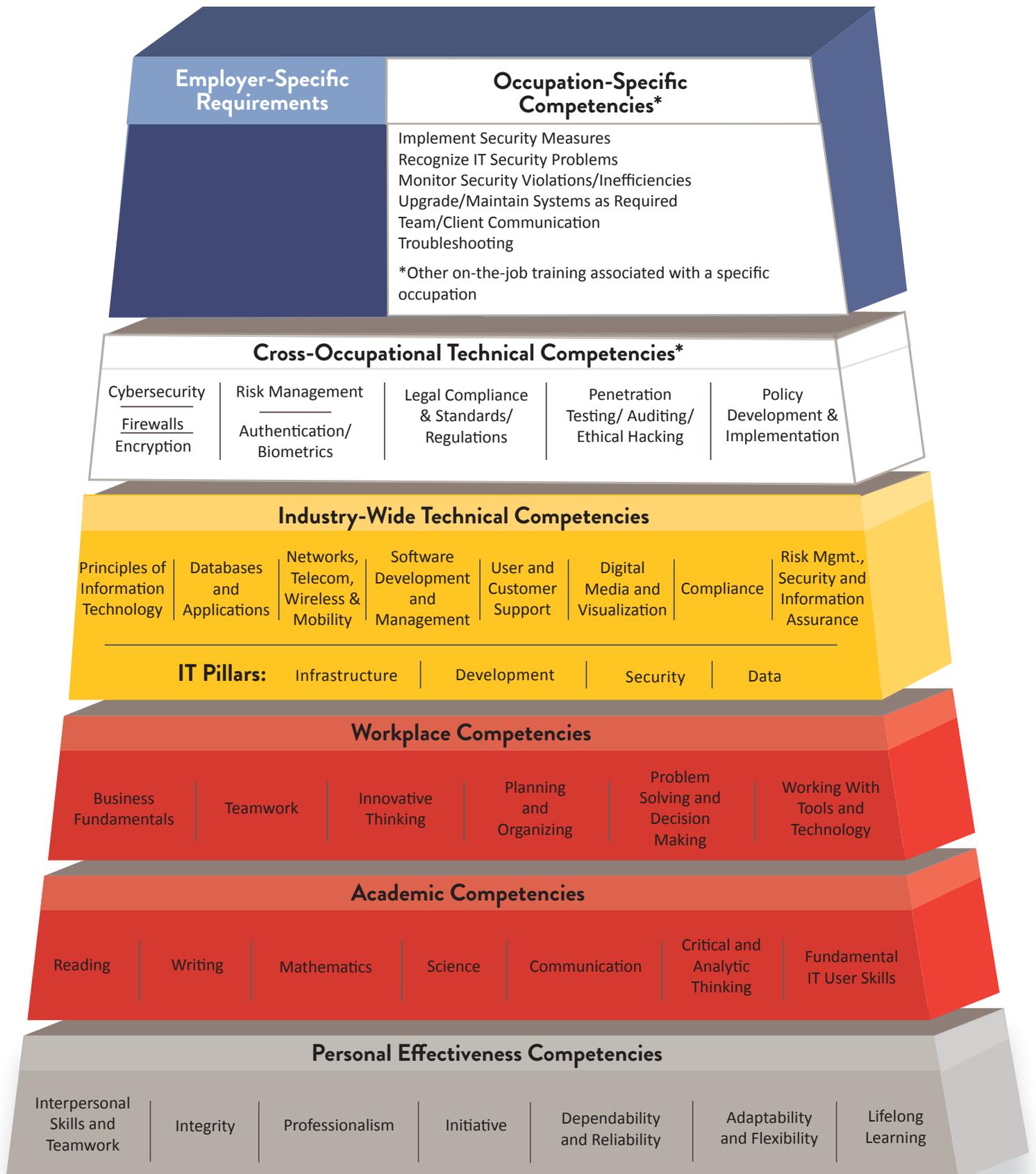


Minnesota Dual-Training Pipeline Competency Model for Information Technology Information Security Career Cluster Pathway



Based on: Information Technology Competency Model Employment and Training Administration, U.S Dept. of Labor, September 2012.

*Pipeline recommends the Industry-Sector Technical Competencies as formal training opportunities (provided through related instruction) and the Occupation-Specific Competencies as on-the-job training opportunities.



