



**Computer Engineering**

CIP 15.1202

## **PROGRAM OF STUDY**

**CURRICULUM MAPPING  
WITH  
CERTIFICATION OUTCOMES**

Mon Valley Career & Technology Center prepares all students to attain their fullest potential for employment, to be life long learners, and to be productive and responsible members of an ever-changing society.

**Objective:**

This document has been prepared to project student learning outcomes in a linear fashion over the approved 3-year program of study.

**Overview:**

This document provides a Pennsylvania Department of Education and Mon Valley CTC Occupational Advisory Committee approved list of tasks and learning objectives that are broken out into a linear form for a better understanding of learning outcomes over a three year period within each program. It also serves as curriculum map as students work towards completing knowledge and skill-based tasks in pursuit of industry credentials. The end goal within each program is to work towards completing all tasks at proficient and advanced levels, earning multiple (stackable) industry credentials, and successfully complete the NOCTI exam. Student's progression and completion of task(s) and industry certification(s) may vary.

**Navigation:**

**Unit / Task #** - This column indicates the Pennsylvania Department of Education or Mon Valley CTC local unit or task numbers given to each task within a given duty area.

**Task Description** – This column explains what knowledge-based or skill-based task that a student is working on for completion.

**Level / Marking Period** – This column indicates the learning level and timeframe at which the specific task(s) will be introduced to the student(s). Note that some tasks may be taught and completed individually while others may be taught in groups. ( i.e. 1.1 would signify a first year student being introduced to this task(s) in the first marking period, 2.3 would signify a second year student being introduced to this task(s) in third marking period, etc.)

**Industry Certification:**

Students successfully progressing through the curriculum and tasks have opportunity to test for industry credentials. Industry credentials are listed on the right side of the document at the appropriate time within the curriculum that a student would be fully prepared to test for that certification.



**Computer Technology/Computer Systems Technology**

**Classification of Industrial Programs 15.1202**

<b>Unit / Task #</b>	<b>Task Description</b>	<b>Level / Marking Period</b>
101	Determine common causes of accidents and injuries in the workplace.	1.1
102	Wear personal protective equipment.	1.1
103	List and identify safety hazard symbols.	1.1
104	Review Safety Data Sheets (SDS) and explain their requirements in handling hazardous materials.	1.1
105	Describe types of fire extinguishers and explain which types to use for extinguishing various fires.	1.1
106	Use safe procedures to follow when lifting and carrying heavy objects.	1.1
107	Describe the importance of safety as it relates to environmental issues.	1.1
108	Identify potential hazards when working with power supplies.	1.1
109	Follow disposal procedures for batteries and display devices, and electronic components.	1.1
110	Follow disposal procedures for chemical solvents and pressurized cans.	1.1
113	Maintain safe work area to avoid common accidents and injuries.	1.1
114	Prevent Electro-static Discharge conditions.	1.1
201	Identify the various types of computers people use in the modern world.	1.1
202	Identify computer hardware components and their functions.	1.1
517	Explain and categorize various portable devices.	1.1
518	Identify various computer port types and uses.	1.1
703	Install and configure an operating system.	1.1



1006	Describe industry standard documentation, policies, procedures, and best practices.	1.1
203	Identify appropriate computer equipment and peripheral for given a specific situation and budget.	1.2
501	Categorize storage devices and backup media.	1.2
502	Explain motherboard components, types and features.	1.2
503	Categorize power supplies types and characteristics.	1.2
504	Explain the purpose and characteristics of CPUs and their features.	1.2
505	Explain cooling methods and devices.	1.2
506	Compare and contrast memory types, characteristics and their purpose.	1.2
507	Distinguish between different display devices and their characteristics.	1.2
508	Install and configure peripherals and input devices.	1.2
509	Summarize the function and types of adapter cards.	1.2
510	Configure and optimize portable devices such as: laptops, tablets, and smart devices.	1.2
511	Install, configure and maintain the components of a desk top computer.	1.2
514	Calculate voltage, wattage, and capacity of power supply.	1.2
515	Categorize different case form factors, their fans and air flow directions.	1.2
604	Identify common mobile device issues and determine the appropriate basic troubleshooting method.	1.2
710	Install, configure, and maintain application suite software.	1.2
903	Identify security, password management, locking workstations, and biometrics.	1.2
111	Describe the meaning and importance of the Energy Star Rating System.	1.3
112	Configure a computer's power management settings to maximize energy efficiency.	1.3
404	Describe common legal and ethical issues with intellectual property	1.3
405	Use web browsers to effectively search the Internet and retrieve specified information.	1.3
406	Use collaboration software	1.3
407	Explain the use of social media in a safe and appropriate manner.	1.3

