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**Cybersecurity and Network Administration**

**Associate Degree**

**Course Curriculum**

**Course # Course Title Credits**

**Semester 01** (Tuition: $2,710)

10-103-106 Beginning Microsoft Excel 1

Credits: 1 Lecture Hours: 18
This course is an introduction to Microsoft Excel. Students will learn the basic features to produce basic worksheets and charts. Other topic areas covered include formatting, formulas, built-in functions used to design functional worksheets to solve business problems. Basic experience with Windows is assumed.

10-103-118 Intermediate Microsoft Excel 1

Credits: 1 Lecture Hours: 18
This course introduces intermediate level features of Microsoft Excel. Students will learn to use relative & absolute reference formulas and functions, manage workbooks using multiple worksheets, create custom templates and use pivot tables effectively.

10-150-129 Introduction to Networks 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36
Learners will install, operate, configure, secure and troubleshoot networks. This is an entry-level networking course that learners will explore the fundamentals of LAN and WAN technologies including routing, switching and wireless. Learners will work directly with Cisco routers and switches configuring IPv4 and IPv6 by implementing switched networks using VLANs, Access Control Lists (ACLs) and routing technologies.

10-150-134 Windows Support 1

Credits: 1 Lecture Hours: 9 Lab Hours: 18
This course will introduce the learner to a Microsoft Windows client-server environment including automated administrative tasks using PowerShell, ADDS account management, introduction to group policy, Windows deployment and remote administration tasks. Learners will demonstrate acquired skills in a simulated enterprise environment.

10-151-101 Introduction to Security 1

Credits: 1 Lecture Hours: 18
Learners will explore the importance of the field of cybersecurity, data confidentiality, and best practices for using the Internet and social media. The learner will have hands-on experience with cyber trends, threats and staying safe in cyberspace, protecting personal and company data. Learners will also explore career opportunities in the field of cybersecurity.

10-154-110 Hardware/Software Fundamentals 3

Credits: 3 Lecture Hours: 36 Lab Hours: 36
Students will learn all aspects of computer hardware and software commonly used in a business workplace. Students will develop their troubleshooting skills and use tools to resolve technology-related issues. Students will install, configure, troubleshoot, repair, and maintain computer hardware and operating systems. Network technologies, security concepts, and common standard operating procedures for IT departments will be covered. Students will demonstrate good communication skills and professionalism required of all entry-level IT professionals.

10-620-156 Fiber Optic Cabling Technician 1

Credits: 1 Lecture Hours: 9 Lab Hours: 18
This course will introduce the learner to the essential knowledge, skills, and abilities required to install and configure fiber optic networking infrastructure in an industrial plant setting. Major topics of study include: using light to transmit information, fiber types, fiber preparation, fiber termination, fiber splicing, fiber inspection and testing, and safety issues and procedures unique to the fiber optic industry. Learners will practice the skills necessary to select, install, terminate, splice, inspect, and test fiber optical cables to EIA/TIA standards using industry standard tools and procedures. This course is a recommended preparation activity for those interested in pursuing the Fiber Optics Association (FOA) Certified Fiber Optic Technician (CFOT) written and hands-on certification exam.

10-801-136 English Composition 1 3

Credits: 3 Lecture Hours: 54
This course is designed for learners to develop knowledge and skills in all aspects of the writing process. Planning, organizing, writing, editing and revising are applied through a variety of activities. Students will analyze audience and purpose, use elements of research and format documents using standard guidelines. Individuals will develop critical reading skills through analysis of various written documents.

10-804-133 Math & Logic 3

Credits: 3 Lecture Hours: 54
Students will apply mathematical problem solving techniques. Topics will include symbolic logic, sets, algebra, Boolean algebra, and number bases.

**Semester Total: 16**

**Semester 02** (Tuition: $3,230)

**Course # Course Title Credits**

10-107-192 IT Career Development 2

Credits: 2 Lecture Hours: 36
Students will prepare final versions of employment-related documents including resumes, cover letters, follow-up letters, and job applications. Students will build an online career portfolio (LinkedIn) and will participate in mock interviews and job shadowing with an IT professional. Students will learn job seeking skills and practice appropriate work environment attitudes while projecting a professional image. Communication skills required for an IT professional will also be addressed.

