GREAT PLAINS TECHNOLOGY CENTER
COURSE OF STUDY

Career Cluster:	Information Technology (IT)
Career Pathway:	Network Systems
Local Program:	Cybersecurity Analyst (IT0010026)
Program Hours:	Secondary Students: 1000 Hours Adult Students: 1000 Hours

Instructor:

Name:	Office Number:	Email:
Aaron Nettles	(580) 250-5680	anettles@greatplains.edu

Academic Credit:	Secondary Students: 3 high school credits per year – *OK Promise credit Adult Students: Transcript
Prerequisites:	None

Program Description:
This program prepares students to track and patch security holes after an incident has occurred. Cyber forensic procedures may include seizure of equipment, analysis of confiscated materials and follow-up procedures relating to the incident. Students are introduced to basic security principles involving networks and operating systems, including the current threats, vulnerabilities and policies of electronic commerce. Students will prepare for the CompTIA Network+, CompTIA Security+, CompTIA Linux+, Microsoft 98-349, Microsoft 98-365, Microsoft 98-366, Microsoft 98-367, Microsoft 70-698, Microsoft 70-697, Microsoft 70-410, and Microsoft 70-411 certifications. Students gain skills required for certifications in CompTIA Security+ and CompTIA Network+.

Program Goals:
Students enrolled in this program will be given the opportunity to develop the skills and attitudes necessary for successful entrance into the Cyber Security field within the confines of their abilities, individual application, and resourcefulness. Students will prepare for Security+, 70-680, and 70-642 certifications, with an introduction to the first two levels of Cisco Discovery. Definitions of abbreviations are located at the end of this course of study.

Upon achieving the goals of this program, students will:
- Become competent in the fundamental skills of the Networking/Cyber Security field.
- Become qualified for further related education and/or entry into the job market.
- Develop a positive and realistic self-image.
- Develop the ability to work with limited or no supervision.
- Accept and abide by the rules and regulations established by the school and/or place of employment.
- Participate as responsible citizens.

Related Career Opportunities:
- Cyber Security Technician
- Digital Forensics Technician

- Entry-level Network Technician
- Entry-level Systems Administrator
- Information Security Analyst

Program Objectives:
After successful completion of this program, the student will be able to:
- Independently understand and utilize the principals of information security by being able to securely harden networking infrastructures.
- Implement and understand Networking Security.
- Implement contingency planning, perform risk analysis, create security policies, use biometrics, and implement strong network authentication in an enterprise network environment.
- Complete Certification and Accreditation tests on DITSCAP, DAA, and NIACAP.
- Secure Electronic Commerce with cryptography, digital certificates, local resource security, and secure e-mail.
- Utilize digital forensics as a professional with complete understanding of computer investigation and evidence handling.
- Identify the components of a local area network and describe the advantages of networking.
- Define terms related to cabling including - shielding, crosstalk, attenuation, and plenum. Identify the primary types of network cabling. Distinguish between baseband and broadband transmissions.
- Identify the standard Ethernet components and describe the features of each IEEE Ethernet standard topology.
- Identify essential network operating system components. Understand multitasking and the elements of client and server software. Define network services and install network client operating system and server operating system.
- Administer the network by creating users and group accounts, granting rights and permissions, and deleting accounts.
- Understand modem technology along with basic modem functions and standards and describe the primary modem communications environments.
- Monitor and manage a network from a preventive maintenance standpoint.

Program Course Sequence:
- HS Student and Part-time Adult (Year One): Course Sequence I
- HS Student and Part-time Adult (Year Two): Course Sequence II
- Full-time Adults (Year One): Course Sequence I and II

DESCRIPTION OF COURSES
SEQUENCE I

Course #	Course Name	HST	HSL	ADT	ADL
BT00259	Security Fundamentals (8246*)	40	80	40	80

Candidates for this course are seeking to prove fundamental security knowledge and skills. Candidates should have a solid foundational knowledge of the topics outlined in this preparation guide. It is recommended that candidates become familiar with the concepts and the technologies described here by taking relevant training courses. Candidates are expected to have some hands-on experience with Windows Server, Windows based networking, Active Directory, Anti-Malware products, firewalls, network topologies and devices, and network ports.

C00000   Networking Fundamentals   30   65   30   65
This course is designed to assess candidates' knowledge of fundamental networking concepts. MTA is a new certification under the Microsoft Certification Program that validates the foundational knowledge needed to begin building a career in Microsoft technologies. It can also serve as a stepping stone to the Microsoft Certified Technology Specialist exams. Successful candidates for this exam will earn an MTA certification as well as access to benefits of the Microsoft Certification Program. The primary target audience for the MTA certification is students attending high schools and two-year colleges.

BT00017   Network/Client Operating Systems (8121*)   40   80   40   80
Students will perform desktop client administration and maintenance and provide support for users in various work environments, including professional offices, small businesses, work groups, departments, and/or corporate information services (IS).

