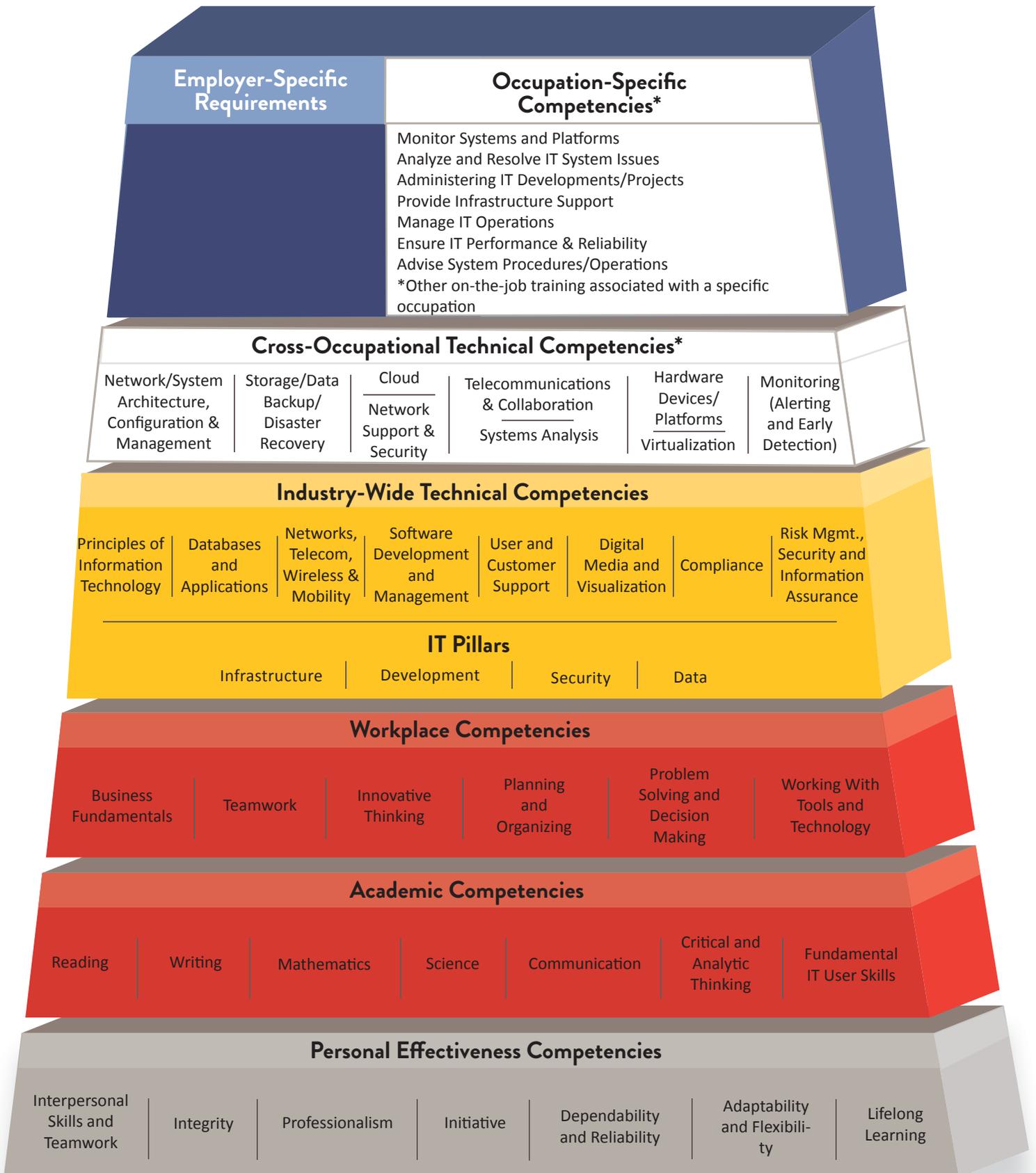


Minnesota Dual-Training Pipeline

Competency Model for Information Technology Infrastructure Administration 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 Infrastructure Administration Career Cluster Pathway Occupations

Possible Infrastructure Administration Career Cluster Pathway Occupations

- Applications: Administrator/Analyst/Engineer
- Big Data: Lead/Manager
- Business Consultant
- Business Intelligence: Developer/Manager
- Cisco Engineer
- Citrix Administrator
- Cloud Operations Service Delivery Manager
- Compliance Analyst
- Computer Security Specialist
- Computer Systems Analyst
- Customer Solutions Engineer
- Cyber: Analyst/Incident Handler
- Cyber Security: Analyst/Engineer/Specialist
- Data: Analysis Manager/Analyst/Architect
- Data Center: Manager/Specialist
- Data Management: Coordinator/Specialist
- Data Warehouse: Analyst/Consultant/Developer/Engineer/Manager
- Database Administrator
- Exchange Administrator
- Firewall Engineer
- Information Architect
- Information Assurance: Analyst/Engineer/Manager/ Specialist
- Information Security: Advisor/Analyst/Architect/Auditor/Consultant/Director/Engineer/Lead/Manager/Officer/ Specialist
- Information Systems: Analyst/Auditor
- Information Systems Security: Analyst/Engineer/Officer/ Specialist
- Information Technology: Administrator/Analyst/Audit Manager/Auditor/Director/Manager/Project Manager/ Security Analyst/Specialist/Systems Administrator
- Installation Coordinator
- Intelligence Analyst
- LAN Administrator
- Linux: Administrator/Engineer/Systems Administrator
- Middleware Administrator
- Network: Administrator/Analyst/Engineer/Manager/Security/Specialist/Technician
- Network Security: Administrator/Analyst/Engineer/Specialist
- Operations: Specialist/Technician
- Penetration Tester
- Recovery Specialist
- Risk: Analyst/Specialist
- Security: Administrator/Analyst/Architect/Associate/Consultant/Engineer/Manager/Officer/Operations Analyst/Researcher/Specialist
- Server: Administrator/Engineer/Systems Administrator
- Service Delivery Manager
- Software Development Engineer
- SQL Server Administrator
- Storage: Administrator/Engineer
- Systems: Administration/Administrator/Analyst/Coordinator/Engineer/Manager/Operator/ Security Specialist/Support Technician
- Technical Advisor
- Unix: Administrator/Systems Administrator
- VMware Administrator
- Warehouse Manager
- Windows Administrator
- *This list is intended to be a guide of potential occupations available within the Information Management & Analytics Pathway. Other position titles may be used based on an employer's organizational structure.*