10-150-126 Premises Cabling Technician 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36
This course will introduce the learner to the knowledge and skills required in the installation of copper, fiber and wireless networks. An exploration of cabling types, termination techniques, design and testing will be conducted. Learners will practice using the tools and the skills required to terminate copper, fiber and wireless. At the completion of this course, the learner will complete the requirements for the CPCT certification with a written and hands-on examination.

10-150-135 Windows Server Administration (2 cr) 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36
This course will focus on planning, implementing, and managing the core infrastructure of a Windows client-server environment using the latest Windows server technology. Learners will work with on-premises Active Directory and Azure IaaS (Azure AD), network access and data security, Group Policy and Remote Access services. At the completion of this course, the learner will demonstrate their skills by implementing a simulated enterprise environment. Pre-requisites: Introduction to Networks (10-150-129) and Windows Support (10-150-134)

10-151-102 Cybersecurity Essentials 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36
Learners will explore the characteristics and tactics used by cyber criminals in today's connected world. Learners will then delve into the technologies, products, and procedures cybersecurity professionals use to combat cybercrime. Hands-on labs exploring the topics of this course will be used throughout the course. Prerequisite: Introduction to Networks (10150-129)

10-151-103 Cisco Networking and Security 3

Credits: 3 Lecture Hours: 36 Lab Hours: 36
Learners in this course are exposed to the foundational knowledge required to respond to network security threats through various threat mitigation measures. Learners will configure and monitor various network devices in order to harden to protect data assets and network systems from attack. Prerequisite: Introduction to Networks (10150-129)

10-151-104 Linux Administration and Security 3

Credits: 3 Lecture Hours: 36 Lab Hours: 36
Learners will gain an understanding of the fundamentals of the Linux operating system, system architecture, installation, command line and file system. This course implements a "practice as you read" approach to learning. Each learner has hands-on access to a Linux virtual machine to practice, explore and trial Linux command line concepts while reading course content. This course is aligned to the LPI LPIC-1 101 certification exam.

10-801-196 Oral/Interpersonal Communication 3

Credits: 3 Lecture Hours: 54
Students demonstrate competency in speaking, verbal and nonverbal communication, and listening skills through individual presentations, group activities and other projects.

**Semester Total: 17**

**Semester 03** (Tuition: $2,800)

**Course # Course Title Credits**

10-150-121 VMWare VCP Essentials 3

Credits: 3 Lecture Hours: 36 Lab Hours: 36
This hands-on training course allows the learner to explore installation, configuration, and management of VMware® vSphere, which consists of VMware ESXi/ESX and VMware vCenter Server. Students are introduced to virtualization and storage management concepts using VMware server virtualization products. The learner will be introduced to all the objectives for the VMware VCP industry certification exam. Prerequisite: Cisco Networking and Security (10151-103) OR Cisco Networking (10150-102)

10-150-132 Voice Over IP Administration 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36
Learners will be introduced to the protocols, terms and definitions of analog phone systems as well as Voice over IP (VOIP) networks. Learners will be configuring station call features, provisioning voice trunks, and establishing voicemail accounts. The learner will use the Cisco Unified Communications Manager platform while exploring the functionality of a voice over IP network. Prerequisite: Introduction to Networks (10-150-129)

10-150-154 Firewall/VPN Technologies 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36
Learners will participate in hands-on, career-oriented learning solutions focused on network devices designed to mitigate security threats. Learners will apply mitigation techniques like IDS/IPS, virtual private networks and various firewall technologies. Prerequisite: Cisco Networking and Security (10-151-103)

10-151-105 Wireless Networking and Security 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36
The learner will be introduced to the design, implementation, operation, security and troubleshooting of wireless networking. The course will provide a comprehensive overview of technologies, security, and best practices. The learner will conduct hands-on installations and configurations of Wireless Client Adapters, Routers, Access Points, Repeaters, Bridges and other wireless devices using multiple-vendor equipment. Prerequisite: Introduction to Networks (10150-129)

10-151-106 Scripting for Security 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36
Learners will start out with hands-on labs working with Linux, Python programming and Bash scripting. The learner will then focus on developing scripts that could be used for security testing, data analysis or other routine tasks for a cybersecurity professional. Prerequisite: Linux Administration and Security (10151-104)

