CYNX - CYBERSECURITY NEXUS

CYNX 2115 Information Technology Fundamentals (2-2-3)
This course provides students with a foundation in the fundamentals of IT to include the fundamental knowledge of the hardware, software and skills necessary to set up and securely use a computer, keep it in good working order and perform basic support for PCs and computer networks. The lessons include practical setup guides, as well as hands-on labs. Upon completion, a student will be prepared to take and pass the CompTIA IT Fundamentals+ certification exam.

CYNX 2159 Fundamentals of Computer Networks (2-2-3)
This course provides students a foundation in the fundamentals of all subjects related to the design, installation and maintenance of computer networks. The lessons include practical setup guides, as well as hands-on labs for the student to practice their new skills before deploying these technologies and strategies in a production network to include network security and managing risk.
Prerequisite(s): CYNX 2115 (may be taken concurrently) with a minimum grade of C

CYNX 2160 Fundamentals of Information Security (2-2-3)
This course introduces the main hardware and software components of a modern computer system, investigates the vulnerabilities and threats associated with each component, and suggests prudent measures to defend against these threats
Prerequisite(s): CYNX 2159 (may be taken concurrently) with a minimum grade of S

CYNX 2165 Professionalism in the Cybersecurity Workforce I (1-0-1)
This course provides students with an understanding of the social impact, implications and effects of cybersecurity on society and the responsibilities of cybersecurity professionals in the emerging workplace. Specific topics include basic communication and presentation skills, dress, professionalism standards, legal and ethical responsibilities, memberships in professional societies, continuing education opportunities, networking, resume creation and industry certifications.

CYNX 2201 IT Fundamentals (2-1-2)
This course is designed with the goal of creating a skilled and experienced industry certified IT professional. This course is the first of a two-course program that provides students with a foundation in the fundamentals of Information Technology to include the fundamental knowledge of the hardware, software and skills necessary to set up and securely use a computer, keep it in good working order and perform basic support for PCs and simple computer networks. The lessons include practical setup guides, as well as hands-on labs for the student to practice their new skills before deploying these technologies and strategies in a production network. S/U grading.

CYNX 2202 Network Fundamentals (2-1-2)
Prerequisites: CYNX 2201 with grade of Satisfactory. This course is designed with the goal of creating a skilled and experienced industry certified IT professional. This course is the second of a two-course program that provides students a foundation in the fundamentals of all subjects related to the design, installation and maintenance of computer networks. The lessons include practical setup guides, as well as hands-on labs for the student to practice their new skills before deploying these technologies and strategies in a production network to include network security and managing risk. S/U grading.
Prerequisite(s): CYNX 2201 with a minimum grade of S

CYNX 3135 Infrastructure Security (3-0-3)
This course explores security challenges encountered on backbone networks in an information and communications infrastructure. Topics include methods of tightening infrastructure security, a variety of tools for monitoring and managing infrastructure security and commonly-used technologies, such as firewalls, IDS, IPS and VPNs
Prerequisite(s): CYNX 2115 with a minimum grade of C

CYNX 3136 Virtualization Basics and Introduction to HyperVisor (1-0-1)
This course is designed with the goal of creating a skilled and experienced industry certified cybersecurity professional. Through a series of modules and related hands-on labs, this course provides the student with the necessary knowledge and techniques to focus on the basics of virtualization including how virtualization works, concepts of a virtual machine and in-depth study of the various virtualization models to include Microsoft HyperVisor. S/U grading.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 3165 Professionalism in the Cybersecurity Workforce II (1-0-1)
This course focuses on developing the communication skills necessary to perform the duties inherent in a Cybersecurity Professional role. Emphasis will be on research, writing reports, preparing and giving technical presentations in a non-technical manner, and preparing questions and practicing honing the interviewing skills necessary for developing and executing risk and cyber audits to include final report preparation and presentation to management. In addition, the course will cover organization and planning to include use of automated project management software.