Industry-Wide and Cross-Occupational Technical Competencies

- Principles of Information Technology – the application of computers to store, retrieve, transmit and manipulate data, often in the context of a business or other enterprise
- Database – an organized collection of data. It is the collection of schemas, tables, queries, reports, views and other objects
- Application software – a computer program designed to perform a group of coordinated functions, tasks, or activities for the benefit of the user
- Networks, Telecom, Wireless and Mobility – the means by which computers are enabled to exchange data
- Software Development and Management – the process of conceiving, specifying, designing, programming, documenting, testing, and bug fixing involved in creating and maintaining applications, frameworks, or other software components; a process of writing and maintaining the source code
- User and Customer Support – detailed customer service offered to the end business user in the realm of computers and networks
- Digital Media and Visualization – any media that are encoded in a machine-readable format; can be created, viewed, distributed, modified and preserve on digital electronics devices
- Compliance – adherence to procedures laid down by an operational entity that dictates how users operate internally AND adherence to procedures that dictate communications and interactions with external partners
- Risk Management, Security and Information Assurance – identification, assessment, and prioritization of risks followed by coordinated and economic application of resources to minimize, monitor, and control the probability and impact of unfortunate events or to maximize the realization of opportunities
- Network/System Architecture, Configuration and Management – the design of a communication network; the framework for the specifications of a networks physical components and their functional organization and configuration, principles, procedures and data formats
- Storage, Data Backup, Disaster Recovery – documentation maintenance, regimen for duplicated documents and tools in a safe place, and a documented process or set of procedures to recover and protect a business infrastructure in the event of a disaster
- Cloud – a buzzword suggesting the promise and convenience of being able to access files from anywhere, made into reality by the physical infrastructure of computers housed in warehouses throughout the earth
- Network Support and Security – the policies adopted to prevent and monitor unauthorized access, misuse, modification, or denial of a computer network and network-accessible resources. Network security involves the authorization of access to data in a network, which is controlled by the network administrator
- Telecommunications and Collaboration – the integration of various communications methods with collaboration tools such as virtual white boards, real-time audio and video conferencing, and enhanced call control capabilities
- Systems Analysis – the act and process of analyzing a complex process or operation to improve its efficiency, especially by applying a computer system

- Hardware Devices/Platforms – a set of compatible hardware on which software applications can be run
- Virtualization
- Monitoring (Alerting and Early Detection) – the established process to identify and react to anomalous and potentially malicious activity

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

- Monitor Systems and Platforms – the established process to identify, assess, adjust, maintain, and support IT systems and platforms
- Analyze and Resolve IT System Issues – the act of identifying, scrutinizing and rectifying problems with IT systems
- Administering IT Development and Projects – an organized process of initiating, planning, executing, controlling, and closing the work of an IT team to develop products and release projects
- Provide Infrastructure Support – work with end business users to ensure seamless infrastructure operation
- Manage IT Operations – the comprehensive approach to ensuring seamless operation of the IT support structure and network
- Ensure IT Performance and Reliability – verification that the information technology network and systems are performing well and seamlessly
- Advise System Procedures and Operations – provide straightforward guidance to staff who work within the system’s procedures and operations

Possible Infrastructure Administration Career Cluster Pathway Certifications

- | | |
|--|---|
| • AWS Certified Solution Architect | • RHCE: Red Hat Certified Engineer |
| • CompTIA Cloud+ | • DCDC: Data Center Design Consultant |
| • CompTIA Server+ | • CCIE: Cisco Certified Internetwork Expert |
| • CompTIA Network+ | • VCP6-DCV: VMware Certified Professional 6-Data Center Virtualization |
| • MCSD: Azure Solutions Architect | • CCP-V: Citrix Certified Professional-Virtualization |
| • MCSE: Private Cloud | • Associates degree, Bachelor’s degree, Master’s degree in Information Technology Infrastructure Administration |
| • MCSE: Server Infrastructure | |
| • COA: Certified OpenStack Administrator | |

IT Infrastructure Administration 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				
Network/System Architecture, Configuration and Management				
Storage/Data Backup/Disaster Recovery				
Cloud				
Network Support and Security				
Telecommunications and Collaboration				
Systems Analysis				
Hardware Devices and Platforms				
Virtualization				
Monitoring (Alerting and Early Detection)				
On-The-Job Training Competencies				
Monitor Systems and Platforms				
Analyze and Resolve IT System Issues				
Administering IT Developments/Projects				
Provide Infrastructure Support				
Manage IT Operations				
Ensure IT Performance and Reliability				
Advise System Procedures and Operations				