

U.S. Department of Labor Employment and Training Administration Office of Apprenticeship Training, Employer and Labor Services (OATELS) Washington, D.C. 20210	<u>Distribution:</u>  A-541 Headquarters A-546 All Field Tech A-547 SD+RD+SAC+; Lab.Com	<u>Subject:</u> New Apprenticeable Occupation – IT Generalist  <u>Code:</u> 200
Symbols: DSNIP/WC		<u>Action:</u> Immediate

**PURPOSE:** To inform the Office of Apprenticeship Training, Employer and Labor Services (OATELS), Bureau of Apprenticeship and Training (BAT) Staff of a new apprenticeable occupation:

Information Technology Generalist (IT)  
RAIS Code: 1059  
O\*NET Code: 15-1099.99  
Training Term: 2880 hours  
Type of Training: Time - based

**BACKGROUND:** Washington State Director Anne Wetmore, on behalf of the Naval Undersea Warfare Center, Division Keyport, WA, initiated this apprenticeability request for this occupation.

The “Information Technology Generalist” is the beginning apprenticeship for the purpose of developing entry level Information Technology (IT) workers across a range of core Information Technology (IT) areas of concentration. The objectives of the generalist program are: 1) to provide employers with a vehicle to obtain high value from entry level workers and 2) to ensure that entry level Information Technology (IT) workers can obtain employment.

Information Technology (IT) workers receiving the Information Technology Generalist credential will:

- Possess adequate depth of IT knowledge and skills required to solve problems and to successfully perform work in specific entry level (i.e. Level I) IT job roles,
- Possess adequate breadth of general IT knowledge and skills required to understand problems and escalate issues to the appropriate specialists, and
- Be ready to advance into specialization areas (concentrations) in IT, based upon the particular needs of the IT employer and the career aspirations of the worker.

The specific requirements for completing the Information Technology Generalist concentration are:

- 1) 2880 hrs of on-the-job learning through an approved employer sponsor,
- 2) 355 hrs of ILT in IT technical training as defined in the standards,
- 3) 288 hrs of ILT in interpersonal and business skills as defined in the standards,
- 4) A+ certification; and,
- 5) Sign-off from a coach on 72 specific skills/competencies on the IT Generalist Qualification cards which are accessible on the National Information Technology Apprenticeship system web-enabled system.

**ACTION:** All OATELS staff should review and retain a copy of this bulletin, including all attachments, as a source for developing apprenticeship standards and/or providing technical assistance.

Attachments

**TRADE SCHEDULE**  
**Information Technology GENERALIST**  
RAIS Code: 1059 O\*NET Code: 15-1099.99

Term of Apprenticeship: 2880 hours on-the-job training and 643 hours of classroom training

This trade schedule supplement, work process, is attached to and a part of the Apprenticeship Standards for the above identified occupation. During the term of apprenticeship, the Apprentice shall receive such instruction and experience, in all branches of the occupation, as is necessary to develop a practical and versatile worker. Major processes in which Apprentices will be trained (although not necessarily in the order listed) and approximate hours (not necessarily continuous to be spent in each area as follows: Definitions: The list here identifies **OJL**=on-the-job learning which is the same meaning as on-the-job training. **ILT**=Instruction lead training which is the same meaning as classroom instruction training. The Work Processes are divided into 12 categories with the headings as listed at the top of each section (example: **GPO**=General Practices, Foundational and **GP1**=General Practices, Resource Management, etc.)

Information Technology Generalist Work Processes and Classroom Training Generalist Practices (GP) - Foundational (GP0)			Hours		Job Related Competencies
			OJL (Work)	ILT (classes)	
<b>GP 0.1</b>	<b>Know:</b>	Organization's structure, <b>rules, responsibilities, work ethics</b> and related policies. Organization's <b>safety policies</b> .			Ability to effectively follow the organization's rules, responsibilities as well as basic workplace ethics and policies. Ability to explain basic principles of work ethics, interpersonal communication and the organization's basic structure and functions to other employees. Ability to work safely and follow established safety procedures.
	<b>Do:</b>	Demonstrate a working understanding of the organization's structure, personnel rules, responsibilities and general understanding of work ethics, interpersonal communications and related policies. Understands and practices safety procedures and rules.	20		
	<b>ILT:</b>	New employee orientation session and safety training		6	
	<b>Exit:</b>	Review validates an understanding of the organization's structure, personnel rules, responsibilities and general understanding of work ethics, interpersonal communications and related policies. Understands and practices safety procedures and rules.			
<b>GP 0.2</b>	<b>Know:</b>	The organizations goals, mission and vision as well as the concepts of "best practices", benchmarking and mechanisms for sharing innovative ideas.			Ability to integrate

