



Merritt College Technology Apprenticeship
Information Systems Analyst A.S. Degree or Certificate,
DevOps – Development and Operations Automation A.S. Degree or Certificate
[Help Desk Technician Apprenticeship - Alameda County](#)
DOL IT Generalist O*NET Code: [15-1151.00](#) RAPIDS Code: 1059CB
in Partnership with
[Rightvarsity Technology Workforce Immersion Program](#)
the
[Consortium of Information Systems Executives \(CISE\)](#)
and
East Bay Inter-Agency Training Council (EBIATC)

The Department of Labor (DOL) and California Department of Industrial Relations (DIR) have created opportunities to gain technology skills leading to gainful employment while providing employers with a highly skilled and experienced workforce. Because it is funded and driven by industry's needs, the apprenticeship system provides an effective balance between learning by doing and theoretical instruction.

California's DAS promotes apprenticeship training through the creation of partnerships among industry, labor, education and government. It consults with program sponsors and monitors programs to ensure high standards for on-the-job training (OJT) and supplemental classroom instruction. In collaboration with CISE Merritt has created industry-informed courses and programs that serve as pre-apprenticeship training and Related Technical Instruction (RTI) for several state and federal apprenticeships. Merritt has formed a partnership with Right Varsity Technology Workforce Immersion Program, LLC which holds federal and state apprenticeships in technology. Finally, Merritt is part of the East Bay Inter-Agency Training Council (EB/IATC) – a consortium of government and community-based job and workforce development organizations.

A unique code number is used to verify DOL Apprenticeship holders. The code for our Right Varsity partner is:

2018-72095

CA-DIR apprenticeships [are identified and verified online using a URL and Web site.](#)

In this document you will find front matter common to all Merritt-Rightvarsity Apprenticeships such as the service letter establishing Merritt as a Local Education Agency (LEA) for Rightvarsity. Toward the end you will find information specific to implementing the apprenticeship named above. This apprenticeship, whether state (CA-DIR) or federal (DOL), will be aligned with the DOL Competency Based Occupational Framework (CBOF) for apprenticeships. The Work Process Schedule (WPS) is where you add detailed information about specific educational and employer components of the apprenticeship.

| Computer Information Systems Stackable Information Technology/Information Systems (IT/IS) Degree and Certificate Pathways with Apprenticeship and Industry Occupational Certifications | | | | | |
|---|--|--|--------------------------|--|---|
| IT and Help Desk Technician Certificate of Achievment or A.S. Degree (pending) | <-----> Students can start in either Path | Computer Project Manager Certificate of Achievement (pending) | | BYTE - Believe in Your Technology Education recruitment prog. | GOAL: Get your first job in Tech |
| | | | | Student Success and Support | SANKOFA |
| IT Help Desk Apprenticeship | | Cert. Assoc. PM | | PUENTE | |
| Rightvarsity/Merritt LEA Alameda/Govt. IT CA-DIR: 18 mos @ \$13.00 DOL 18yrs+ H.S./GED/Equiv. | | PMI-CAPM http://pmi.org/CAPM | | Community Events Digital Literacy Summer Bridge Coaching Workshops | |
| CompTIA A+, Network+ | | | | | |
| | | | | | |
| | | | | | |
| Information Systems Analyst | | | CoA or A.S. | Degree (pending) | |
| DOL IT Generalist Apprenticeship | | | ONET Code: | 15-1151.00 | |
| CompTIA Security+ | | | RAPIDS Code | 1059CB | |
| Rightvarsity/Merritt LEA | | | | | |
| | | | | | |
| | | | (pending) IT/Software | Project Mgr. Autom. | |
| | | | CA-DIR | IT Project Manager | |
| | | | H.S./GED/Eq. | 24 mos @13.00/hr | |
| | | | DOL IT. Genrl. | ONET: 15-1151.00 | |
| | | | | RAPIDS: 1059CB | |
| | | | PMI-ACP | PMI-PMP | |
| | | | | | |
| | | | | | |
| DevOps -Dev. & Ops. Automation | | | CoA or A.S. | Degree (pending) | |
| DOL IT Generalist Apprenticeship | | | ONET Code: | 15-1151.00 | |
| | | | RAPIDS Code | 1059CB | |
| DOL Cybersecurity Technician | | | ONET Code: | 15-1151.00 | |
| | | | RAPIDS Code | 1059CB | |
| DOL IT Generalist Apprenticeship | | | ONET Code: | 15-1151.00 | |
| | | | RAPIDS Code | 1059CB | |

| | |
|--|--|
| Computer Science & Information Systems Career Readiness | noncredit program building skills in: |
| Communication | Resume |
| Conflict Resolution | Tech Pro |
| Interview Practice | Reflection |

| | |
|----------------------|---|
| Color Key | |
| Merritt Program | 6 |
| Industry Certificate | 6 |
| Apprenticeship | 4 |

Merritt Program – Information Systems Analyst Program

The Information Technology Technician Pathway (ITTP) represents a career that you can start with just months of preparation and sustain for years. This is an occupational program which qualifies the graduate to enter or advance in the workforce. Industry standard certifications help make your career portable by affirming recognition of your skills using an industry standard benchmark such as CompTIA A+ and Network+. The skills gained in this curriculum are a foundation for "stackable" skills that lead to higher paying positions and careers including: Information Systems, Cybersecurity, and DevOps - Development and Operations Automation.

Upon successful completion of this program, students will be able to:

1. Select and deploy Information Technology Components
2. Design an Information System using appropriate set of IT components
3. Analyze operations and monitor Information Systems.

Career Opportunities

Table 1. Employment Outlook for Information Systems Analyst Occupations in Bay Region

| Occupation | 2018 Jobs | 2023 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Openings | Average Annual Openings | 10% Hourly Wage | Median Hourly Wage |
|---|---------------|----------------|---------------|---------------|---------------|-------------------------|-----------------|--------------------|
| Computer Systems Analysts | 29,223 | 32,992 | 3,769 | 13% | 13,595 | 2,719 | \$35.50 | \$55.75 |
| Computer User Support Specialists | 31,368 | 35,797 | 4,428 | 14% | 16,537 | 3,307 | \$20.86 | \$34.77 |
| Computer Network Support Specialists | 6,622 | 7,554 | 932 | 14% | 3,488 | 698 | \$22.58 | \$38.93 |
| Computer and Information Systems Managers | 32,437 | 36,165 | 3,728 | 11% | 16,085 | 3,217 | \$57.22 | \$88.22 |
| Total | 99,650 | 112,508 | 12,858 | 13% | 49,705 | 9,941 | \$34.04 | \$54.42 |