Competency Model for Information Security Career Cluster Pathway Occupations

Possible Information Security Career Cluster Pathway Occupations

- Account Manager
- Android Developer
- Applications: Analyst/Architect/Developer/Engineer
- Audit: Associate/Director/Manager/Senior
- Business: Analyst/Consultant
- Business Systems: Analyst/Consultant
- Chief Information Officer
- Cisco Engineer
- Cisco Network Engineer
- Citrix Engineer
- Compliance: Analyst/Officer
- Computer Systems Analyst
- Computer Technician
- Customer Service Representative
- Cyber Threat Analyst
- Cybersecurity: Analyst/Engineer/Specialist
- Cyber Security Penetration Tester
- Data: Analyst/Architect/Security Analyst
- Data Systems Security Administrator
- Database: Administrator/Analyst/Developer/Engineer
- Desktop Support: Analyst/Specialist/Technician
- Devops Engineer
- Director of: Engineering/Information Technology/Technology
- Engineering: Manager/Technician
- Enterprise Architect
- Field Service Technician
- Firewall Engineer
- Help Desk: Analyst/Specialist/Support/Technician
- Information Assurance: Analyst/Engineer
- Information Security: Analyst/Architect/Consultant/Director/Engineer/Manager/Officer/Specialist
- Information Systems: Analyst/Auditor/Security Analyst/Security Engineer/Security Officer
- Information Technology: Administrator/Analyst/Architect/Audit Manager/Auditor/Consultant/Manager/Project Manager/Security Analyst/Specialist/Support Specialist/Support Technician/Systems Administrator/Technician
- Infrastructure: Architect/Project Manager
- Intelligence Analyst
- Internal Auditor
- Internal IT Auditor
- Java Software: Developer/EngineerLinux: Administrator/Engineer/Systems Administrator/Systems Engineer
- Management Analyst
- Network: Administrator/Analyst/Architect/Engineer/Manager/Security Administrator/Security Analyst/Security Engineer/Specialist/Technician
- Operations: Analyst/Engineer/Specialist/Technician
- Oracle Database Administrator
- Penetration Tester
- Policy Analyst
- Program: Analyst/Manager
- Programmer/Analyst
- Project Manager
- Quality Assurance: Analyst/Engineer
- Recovery Specialist
- Risk: Analyst/Management Analyst/Manager
- Sales: Associate/Engineer
- Security: Administrator/Analyst/Architect/Associate/Compliance Analyst/Consultant/Engineer/Manager/Officer/Operations Analyst/Sales Consultant/Specialist
- Security System Technician
- Server: Administrator/Engineer
- Sharepoint: Administrator/Developer
- Sharepoint Developer
- Software: Architect/Developer/Development Engineer
- Solutions Architect
- SQL Database Administrator
- Systems: Administrator/Analyst/Architect/Engineer/Integrator/Programmer
- Technical: Advisor/Analyst/Architect/Consultant/Project Manager/Support Analyst/Support Engineer/Support Specialist
- Technical Writer
- Technology: Consultant/Manager
- Telecommunications Engineer
- Web Developer
- Windows: Systems Administrator/Administrator/Engineer/Systems Engineer
- *This list is intended to be a guide of potential occupations available within the Information Support & Services Pathway. Other position titles may be used based on an employer's organizational structure.*

Possible Information Security Career Cluster Pathway Certifications

- CompTIA Security+
- CEH: Certified Ethical Hacker
- GSEC: SANS GIAC Security Essentials
- CISSP: Certified Information Systems Security Professional
- CISM: Certified Information Security Manager
- SSCP: Systems Security Certified Practitioner
- CISA: Certified Information Systems Auditor
- ECSA: EC-Council Certified Security Analyst
- CWSP: Certified Wireless Security Professional
- OSCP: Offensive Security Certified Professional
- HCISPP: HealthCare Information Security & Privacy Practitioner
- CCSP: Certified Cloud Security Professional
- GIAC Certified Incident Handler (GCIH)
- Certified Computer Security Incidence Handler (CERT)
- Certified in Risk and Information Systems Control (CRISC)
- Systems Security Certified Practitioner (SSCP)
- GIAC Penetration Tester (GPEN)
- BA/BS degree in Computer Science, MIS, Information Assurance

Industry-Wide and Cross-Occupational Technical Competencies

- Cybersecurity – Demonstrate knowledge of processes and mechanisms by which digital equipment, information and services are protected from unintended or unauthorized access.
- Firewalls/ Encryption – Able to maintain and update the security system controlling the incoming and outgoing network traffic.
- Risk Management – Ability to identify vulnerabilities and threats to the information resources used and deciding what countermeasures, if any, to take to reduce risk.
- Authentication/ Biometrics – Ability to secure physical and digital resources while relying on the unique biological characteristics of an individual to verify he/ she is who they say they are.
- Legal Compliance & Standards Regulations – Ability to understand and adhere to data practices that follow federal, state and local laws related to online data systems.
- Penetration Testing/ Auditing/ Ethical Hacking – Use appropriate methods to attack a computer system to look for security weaknesses, potentially gaining access to the computer's features and data. Systematically keep track of how/ where in the system you are making your selections on where to attack the system.
- Policy Development & Implementation – Ability to create effective and acceptable courses of action for addressing an IT related problem and then managing how to put those actions in place to solve the problem.

Occupation-Specific Competencies, typically addressed in on-the-job training

- Implement Security Measures – Understand how to take pro-active actions within information technology tools and resources to safeguard systems and networks from damaging actions by unintended or unauthorized persons or entities.
- Recognize IT Security Problems – Ability to determine mechanisms by which digital equipment, information and services are have been altered and / or damaged from unintended or unauthorized access.
- Monitor Security Violations/ Inefficiencies – Understand how to detect overuse or unusual usage patterns as well as to detect unauthorized access to IT systems.
- Upgrade/ Maintain Systems as required – Demonstrate capacity to continuously monitor safety information technology systems, to properly stay connected to software updates to systems as well as to proactively enhance security systems with latest technological advances in order to ensure security of systems.
- Team/ Client Communication – Ability to work within one's own team in a manner that regularly and frequently shares data and information in a matter that is fully understood by all team members. Understanding of how to effectively share information with the client to sufficiently ensure the client's needs are being addressed and being met.
- Troubleshooting – Ability to approach an issue with problem solving that is often used to find and correct issues in a matter that addresses the concerns of the company and the client.

IT Information Security Career Cluster Pathway Training Plan

	List Course/Training Name and Title	Description of Courses and/or Training Program	List Responsible Provider: Company, College, Trainer, or other	Anticipated Completion Date
Related Instruction Competencies				
Cybersecurity				
Firewalls/ Encryption				
Risk Management				
Authentication/ Biometrics				
Legal Compliance and Standards Regulations				
Penetration Testing/ Auditing/ Ethical Hacking				
Policy Development and Implementation				
On-The-Job Training Competencies				
Implement Security Measures				
Recognize IT Security Problems				
Monitor Security Violations / Inefficiencies				
Upgrade/ Maintain Systems as required				
Team / Client Communication				
Troubleshooting				