

## CCNA 1 Basic: Course Syllabus

Week	Emphasis	Curriculum	Labs	Packet Tracer (PT)	Online Assessment
1	Introduction, Engagement, Semester-long career theme	1.1	1.1.2, 1.1.6, 1.1.7, 1.1.8; 3.1.9c	Distribute to all students for home use	
2	Master Binary and IP Address Format	1.2	1.2.5, 1.2.6	Show IP addresses added to devices	Module 1 Exam
3	Basics of LANs and WANs: Integrate Multiple Networking Representations	2.1, 2.2, 2.3	none	Introduce devices in PT	
4	Basics of LANs and WANs: Integrate Multiple Networking Representations	2.1, 2.3, condense and summarize 2.2	2.3.6, 2.3.7	Show relation between topology, device config, packet flow, and OSI views	Module 2 Exam
5	Networking Media	Condense and summarize 3, 4	3.1.9a, 3.1.9b, 3.1.9d, 3.1.9e	Focus on connection types in PT	In lieu of module 3 and 4 online assessments, ensure students complete labs. Concepts pertaining to the labs are testable on the final.
6	Build Networks	5.1, 5.2	5.1.12, 5.1.13a, 5.1.13b	Build networks in PT	
7	Build Networks	5.1, 5.2	5.2.3a, 5.2.3b, 5.2.3c, 5.2.7	Build networks in PT	Module 5 Exam
8	Review/Prepare for Subnetting	Various	Make-up labs	Conceptual Review	
9	World of Ethernet; Frames	Condense and summarize 6, 7	7.1.2, 7.1.9b	Ethernet speed and duplex settings in PT	Module 6 Exam combined with concepts from Mod 7.1
10	Structured Cabling Case Study	Focus on hands-on cabling project	5.1.5; labs in Case Study Appendix	Use PT as design tool	
11	Collision vs. Broadcast Domains; Switching	8.1, 8.2	none	Create bridged and switched networks in PT	Module 8 Exam
12	The World of IP; Packets	9.1, 9.2, 9.3, 10.1; condense and summarize	9.2.4, 9.3.5, 9.3.7	Use PT to practice assigning IP addresses to devices and to develop working vocabulary of IP addressing	
13	Concept of Routing; Begin subnetting	10.2, 10.3	Demo Routing Updates	Create routed networks in PT	
14	Subnetting	10.3	10.3.5 a, b, c, d		
15	Subnetting	10.3	Subnetting practice	Have students apply subnetting scheme in PT	Module 9 and 10 will be combined into one exam. Core topics assessed are TI 9.1.x,

					9.2.x, 9.3.7, and Module 10
16	World of TCP; Segments	11.1, 11.2	11.2.4	Use PT to show relationship amongst PDUs	
17	Review Week	Modules 1, 2, 5, 8, 9, 10; summaries of 3, 4, 6, 7, 11; career	Practice Skills Exam	Conceptual Review	
18	Online and Skills Final Exams	none	Administer Skills Exam	Challenge students who have finished with creating PT animations	Final Exam

Notes:

- 1) The intention of this basic path through CCNA 1 is: to engage beginning students in the field of networking; to master certain basic concepts essential for success in PASS-taught versions of CCNA 2, 3, and 4; Perform entry-level tasks in the planning, design, installation, operation, and troubleshooting of Ethernet and TCP/IP networks and to have fun. Thus CCNA 1 Basic goes well beyond CCNA 1 PASS. Students will NOT likely attain mastery of more advanced topics in: networking media, cable testing, Ethernet, routing protocols, and TCP; such mastery would have to come from self-study or coverage of these topics in other semesters. Only local instructors and program administrators can make the decision as to whether using all of CCNA 1 v3.1; using CCNA 1 – PASS as a guideline; or using CCNA 1 Basic is best for their students.
- 2) Module 3, 4, and 11 Exams are optional. They could be used for practice or for extra credit; Two new exams will be created to combine Module 6 and 7 and combine Modules 9 and 10. These exams will be available September 2004. All exams will show in the gradebook. The instructor can decide which exams to activate for their students. For example, if the instructor is teaching the Basic path of CCNA1 they would activate the module 6 and 7 combined exam instead of the individual module 6 and 7 exams.
- 3) The use of the plan presented in this document will adequately prepare students for the CCNA1 Course final exam and the certification exams.
- 4) There is only one final exam regardless of the path taken by the student. The final exam will only emphasize the core TIs needed for a CCNA1 student and assess the fundamentals concepts regardless of the students' use of one of the suggested curriculum paths. The revised CCNA 1 final will be available in September 2004.
- 5) "Condense and Summarize" indicates that the instructor should present to students only the highlights of these modules, using the curriculum for graphics, background reading, and so on, but not covering the modules in a linear fashion.
- 6) Repeated use of a packet sniffer (Fluke Protocol Expert, Ethereal, or equivalent) throughout the course to emphasize how "networks are alive" is assumed, as is universal distribution of Packet Tracer 3.1.
- 7) Labs may be combined as class periods and equipment availability dictates.
- 8) "Aha" or "Eureka" moments during lab work may help with student engagement and retention. In CCNA 1, such moments can include:
  - successful completion of patch cables (straight-through, crossover, rollover);
  - successful pinging across networks the student has cabled (peer-to-peer, hubbed, switched, routed);
  - successful installation and testing of structured cabling components (punch-down, jack installation, cable runs);
  - successful use of packet sniffing software to see the dynamic nature of network traffic;
  - successful troubleshooting a variety of connectivity issues leading to a workstation being able to reach the Internet;
  - successful completion of hands-on skills exam.
- 9) Course level claims represent the statements of proficiency we wish to make about the student after completion of instruction. Students Completing CCNA 1 Basic should still be able to:
  1. Describe and install the hardware and software required to be able to communicate across a network.

2. Demonstrate the mathematical skills required to work with decimal, binary, and hexadecimal numbers. (hex at a very simple level)
3. Define and describe the structure and technologies of computer networks.
4. Describe the meaning and application of bandwidth when used in networking.
5. Describe, compare, and contrast network communications using two examples of layered models.
6. Describe the physical, electrical, and mechanical properties and standards associated with copper media used in networks. (at a very simple level)
7. Describe the physical, electrical, and mechanical properties and standards associated with optical media used in networks. (at a very simple level)
8. Describe the standards and properties associated with the transmission and reception of wireless signals used in networks. (at a very simple level)
9. Describe what is required to install a simple WLAN. (at a very simple level)
10. Explain the issues associated with the transmission of signals on networking media.
11. Describe the topologies and physical issues associated with cabling common LANs.
12. Describe the physical issues associated with cabling networking equipment to work over a WAN link.
13. Explain the fundamental concepts associated with the Ethernet media access technique.
14. Explain how collisions are detected, and the concepts associated with auto-negotiation on an Ethernet system. (at a very simple level)
15. Describe the principles and practice of switching on an Ethernet network.
16. Compare and contrast collision and broadcast domains, and describe the process of network segmentation.
17. Explain and demonstrate the mechanics associated with IP addressing.
18. Describe how an IP address is associated with a device interface, and the association between physical and logical addressing.
19. Explain and demonstrate the mechanics associated with IP subnetting.
20. Describe the principles and practice of packet switching utilizing IP. (at a very simple level)
21. Describe the concepts associated with routing and the different methods and protocols used to achieve it. (at a very simple level)
22. Describe how the protocols associated with TCP/IP allow host communication to occur.
23. Describe the fundamental concepts associated with transport layer protocols and compare connectionless and connection-oriented transport methods. (at a very simple level)
24. List the major TCP/IP application protocols, and briefly define their features and operation.