CYNX 3166 Professionalism in the Cybersecurity Workforce (3-0-3)
This course provides students with an understanding of the social impact, implications and effects of cybersecurity on society and the responsibilities of cybersecurity professionals. Specific topics include basic communication and presentation skills, dress, professionalism standards, legal and ethical responsibilities, networking, and resume creation. This class will also include research and writing reports, developing skills necessary for risk and cyber audits, and organization and planning to include use of automated project management software.

CYNX 3201 Penetration Testing Student (1-2-2)
This course is designed with the goal of creating a skilled and experienced industry certified cybersecurity professional. This class is the foundational course towards becoming a Penetration Tester. The course builds a strong foundation in IT, Networks, and the necessary programming skills by giving theoretical lessons, enforced with practical exercises and labs held in a sophisticated virtual lab environment. At the end of the training, the student will possess the fundamental skills and practical pentesting knowledge to perform basic network security audits. S/U grading.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 3202 Penetration Testing Professional (2-1-2)
Prerequisites: CYNX 2202 with grade of Satisfactory. This course is designed with the goal of creating a skilled and experienced industry certified cybersecurity professional. Through a series of modules enforced with practical related hands-on labs, this course is a comprehensive and practical course designed to take the student from the penetration testing basics to a professional level as penetration tester. At the end of the training course, the student will be challenged with a real-world exam environment, where he/she must produce a commercial-grade penetration testing report that correctly identifies the weaknesses in this "engagement". S/U grading.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 3215 Web Application Penetration Testing (1-2-2)
Prerequisites: CYNX 3201 with grade of Satisfactory. This course is designed with the goal of creating a skilled and experienced industry certified cybersecurity professional. Through a series of modules and related hands-on labs, this course provides students with a basic hands-on experience focused on the web application penetration testing techniques. The course provides all the advanced skills necessary to carry out a thorough and professional penetration test against modern web applications. The latest research in the web application security field is used to make this course not only the most practical training course on the subject, but also the most up to date. This course, although based on the offensive approach, provides advice and best practices to solve security issues detected during a penetration test. S/U grading.
Prerequisite(s): CYNX 3201 with a minimum grade of S

CYNX 3216 Threat Hunting Professional (1-2-2)
Prerequisites: CYNX 2202 with grade of Satisfactory. This course is designed with the goal of creating a skilled and experienced industry certified cybersecurity professional. Through a series of modules and related hands-on labs, this course provides the knowledge and skills to proactively hunt for threats in an environment. It trains the student to develop a hunting mentality using different strategies to hunt for various attack techniques and signatures. S/U grading.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 3225 Digital Forensics Professional (1-2-2)
Prerequisites: CYNX 2202 with grade of Satisfactory. This course is designed with the goal of creating a skilled and experienced industry certified cybersecurity professional. Through a series of modules and related hands-on labs, this course provides the student with the necessary knowledge and techniques to not only investigate intrusions and prepare intrusion reports, but also to assist in cases of incident response or proactive threat hunting. The student will learn to identify and gather digital evidence as well as retrieve and analyze data from both the wire and endpoints. S/U grading.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 3235 Network Defense Professional (3-0-3)
This course is designed with the goal of creating a skilled and experienced industry certified cybersecurity professional. Through a series of modules and related hands-on work, this course builds on concepts covered in IT Fundamental and Network Fundamentals to understand topics and practical methods of network and system security. The lessons include full practical setup guides, as well as virtual labs for the student to practice their new skills before deploying these technologies and strategies in a production network.
Prerequisite(s): CYNX 2115 (may be taken concurrently) with a minimum grade of C or CYNX 2202 with a minimum grade of S