BT00037   Server Operating Systems (8122*)   40   80   40   80
Students will perform server installation, configuration, and administration duties and provide support for network users in various work environments.

BT00110   Career Major Capstone A (8106)   15   30   15   30
Internships, project-based instruction and teamwork will be utilized to reinforce cyber security skills. Students will make final preparations for industry certifications as they master outlined competencies. Students will select from various project options to finalize portfolios that highlight skills and certifications. Students may also undertake special projects, cross-train or participate in workplace learning opportunities to enhance skills in accordance with industry demands.

Sequence I Subtotal Hours:	Theory	Lab	Total
High School Student:	165	335	500
Adult Student:	165	335	500

DESCRIPTION OF COURSES
SEQUENCE II

Course #	Course Name	HST	HSL	ADT	ADL

BT00020   Cyber Forensics (8134*)   30   60   30   60
Students will learn procedures on tracking, and patching security holes after an incident has occurred. This will include seizure of equipment, analysis of confiscated materials, and follow up procedures relating to the incident.

BT00007   Principles of Information Assurance (8130*)   30   60   30   60
Students will be introduced to basic security principles, giving the student an understanding of the current threats and vulnerabilities of the cyber landscape, plus other topics relating to the information assurance field.

BT00008   Network Security (8131*)   30   60   30   60
Students will learn about network communications from a security standpoint, hardware and software security solutions, and perform laboratory assignments in securing networks and operating systems

BT00034   Enterprise Security Management (8132*)   30   60   30   60
Students will understand the principles of risk management, security architectures, incident handling, disaster recovery, and secure systems administration.

BT00010   Secure Electronic Commerce (8133*)   30   60   30   60
Students will learn the history, present, and future of electronic commerce in the world. They will also learn about the threats, vulnerabilities, and policies when dealing with commerce in the electronic age.

C00000   Career Major Capstone B   15   35   15   35
Internships, project-based instruction and teamwork will be utilized to reinforce cyber security skills. Students will make final preparations for industry certifications as they master outlined competencies. Students will select from various project options to finalize portfolios that highlight skills and certifications. Students may also undertake special projects, cross-train or participate in workplace learning opportunities to enhance skills in accordance with industry demands.

Sequence II Subtotal Hours:	Theory	Lab	Total
High School Student:	165	335	500
Adult Student:	165	335	500

Program Total:	Theory	Lab	Total
High School Student:	330	670	1000
Adult Student:	330	670	1000

Evaluation Policy:

Employability Grade (100 points per week; 30% of final grade)
The employability skills grade is based on 20 points per day (which may include: attitude, attendance, safety, punctuality, cooperation, participation, clean-up, class preparation, school/classroom rules, and time management). Points will be deducted if these responsibilities are not met at the instructor's discretion. Students will be allowed to make up unearned employability points for **excused** absences only. Full credit will be given for assignments/tests that have been made up (see Student Handbook).

Performance Grades (40% of final grade)
- Lab projects
- Performance or skill tests
- Homework and written Assignments

Test Grades (30% of final grade)
- Test grades will be based on a 100-point scale.
- Test grades include written and/or skills tests.
- A test will be given for each unit of instruction.
- Tests are to be taken as a unit is completed.
- Tests must be completed within allotted time.

Final Grade (9 Weeks Period)
9-weeks grade will be calculated by averaging grades in each category and summing each category according to their assigned weight. Progress reports will be sent to home schools at six and twelve-week intervals each semester as required or requested. Grades are accessible on-line at http://sonisweb.greatplains.edu/studsect.cfm

Grading Scale:
The grading scale as adopted by the Board of Education is as follows:

A = 90 – 100
B = 80 – 89
C = 70 – 79
D = 60 – 69
F = Below 60
W = Withdrawn
I = Incomplete
N = No Grade (Refer to Student Handbook)

Make-Up Work Policy:
All Make-Up Work Is The Responsibility Of The Student. Make-up work will be handled as specified in the Student Handbook. Please be sure to read and understand all student policies, especially make-up of assignments, tests and employability due to absences. Students should always arrange for any make-up work with the instructor as per the Student Handbook. Students should keep track of his or her progress and grades.

Attendance Policy:
For specific information related to attendance and tardiness refer to the Student Handbook. Students should keep a written record of their absences and tardiness.

Course Requirements and Expectations:
The general course requirements and expectations include:
- Student and equipment safety will be the number one priority.
- Monitors and power supplies will not be opened.
- Food or drinks will not be allowed in the classroom.
- Wrist straps will be worn when handling RAM or other IC's.
- Students needing assistance will request help from the instructor, not another student. When appropriate, the instructor may allow one student to help another.
- Any student who is approached by Great Plains Technology Center faculty, or staff, or other student with a computer problem or repair request will refer the person to the instructor.
- Each student will keep a daily log of projects completed and materials used.
- Career Tech Student Organizations (CTSOs) offer outstanding opportunities for development of leadership and social skills. CTSO membership is part of the curriculum. Therefore, all students are members of their CTSO and are expected to participate in CTSO activities.