**Certification to test for:**  
**OSHA**



512	Detect problems, troubleshoot, and repair/replace desktop and laptop computer components.	1.3
601	Apply industry standard troubleshooting methods.	1.3
602	Identify common hardware and operating system symptoms and their causes.	1.3
605	Integrate common preventative maintenance techniques for computers.	1.3
606	Identify basic computer and networking tools.	1.3
704	Identify and use system utilities/tools and evaluate the results.	1.3
705	Select the appropriate commands and options to troubleshoot and resolve problems.	1.3
707	Use system utilities/tools and evaluate the results.	1.3
904	Troubleshoot, remove and prevent viruses and malware.	1.3
905	Implement security and troubleshoot common issues.	1.3
1001	Communicate with customers.	1.3
1002	Solve customer/client problems.	1.3
204	Describe the interaction between software and hardware.	1.4
205	Describe the difference between applications software and system software.	1.4
206	Identify the functions of an operating system.	1.4
207	Describe the various components of a graphical user interface based operating system.	1.4
208	Use a graphical user interface based operating system.	1.4
513	Install, configure, and maintain printers.	1.4
516	Explain the characteristics of various types of printers.	1.4
603	Use troubleshooting methods and tools for printers.	1.4
701	Identify different Operating Systems by their features.	1.4
702	Use various user interfaces.	1.4
706	Differentiate between various operating system directory structures.	1.4



708	Troubleshoot common OS (Operating System) and software issues.	1.4	<b>Certification to test for:</b>
709	Explain and demonstrate use of the Command Line interface.	1.4	MOS – Word
1003	Utilize the team approach to deliver client service.	1.4	MOS – Excel
403	Components of a URL.	2.1/3.1	MOS – PowerPoint
801	Describe common types of computer networks based on their scope of coverage	2.1/3.1	MOS – Outlook
802	Compare and contrast different internet technologies.	2.1/3.1	
803	Define networking fundamentals, technologies, devices and protocols.	2.1/3.1	<b>Certification to test for:</b>
804	Describe, fabricate, and install test network cables, connectors, and basic network infrastructure.	2.1/3.1	MTA – Windows OS
907	Implement industry standard practices dealing with user account management.	2.1/3.1	MTA – Server
711	Configure and implement client side virtualization.	2.2/3.2	MTA – Network
805	Compare and contrast various types of wired and wireless networks.	2.2/3.2	
806	Use the appropriate tools to troubleshoot problems of network connectivity.	2.2/3.2	
807	Install and configure SOHO network.	2.2/3.2	
808	Install and configure network resources.	2.2/3.2	
1004	Send, receive, and manage email documents and attachments using proper email etiquette.	2.2/3.2	
901	Explain the ethical, legal and security issues related to handling data.	2.3/3.3	
902	Identify security features including wireless encryption, and malicious software protection.	2.3/3.3	
906	Describe the ethical, security, and privacy issues involved in posting information about yourself and others on social networking sites, including blogs.	2.3/3.3	
908	Demonstrate basic forensic concepts such as: incident response, chain of custody, evidence preservation, and documentation.	2.3/3.3	
1005	Describe an appropriate professional social media presence.	2.3/3.3	<b>Certification to test for:</b>
MVCTC	Task Remediation / NOCTI Test Preparation / Industry Certification Preparation	2.4/3.4	CompTIA A+