CYNX 3236 Virtualization Basics (1-2-2)
Prerequisites: CYNX 2202 with grade of Satisfactory. This course is designed with the goal of creating a skilled and experienced industry certified cybersecurity professional. Through a series of modules and related hands-on labs, this course provides the student with the necessary knowledge and techniques to focus on the basics of virtualization including how virtualization works, concepts of a virtual machine and in-depth study of the various virtualization models. S/U grading.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 3237 Practical Web Defense (1-2-2)
Prerequisites: CYNX 2202 with grade Satisfactory. This course is designed with the goal of creating a skilled and experienced cybersecurity certified professional. This course is designed to instruct students about how web applications are attacked in the real world and what the student can do to mitigate every attack. Through a series of modules and related hands-on labs, this course provides a comprehensive and hands-on experience in Web Application defense against real-world attacks. S/U grading.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 3245 Exploit Development Student (1-2-2)
This course is designed with the goal of creating a skilled and experienced industry certified professional. This course provides students with the fundamentals of Windows and Linux exploit development. The course continues into advanced Windows and Linux exploit development techniques as well as anti-exploit mechanism bypasses.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 3346 Google Cloud Platform Networking and Security Fundamentals (0-2-1)
This course is designed with the goal of creating a skilled and experienced industry professional. Google Cloud Platform enables developers to build, test and deploy applications on Google's highly-scalable, secure, and reliable infrastructure. This course covers specific Google Cloud Platform Networking services so that students understand GCP options such as Software Defined Networking, Load Balancing, Autoscaling and Virtual Private Clouds. The course will also cover Identity and Access Management from a networking security perspective.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 3347 Managing AWS Cloud Environment Access (0-2-1)
This course is designed with the goal of creating a skilled and experienced industry professional. The course covers Identity and Access Management (IAM) in Amazon Web Services to include managing users, groups, permissions, creating policies and encryption of personal keys.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 3455 Cybersecurity Apprenticeship I (3-0-3)
The apprenticeship course combines previously obtained classroom learning (school-based) with on-the-job learning to enable students to master certain work-based skills related to the high demand, high-tech field of Cybersecurity with the purpose that students are enabled to successfully enter the work force as skilled professionals. S/U grading.

CYNX 4128 Penetration Testing Student (2-2-3)
This class is the foundational course towards becoming a Penetration Tester. The course builds a strong foundation in IT, Networks, and the necessary programming skills by giving theoretical lessons, enforced with practical exercises and labs held in a sophisticated virtual lab environment. At the end of the training, the student will possess the fundamental skills and practical pentesting knowledge to perform basic network security audits.
Prerequisite(s): CYNX 2159 (may be taken concurrently) with a minimum grade of S

CYNX 4203 Advanced Penetration Testing (3-0-3)
This course is designed with the goal of creating a skilled and experienced cybersecurity certified professional. Through a series of modules and related hands-on work, this course provides the student with the necessary knowledge and techniques to execute state-sponsored-like operations, perform advanced adversary simulation and covers implementation details on numerous undocumented attacks plus much more. At the end of the course, the student will be challenged with a real-world exam environment, where he/she must produce a commercial-grade penetration testing report that correctly identifies the weaknesses in this "engagement".
Prerequisite(s): CYNX 2115 with a minimum grade of C or CYNX 2202 with a minimum grade of S