Student Behavior Includes:
- Wear the student name badge at all times
- Follow the proper procedure if you are to be absent, tardy or have a school activity
- Abide by the rules in the student hand book, as well as those established inside the classroom
- Be Prompt. Enter the classroom quickly and quietly ready to start the lesson for each day Students who provide their own transportation must arrive at the start of class

- Be Prepared. Ensure that you have all materials needed for each day
- Be Respectful. Disrespect for others and authority will not be tolerated.
- Be Responsible. Take responsibility for all of your actions academically as well as socially
- Perform proper shutdown procedures at the end of each class (turn off power to all workstation equipment or as directed, clean individual work area, return books/supplies, etc.)
- Complete homework assignments that may be given

> *NOTE: For additional information or questions regarding the GPTC School policies and procedures, please refer to the Student Handbook and/or the Instructor.*

Industry Alignments:

- CompTIA
- Microsoft

Certification Outcomes:

Tier 1 – Certifications Recognized, Administered and/or Endorsed by Industry
- Certiport ITS: Networking (1150)
- Certiport ITS: Network Security ((1718)
- Certiport MTA: Windows Operating System Fundamentals (0696)
- Certiport MTA: Windows Server Administration Fundamentals (0695)
- CompTIA: Linux+ (1301)
- CompTIA: Network+ (0952)
- CompTIA: Security+ (1707)
- Installing and Configuring Windows 10 (0698)
- Configuring Windows Devices (0697)
- Installing and Configuring Windows Server 2013
- Administering Windows Server 2012 (0224)

CIP Code and SOC Code Crosswalk:

- CIP Code – 11.1003
- SOC Code – 15-1212.00

OCAS subject codes:

- 9530 – Cybersecurity (first year)
- 9564 – Cybersecurity (second year)

OCAS course codes:

- 8130 – Principles of Insurance Assurance
- 8131 – Network Security
- 8132 – Enterprise Security Management
- 8133 – Secure Electronic Commerce
- 8134 – Cyber Forensics
- 8121 – Network/Client Operating Systems
- 8122 – Server Operating Systems
- 8246 – Security Fundamentals

Students are not required to purchase textbooks or supplemental materials.

Textbooks:

eLearning Curriculum:

TestOut.com "TestOut Network Pro" testout.com TestOut Corporation, 06 Aug 2017. Web.
<http://www.testout.com/docs/teaching-aids/network-pro/lesson-plans-testout-networkpor-enus-4_1_2-pdf.pdf>

TestOut.com "TestOut Security Pro" testout.com TestOut Corporation, 09 Nov 2017. Web.
<http://www.testout.com/docs/teaching-aids/security-pro/lesson-plans-testout-securitypro-enus-6_0_x-pdf.pdf>

Testout.com. "TestOut Linux Pro" testout.com TestOut Corporation, 21 July 2017. Web.
<http://www.testout.com/docs/teaching-aids/linux-pro/lesson-plans-testout-linuxpro-enus-4_2_x-pdf.pdf>Testout.com. "TestOut Client Pro" testout.com TestOut Corporation, 06 July 2017. Web.
<http://www.testout.com/docs/teaching-aids/client-pro/lesson-plans-clientpro-enus-5_1_x-pdf.pdf?sfvrsn=28>

Testout.com. "TestOut Server Pro: Install and Configure" testout.com TestOut Corporation, 17 May 2016. Web. <http://www.testout.com/docs/teaching-aids/server-pro1/lesson-plans-testout-serverpro-install-config-enus-3_1_x-pdf.pdf>

Testout.com. "TestOut Server Pro: Manage ans Administer" testout.com TestOut Corporation, 17 May 2016. Web. <http://www.testout.com/docs/teaching-aids/server-pro2/lesson-plans-testout-serverpro-manage-admin-enus-3_1_x-pdf.pdf>

Cyber Security Certified Program

Mattord, Herbert J., and Michael E. Whitman. Hands-On Information Security Lab Manual. 3rd ed. 9781435441569. Independence: Cengage Learning, 2010.

Mattord, Herbert J., and Michael E. Whitman. Principles of Information Security. 4th ed. 9780000038219. Kennesaw: Course Technology, 2011.

Nelson, Bill, and Christopher Steuart. Guide to Computer Forensics and Investigations. 4th ed. 9781435498839. Independence: Cengage Learning, 2009.

Weaver, Randy. Guide to Tactical Perimeter Defense. 9781428356306. Independence: Cengage Learning, 2007.

Weaver, Randy. Guide to Strategic Infrastructure Security. 9781418836610. Independence: Cengage Learning, 2008.