COURSE OUTLINE: CYB101 - COMPUTER/NETWORKING

Prepared: IT Studies
Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	CYB101: COMPUTER AND NETWORKING FUNDAMENTALS
Program Number: Name	5911: CYBERSECURITY
Department:	PPP triOS
Academic Year:	2022-2023
Course Description:	This course reviews the essential operating system skills and understanding required for a Cybersecurity professional. More specifically, students learn how to use, configure, upgrade, troubleshoot and maintain computer hardware alongside the Windows family of operating systems, as well as basic configuration of Linux, macOS, and mobile operating systems. At course completion, students will have covered the topics covered on the CompTIA A+ Certification exam.
Total Credits:	4
Hours/Week:	4
Total Hours:	56
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**5911 - CYBERSECURITY** VLO 1 Develop and implement cyber security solutions to protect network systems and data. VLO 2 Plan and implement security assessment methodologies, vulnerability management strategies and 2.incident response procedures to generate and communicate security analysis reports and recommendations to the proper level of the organization. VLO 3 Recommend processes and procedures for maintenance and deployment of cyber security solutions. VLO 10 Maintain ongoing personal and professional development to improve work performance in the field of information technology.
Essential Employability Skills (EES) addressed in this course:	EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 7 Analyze, evaluate, and apply relevant information from a variety of sources. EES 10 Manage the use of time and other resources to complete projects.
Course Evaluation:	Passing Grade: 50%, D

	A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Books and Required Resources:	CompTIA A+ Complete Study Guide by Quentin Docter Publisher: Sybex (Wiley) ISBN: 978-1-119-51593-7

Course Outcomes and Learning Objectives:	**Course Outcome 1**	**Learning Objectives for Course Outcome 1**
	Adopt good technical support skills through a practical understanding of best practices in cybersecurity operational procedures.	OPERATIONAL PROCEDURES 1.1 Implement best practices associated with documentation and support systems information management. 1.2 Explain basic change-management best practices. 1.3 Implement workstation backup and recovery methods. 1.4 Utilize common safety procedures. 1.5 Summarize environmental impacts and local environmental controls. 1.6 Explain the importance of prohibited content/activity and privacy, licensing, and policy concepts. 1.7 Utilize proper communication techniques and professionalism. 1.8 Identify the basics of scripting. 1.9 Utilize remote access technologies.
	Course Outcome 2	**Learning Objectives for Course Outcome 2**
	Install, configure, and maintain different Windows operating systems and their data.	OPERATING SYSTEMS 2.1 Identify basic features of Microsoft Windows editions. 2.2 Utilize the appropriate Microsoft command-line tool. 2.3 Utilize features and tools of the Microsoft Windows operating system (OS). 2.4 Utilize the appropriate Microsoft Windows Control Panel utility. 2.5 Utilize the appropriate Windows settings. 2.6 Configure Microsoft Windows networking features on a client/desktop. 2.7 Apply application installation and configuration concepts. 2.8 Explain common OS types and their purposes. 2.9 Perform OS installations and upgrades in a diverse OS environment. 2.10 Identify common features and tools of the macOS/desktop OS. 2.11 Identify common features and tools of the Linux client/desktop OS.
	Course Outcome 3	**Learning Objectives for Course Outcome 3**
	Secure different Windows operating systems and their data.	SECURITY 3.1 Summarize various security measures and their purposes. 3.2 Compare and contrast wireless security protocols and authentication methods. 3.3 Detect, remove, and prevent malware using the appropriate tools and methods.

3.4 Explain common social-engineering attacks, threats, and vulnerabilities. 3.5 Manage and configure basic security settings in the Microsoft Windows OS. 3.6 Configure a workstation to meet best practices for security. 3.7 Explain common methods for securing mobile and embedded devices. 3.8 Utilize common data destruction and disposal methods. 3.9 Configure appropriate security settings on small office/home office (SOHO) wireless and wired networks. 3.10 install and configure browsers and relevant security settings.

Course Outcome 4	**Learning Objectives for Course Outcome 4**
Configure networking protocols and interfaces.	NETWORKING 4.1 Compare and contrast Transmission Control Protocol (TCP) and User Datagram Protocol (UDP) ports, protocols, and their purposes. 4.2 Compare and contrast common networking hardware. 4.3 Compare and contrast protocols for wireless networking. 4.4 Summarize services provided by networked hosts. 4.5 Install and configure basic wired/wireless small office/home office (SOHO) networks. 4.6 Compare and contrast common network configuration concepts. 4.7 Compare and contrast Internet connection types, network types, and their features. 4.8 Utilize networking tools.
Course Outcome 5	**Learning Objectives for Course Outcome 5**
Manage hardware components within PCs and notebooks and mobile devices.	HARDWARE 5.1 Explain basic cable types and their connectors, features, and purposes. 5.2 Install the appropriate RAM. 5.3 Select and install storage devices. 5.4 install and configure motherboards, central processing units (CPUs), and add-on cards. 5.5 Install or replace the appropriate power supply. 5.6 Deploy and configure multifunction devices/printers and settings. 5.7 install and replace printer consumables.
Course Outcome 6	**Learning Objectives for Course Outcome 6**
Manage hardware components within mobile devices.	MOBILE DEVICES 6.1 Install and configure laptop hardware and components. 6.2 Compare and contrast the display components of mobile devices. 6.3 Set up and configure accessories and ports of mobile devices. 6.4 Configure basic mobile device network connectivity and application support.
Course Outcome 7	**Learning Objectives for Course Outcome 7**

	Troubleshoot and manage various software and operating system-related issues.	SOFTWARE TROUBLESHOOOTING 7.1 Troubleshoot common Windows OS problems. 7.2 Troubleshoot common personal computer (PC) security issues. 7.3 Utilize best practice procedures for malware removal. 7.4 Troubleshoot common mobile OS and application issues. 7.5 Troubleshoot common mobile OS and application security issues.
	Course Outcome 8	**Learning Objectives for Course Outcome 8**
	Troubleshoot common hardware and network problems effectively.	HARDWARE AND NETWORK TROUBLESHOOTING 8.1 Apply the best practice methodology to resolve problems. 8.2 Troubleshoot problems related to motherboards, RAM, CPU, and power. 8.3 Troubleshoot and diagnose problems with storage drives and RAID arrays. 8.4 Troubleshoot video, projector, and display issues. 8.5 Troubleshoot common issues with mobile devices 8.6 Troubleshoot and resolve printer issues. 8.7 Troubleshoot problems with wired and wireless networks.
	Course Outcome 9	**Learning Objectives for Course Outcome 9**
	Examine cloud computing concepts and configure client-side virtualization.	VIRTUALIZATION AND CLOUD COMPUTING 9.1 Summarize cloud computing concepts. 9.2 Summarize aspects of client-side virtualization.

Evaluation Process and Grading System:	<table><tr><th>Evaluation Type</th><th>Evaluation Weight</th></tr><tr><td>Final Exam</td><td>60%</td></tr><tr><td>Professional Performance</td><td>10%</td></tr><tr><td>Quizzes</td><td>30%</td></tr></table>
Date:	July 6, 2022
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.