Course Description
Course #819 Grades 11-12 CR 2 (RS) Y
Students returning for a second year of Computer Networking and Repair will spend a good deal of time working as entry-level technicians. Tasks will include: assembly of new computer systems, installation and configuration of systems and peripherals, assisting staff with a variety of computer needs, repair and maintenance of a six-hundred node network. Class time will be dedicated to preparation for the A+ Technician certification exam. Program completers are able to work as entry-level technicians and sales and support personnel in a wide variety of technical fields. Further study is recommended for those wishing to pursue this highly technical field. A majority of graduates do elect to pursue further study at 2 or 4-year colleges. Enrolled students will receive a fully licensed copy of Windows 8 Server Edition to use on their home computer or server. MCC-CIS102M – This class covers maintenance of PC’s, mobile devices, laptops, operating systems, and printers. Students are prepared for CompTIA’s A+ 802 Practical Application Exam. Prerequisite: Grade of C+ or better in Introduction to Computer Maintenance and Computer Networking.

Course Goals—Students will be able to perform the following after completing the course
- Define information technology (IT) and describe the components of a personal computer
- Describe how to protect self, equipment, and the environment from accidents, damage, and contamination
- Perform a step-by-step assembly of a desktop computer and install and navigate an operating system
- Explain and perform preventive maintenance
- Explain the steps of the troubleshooting process and perform basic troubleshooting
- Upgrade or replace components of a laptop, printer, or scanner based on customer needs
- Configure computers to attach to an existing network
- Implement basic physical and software security principles
- Apply good communication skills and professional behavior while working with customers
- Assess customer needs, analyze possible configurations, and provide solutions or recommendations for hardware, operating systems, networking, and security
- Identify all major components of a computer system and describe the function of each
- Describe the main technologies associated with computer networking
- Identify all major components of a Laptop computer system and describe the function of each
- Identify all major components of a printer and describe the function of each
- Describe the main technologies associated with the operational procedures of computer hardware.

Text: TESTOUT PC & NET PRO mapped to Managing and Troubleshooting PCs: Exam 220-802 with CD 4th
Guide to Managing and Troubleshooting Networks: Exam N10-005 3rd Ed.

Required Methods of Assessment
Assessment Method 1: Technical Paper
Performance Criteria:
A Research Paper, the length and topic of the paper will be left up to the instructor; will demonstrate the student’s skill in researching issues related to computer operating system software, networking and security. Acceptable source information is limited to published papers, blogs, and/or articles by recognized experts in the field of computer science. Source material not containing verifiable publishing dates are not acceptable. Instructor will provide a rubric to explain the specific grading criteria for this paper.

Assessment Method 2: Quizzes/Exams
Performance Criteria:
Instructor will provide test questions based on the most current available A+ assessment as a fair way to evaluate the skills the student has learned.

Assessment Method 3: Hands on/Simulated Labs (troubleshoot & correctly repair computer operating system related problems).
Performance Criteria:
Instructor will provide access to simulated/live compromised computer systems for students to practice troubleshooting techniques on.

Course Objective(s) using Methods 1, 2 and 3:
1) Identify all major components of a computer system and describe the function of each
2) Describe the main technologies associated with computer networking
3) Identify all major components of a Laptop computer system and describe the function of each.
4) Identify all major components of a printer and describe the function of each
5) Describe the main technologies associated with the operational procedures of computer hardware.
Outline of Topics:

1) Introduction: Architecture and Concepts
2) Preventive Maintenance
3) Desktop Tear-Down (Removing & Installing Components)
4) Portable Computer Tear-Down (Removing & Installing Components)
5) Device Configuration and Port Settings
6) Installing IDE/PATA, SATA, SCSI Devices including Solid State HDD
7) Upgrade A PC (OS) & Devices (RAM/Video cards etc.)
8) Diagnosing & Troubleshooting
9) Motherboard/Processor/Memory (Understand The Function of BIOS)
10) Understand & Config CMOS (Complementary Metal Oxide Semiconductor)
11) Printers (Laser, InkJet & Dot Matrix)
12) Networking Concepts

Timeline:

Semester I (fall)

Quarter 1:
- Unit 1: Computing Overview
- Unit 2: System Implementation
- Unit 3: File Management

Quarter 2:
- Unit 4: Security
- Unit 5: Troubleshooting
- Unit 6: Capstone Projects/802 Practice Exams

Semester II (spring)

Quarter 3:
- Unit 7: Cisco Network Academy IT Essentials
- Unit 8: Lab Procedures and Tool use
- Unit 9: Networks

Quarter 4:
- Unit 10: Advanced Troubleshooting 1
- Unit 11: The IT Professional
- Unit 12: Case Studies
- Unit 13: Exam Prep MS Network Fundamentals, CompTIA Network+
  TestOut/LabSim Network Pro and/or Cisco CCENT (ICDN1)
- Unit 14: Capstone/Career Development

Evaluation:

Grades in this course will be determined as follows:

- PJ - “CTE Work Ready Skills” (Projects/Research) 30%
- LB - LABS 30%
- QZ - “Quizzes” 20%
- TST - “Test” 30%

Classroom policies/procedures/expectations:

- Be respectful to yourself, others and the equipment
- Cell phones should be put away unless instructed otherwise
- Be prepared for class (on time with all necessary materials)
- Dress properly according to the student handbook
- Use appropriate language, I will NOT tolerate any type of bullying or harassment in my classroom
- Adhere to all safety procedures
- Safety is crucial in the lab. Before a student does hands on activity, he/she must pass a written safety test with a 100%.

New Hampshire State Standards:

PROGRAM COMPETENCY PROFILE FOR CAREER TECHNICAL EDUCATION
Career Cluster: Information Technology

Program Name: Computer Systems Networking and Telecommunications CIP: 110901

- Understand the basic concepts of Ethernet network construction.
- Analyze, troubleshoot, repair and assemble a PC using the basic concepts.
- Understand the basic concepts of Windows-based network configuration.
- Apply the basic concepts of and techniques for providing customer service.
- Evaluate the fundamental concepts of entrepreneurship.
- Know the importance of personal growth, leadership and career success.
- Remember the key concepts associated with high performance/employability skills.
- Create and update tools required for career exploration
NH Common Core State Standards – Aligned
- English/Language Arts/Literacy: E
- Mathematics: M
- Science: S
- Art: A

National Standard: CompTIA A+, CompTIA Network+ (Additional optional certification credentials Microsoft & CISCO CCENT)

### Cognitive Levels met by the course:

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### Core Attributes met by course (college wide)

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Course Content Reviewed by College Faculty for CCSNH Running Start Approval

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Signature                  Date