	<b>Do:</b>	Demonstrate a working understanding of the organization's goals, mission and vision and how "best practices" and benchmarking can be used by the organization.	16		organizational mission/goals & vision into work practices and use benchmarking and "best practices" to improve performance.
	<b>ILT:</b>	Seven habits of highly effective people		40	
	<b>Exit:</b>	Review validates an understanding of the organization's goals, mission and vision and how "best practices" and benchmarking can be used by the organization.			
<b>GP 0.3</b>	<b>Know:</b>	Employee <b>benefits, recognition, awards and employee development</b> programs.			Ability to engage and utilize employee benefit and development programs.
	<b>Do:</b>	Identify the organization's benefit, recognition and awards program and how they apply to employees. Learn the organization's employee development programs and how they are applied. Participate in selected programs as appropriate.	8		
	<b>ILT:</b>	New employee orientation session			
	<b>Exit:</b>	Review validates an understanding of applicable programs. Active participation in applicable programs elected by apprentice.			
<b>GP 0.4</b>	<b>Know:</b>	Basic use of organization's <b>office SW tools</b> such as Word and Excel and office HW such as copiers, fax machines etc.			Ability to use common office tools to produce documents, spreadsheets and presentations.
	<b>Do:</b>	Demonstrate the ability to use common office tools to produce documents, spreadsheets and presentations. Produce one or more work products using the organization's common office tools such as MS Power Point, Excel and Word. Basic proficiency is demonstrated.	24		
	<b>ILT:</b>	Office Software Training		24	
	<b>Exit:</b>	Produce one or more work products using the organization's common office tools such as MS Power Point, Excel and Word. Basic proficiency is demonstrated.			
<b>GP 0.5</b>	<b>Know:</b>	Organization's system of <b>process and procedure</b> development, improvement and control.			Ability to develop or update work processes or procedures in accordance with organization's standards.
	<b>Do:</b>	Explain the organization's process for development, improvement and control of work processes. Select, review and update a simple process used by the organization or develop a new simple process or procedure.	16		
	<b>ILT:</b>				
	<b>Exit:</b>	A less complex process or procedure is developed or modified and approved for implementation.			
<b>GP 0.6</b>	<b>Know:</b>	How to prepare and deliver effective <b>oral presentations.</b>			Ability to prepare and deliver oral presentations that effectively convey information, concepts and
	<b>Do:</b>	Prepare and present three formal oral presentations to an audience. (Note: Presentations required by other Qualification Cards can help to fulfill this requirement). The presentations should effectively convey information, concepts and ideas.	30		

