

Whitmer High School
Career and Technology Center

Computer Networking I Syllabus

Course Description: This curriculum presents basic networking education to equip students with knowledge and skills that can be applied toward entry-level ICT careers and/or higher education in ICT, in addition to preparing students for A+ and CCNA certifications. This course also teaches students how to operate, build, repair, maintain, and upgrade computers.

Text: The course uses Cisco's Online CCNA Discovery curriculum. It is a blended curriculum with both online and classroom learning. We will also use Testout.com curriculum and a variety of other material that will incorporate other current network operating systems.

Class Meetings: Blocks 1 and 2 for the full year

Instructor: Tadek Stadniczuk

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Course Objectives:

- Help students recognize the significant impact of networking on their lives
- Teach students how to build and support a home or small business network with wireless equipment
- Students will design, install and repair CAT 5 and CAT 6 wiring Schemes
- Instill a sense of awe in students and encourage them to learn more about how things work and to pursue careers in networking
- Prepare students for entry-level jobs in the industry by employing interactive and engaging instructional approaches that help them understand general theory and gain practical experience
- Teach students the fundamental concepts of networking
- Provide opportunities for extensive hands-on interaction with PC and networking equipment to prepare students for careers and certification exams
- Establish the relevancy and context of networking in our everyday lives

Skills: Upon completion of the Networking for Home and Small Businesses course, students will be able to perform the following tasks:

- Set up a personal computer system, including the operating system, interface cards, and peripheral devices
- Plan and install a home or small business network and connect it to the Internet
- Verify and troubleshoot network and Internet connectivity
- Share resources such as files and printers among multiple computers
- Recognize and mitigate security threats to a home network
- Configure and verify common Internet applications

Cisco Curriculum Outline

1st Semester

2nd Semester

| Chapter | Introduction to Networks | Routing And Switching Essentials |
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| 1 | Explore the network | Routing Concepts |
| 2 | Configure Network OS | Static Routing |
| 3 | Network Protocols and Communication | Dynamic Routing |
| 4 | Network Access | Switched Networks |
| 5 | Ethernet | Switch Configuration |
| 6 | Network Layer | VLANs |
| 7 | IP Addressing | Access Control Lists |
| 8 | Subnetting IP Networks | DHCP |
| 9 | Transport Layer | NAT for IPv4 |
| 10 | Application Layer | Device Discovery |
| 11 | Build a Small Network | |

Testout Curriculum Outline

Computing Overview

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| Section 1.1: Course Introduction | Error! Bookmark not defined. |
| Section 1.2: Using the Simulator | Error! Bookmark not defined. |
| Section 1.3: Hardware Basics | Error! Bookmark not defined. |
| Section 1.4: Windows Basics | Error! Bookmark not defined. |
| Section 1.5: Linux Basics | Error! Bookmark not defined. |
| Section 1.6: Mac OS Basics | Error! Bookmark not defined. |

PC Technician

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| Section 2.1: Protection and Safety | Error! Bookmark not defined. |
| Section 2.2: Professionalism | Error! Bookmark not defined. |
| Section 2.3: PC Tools..... | Error! Bookmark not defined. |
| Section 2.4: PC Maintenance | Error! Bookmark not defined. |
| Section 2.5: Troubleshooting Overview | Error! Bookmark not defined. |

System Components

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| Section 3.1: Cases and Form Factors | Error! Bookmark not defined. |
| Section 3.2: Power Supplies..... | Error! Bookmark not defined. |
| Section 3.3: Motherboards and Buses..... | Error! Bookmark not defined. |
| Section 3.4: Motherboard Troubleshooting..... | Error! Bookmark not defined. |
| Section 3.5: Processors | Error! Bookmark not defined. |
| Section 3.6: Processor Troubleshooting | Error! Bookmark not defined. |
| Section 3.7: Memory | Error! Bookmark not defined. |
| Section 3.8: Memory Installation | Error! Bookmark not defined. |
| Section 3.9: Memory Troubleshooting | Error! Bookmark not defined. |
| Section 3.10: BIOS/UEFI..... | Error! Bookmark not defined. |
| Section 3.11: Expansion Cards | Error! Bookmark not defined. |
| Section 3.12: Video | Error! Bookmark not defined. |
| Section 3.13: Audio | Error! Bookmark not defined. |
| Section 3.14: Cooling | Error! Bookmark not defined. |

