CAREER PATHWAYS FOR ADULT EDUCATION

Computer and Information Technology

Business, Management & Technology Career Cluster

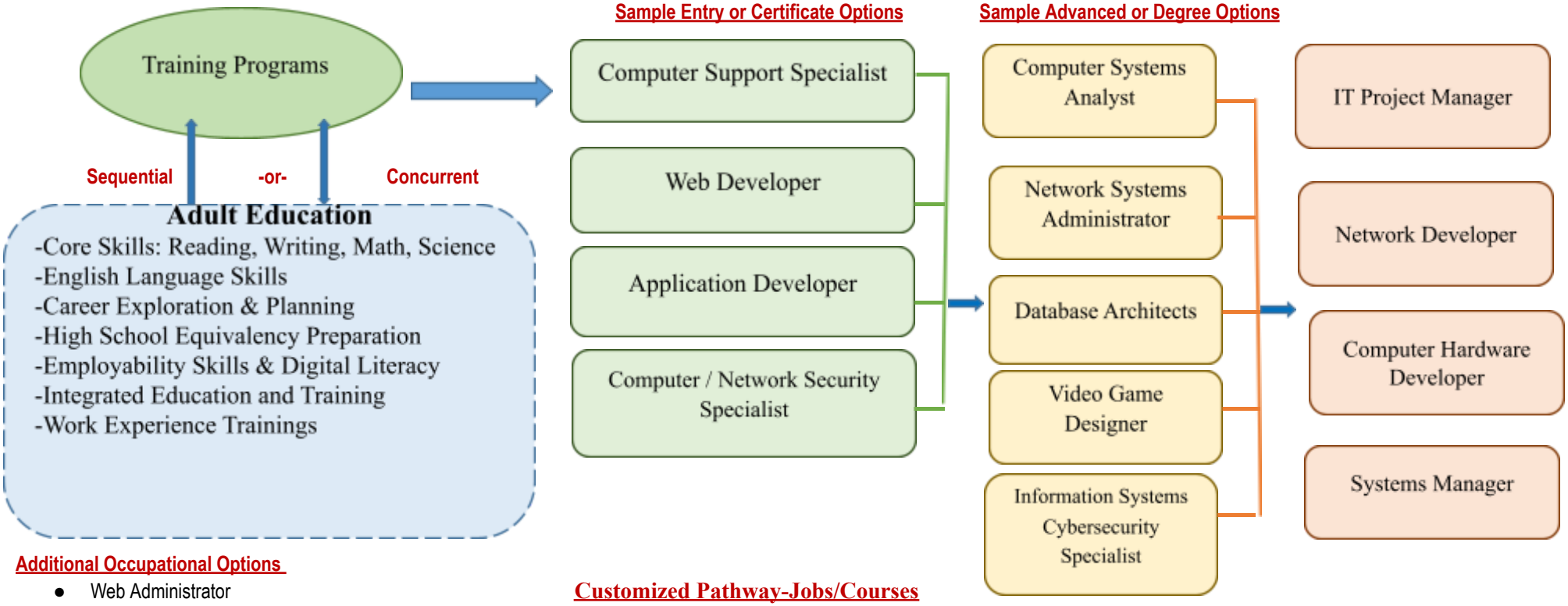
Sector Description:

The field of Computer & Information Technology is involved with the support, administration, and design of telecommunications and computer systems. Occpations in this broad field include hardware development and repair, systems analysts, software and systems programmers, network and database administrators, cyber-security, web and game designers, and more. Training programs in this sector may require certifications, which are described on the last page; check with program staff to determine certifications that are required for a chosen pathway in this field.

ABOUT CAREER PATHWAYS

Career Pathways combine education, work readiness and job training to attain necessary skills and credentials for specific in-demand occupations or industries. Career Pathway maps illustrate how students can move along a career path in a specific occupational area from adult education through post-secondary or advanced job-training programs and into employment. To advance along a career pathway more quickly, explore opportunities to participate in education and training concurrently. It is suggested that this map be used in conjunction with information on specific education and training programs in Wyoming or in your local area.

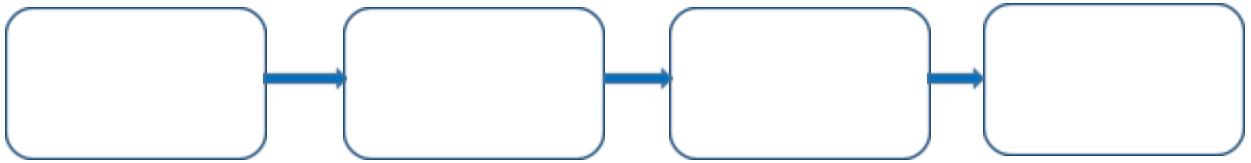
Name:_____



Additional Occupational Options

- Web Administrator
- Document Management Specialist
- Information Security Engineer
- Computer Systems Developer
- Digital Forensic Analyst
- Telecommunication Specialist
- Block-chain Engineer

Customized Pathway-Jobs/Courses



CAREER PATHWAYS FOR ADULT EDUCATION- Computer and Information Technology

ADULT EDUCATION-High School Equivalency (HSE)

Median Wages: $10.49 Hourly / $21,818 Annual

Many jobs require a high school diploma/equivalent. The official HSE tests (GED or HiSET) require that students demonstrate proficiency in English, reading, writing, math, science and social studies.

SKILLS

- ___read for comprehension
- ___understand math and its practical applications to the career
- ___using scientific rules & methods to solve problems
- ___effective oral and written communication skills
- ___strong critical thinking abilities: use of logic and reasoning to identify strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- ___Digitally literate: proficient in Word, Excel and Powerpoint

COMPUTER / NETWORK SECURITY TECHNICIAN

Median Wages: $24.19 Hourly / $50,316 Annual

Description: Plan, implement, upgrade, or monitor security measures for the protection of computer networks and information; assess system vulnerabilities for security risks and propose and implement risk mitigation strategies; respond to computer security breaches and viruses.