	<b>ILT:</b>	Communications		40	ideas.
	<b>Exit:</b>	Three formal oral presentations are prepared and effectively delivered to an appropriate audience.			
<b>GP 0.7</b>	<b>Know:</b>	Basic principles of technical writing and how to prepare <b>formal technical reports</b> .			Ability to prepare and complete, accurate and convincing formal report on a technical subject using standard formats and office tools.
	<b>Do:</b>	Produce a formal technical report on an IT related subject that is complete, accurate and convincing. Use standard company formats and workplace office tools. (Note: A formal report required by another Qualification Card can be used to meet this requirement)	20		
	<b>ILT:</b>	Principles of technical writing		40	
	<b>Exit:</b>	Completion and acceptance of a formal technical report that is complete, accurate and effective and is produced using standard formats and office tools.			
<b>Generalist Practices (GP) - Resource Management (GP1)</b>			<b>OJL</b>	<b>ILT</b>	<b>Job Related Competencies</b>
<b>GP 1.1</b>	<b>Know:</b>	Processes and concepts of the organization's <b>budgeting and planning</b> practices.			Ability to assist with development of organizational plans and budgets.
	<b>Do:</b>	Assist in the organizational planning and budgeting efforts. Demonstrate an understanding of the organizational planning, budgeting, and approval processes and how funding flows within the organization.	16		
	<b>ILT:</b>	Business Management		30	
	<b>Exit:</b>	A review validates an understanding for the organizational planning, budgeting, approval processes and how funding flows within the organization.			
<b>GP 1.2</b>	<b>Know:</b>	Concepts and techniques for conducting, documenting and presenting a <b>Business Case Analysis (BCA)</b> .			Ability to conduct and document a convincing Business Case Analysis for less complex business areas.
	<b>Do:</b>	Participate in assessing an "As-Is" environment and then exploring alternatives for a "To-Be" environment that improves effectiveness or efficiency of the "As-Is" environment. Document the assessment and analysis efforts and present results to management along with appropriate recommendations for change.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Assessment, analysis, results and appropriate recommendations are presented and convincing.			
<b>GP 1.3</b>	<b>Know:</b>	Concepts and practices for IT <b>asset management</b> including acquisition, inventory, management and disposal.			Ability to develop IT procurement specifications, process requisitions, and prepare IT assets for
	<b>Do:</b>	Participate in requesting an IT asset from existing inventories, and development of specifications and requisitioning of new IT assets. Participate in the organization's IT inventory efforts and in preparing and disposing of IT assets.	24		

	<b>ILT:</b>				disposal.
	<b>Exit:</b>	Show successfully processed IT asset requests, procurement requests and completed IT asset disposal process documents.			
<b>GP 1.4</b>	<b>Know:</b>	Concepts and practices for <b>evaluating existing, emerging or new technologies</b> and assessing business opportunities.			Ability to conduct research, evaluations and assessments, including documenting and presenting the benefits of using existing, emerging or new technologies to improve a business function.
	<b>Do:</b>	Participate in the research, evaluation and assessment of an existing, emerging or new technology for use in a business function. Document and present results of the study (including research, evaluation, and business benefits for use of a new technology) with recommendations for adoption.	32		
	<b>ILT:</b>				
	<b>Exit:</b>	A successfully documented and presented study including research, evaluation, and business benefits, for use of a new technology.			
<b>Generalist Practices (GP) - Operations Management (GP2)</b>			<b>OJL</b>	<b>ILT</b>	<b>Job Related Competencies</b>
<b>GP 2.1</b>	<b>Know:</b>	<b>Standard operating procedures</b> and practices for the organization.			Ability to define and discuss the organization's standard operational procedures.
	<b>Do:</b>	Define and discuss the organization's standard operational procedures. Develop a written outline of the organization's standard operating procedures.	24		
	<b>ILT:</b>				
	<b>Exit:</b>	A written outline for organization's standard operational procedures that is accurate and complete.			
<b>GP 2.2</b>	<b>Know:</b>	Operations <b>performance measurement</b> concepts and practices.			Ability to select, develop and maintain effective operational performance metrics.
	<b>Do:</b>	Describe how the organization measures operational performance. Successfully develop an operational performance metric for an area of the organization's operation.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully develop an operational performance metric.			
<b>GP 2.3</b>	<b>Know:</b>	Organization's practices and procedures for communicating <b>operational status</b> of IT infrastructure systems and services.			Ability to document and publish operational status communications.
	<b>Do:</b>	Accurately describe the organization's procedures for documenting and communicating operational status of IT infrastructure systems and services. Successfully implement a number of operational status communications.	8		
	<b>ILT:</b>				