Source: EMSI 2019.2

Bay Region includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

Information Systems Analyst – A.S. Degree/Certificate of Achievement Program Requirements**First Semester****Credit Hours: (14 – 17 Required)****Maps to IT Technician Certificate**

| | | |
|-------------|---|---|
| CIS 005 or | Introduction to Computer Science | 5 |
| CIS 006 or | Introduction to Computer Programming | 5 |
| CIS 007 or | Control Structures and Objects | 4 |
| CS 020 and | Python Application Programming | 3 |
| CIS 110 and | Information and Communication Technology Essentials | 4 |
| CIS 035 and | Microcomputer Operating Systems | 4 |
| CIS 072 or | Systems and Network Administration | 3 |
| CIS 073 or | Networking Concepts | 4 |
| CIS 106A | Routing and Switching Networks | 3 |

Second Semester**Credit Hours: (10 Required)***Maps to Information Systems Technician Certificate*

| | | |
|-------------|---|---|
| CIS 051 and | Introduction to Information Technology Project Management | 4 |
| CIS 062 and | Introduction to Systems Analysis and Design | 3 |
| CIS 107 | Administering Cloud Services and Containers | 3 |

*Students are encouraged to seek the Project Management Professional (PMP) certification <http://pmi.org>**Students are encouraged to seek the Amazon Web Services Cloud Practitioner certification***Third Semester****Credit Hours: (10 Required)***Data Analytics Courses*

| | | |
|-------------|--|---|
| CIS 059 and | Applications in Information Security | 3 |
| CIS 098 and | Database Programming with SQL | 4 |
| CIS 108 | Scripting for Systems Automation and Data Analysis | 3 |

*Students are encouraged to seek Amazon Web Services Solutions Architect certification***Fourth Semester****Credit Hours: (3 Required)**

| | | |
|---------|---|---|
| CIS 058 | Hacker Guard – Baseline Training for IT Administrators and Operations | 3 |
|---------|---|---|

Peralta General Education (GE) Pattern**Credit Hours:** (18 Required)*Program courses may fulfill 1 unit of General Education (GE) requirements. Consult with a counselor.***Total: 56.00 – 59.00**

DevOps is the use of software DEVELOPMENT tools to automate Information Systems OPERations. It requires Knowledge Skills and Abilities (KSA) of Information Technology (IT) components, configuration and programming that integrate IT components into Information Systems (IS), and the ability to automate the activities through use of the Application Programming Interfaces (API) published by equipment and service providers. The main characteristic of DevOps is to strongly advocate and implement automation and monitoring at all steps of software and infrastructure construction, from integration, testing, and releasing, to deployment and infrastructure management. DevOps aims at shorter development cycles, increased deployment frequency and more dependable releases in close alignment with business objectives.

Upon successful completion of this program, students will be able to:

1. Plan control of IT Components using Application Programming Interface (API)
2. Select operations to automate in an IT project.
3. Design Operations information flow for operations automation monitoring
4. Select Key Performance Metrics and that define baselines and norms.

DevOps – Development and Operations Automation A.S./Certificate Program Requirements:

Year 1 Semester 1 - Required IT Courses

Credit Hours: (14 - 16 Required)

Maps to IT Technician Certificate

| | | |
|-------------|---|---|
| CIS 110 and | Information and Communication Technology Essentials | 4 |
| CIS 005 or | Introduction to Computer Science | 5 |
| CIS 006 or | Introduction to Computer Programming | 5 |
| CIS 007 or | Control Structures and Objects | 4 |
| CS 020 and | Python Application Programming | 3 |
| CIS 035 and | Microcomputer Operating Systems | 4 |
| CIS 106A | Routing and Switching Networks | 3 |

Students completing required IT courses are encouraged to take the CompTIA A+, Network+ certifications.

https://certification.comptia.org/landing/a_security_network/aplus-1/

<https://certification.comptia.org/certifications/network>

Year 1 Semester 2 - Required DevOps Courses

Credit Hours: (13 Required)

| | | |
|-------------|---|---|
| CIS 051 and | Introduction to Information Technology Project Management | 4 |
| CIS 071 or | Introduction to Information Systems Security | 3 |
| CIS 072 and | Systems and Network Administration | 3 |
| CIS 107 and | Administering Cloud Services and Containers | 3 |
| CIS 108 | Scripting for Systems Automation and Data Analysis | 3 |

CIS 51 Students are encouraged take the Certified Associate Project Manager (CAPM)

<http://www.pmi.org/PMI/CAPM> and pursue continued study to earn the Project Management Professional (PMP) certification.

Year 2 - Restricted Electives - Select one group of electives**Credit Hours:** (9 - 12 Required)*Electives are listed in order from least technical to most technical***Group A - Social Media and Online Community Management****Credit Hours:** (0 Required)*Recommended Course Sequence*

| | | |
|----------------|------------------------------------|---|
| SOC 001 and | Introduction to Sociology | 3 |
| PSYCH 001A and | Introduction to General Psychology | 3 |
| PSYCH 006 | Social Psychology | 3 |

*The social media and community manager uses scripting to analyze and implement communication strategies.***Group B -Cybersecurity Operations****Credit Hours:** (0 Required)*Recommended Course Sequence*

| | | |
|-------------|---|---|
| CIS 055 and | Hacker Techniques, Exploits & Incident Handling | 3 |
| CIS 060 and | Computer Forensics Fundamentals | 3 |
| CIS 053 and | Intrusion Detection In-Depth: Compliance, Security, Forensics and Troubleshooting | 3 |
| CIS 247 | Information Systems Skills Challenge | 1 |

*Students completing this elective are encouraged to take the CompTIA Security+ certification**<https://certification.comptia.org/certifications/security>**Completing Security+ qualifies you to apply apprenticeship as a Cyber Security Support Technician**https://www.urban.org/sites/default/files/cbof_full_cyber-security-support-tech.pdf**CIS 247 requires participation in one round of Ethical Hacking Competition: National Cyber League (NCL), CyberPatriots, CyberDefenders, SANS Cyber fast track, or equivalent.***Group C - Software Engineering Automation CI/CD*****Credit Hours:** (0 Required)*Recommended Course Sequence*

| | | |
|-------------|--|---|
| CS 080 and | Software Engineering | 3 |
| CIS 178 and | Build Automation for DevOps & QA | 4 |
| CIS 179 | Agile Software Management and Project Automation | 3 |

*Completing this elective qualifies you to become a PMI Agile Certified Practitioner (PMI-ACP)**<https://www.pmi.org/certifications/types/agile-acp> Exams are administered only to qualified students by Project Management Institute (PMI) <http://pmi.org>*

CI/CD = *Continuous Integration/Continuous Deployment

Group D - Mobile Applications Build & Test Automation**Credit Hours:** (0 Required)*This elective requires selection of CIS 006 or CIS 007 from list of Required IT Courses**Recommended Course Sequence*

| | | |
|-------------|---|---|
| CIS 033 and | Software Architectures and Algorithms | 4 |
| CIS 093 and | Cross Platform Mobile Application Development | 4 |
| CIS 178 | Build Automation for DevOps & QA | 4 |