Job Duties

- Develop plans to safeguard computer files against accidental or unauthorized modification, destruction, or disclosure & to meet emergency data processing needs
- Monitor current reports of computer viruses to determine when to update virus protection systems
- Encrypt data transmissions & erect firewalls to conceal confidential information as it is being transmitted & to keep out tainted digital transfers

COMPUTER SUPPORT SPECIALIST

Median Wages: $23.05 Hourly / $47,948 Annual

Description: Analyze, test, troubleshoot, and evaluate existing network systems, such as local area networks (LAN), wide area networks (WAN), cloud networks, servers, and other data communications networks; perform network maintenance to ensure networks operate correctly with minimal interruption.

Job Duties

- Back up network data
- Configure security settings or access permissions for groups or individuals
- Analyze & report computer network security breaches or attempted breaches
- Identify the cause of networking problems, using diagnostic testing software & equipment

VIDEO GAME DESIGNER

Median Wages: $40.02 Hourly / $ $83,240 Annual

Description: Design core features of video games. Specify innovative game and role-play mechanics, story lines, and character biographies; create and maintain design documentation; guide and collaborate with production staff to produce games as designed.

Job Duties

- Think creatively to develop, design and/or create new applications, ideas, systems or products
- Use computers and computer systems to program, write software, set up functions, enter data or process information
- Analyzing information and evaluate results to choose the best solution and solve problems.
- Identify information by categorizing, estimating, recognizing differences or similarities, and detecting changes in circumstances or events.

INFORMATION SYSTEMS CYBERSECURITY SPECIALIST

Median Wages: $37.27 Hourly / $77,520 Annual

Description: Keep network systems secure from outside invasions and cyber-attacks by determining the security needs of a company and developing/implementing a security system that meets those needs.

Job Duties

- ___Assess the quality of security controls using performance indicators
- ___Conduct investigations of information security breaches to identify vulnerabilities/evaluate damage
- ___Monitor network data and ensure hardware and software applications are updated to protect against cyber threats

IT PROJECT MANAGER

Median Wages: $47.39 Hourly / $98,560 Annual

Description: Plan, organize and implement a company's technical projects; coordinate production releases and roll-outs, delegate tasks and present on projects' progress and results.

Job Duties

- ___Assess IT needs/priorities & design and implement solutions to address those need and priorities
- ___Manage project execution to ensure adherence to budget, schedule, and scope
- ___Develop implementation plans that include analyses such as cost-benefit or return on investment
- Prepare project status reports by collecting, analyzing, and summarizing information and trends

OTHER OCCUPATION: _____

Median Wages:

Description:

Job Duties

- ___
- ___

CAREER PATHWAYS FOR ADULT EDUCATION-Computer and Information Technology

Computer and Information Technology Certifications

Note: **CompTIA certifications** are minimum requirements for jobs in the federal government (US DoD Directive 8570.01-M)

CompTIA A+ is a computer hardware and software certification that is the stepping stone toward many other IT based certifications. Students who receive their A+ certification are knowledgeable in hardware installation and repairs, troubleshooting common hardware and software issues, become savvy in network fundamentals, along with the setup and use of mobile devices like smartphones and tablets.

CompTIA Network+ prepares students for a career in the broad field of computer networking. In the modern information age, finding a business or industry that does not use some variant of computer networking is nearly impossible. Students will learn to manage, maintain, troubleshoot, install, operate, and configure a network. This program allows students to work in a wide variety of industries including business, education, agriculture, and even government and military. The program discusses wired and wireless networks, fiber optics, high speed daa transfer, network storage, and more.

CySA+ is an IT workforce certification that applies behavioral analytics to networks and devices to prevent, detect and combat cybersecurity threats.

CompTIA Security+ is the ideal continuation for students currently seeking or who have already earned their CompTIA Network+ and A+ certifications. Students will learn how to identify vulnerabilities of computer networks, how to safeguard networks and how to setup and manage shared resources in a secure manner. Further topics cover the health and monitoring of computer networks, their assets, and shows students how to detect problems and potential hackers, threats, and other issues.

Cisco Certified Entry Network Technician (CCENT) covers network fundamentals, how information makes it from point A to point B on a computer network, and the protocols involved. Students will become familiar with the Cisco Command Line Interface (CLI), which allows configuration, management, and control of all Cisco devices on a network, including routers and layer 2 and 3 switches. Students will learn how to set up virtual LAN'S (VLAN'S), access control lists (ACL'S), and other techniques to help manage small to enterprise-level networks.

Cisco Certified Networking Associate Routing and Switching (CCNA R&S) branches students out into the world of Wide Area Networks, or networks that are geographically separated over long distances. Students will learn more advanced techniques to push the limits of Cisco networking hardware.

Cisco Certified Networking Associate Security (CCNA Security) introduces students to core security concepts and skills needed for the installation, troubleshooting, and monitoring of CISCO networking devices to maintain the integrity, confidentiality, and availability of data and devices. Course topics include security threats, securing Cisco routers, implementing AAA, mitigating threats using ACLs, and implementing secure network management. The course covers CCNA Security and CompTIA Security+ certification topics. To obtain the Cisco certification, qualified individuals must pass the Implementing Cisco IOS Network (INS) exam.

PMP (Project Management Professional) validates an individual's competence to perform in the role of project manager, leading and directing projects and teams.

CAPM (Certified Associate in Project Management) demonstrates an individuals' understanding of the fundamental knowledge, terminology, and processes of effective project management.