GREAT PLAINS TECHNOLOGY CENTER
COURSE OF STUDY

Career Cluster: Information Technology (IT)

Career Pathway: Network Systems

State Program: Cybersecurity – Advanced (IT0016006)

Local Program: Cybersecurity Analyst (IT0010021)

Program Hours: 960 Hours

Instructor:

Name:	Office Number:	Email:
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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.

DESCRIPTION OF COURSES

Course #	Course Name	HST	HSL	ADT	ADL
BT00182	**Fundamentals of Technology (8169*)**	**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.

BT00291	**Cybersecurity Basics (8134*)**	**60**	**60**	**60**	**60**

This introductory course provides students with a foundational understanding of cybersecurity principles, best practices, and threats in today's digital landscape. Students will explore key topics such as network security, password management, malware defense, social engineering, and data protection. Through

hands-on activities and real-world scenarios, learners will develop the skills needed to recognize and prevent cyber threats, protect personal and organizational information, and understand the importance of cybersecurity in various industries. Students will have a solid grasp of basic security concepts, risk management strategies, and ethical considerations in cybersecurity. This course is ideal for beginners looking to enhance their digital security awareness and for those considering a career in cybersecurity or IT.

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.

BT00020 Cyber Forensics (8134*) 60 60 60 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*) 60 60 60 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*) 60 60 60 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*) 60 60 60 60
Students will understand the principles of risk management, security architectures, incident handling, disaster recovery, and secure systems administration.

BT00010 Secure Electronic Commerce (8133*) 60 60 60 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.

Program Total:	**Theory**	**Lab**	**Total**
High School Student:	440	520	960
Adult Student:	440	520	960

<u>Evaluation Policy</u>:

<u>Employability Grade</u> (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 **<u>excused</u>** absences only. Full credit will be given for assignments/tests that have been made up (see Student Handbook).

<u>Performance Grades</u> (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

Semester 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
S = Satisfactory
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:

- 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's 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 handbook, 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)
- CompTIA: Linux+ (1301)
- CompTIA: Network+ (0952)
- CompTIA: Security+ (1707)

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
- 8122 – Server Operating Systems
- 8169 - Fundamentals of Technology
- 8134 - Cybersecurity Basics

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.