Group E - Cloud Systems and Services**Credit Hours:** (0 Required)*This elective aligns with AWS Cloud Practitioner and Solutions Architect certifications.**Recommended Course Sequence*

| | | |
|-------------|---|---|
| CIS 062 and | Introduction to Systems Analysis and Design | 3 |
| CIS 052 and | Cloud Security Fundamentals | 3 |
| CIS 058 | Hacker Guard – Baseline Training for IT Administrators and Operations | 3 |

<https://aws.amazon.com/certification/certified-solutions-architect-associate/><https://aws.amazon.com/certification/certified-cloud-practitioner/>**Group F -Site Reliability and Scaling****Credit Hours:** (0 Required)*This elective requires selection of CIS 006 or CIS 007 from required IT courses.**Recommended Course Sequence*

| | | |
|-------------|--|---|
| CIS 008 and | Introduction to Parallel and Cloud Programming | 4 |
| CIS 100 and | Introduction to Blockchain, Cryptocurrencies, and Identity | 3 |
| CS 060 | Applications of Artificial Intelligence and Deep Learning | 3 |

Local Degree General Education (PCCD GE Pattern)**Credit Hours:** (19 Required)**Total: 55.000 - 60.000**



MERRITT COLLEGE

Office of Instruction



October 14, 2019

Right Varsity Technologies, LLC
P.O. Box 51616
San Jose, CA 95151

TO WHOM IT MAY CONCERN:

This letter confirms that Merritt College will serve as the Local Education Agency (LEA) for the RightVarsity Technology Workforce Immersion Apprenticeship Program.

This service will cover the following occupations:

- Application Developer
- Cyber Security Technician
- Helpdesk Technician
- IT Project Manager
- Information Assurance Specialist
- E-Commerce Specialist
- Clinical Document Improvement Specialist
- Health Information Data Analyst
- Health Information Management Business Analyst
- Health Information Management Coder
- Health IT Specialist

The geographic area covered by our service is the State of California. This service meets the requirements of the California Educational Code together with oversight guidelines. This letter does not assure Related and Supplemental Instruction funding.

If you have any questions about the IT Apprenticeship Program please contact Courtney Brown at courtneybrown@peralta.edu.

Sincerely,

A blue ink signature of David M. Johnson, Ph.D., written in a cursive style.

David M. Johnson, Ph.D.
Vice President of Instruction
Merritt College

The mission of Merritt College is to enhance the quality of life in the communities we serve by helping students to attain knowledge, master skills, and develop the appreciation, attitudes and values needed to succeed and participate responsibly in a democratic society and a global economy.

The United States Department of Labor

Office of Apprenticeship

Certificate of Registration of Apprenticeship Program

Rightvarsity Technology Workforce Immersion Program

Santa Clara, California

For the Occupations – Application Developer, Helpdesk Technician, Health Information Management, Cyber Security Technician, IT Project Manager, Information Assurance Specialist, E-Commerce Specialist, Health IT Specialist, Health Information Management Business Analyst, Health Information Data Analyst, Clinical Documentation Improvement Specialist

Registered as part of the National Apprenticeship System

in accordance with the basic standards of apprenticeship

established by the Secretary of Labor

September 19, 2018

Date

2018-72095

Registration No.



[Signature]

Secretary of Labor

[Signature]

Administrator, Office of Apprenticeship



State of California
Department of
Industrial Relations

Apprenticeship program information - search results

Follow the link to get the information on the trade or occupation

Data is current as of 02/24/2020

| Trade or occupation: | Committee: |
|---|--|
| Application Developer | Rightvarsity Technology Workforce Immersion Program |
| Computer Support Specialist/Cybersecurity | California Cybersecurity Apprenticeship Project (Ccap); |
| Computer Support Specialist/Help Desk-Networking | Able-Disabled Advocacy U.A.C. |
| Computer Support Specialist-Cyber Security | Able-Disabled Advocacy U.A.C. |
| Cyber Security Technician | Rightvarsity Technology Workforce Immersion Program |
| E-Commerce Specialist | Rightvarsity Technology Workforce Immersion Program |
| Geographic Information System Technician (Gis Technician) | Osceola Consulting Geographic Information System Technician Apprenticeship |
| Health It Specialist | Rightvarsity Technology Workforce Immersion Program |
| Helpdesk Technician | Rightvarsity Technology Workforce Immersion Program |
| Information Assurance | Rightvarsity Technology Workforce Immersion Program |

Rightvarsity Technologies, LLC.



Presented by

Molly Uzoh, CSSGB, CSM, CISM

<https://www.Rightvarsity.com/Workforce/>



Apprenticeship program information - search results detail

Data is current as of 03/12/2020

| | |
|-----------------------------------|---|
| Trade or occupation: | Helpdesk Technician |
| Program length: | 18 months |
| Starting wage: | 13.00 |
| Minimum age: | 18 |
| Education prerequisites: | High School/Ged/Equivalent |
| <u>Additional prerequisites:</u> | As identified on the Employer Acceptance Agreement. |
| Physical requirements: | Yes |
| Exams: | Written Test: Yes Oral Exam: Yes |
| <u>Additional requirements:</u> | Applicants will be physically capable of performing the essential functions of the apprenticeship program, with or without a reasonable accommodation, and without posing a direct threat to the health and safety of the individual or others. |
| Contact information: | Rightvarsity Technology Workforce Immersion Program https://rightvarsity.com/Workforce/ P.O. Box 51616 San Jose, CA 95151 |
| Contact person: | Molly (Mary) Uzoh, Chief Executive Officer |
| Contact phone / e-mail: | (408) 649-5872 molly@rightvarsity.com |
| Applications taken: | Continuous |
| <u>List Type:</u> | Seek Hiring Employer |
| <u>Veteran Benefits Approved:</u> | No |

Using the DOL Competency Based Occupational Framework to Develop an Apprenticeship

A comprehensive CBOF full framework apprenticeship document for the IT Generalist is follows this section. The Work Process Schedule included in this CBOF provides an overview of the job functions and competencies an expert peer group deemed to be important to this occupation. The Work Process Schedule in this document can be used directly or modified and used to describe your program content and design as part of your registration application.