Peripheral Devices

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| Section 4.1: Peripheral Devices | Error! Bookmark not defined. |
| Section 4.2: USB..... | Error! Bookmark not defined. |
| Section 4.3: IEEE 1394 (FireWire)..... | Error! Bookmark not defined. |
| Section 4.4: Display Devices | Error! Bookmark not defined. |
| Section 4.5: Video Troubleshooting..... | Error! Bookmark not defined. |
| Section 4.6: Device Driver Management | Error! Bookmark not defined. |
| Section 4.7: Device Driver Troubleshooting..... | Error! Bookmark not defined. |

Storage

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| Section 5.1: Storage Devices | Error! Bookmark not defined. |
| Section 5.2: SATA..... | Error! Bookmark not defined. |
| Section 5.3: Optical Media..... | Error! Bookmark not defined. |
| Section 5.4: RAID..... | Error! Bookmark not defined. |
| Section 5.5: File Systems | Error! Bookmark not defined. |
| Section 5.6: File System Creation | Error! Bookmark not defined. |
| Section 5.7: Storage Management | Error! Bookmark not defined. |
| Section 5.8: Storage Spaces | Error! Bookmark not defined. |
| Section 5.9: Disk Optimization..... | Error! Bookmark not defined. |
| Section 5.10: Storage Troubleshooting | Error! Bookmark not defined. |

Networking

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| Section 6.1: Networking Overview | Error! Bookmark not defined. |
| Section 6.2: Network Hardware | Error! Bookmark not defined. |
| Section 6.3: Networking Media | Error! Bookmark not defined. |
| Section 6.4: Ethernet..... | Error! Bookmark not defined. |
| Section 6.5: IP Networking | Error! Bookmark not defined. |
| Section 6.6: IP Configuration | Error! Bookmark not defined. |
| Section 6.7: IP version 6 | Error! Bookmark not defined. |
| Section 6.8: 802.11 Wireless..... | Error! Bookmark not defined. |
| Section 6.9: Infrared, Bluetooth, and NFC | Error! Bookmark not defined. |
| Section 6.10: Internet Connectivity | Error! Bookmark not defined. |
| Section 6.11: SOHO Configuration..... | Error! Bookmark not defined. |
| Section 6.12: Network Utilities | Error! Bookmark not defined. |
| Section 6.13: HomeGroup Networking | Error! Bookmark not defined. |
| Section 6.14: Network Troubleshooting | Error! Bookmark not defined. |

Printing

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| Section 7.1: Printers | Error! Bookmark not defined. |
| Section 7.2: Printer Configuration..... | Error! Bookmark not defined. |
| Section 7.3: Network Printing | Error! Bookmark not defined. |
| Section 7.4: Printing Management..... | Error! Bookmark not defined. |
| Section 7.5: Printer Maintenance..... | Error! Bookmark not defined. |
| Section 7.6: Printer Troubleshooting | Error! Bookmark not defined. |

Mobile Devices

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| Section 8.1: Notebook Computers..... | Error! Bookmark not defined. |
| Section 8.2: Notebook Components | Error! Bookmark not defined. |
| Section 8.3: Notebook Power Management | Error! Bookmark not defined. |
| Section 8.4: Notebook Troubleshooting..... | Error! Bookmark not defined. |
| Section 8.5: Mobile Devices | Error! Bookmark not defined. |
| Section 8.6: Mobile Device Networking | Error! Bookmark not defined. |
| Section 8.7: Mobile Device Security | Error! Bookmark not defined. |
| Section 8.8: Mobile Device Troubleshooting..... | Error! Bookmark not defined. |