CYNX 4205 Reverse Engineering Professional (1-2-2)
This course is designed with the goal of creating a skilled and experienced cybersecurity certified professional. Through a series of modules and related hands-on labs, this course provides the student with the theoretical and practical knowledge required to perform advanced reverse engineering of software on assembly level in third party software and/or malware. Through a series of lessons, and several challenges, the student will be taught all the necessary skills to succeed as a professional, and not just acquire a superficial understanding of how to use reversing tools. S/U grading.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 4215 Advanced Web Application Penetration Testing (1-2-2)
This course is designed with the goal of creating a skilled and experienced industry certified cybersecurity professional. Through a series of modules and related hands-on labs, this course provides students with a comprehensive and hands-on experience focused on the most modern web application penetration testing techniques. S/U grading.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 4217 Incident Handling and Response Professional (1-2-2)
This course is designed with the goal of creating a skilled and experienced industry certified professional. Students will learn how to professionally analyze, handle, and respond to cybersecurity incidents on heterogeneous networks and assets. The course will aid the student in understanding the mechanics of modern cyber-attacks and how to detect them. Instruction includes how to effectively use and fine-tune open-source IDS, log management, and SIEM solutions in order to detect and hunt for intrusions. Specifically, the course uses traffic analysis, flows, and endpoints and tactical threat intelligence during the learning process. S/U grading.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 4218 AWS Certified Solutions Architect (1-2-2)
This course is designed with the goal of creating a skilled and experienced industry certified professional. This course covers the AWS public cloud environment and prepare students for AWS Certified Solutions Architect - Associate exam. The course is focused on Compute, Storage, Databases, Security, Identity & Compliance, Management Tools, Networking & Content Delivery and Messaging.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 4225 Mobile Application Penetration Testing Professional (1-2-2)
This course is designed with the goal of creating a skilled and experienced industry certified cybersecurity professional. The course provides students with the practical skills necessary to understand the technical threats and attack vectors targeting mobile devices. Through a series of modules and related hands-on labs, this course provides the student with everything needed to perform a security analysis on iOS and Android mobile applications required for modern Penetration Testers. S/U grading.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 4251 Microsoft 365 Security Administration (1-2-2)
This course is designed with the goal of creating a skilled and experienced industry certified professional. This course provides students with the ability to implement, manage, and monitor security and compliance solutions for Microsoft cloud and hybrid environments as an Azure Security administrator. Security administrators deal with threat management, perform investigations, and impose data governance. Planning and implementation of Azure security features are heavily covered in this course to assist with ensuring solutions comply with that of the administrator's organization. Students taking this course should be experienced with identity solutions and the protection of information from threats both inside and outside of an organization.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 4252 Microsoft Azure Security Engineer Associate (1-2-2)
This course is designed with the goal of creating a skilled and experienced industry certified professional. This course provides students with the ability to effectively implement security and secure workloads in Azure, a leading cloud platform. This course provides the information required to effectively implement secure workloads in Azure. It covers a wide spectrum of Azure security topics including identity management, platform protection, security operations, data security, and application security.
Prerequisite(s): CYNX 2202 with a minimum grade of S

CYNX 4315 Docker Use and Certified Associate Training (1-2-2)
This course is designed with the goal of creating a skilled and experienced industry certified cybersecurity professional. Through a series of modules and related hands-on labs, this course provides the student with the necessary knowledge and techniques to understand how Docker works and how it compares to other virtualization technologies. Students will learn how to install and configure Docker, retrieve and create containers as well as their required pieces, such as virtual networks, data volume and repositories. Students will be taken through several real-world scenarios culminating in Docker being deployed on a cloud server to include orchestrating numerous Dockers in cluster and creating container registries.
Prerequisite(s): CYNX 2202 with a minimum grade of S and CYNX 3136 with a minimum grade of S

CYNX 4455 Cybersecurity Apprenticeship II (3-0-3)
The apprenticeship course combines previously obtained classroom learning (school-based) with on-the-job learning (work-based) to enable students to master certain work-based skills related to the high demand, high-tech field of Cybersecurity with the purpose that students are enabled to successfully enter the work force as skilled professionals. S/U grading.

CYNX 4705 Red Teaming Techniques (2-0-2)
This course is based on information from the Council on Foreign Relations and is intended for the student who seeks to better understand the interests, intentions, and capabilities of institutions or potential competitors. Red teaming, including simulations, vulnerability probes, and alternative analyses, helps institutions in competitive environments to identify vulnerabilities, and weaknesses, challenge assumptions, and anticipate potential threats ahead of the next special operations raid, malicious cyberattack, or corporate merger. This course teaches the theory, best practices and results of Red Teaming through a series of case studies of real Red Team scenarios. The class will conclude with a series of Red Teaming challenges and a final Red Team project.