When designing the curriculum to support the apprenticeship program – including on the job training and related technical instruction – the more detailed information in Section 5 could be helpful. These more detailed job function documents include recommendations for the key knowledge and skill elements that might be included in the classroom instruction designed to support a given job function, and the performance criteria provided under each competency could be helpful to trainers and mentors in evaluating apprentice performance and insuring inter-rater reliability when multiple mentors are involved.

| | Information Technology (IT) Generalist - Work Progress Schedule (WPS) of Job Function and Education for Apprenticeship Training - Related Technology Instruction (RTI) and On-the-Job Training (OJT) | | RTI Course | OJT Course |
|--------------|---|-------------|--------------------|------------|
| Job Function | Description - Based on Department of Labor Competency Based Occupational Framework for Apprenticeship | CBOF PAGE # | | |
| 1 | Sets up and removes employee or client workstations or devices, including setting up access controls | 19 | CIS 110 | |
| 2 | Installs, provides user support for, or troubleshoots hardware and commercial software | 21 | CIS 035 | |
| 3 | Supports internal or external clients in the use of audio/visual technology and conference technology (Optional) | 23 | | TBD |
| 4 | Installs, maintains and troubleshoots networks | 25 | CIS 72, 73, 106A | |
| 5 | Makes minor software modifications to improve performance or customize to user needs | 27 | | TBD |
| 6 | Assists in maintaining or updating web content and manages user access profiles and authorities | 29 | CIS 035 | |
| 7 | Monitors and helps maintain network security by adhering to security policies | 30 | CIS 072, 073, 106A | |

For this apprenticeship, training for Job function 3 would be determined by the employer who would enroll the apprentice in vendor-supplied training for the audio/visual technology and tele-conference technology used on site. Similarly, for Job function 5 the employer would enroll the apprentice in vendor-supplied training for the software used at the employer's site.

Merritt offers a noncredit career preparatory program “[Computer Science and Information Systems Career Readiness](#)” that helps students develop the communication skills to be effective as a Technical Professional in the workforce.

COMPETENCY-BASED OCCUPATIONAL FRAMEWORK FOR REGISTERED APPRENTICESHIP

IT Generalist

ONET Code: 15-1151.00

RAPIDS Code: 1059

Created: August 2017

Updated: January 2018

This project has been funded, either wholly or in part, with Federal funds from the Department of Labor, Employment and Training Administration under Contract Number DOL-ETA-15-C-0087. The contents of this publication do not necessarily reflect the views or policies of the Department of Labor, nor does mention of trade names, commercial products, or organizations imply endorsement of the same by the U.S. Government.

For More Information, Contact:

Diana Elliott, PhD, Senior Research Associate, Urban Institute: delliott@urban.org

Robert Lerman, PhD, Institute Fellow, Urban Institute: rlerman@urban.org





ABOUT THE URBAN INSTITUTE

The nonprofit Urban Institute is dedicated to elevating the debate on social and economic policy. For nearly five decades, Urban scholars have conducted research and offered evidence-based solutions that improve lives and strengthen communities across a rapidly urbanizing world. Their objective research helps expand opportunities for all, reduce hardship among the most vulnerable, and strengthen the effectiveness of the public sector.

Acknowledgments

We thank Diane Auer Jones for her expertise and contributions to this document.

Contents

| | |
|--|-----------|
| Competency-Based Occupational Frameworks | 1 |
| Components of the Competency-Based Occupational Framework | 2 |
| Using the Competency-Based Occupational Framework to Develop a Registered Apprenticeship Program | 3 |
| IT Generalist Occupational Overview | 4 |
| Occupational Purpose and Context | 4 |
| Potential Job Titles | 4 |
| Attitudes and Behaviors | 4 |
| Apprenticeship Prerequisites | 4 |
| Occupational Pathways | 5 |
| Certifications, Licensure and Other Credential Requirements | 5 |
| Job Functions | 5 |
| Stackable Programs | 6 |
| Options and Specializations | 6 |
| Levels | 6 |
| Work Process Schedule | 8 |
| Specialization | 13 |
| Related Technical Instruction Plan | 15 |
| Cross-Cutting Competencies | 17 |
| Detailed Job Functions | 19 |
| JOB FUNCTION 1: Sets up and removes employee or client workstations or devices, including setting up access controls | 19 |
| JOB FUNCTION 2: Installs, provides user support for, or troubleshoots hardware and commercial software | 21 |
| JOB FUNCTION 3: Supports internal or external clients in the use of audio/visual technology and conference technology (Optional) | 23 |
| JOB FUNCTION 4: Installs, maintains and troubleshoots networks | 25 |
| JOB FUNCTION 5: Makes minor software modifications to improve performance or customize to user needs | 27 |
| JOB FUNCTION 6: Assists in maintaining or updating web content and manages user access profiles and authorities | 29 |
| JOB FUNCTION 7: Monitors and helps maintain network security by adhering to security policies | 30 |

Competency-Based Occupational Frameworks

The Urban Institute, under contract by the U.S. Department of Labor, has worked with employers, subject matter experts, labor unions, trade associations, credentialing organizations and academics to develop Competency-Based Occupational Frameworks (CBOF) for Registered Apprenticeship programs. These frameworks defined the **purpose** of an occupation, the **job functions** that are carried out to fulfill that purpose, the **competencies** that enable the apprentice to execute those job functions well, and the **performance criteria** that define the specific knowledge, skills and personal attributes associated with high performance in the workplace. This organizational hierarchy – Job Purpose – Job Functions – Competencies – Performance Criteria – is designed to illustrate that performing work well requires more than just acquiring discrete knowledge elements or developing a series of manual skills. To perform a job well, the employee must be able to assimilate knowledge and skills learned in various settings, recall and apply that information to the present situation, and carry out work activities using sound professional judgement, demonstrating an appropriate attitude or disposition, and achieving a level of speed and accuracy necessary to meet the employer’s business need.

The table below compares the terminology of Functional Analysis with that of traditional Occupational Task Analysis to illustrate the important similarities and differences. While both identify the key technical elements of an occupation, Functional Analysis includes the identification of behaviors, attributes and characteristics of workers necessary to meet an employer’s expectations.

| Framework Terminology | Traditional Task Analysis Terminology |
|---|---|
| Job Function – the work activities that are carried out to fulfill the job purpose | Job Duties – roles and responsibilities associated with an occupation |
| Competency – the actions an individual takes and the attitudes he/she displays to complete those activities | Task – a unit of work or set of activities needed to produce some result |
| Performance Criteria – the specific knowledge, skills, dispositions, attributes, speed and accuracy associated with meeting the employer’s expectations | Sub Task – the independent actions taken to perform a unit of work or a work activity |

Although designed for use in competency-based apprenticeship, these Competency-Based Occupational Frameworks also support time-based apprenticeship by defining more clearly and precisely what the apprentice is expected to learn and do during the allocated time-period.

CBOFs are comprehensive in to encompass the full range of jobs that may be performed by individuals in the same occupation. As employers or sponsors develop their individual apprenticeship programs, they can extract from or add to the framework to meet their unique organizational needs.

Components of the Competency-Based Occupational Framework

Occupational Overview: This section of the framework provides a description of the occupation including its purpose, the setting in which the job is performed and unique features of the occupation.