System Management

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| Section 9.1: Windows System Tools | Error! Bookmark not defined. |
| Section 9.2: Preferences and Settings | Error! Bookmark not defined. |
| Section 9.3: Performance Monitoring | Error! Bookmark not defined. |
| Section 9.4: Users and Groups | Error! Bookmark not defined. |
| Section 9.5: Remote Services | Error! Bookmark not defined. |
| Section 9.6: Windows Application Management..... | Error! Bookmark not defined. |
| Section 9.7: Linux Application Management..... | Error! Bookmark not defined. |
| Section 9.8: Digital Content Management | Error! Bookmark not defined. |
| Section 9.9: Updates | Error! Bookmark not defined. |
| Section 9.10: System Backup..... | Error! Bookmark not defined. |
| Section 9.11: System Protection..... | Error! Bookmark not defined. |
| Section 9.12: System Recovery | Error! Bookmark not defined. |
| Section 9.13: Virtual Memory | Error! Bookmark not defined. |
| Section 9.14: Operating System Troubleshooting..... | Error! Bookmark not defined. |
| Section 9.15: Windows Boot Errors | Error! Bookmark not defined. |

System Implementation

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| Section 10.1: Component Selection | Error! Bookmark not defined. |
| Section 10.2: Windows Pre-installation..... | Error! Bookmark not defined. |

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| Section 10.3: Windows Installation | Error! Bookmark not defined. |
| Section 10.4: Post Installation | Error! Bookmark not defined. |
| Section 10.5: Virtualization | Error! Bookmark not defined. |
| File Management | |
| Section 11.1: Windows File Locations | Error! Bookmark not defined. |
| Section 11.2: Managing Files on Windows | Error! Bookmark not defined. |
| Section 11.3: NTFS Permissions..... | Error! Bookmark not defined. |
| Section 11.4: Shared Folders | Error! Bookmark not defined. |
| Section 11.5: Linux File Management | Error! Bookmark not defined. |
| Security | |
| Section 12.1: Best Practices..... | Error! Bookmark not defined. |
| Section 12.2: Incident Response | Error! Bookmark not defined. |
| Section 12.3: Physical Security | Error! Bookmark not defined. |
| Section 12.4: Social Engineering..... | Error! Bookmark not defined. |
| Section 12.5: BIOS/UEFI Security | Error! Bookmark not defined. |
| Section 12.6: Malware Protection | Error! Bookmark not defined. |
| Section 12.7: Authentication..... | Error! Bookmark not defined. |
| Section 12.8: File Encryption..... | Error! Bookmark not defined. |
| Section 12.9: Network Security | Error! Bookmark not defined. |
| Section 12.10: Firewalls | Error! Bookmark not defined. |
| Section 12.11: Proxy Servers | Error! Bookmark not defined. |
| Section 12.12: VPN..... | Error! Bookmark not defined. |
| Section 12.13: Security Troubleshooting | Error! Bookmark not defined. |
| Section 13.0: Capstone Exercises..... | Error! Bookmark not defined. |

Grade Breakdown

Computer Networking Grading Percentages:

- Exams = 30%
- Quizzes = 20%
- Labs and assignments = 40%
- Employability = 10%
- Final Exam is worth 15% of your semester grade (the above categories computer your Quarter Grade)

GRADING SCALE AND WEIGHTED GRADES (Board Adopted Grading Scale-10-Point Grading Scale)

| % Grade | Letter Grade | Quality Points | Honors Quality Points | AP Quality Points |
|---------|--------------|----------------|-----------------------|-------------------|
| 93-100 | A | 4.0 | 4.5 | 5.0 |
| 90-92 | A- | 3.7 | 4.2 | 4.7 |
| 87-89 | B+ | 3.3 | 3.8 | 4.3 |
| 83-86 | B | 3.0 | 3.5 | 4.0 |
| 80-82 | B- | 2.7 | 3.2 | 3.7 |
| 77-79 | C+ | 2.3 | 2.8 | 3.3 |
| 73-76 | C | 2.0 | 2.5 | 3.0 |
| 70-72 | C- | 1.7 | 2.2 | 2.7 |
| 67-69 | D+ | 1.3 | 1.8 | 2.3 |
| 63-66 | D | 1.0 | 1.5 | 2.0 |
| 60-62 | D- | 0.7 | 1.2 | 1.7 |
| 0-59 | F | 0 | 0 | 0 |

College Credit Plus (CCP) Courses will be treated the same for purposes of class ranking and grade point averages as other advanced standing (i.e., Advanced Placement)