10-151-107 Cybersecurity Operations 3

Credits: 3 Lecture Hours: 36 Lab Hours: 36
Learners in this course are exposed to all of the foundational knowledge required to detect, analyze, and escalate basic cybersecurity threats using common open-source tools. The learner will complete hands-on labs to develop skills related to security monitoring, host-based analysis, network intrusion analysis, and security policies and procedures. This course aligns with the Cisco Certified CyberOps Associate (CBROPS) certification. Prerequisite: Introduction to Networks (10150-129)

10-809-195 Economics *\* OR \**

Credits: 3 Lecture Hours: 54
Students will develop analytical skills central to how a market-oriented system operates and the factors that influence national economic policy. Students will apply basic concepts and analyses to a variety of contemporary problems and public policy issues. These concepts include scarcity, resources, alternative economic systems, growth, supply and demand, monetary and fiscal policy, inflation, unemployment, and global economic issues.

20-809-287 Principles of Macroeconomics 3

Credits: 3 Lecture Hours: 54
This course provides an introduction to basic economic principles with applications to current economic problems affecting the overall performance of a nation's economy. The course begins with an analysis of the role of markets and prices in an economy. Topics include the causes and consequences of unemployment, inflation, and economic growth; the role of money and banking in the economy; the role of government taxing and spending policies to correct market failure and stabilize the economy; the implications of budget deficits and the national debt; and the implications of an increasingly global economy. This course is designed to meet the need for college transfer credit.

**Semester Total: 17**

**Semester 04** (Tuition: $2,470)

**Course # Course Title Credits**

10-150-136 Cloud Computing 2

Credits: 2 Lecture Hours: 18 Lab Hours: 36
In this course, the learner will be introduced to cloud fluency exploring the latest cloud services available from providers such as Amazon, Google, and Microsoft. Learners will implement and manage a working compute and storage environment using the three cloud providers. At the completion of this course, the learner will demonstrate their skills by implementing cloud-based services for an enterprise environment.

10-151-108 Database Security Administration 3

Credits: 3 Lecture Hours: 36 Lab Hours: 36
The learner will be introduced to the collection of processes and procedures used to protect and secure a database from illegitimate activity and use, malicious threats, and attacks. This course will start with basic SQL and Oracle database administration and architecture, then explore common database vulnerabilities and methods to protect and secure. Prerequisite: Linux Administration and Security (10151-104)

10-151-109 Advanced Security Capstone 3

Credits: 3 Lecture Hours: 18 Lab Hours: 72
Learners will be implementing various advanced secured wired and wireless systems with Intra/Internet services on both Windows and Linux operating systems. At the completion of this course, the learners will have an enterprise-level secured network infrastructure connected directly to the Internet. Prerequisite: Cisco Networking and Security (10151-103)

10-151-110 Network Defense & Forensics 3

Credits: 3 Lecture Hours: 36 Lab Hours: 36
Learners are introduced to the NIST NICE CyberSecurity Workforce Framework, which is focused on the identification, analysis, and mitigation of threats to internal IT systems or networks. Learners will conduct hands-on labs that enforce knowledge within computer network defense analysis, incident response, vulnerability assessment and management, and computer network defense infrastructure support. Prerequisites: Cybersecurity Essentials (10151-102)

10-151-111 Offensive Security Operations 1

Credits: 1 Lecture Hours: 18
Learners are armed with the crucial knowledge they need to intelligently discuss and evaluate, at a basic level, the security environment for a given business context. Learners will perform threat modeling activities to evaluate physical, communication, and application security vulnerabilities and recommend threat mitigation measures. A CTF-like IoT Security vulnerability challenge with 10 missions will be the final assessment. Prerequisite: Cybersecurity Essentials (10-151-102)

10-809-199 Psychology of Human Relations 3

Credits: 3 Lecture Hours: 54
Students explore the relationship between the general principles of psychology and our everyday lives. Students are given the opportunity to achieve a deepened sense of awareness of themselves and others. This understanding enables students to improve their relationship with others at work, in the family, and in society.

**Semester Total: 15**

**Total Credits: 65**

**Estimated Total Tuition\*: $11,210**