Work Process Schedule: This section includes the job functions and competencies that would likely be included in an apprenticeship sponsor's application for registration. These frameworks provide a point of reference that has already been vetted by industry leaders so sponsors can develop new programs knowing that they will meet or exceed the consensus expectations of peers. Sponsors maintain the ability to customize their programs to meet their unique needs, but omission of a significant number of job functions or competencies should raise questions about whether or not the program has correctly identified the occupation of interest.

Cross-cutting Competencies: These competencies are common among all workers, and focus on the underlying knowledge, attitudes, personal attributes and interpersonal skills that are important regardless of the occupation. That said, while these competencies are important to all occupations, the relative importance of some versus is others may change from one occupation to the next. These relative differences are illustrated in this part of the CBOF and can be used to design pre-apprenticeship programs or design effective screening tools when recruiting apprentices to the program.

Detailed Job Function Analysis: This portion of the framework includes considerable detail and is designed to support curriculum designers and trainers in developing and administering the program. There is considerable detail in this section, which may be confusing to those seeking a more succinct, higher-level view of the program. For this reason, we recommend that the Work Process Schedule be the focus of program planning activities, leaving the detailed job function analysis sections to instructional designers as they engage in their development work.

- a. **Related Technical Instruction:** Under each job function appears a list of foundational knowledge, skills, tools and technologies that would likely be taught in the classroom to enable the apprentice's on-the-job training safety and success.

- b. Performance Criteria: Under each competency, we provide recommended performance criteria that could be used to differentiate between minimally, moderately and highly competent apprentices. These performance criteria are generally skills-based rather than knowledge-based, but may also include dispositional and behavioral competencies.

Using the Competency-Based Occupational Framework to Develop a Registered Apprenticeship Program

When developing a registered apprenticeship program, the Work Process Schedule included in this CBOF provides an overview of the job functions and competencies an expert peer group deemed to be important to this occupation. The Work Process Schedule in this document can be used directly, or modified and used to describe your program content and design as part of your registration application.

When designing the curriculum to support the apprenticeship program – including on the job training and related technical instruction – the more detailed information in Section 5 could be helpful. These more detailed job function documents include recommendations for the key knowledge and skill elements that might be included in the classroom instruction designed to support a given job function, and the performance criteria provided under each competency could be helpful to trainers and mentors in evaluating apprentice performance and insuring inter-rater reliability when multiple mentors are involved.

IT Generalist Occupational Overview

Occupational Purpose and Context

The IT generalist provides a large number of support functions, particularly if he or she works in a small- to medium-size company that has a small IT department with few specialist positions. IT generalists support a variety of functions that range from setting up technology for employees to maintaining internal networks, supporting telework functions and providing help desk support. This position works with a variety of individuals, including IT colleagues, staff at all levels within an organization, external clients and vendors.

The IT generalist maintains functioning information technology equipment and networks, provides support to technology users, ensures security of information and IT infrastructure and upholds company policies regarding use, security and redundancy of data.

Potential Job Titles

IT Generalist, Network Manager, Network Support Technician, Network Administrator, IT Administrator, Help Desk Specialist, IT Technician, IT Professional, IT Technical Support Professional

Attitudes and Behaviors

IT generalists must have strong communications and customer service skills, must understand technology and be able to troubleshoot faults, must think logically and analytically, must be able to learn quickly and must be patient.

Apprenticeship Prerequisites

Commercial Driver's License; Must be able to lift heavy loads; Must be able to pass drug testing and physical exam; Must have good driving record.

Occupational Pathways

An individual may begin an IT generalist apprenticeship having had little to no formal IT education or training; however, typically such an individual will be an IT hobbyist or enthusiast and enjoy working with technology. IT generalists can move into leader and manager positions and with additional training can specialize in particular areas within information technology. Often vendor certifications are required to move into more specialized or advanced positions.

Certifications, Licensure and Other Credential Requirements

| CREDENTIAL | Offered By | Before, During or After Apprenticeship |
|--|--|--|
| Multiple vendor certifications available | Microsoft, Cisco, CompTIA, software/hardware vendors | During or after |

Job Functions

| JOB FUNCTIONS | | Core or Optional | Level |
|---------------|---|------------------|--------------|
| 1. | Sets up and removes employee or client workstations or devices, including setting up access controls | | Basic |
| 2. | Installs, provides user support for, or troubleshoots hardware and commercial software | | Basic |
| 3. | Supports internal or external clients in the use of audio/visual technology and conference technology | Optional | |
| 4. | Installs, maintains and troubleshoots networks | | Basic |
| 5. | Makes minor software modifications to improve performance or customize to user needs | | Intermediate |
| 6. | Assists in maintaining or updating web content and manages user access profiles and authorities | Optional | |
| 7. | Monitors and helps maintain network security by adhering to security policies | | |

Stackable Programs

This occupational framework is designed to link to the following additional framework(s) as part of a career ladder pathway.

| Stackable Programs | | Base or Higher Level | Stacks on top of |
|--------------------|--|----------------------|------------------|
| 1. | Links to Cyber Security Support Technician | Higher Level | IT Generalist |

Options and Specializations

The following options and specializations have been identified for this occupation. The Work Process Schedule and individual job function outlines indicate which job functions and competencies were deemed by industry advisors to be optional. Work Process Schedules for Specializations are included at the end of this document.

| Options and Specializations | Option | Specialization |
|-----------------------------|--------|----------------|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Levels

Industry advisors have indicated that individuals in this occupation may function at different levels, based on the nature of their work, the amount of time spent in an apprenticeship, the level of skills or

knowledge mastery, the degree of independence in performing the job or supervisory/management responsibilities.

| Level | Distinguishing Features | Added Competencies | Added Time Requirements |
|-------|-------------------------|--------------------|-------------------------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Work Process Schedule

| WORK PROCESS SCHEDULE | | ONET Code: 15-1151.00 | |
|--|------------------|--------------------------|-------|
| IT Generalist | | RAPIDS Code: 1059 | |
| JOB TITLE: | | | |
| LEVEL: | | SPECIALIZATION: | |
| STACKABLE PROGRAM <input type="checkbox"/> yes <input type="checkbox"/> no | | | |
| BASE OCCUPATION NAME: Base credential for IT pathway | | | |
| Company Contact: Name | | | |
| Address: | | Phone | Email |
| Apprenticeship Type: <input type="checkbox"/> Competency-Based <input type="checkbox"/> Time-Based <input type="checkbox"/> Hybrid | | Prerequisites | |
| JOB FUNCTION 1: Sets up and removes employee or client workstations or devices, including setting up access controls | | Core or Optional Core | Level |
| Competencies | Core or Optional | RTI | OJT |
| A. Sets up desktop, laptop and other devices for employees | | | |
| B. Installs software on network or individual users' computers, laptops or devices and sets appropriate access controls or authorities | | | |
| C. Sets up user identifications and passwords and implements policies regarding passwords and user/administrator permissions | | | |
| D. Establishes secure external connections to network or desktops using secure remote access technology | | | |

