Interest
136. WLAN Speed and Frequency Reference
137. WLAN Security Standards
138. Wireless L2 and L3 Devices
139. WLAN Architecture
140. Client Authentication Methods
141. Wireless Privacy and Integrity Methods
142. Cryptography Methods
143. Types of Attacks
144. AAA
145. Security Devices
146. QOS (Quality of Service)
147. Voice QOS
148. Introduction to Virtual Private Networks (VPN)
149. Port Forwarding Configuration on D-Link Modems
150. Port Forwarding Configuration on TP-Link Modems