

# Minnesota PIPELINE Project

Private Investment, Public Education, Labor & Industry Experience

PIPELINE PROJECT  
Information Technology Industry Council

## Industry Council Selected Occupations and Descriptions

*Below are the 4 occupations and Descriptions the IT Industry Council selected to begin investigating dual-training models and implementation in Minnesota.*

### Security Analyst

Source: [www.infosecinstitute.com](http://www.infosecinstitute.com)

A security analyst is responsible for maintaining the security and integrity of data. The security analyst has to have knowledge of every aspect of information security within the company. Their main job is to analyze the security measures of a company and determine how effective they are. They are responsible for implementing any training required including instructing staff on proper security measures both in the office and online. The security analyst must work with business administrators as well as IT professionals in communicating flaws in security systems. They recommend changes that will improve every aspect of company security. The security analyst is also responsible for creating documentation to help the company in case there are any breaches. They plan, implement, upgrade, or monitor security measures for the protection of computer networks and information. May ensure appropriate security controls are in place that will safeguard digital files and vital electronic infrastructure. Security Analysts respond to computer security breaches and viruses. Other tasks include:

- Encrypt data transmissions and erect firewalls to conceal confidential information as it is being transmitted and to keep out tainted digital transfers.
- Develop plans to safeguard computer files against accidental or unauthorized modification, destruction, or disclosure and to meet emergency data processing needs.
- Review violations of computer security procedures and discuss procedures with violators to ensure violations are not repeated.
- Monitor use of data files and regulate access to safeguard information in computer files.
- Monitor current reports of computer viruses to determine when to update virus protection systems.
- Modify computer security files to incorporate new software, correct errors, or change individual access status.
- Perform risk assessments and execute tests of data processing system to ensure functioning of data processing activities and security measures.
- Confer with users to discuss issues such as computer data access needs, security violations, and programming changes.
- Train users and promote security awareness to ensure system security and to improve server and network efficiency.
- Coordinate implementation of computer system plan with establishment personnel and outside vendors.

## Web Developer

Source: [www.infosecinstitute.com](http://www.infosecinstitute.com)

A web developer is a software designer or engineer who is involved in the development and design of web and/or network applications. They work in a variety of organizations of any size, and some work as independent freelancers. This career is a very rewarding one which offers many attractive benefits including job satisfaction, job security and excellent pay and benefits.

Web developers are typically responsible for IT duties involved in web development and programming, as well as coding. Their role is very critical, as they are the driving force behind the success of an application. The creation of a web application usually involves one or more developers.

They design, create, and modify Web sites. Analyze user needs to implement Web site content, graphics, performance, and capacity. Web developers integrate Web sites with other computer applications. Web developers convert written, graphic, audio, and video components to compatible Web formats by using software designed to facilitate the creation of Web and multimedia content.

Other tasks include:

- Design, build, or maintain web sites, using authoring or scripting languages, content creation tools, management tools, and digital media.
- Perform or direct web site updates.
- Write, design, or edit web page content, or direct others producing content.
- Confer with management or development teams to prioritize needs, resolve conflicts, develop content criteria, or choose solutions.
- Back up files from web sites to local directories for instant recovery in case of problems.
- Identify problems uncovered by testing or customer feedback, and correct problems or refer problems to appropriate personnel for correction.
- Evaluate code to ensure that it is valid, is properly structured, meets industry standards and is compatible with browsers, devices, or operating systems.
- Maintain understanding of current web technologies or programming practices through continuing education, reading, or participation in professional conferences, workshops, or groups.
- Analyze user needs to determine technical requirements.
- Develop or validate test routines and schedules to ensure that test cases mimic external interfaces and address all browser and device types.

## Software Developers

Source: [www.infosecinstitute.com](http://www.infosecinstitute.com)

A software developer is somebody who designs and develops software for computer based systems. They do so by using knowledge of computer science and mathematics. This knowledge is used to create, analyze, test, and improve computer software. The skills and tasks performed by people who work in this field are in constant motion as a result of the fact that computer technology is currently a field where rapid development is taking place. Specialization is often necessary in the job, with new fields of specialization appearing quite rapidly. Software developers may work on various different types of programs such as games, operating systems, business applications, and network software. During the job, they will analyze how software is used, determine what needs need to be met by the software, use flowcharts and diagrams to describe how the software works, and create algorithms for resolving issues. They might transform these algorithms into computer language, but this is typically the work of computer programmers. They develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. Software Developers supervise computer programmers.

Other tasks include:

- Modify existing software to correct errors, allow it to adapt to new hardware, or to improve its performance.
- Develop and direct software system testing and validation procedures, programming, and documentation.
- Confer with systems analysts, engineers, programmers and others to design system and to obtain information on project limitations and capabilities, performance requirements and interfaces.
- Analyze user needs and software requirements to determine feasibility of design within time and cost constraints.
- Design, develop and modify software systems, using scientific analysis and mathematical models to predict and measure outcome and consequences of design.
- Store, retrieve, and manipulate data for analysis of system capabilities and requirements.
- Consult with customers about software system design and maintenance.
- Supervise the work of programmers, technologists and technicians and other engineering and scientific personnel.
- Coordinate software system installation and monitor equipment functioning to ensure specifications are met.
- Obtain and evaluate information on factors such as reporting formats required, costs, and security needs to determine hardware configuration.

## **Service Desk/Front Line Support or Computer User Support Specialist**

Source: [www.onetonline.org](http://www.onetonline.org)

The role of the Service Desk Specialist is to assist customers who are experiencing any procedural or operating difficulty with the use of IT applications, products or services. Complex and/or high priority problems are elevated to specialized support groups for resolution when needed, but the technician is responsible to ensure that an effective solution is provided to the user. Provide technical assistance to computer users. They answer questions or resolve computer problems for clients in person, or via telephone or electronically. Computer Support Specialists provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems.

Other tasks include:

- Oversee the daily performance of computer systems.
- Answer user inquiries regarding computer software or hardware operation to resolve problems.
- Enter commands and observe system functioning to verify correct operations and detect errors.
- Set up equipment for employee use, performing or ensuring proper installation of cables, operating systems, or appropriate software.
- Install and perform minor repairs to hardware, software, or peripheral equipment, following design or installation specifications.
- Maintain records of daily data communication transactions, problems and remedial actions taken, or installation activities.
- Read technical manuals, confer with users, or conduct computer diagnostics to investigate and resolve problems or to provide technical assistance and support.
- Refer major hardware or software problems or defective products to vendors or technicians for service.
- Develop training materials and procedures, or train users in the proper use of hardware or software.
- Confer with staff, users, and management to establish requirements for new systems or modifications