| | | | |
|--|--|--|--|
| E. Installs printers on networks or individual devices | | | |
| F. Sets up network map, employee folders and centralized data repositories | | | |
| G. Sets up email account for users and establishes storage limits and backup parameters | | | |
| H. Maintains and manages software licenses | | | |
| I. Removes users from network, archives data and files, removes workstations and disables devices for users exiting the organization or prohibited from using IT resources | | | |

| JOB FUNCTION 2: Installs, provides user support for, or troubleshoots hardware and commercial software | Core or Optional Core | Level | |
|--|----------------------------------|--------------|------------|
| Competencies | Core or Optional | OJT | RTI |
| A. Uses FAQ's or other job aids to troubleshoot hardware or software faults | Core | | |
| B. Uses logic to discover source of faults and recommends appropriate solutions | Core | | |
| C. Demonstrates ability to use basic software, including set-up of preferred default settings, instructs other users on the basic features of standard software packages, and identifies and remedies typical faults in relevant software packages | Core | | |
| D. Identifies situations in which the fault must be escalated to a higher-level technology support individual, including an outside vendor | Core | | |
| E. Contacts outside vendors or vendor-supported help desk to solve difficult problems or procure software patches | Core | | |
| F. Prioritizes "tickets" or requests for help based on business need, staff hierarchy or urgency of problems | Core | | |

| JOB FUNCTION 3: Supports internal or external clients in the use of audio/visual technology and conference technology | Core or Optional | | Level |
|---|-------------------------|-----|--------------|
| | Optional | | |
| Competencies | Core or Optional | OJT | RTI |
| A. Sets up and links audiovisual equipment, including projectors, screens, laptops, cameras and related device | | | |
| B. Installs, launches, operates and troubleshoots software designed to facilitate presentations, web-based conferencing and audioconferencing | | | |
| C. Tests equipment and software prior to use to ensure sound and video quality is acceptable | | | |
| D. Sets up, schedules and manages web-based or video conferences | | | |
| E. Provides support to users during meetings, conferences or webinars | | | |
| F. Sets up user accounts on voice technologies or systems, including voicemail | | | |

| JOB FUNCTION 4: Installs, maintains and troubleshoots networks | Core or Optional | | Level |
|--|-------------------------|-----|--------------|
| | Core | | |
| Competencies | Core | OJT | RTI |
| A. Installs and maintains wired and wireless networks | | | |
| B. Connects devices to networks physically and using remote access technologies | | | |
| C. Installs network security software and devices and monitors system for signs of hacking, intrusion or viruses | | | |
| D. Tests resiliency of security devices or software and monitors bandwidth utilization | | | |
| E. Establishes and sets access levels and permissions based on employees' job roles and company policies | | | |

| | | | |
|--|--|--|--|
| F. Assists in setting up, configuring and managing servers including data storage | | | |
| G. Sets up user identification parameters on servers | | | |
| H. Assists in monitoring server use, efficacy of data back-up and storage systems and integrity of redundant systems or technologies | | | |

| JOB FUNCTION 5: Makes minor software modifications to improve performance or customize to user needs | Core or Optional Optional | | Level |
|---|--------------------------------------|------------|--------------|
| Competencies | Core | OJT | RTI |
| A. Surveys user needs to understand what modifications are needed | | | |
| B. Modifies a program within a software package, including securing permission from vendors to do so | | | |
| C. Inserts or loads organizational templates or standards into software, such as presentation templates in PowerPoint or equivalent software | | | |
| D. Monitors computer performance and recommends/makes upgrades or modifications as necessary to improve speed or other performance parameters | | | |
| E. Uses software to set up needed business functions, such as workflows, tracking, archiving or other functions | | | |

| JOB FUNCTION 6: Assists in maintaining or updating web content and manages user access profiles and authorities | Core or Optional Optional | | Level |
|--|--------------------------------------|------------|--------------|
| Competencies | Core | OJT | RTI |
| A. Sets user/author access permissions based on organization's policies | | | |
| B. Uploads new content to organization's website or removes old content as instructed | | | |

| | | | |
|--|--|--|--|
| C. Tests functionality of links embedded in the website | | | |
| D. Notifies appropriate person if incorrect, outdated or otherwise problematic content is identified | | | |
| E. Notifies appropriate person if website is not functioning properly | | | |

| JOB FUNCTION 7: Monitors and helps maintain network security by adhering to security policies | Core or Optional Core | | Level |
|--|----------------------------------|------------|--------------|
| Competencies | Core | OJT | RTI |
| A. Monitors adherence to password policies, including enforcement of password update intervals | | | |
| B. Sets user access levels and permissions based on organizational policies | | | |
| C. Monitors antiviral software to understand potential threats and updates as needed | | | |
| D. Reads, attends conferences or interacts with other IT professionals to know and understand current threat levels and mechanisms | | | |
| E. Ensures that encryption technology and access controls are utilized to protect sensitive data | | | |
| F. Ensures that off-site staff are using secure connections to access network | | | |
| G. Assists in or monitors use of back-up technologies and network redundancies to minimize risk | | | |

Specialization

Type of Specialization: _____

| | | |
|------------------------|-----|--------------|
| JOB FUNCTION 1: | | Level |
| Competencies | RTI | OJT |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| JOB FUNCTION 2: | | Level |
| Competencies | OJT | RTI |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| JOB FUNCTION 3: | | Level |
| Competencies | OJT | RTI |
| | | |
| | | |

| | | |
|-----------------|-----|-------|
| | | |
| | | |
| | | |
| JOB FUNCTION 4: | | Level |
| Competencies | OJT | RTI |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| JOB FUNCTION 5: | | Level |
| Competencies | OJT | RTI |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Related Technical Instruction Plan

| | |
|---------------------|---------------|
| COURSE NAME | Course Number |
| | Hours |
| LEARNING OBJECTIVES | |
| | |
| COURSE NAME | Course Number |
| | Hours |
| LEARNING OBJECTIVES | |
| | |
| COURSE NAME | Course Number |
| | Hours |
| LEARNING OBJECTIVES | |
| | |
| COURSE NAME | Course Number |
| | Hours |
| LEARNING OBJECTIVES | |
| | |

| | |
|----------------------------|---------------|
| LEARNING OBJECTIVES | |
| | |
| COURSE NAME | Course Number |
| | Hours |
| LEARNING OBJECTIVES | |
| | |

