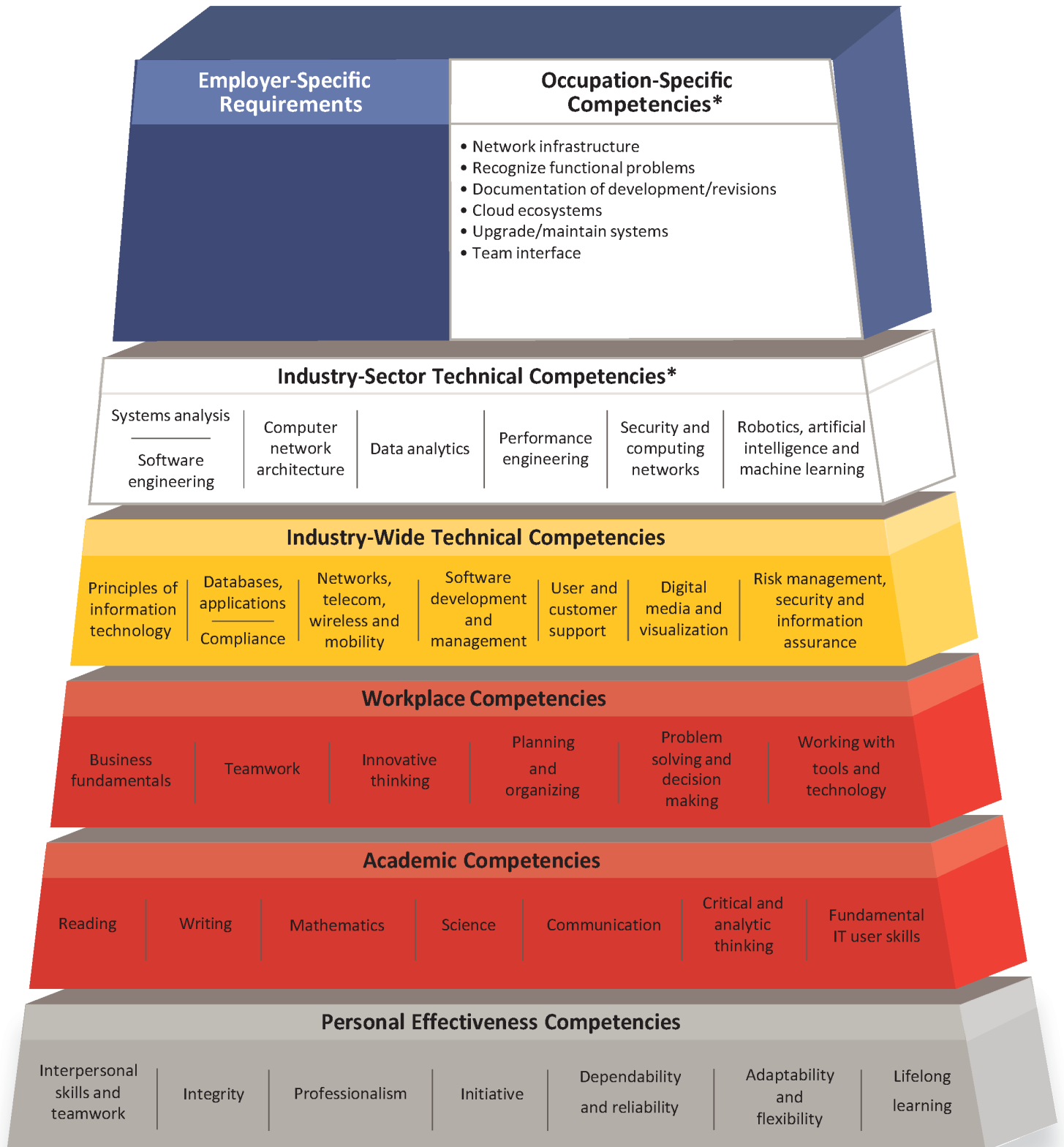


Minnesota Dual-Training Pipeline

Competency Model for Information Technology

Occupation: Network Engineer



Based on: Information Technology Competency Model Employment and Training Administration, United States Department 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 Network Engineer

Network Engineer – A technology professional who is highly skilled in planning, constructing, and managing networks to ensure they are optimized and functioning as intended. This person is responsible for the foundation of an organization’s IT system.

Industry-Sector Technical Competencies

Related Instruction for dual training means the organized and systematic form of education resulting in the enhancement of skills and competencies related to the dual trainee’s current or intended occupation.

- **Systems analysis** – Able to study a procedure or business to identify its goals and purposes and create systems and procedures that will achieve them in an efficient way.
- **Computer network architecture** – Understand specifications detailing how a set of software and hardware technology standards interact to form a computer system or platform.
- **Security and computing networks** – Understand rules and configurations designed to protect the integrity, confidentiality, and accessibility of computer networks and data using both software and hardware technologies.
- **Software engineering** – Understand the detailed study of engineering to the design, development, and maintenance of software.
- **Robotics, artificial intelligence, and machine learning** – Understand hybrid technology integration to execute tasks and solve problems.
- **Data analytics** – Understand the science of examining raw data with the purpose of discovering knowledge and how that data interacts with the overall network.
- **Performance engineering** – Demonstrated understanding of the techniques applied during a systems development life cycle to ensure the non-functional requirements for performance will be met.

Occupation-Specific Competencies

On-the-Job Training (OJT) is hands-on instruction completed at work to learn the core competencies necessary to succeed in an occupation. Common types of OJT include job shadowing, mentorship, cohort-based training, assignment-based project evaluation and discussion-based training.

- **Network infrastructure** – Know how to analyze, design, install, configure, maintain, and repair network infrastructure and application components to meet company and user satisfaction.

- **Recognize functional problems** – Understand how to identify and problem solve problems with functionality in computer networks.
- **Documentation of development/revisions** – Know and practice the discipline of recording steps and changes in network development and maintenance.
- **Cloud ecosystems** – Understand how cloud technology works in network computing.
- **Upgrade/maintain systems** – The act of rolling out improvements to network systems, which are required for integration with other systems and programs.
- **Team interface** – Understand how to work with various teams, vendors, clients and others for the implementation and support of networking products and services.

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