Cross-Cutting Competencies

| COMPETENCY** | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|------------------------|-----------------------------------|---|---|---|---|---|---|---|---|---|
| Personal Effectiveness | Interpersonal Skills | | | | | | | | | |
| | Integrity | | | | | | | | | |
| | Professionalism | | | | | | | | | |
| | Initiative | | | | | | | | | |
| | Dependability and Reliability | | | | | | | | | |
| | Adaptability and Flexibility | | | | | | | | | |
| | Lifelong Learning | | | | | | | | | |
| Academic | Reading | | | | | | | | | |
| | Writing | | | | | | | | | |
| | Mathematics | | | | | | | | | |
| | Science & Technology | | | | | | | | | |
| | Communication | | | | | | | | | |
| | Critical and Analytical Thinking | | | | | | | | | |
| | Basic Computer Skills | | | | | | | | | |
| Workplace | Teamwork | | | | | | | | | |
| | Customer Focus | | | | | | | | | |
| | Planning and Organization | | | | | | | | | |
| | Creative Thinking | | | | | | | | | |
| | Problem Solving & Decision Making | | | | | | | | | |
| | Working with Tools & Technology | | | | | | | | | |
| | Checking, Examining & Recording | | | | | | | | | |
| | Business Fundamentals | | | | | | | | | |
| | Sustainable | | | | | | | | | |
| | Health & Safety | | | | | | | | | |

****Cross-cutting competencies are defined in the Competency Model Clearinghouse:**

<https://www.careeronestop.org/CompetencyModel/competency-models/building-blocks-model.aspx>

Cross-Cutting Competencies identify transferable skills – sometimes called “soft skills” or “employability skills” – that are important for workplace success, regardless of a person’s occupation. Still, the relative importance of specific cross-cutting competencies differs from occupation to occupation. The Cross-Cutting Competencies table, above, provides information about which of these competencies is most important to be successful in a particular occupation. This information can be useful to employers or intermediaries in screening and selecting candidates for apprenticeship programs, or to pre-apprenticeship providers that seek to prepare individuals for successful entry into an apprenticeship program.

The names of the cross-cutting competencies come from the U.S. Department of Labor’s Competency Model Clearinghouse and definitions for each can be viewed at:

<https://www.careeronestop.org/CompetencyModel/competency-models/building-blocks-model.aspx>

The scoring system utilized to evaluate the level of competency required in each cross cutting skill aligns with the recommendations of the Lumina Foundation’s Connecting Credentials Framework. The framework can be found at: <http://connectingcredentials.org/wp-content/uploads/2015/05/ConnectingCredentials-4-29-30.pdf>

Detailed Job Functions

Note: We have not yet identified the performance criteria that supports the competencies in the IT generalist framework since information technology applications and requirements can vary widely from one organization to the next.

JOB FUNCTION 1: Sets up and removes employee or client workstations or devices, including setting up access controls

Related Technical Instruction

Working via phone, online chat or in person to set up technology at employee work stations, for remote employees, and on employee devices.

| KNOWLEDGE | SKILLS | TOOLS & TECHNOLOGIES |
|---|---|--|
| <ul style="list-style-type: none"> Basic components of computers, computer networks, and ancillary technologies Basic understanding of key software packages, such as email, word processing, database and workflow packages Intellectual property rights, copyright, licensing, and piracy laws and regulations Techniques for transporting (in person or by mail) computer hardware and software Basic installation procedures | <ul style="list-style-type: none"> Use of email, chat rooms, and phone Able to communicate technical information to technical experts as well as non-technical users Use of internet Set up user email account, calendar and contacts Agility and flexibility (if setting up physical workstations or equipment) | <ul style="list-style-type: none"> Microsoft Exchange Microsoft Office Suite Adobe products Desktop and laptop computers Printers, scanners, projection screens, monitors Handheld devices including smart phones, tablets, etc. |

| | Core or Optional | Level |
|---|------------------|-------|
| Competency A: Sets up desktop, laptop and other devices for employees | | |
| Competency B: Installs software on network or individual users' computers, laptops or devices and sets appropriate access controls or authorities | | |

| | | |
|---|--|--|
| Competency C: Sets up user identifications and passwords and implements policies regarding passwords and user/administrator permissions | | |
| Competency D: Establishes secure external connections to network or desktops using secure remote access technology | | |
| Competency E: Installs printers on networks or individual devices | | |
| Competency F: Sets up network map, employee folders and centralized data repositories | | |
| Competency G: Sets up email account for users and establishes storage limits and backup parameters | | |
| Competency H: Maintains and manages software licenses | | |
| Competency I: Removes users from network, archives data and files, removes workstations and disables devices for users exiting the organization or prohibited from using IT resources | | |

JOB FUNCTION 2: Installs, provides user support for, or troubleshoots hardware and commercial software

| Related Technical Instruction | | |
|--|---|--|
| IT generalists are expected to know the basic features of standard software packages, such as those used by the company or organization for email, word processing, working with data, creating presentations and supporting business uses (such as statistical software packages or software packages that operate machines). | | |
| KNOWLEDGE | SKILLS | TOOLS & TECHNOLOGIES |
| <ul style="list-style-type: none"> • Basic features and functions of standard software packages • Reference materials for use in troubleshooting software, such as FAQs or technical guides • Specifications, default and optional settings, customization menus for standard software packages | <ul style="list-style-type: none"> • Use logic to problem solve and draw connections between related pieces of information • Good listening skills • Good communication skills, including with senior executives and non-technical experts | <ul style="list-style-type: none"> • Software to support network functions • Software to support email and chat communications • Software to support basic office functions, such as word processing, data management, presentations, maintaining calendars and maintaining contact lists • Cloud storage and software solutions |

| | Core or Optional | Level |
|---|------------------|-------|
| Competency A: Uses FAQ's or other job aids to troubleshoot hardware or software faults | | |
| Competency B: Uses logic to discover source of faults and recommends appropriate solutions | | |
| Competency C: Demonstrates ability to use basic software, including set-up of preferred default settings, instructs other users on the basic features of standard software packages, and identifies and remedies typical faults in relevant software packages | | |

| | | |
|---|--|--|
| Competency D: Identifies situations in which the fault must be escalated to a higher-level technology support individual, including an outside vendor | | |
| Competency E: Contacts outside vendors or vendor-supported help desk to solve difficult problems or procure software patches | | |
| Competency F: Prioritizes "tickets" or requests for help based on business need, staff hierarchy or urgency of problems | | |

JOB FUNCTION 3: Supports internal or external clients in the use of audio/visual technology and conference technology (Optional)

| Related Technical Instruction | | |
|---|---|--|
| In some organizations, the IT staff are required to assist in setting up and running audiovisual equipment, including projectors, screens, television panels and online conferencing technologies. This work involves physical set up, such as running cables or attaching equipment to a computer or other device, and can also involve virtual technologies. | | |
| KNOWLEDGE | SKILLS | TOOLS & TECHNOLOGIES |
| <ul style="list-style-type: none"> • Use of technology ports and cables to connect computers or other devices to projection screens • Setting up screens to receive and display desired presentations or images • Setting up technology to access internet or run audio/video clips • Use of presentation and conferencing software and devices • Use of voice technologies, such as phones or VOIP technologies | <ul style="list-style-type: none"> • Logic and the ability to connect pieces of equipment • Communication • Meeting deadlines • Patience and staying calm during tense situations • Customer service | <ul style="list-style-type: none"> • Presentation software • Conferencing software • Cables and connective devices • Telephone systems and VOIP technologies |

| | Core or Optional | Level |
|--|------------------|-------|
| Competency A: Sets up and links audiovisual equipment, including projectors, screens, laptops, cameras and related devices | | |
| Competency B: Installs, launches, operates and troubleshoots software designed to facilitate presentations, web-based conferencing and audioconferencing | | |

| | | |
|---|--|--|
| Competency C: Tests equipment and software prior to use to ensure sound and video quality is acceptable | | |
| Competency D: Sets up, schedules and manages web-based or video conferences | | |
| Competency E: Provides support to users during meetings, conferences or webinars | | |
| Competency F: Sets up user accounts on voice technologies or systems, including voicemail | | |

JOB FUNCTION 4: Installs, maintains and troubleshoots networks

| Related Technical Instruction | | |
|--|---|--|
| Sets up, maintains and troubleshoots networks including wired and wireless networks, monitors bandwidth utilization and challenges and ensures that data is being stored properly based on company or organizational policies. | | |
| KNOWLEDGE | SKILLS | TOOLS & TECHNOLOGIES |
| <ul style="list-style-type: none"> • Methods to back up, store, and retrieve data • Network management principles • Basic electronics • Basic structure and function of networks • Network security protocols | <ul style="list-style-type: none"> • Reading and interpreting written documents • Linking and unlinking devices on a wired or wireless network • Problem solving and logic • Applying information learned in one instance to new situations | <ul style="list-style-type: none"> • Routers • Cables • Network security software such as antiviral software, firewalls, etc. |

| | Core or Optional | Level |
|--|------------------|-------|
| Competency A: Installs and maintains wired and wireless networks | | |
| Competency B: Connects devices to networks physically and using remote access technologies | | |
| Competency C: Installs network security software and devices and monitors system for signs of hacking, intrusion or viruses | | |
| Competency D: Tests resiliency of security devices or software and monitors bandwidth utilization | | |
| Competency E: Establishes and sets access levels and permissions based on employees' job roles and company policies | | |
| Competency F: Assists in setting up, configuring and managing servers including data storage | | |

| | | |
|---|--|--|
| Competency G: Sets up user identification parameters on servers | | |
| Competency H: Assists in monitoring server use, efficacy of data back-up and storage systems and integrity of redundant systems or technologies | | |

JOB FUNCTION 5: Makes minor software modifications to improve performance or customize to user needs

| Related Technical Instruction | | |
|---|---|----------------------|
| Changing performance parameters, settings, or using software to set up specific functions or processes. In some settings could including writing simple code or making minor modifications to existing code to improve performance. Includes installing vendor-provided patches or updates. | | |
| KNOWLEDGE | SKILLS | TOOLS & TECHNOLOGIES |
| <ul style="list-style-type: none"> • Functionality and intended use of software • Implications of changing use parameters • Coding logic | <ul style="list-style-type: none"> • Writing basic code • Manipulating software parameters and settings • Listening and interpreting, including descriptions provided by non-technical staff • Use of advanced features within standard and company-specific software packages • Logic | |

| | Core or Optional | Level |
|---|------------------|-------|
| Competency A: Surveys user needs to understand what modifications are needed | | |
| Competency B: Modifies a program within a software package, including securing permission from vendor to do so | | |
| Competency C: Inserts or loads organizational templates or standards into software, such as presentation templates in PowerPoint or equivalent software | | |
| Competency D: Monitors computer performance and recommends/makes upgrades or modifications as necessary to improve speed or other performance parameters | | |

| | | |
|--|--|--|
| Competency E: Uses software to set up needed business functions, such as workflows, tracking, archiving or other functions | | |
|--|--|--|

JOB FUNCTION 6: Assists in maintaining or updating web content and manages user access profiles and authorities

| Related Technical Instruction | | |
|--|--|--|
| Includes uploading documents, text, video or audio files to website, assigning access levels to others to upload or modify content to the website and monitoring basic web analytics to understand utilization patterns. | | |
| KNOWLEDGE | SKILLS | TOOLS & TECHNOLOGIES |
| <ul style="list-style-type: none"> Ease of use criteria Organization's policy regarding review and clearance of web information Organization's policy regarding access levels | <ul style="list-style-type: none"> Basic web design Identifying and assigning permission hierarchy Checking links to ensure functionality | <ul style="list-style-type: none"> Web development software, e.g. HTML, Java, Wordpress |

| | Core or Optional | Level |
|---|------------------|-------|
| Competency A: Sets user/author access permissions based on organization's policies | | |
| Competency B: Uploads new content to organization's website or removes old content as instructed | | |
| Competency C: Tests functionality of links embedded in the website | | |
| Competency D: Notifies appropriate person if incorrect, outdated or otherwise problematic content is identified | | |
| Competency E: Notifies appropriate person if website is not functioning properly | | |

JOB FUNCTION 7: Monitors and helps maintain network security by adhering to security policies

| Related Technical Instruction | | |
|--|---|---|
| KNOWLEDGE | SKILLS | TOOLS & TECHNOLOGIES |
| <ul style="list-style-type: none"> • Current IT threats and recent security breaches (at your organization and others) • Current threat migration technologies and strategies • Use of access limits to minimize security risks • Privacy laws and limitations on the use and required protections of sensitive data | <ul style="list-style-type: none"> • Able to identify examples of security threats • Recommend “safe” passwords and password update protocols | <ul style="list-style-type: none"> • Antiviral software • Firewall technology |

| | Core or Optional | Level |
|---|------------------|-------|
| Competency A: Monitors adherence to password policies, including enforcement of password update intervals | | |
| Competency B: Sets user access levels and permissions based on organizational policies | | |
| Competency C: Monitors antiviral software to understand potential threats and updates as needed | | |
| Competency D: Reads, attends conferences or interacts with other IT professionals to know and understand current threat levels and mechanisms | | |
| Competency E: Ensures that encryption technology and access controls are utilized to protect sensitive data | | |
| Competency F: Ensures that off-site staff are using secure connections to access network | | |

| | | |
|--|--|--|
| Competency G: Assists in or monitors use of back-up technologies and network redundancies to minimize risk | | |
|--|--|--|



2100 M Street NW
Washington, DC 20037

www.urban.org