	<b>Exit:</b>	Successfully implement a number of operational status communications.			
<b>GP 2.4</b>	<b>Know:</b>	The value of <b>customer communications</b> methods and practices.			Ability to communicate effectively with customers and to develop effective customer communications techniques.
	<b>Do:</b>	Describe how the IT organization how the organization communicates with its customers. Practice these concepts in communicating with customers. Create a short paper or presentation on effective customer communications or on a new technique for improving communications	24		
	<b>ILT:</b>				
	<b>Exit:</b>	Short paper or presentation on effective customer communications or on a new technique for improving communications.			
<b>GP 2.5</b>	<b>Know:</b>	Understand general <b>team building</b> concepts, the value of teamwork and general principles of high-performance teams.			Ability to participate as an effective member of a team.
	<b>Do:</b>	Successfully practice teamwork principles. Participate as a member of 2 or more teams conducting different efforts.	30		
	<b>ILT:</b>	Principles of Team building		4	
	<b>Exit:</b>	Effective participation as member of 2 or more teams.			
<b>Generalist Practices (GP) - Project Management (GP3)</b>			<b>OJL</b>	<b>ILT</b>	<b>Job Related Competencies</b>
<b>GP 3.1</b>	<b>Know:</b>	Nationally recognized basic <b>project management concepts</b> and the basic project management practices used by the organization.			Ability to explain, discuss and communicate the fundamental concepts of project management.
	<b>Do:</b>	Accurately describe the nine areas of PMBOK. Identify how these concepts are applied by the organization. Develop a short paper or presentation describing how basic project management concepts are applied in the organization.	8		
	<b>ILT:</b>	Project Management Concepts (PMI or equivalent)		24	
	<b>Exit:</b>	A short paper or presentation on how basic project management concepts are applied in the organization.			
<b>GP 3.2</b>	<b>Know:</b>	Basics of <b>Project Management</b> - requirements gathering, analysis and project time and activity plans.			Ability to gather requirements and develop a plan for a simple project.
	<b>Do:</b>	Develop a project plan as a member of a project team or independently for a simple project. The plan should accurately identify work activities, a schedule and responsibility assignments for achieving a project objective.	16		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully develop a project including a time and activity plan for achieving the project objective.			
<b>GP</b>	<b>Know:</b>	Basics of tracking and <b>reporting project status</b> .			Ability to

3.3	<b>Do:</b>	Participate in tracking the conduct of a project as a member of a project team or independently manage a simple project. Assist in or independently track and report project status accurately.	16		manage, track and report the status of a simple project.
	<b>ILT:</b>				
	<b>Exit:</b>	Project status is accurately tracked and reported.			
GP 3.4	<b>Know:</b>	Basics of project outcome analysis and <b>lessons learned</b> .			Ability to analyze the outcome of a simple project and develop lessons learned.
	<b>Do:</b>	Analyze the outcome of a project as a member of a project team or independently for a simple project. Present the outcomes of the project with supporting analysis and lessons learned.	16		
	<b>ILT:</b>				
	<b>Exit:</b>	The outcomes of a project are formally presented along with supporting analysis and lessons learned.			
<b>Generalist Practices (GP) - Helpdesk (GP4)</b>					<b>Job Related Competencies</b>
			<b>OJL</b>	<b>ILT</b>	
GP 4.1	<b>Know:</b>	Organization's practices and procedures for <b>customer helpdesk calls</b> .			Ability to staff the organizations helpdesk for fielding and responding to customer assistance calls.
	<b>Do:</b>	Review, learn and successfully practice organization's helpdesk procedures and practices. Participate in responding to customer helpdesk calls effectively using the organization's practices and procedures. Staff the organization's help desk on multiple occasions.	80		
	<b>ILT:</b>	Tech Support / Helpdesk Functions		40	
	<b>Exit:</b>	Staff the organization's helpdesk on multiple occasions.			
GP 4.2	<b>Know:</b>	Organization's practices and procedures for <b>monitoring operation and performance</b> of IT infrastructure services.			Ability to monitor organization's IT service quality and recognize and respond to service quality abnormalities.
	<b>Do:</b>	Successfully practice the organization's procedures for monitoring service quality including recognizing and responding to service abnormalities. Develop a short paper or presentation describing what the organization monitors, the indicators of expected service quality, potential performance abnormalities, and how to respond to abnormalities should they occur.	16		
	<b>ILT:</b>				
	<b>Exit:</b>	Short paper or presentation describing what the organization monitors, the indicators of expected service quality, potential performance abnormalities and how to respond to abnormalities if they do occur.			
GP 4.3	<b>Know:</b>	Organization's practices and procedures for providing <b>remote customer assistance</b> .			Ability to provide

	<b>Do:</b>	Successfully practice the organization's procedures for providing remote customer assistance such as walking a customer through an operation, showing a customer how to configure a setting, helping a customer to install software, etc. Successfully provide remote customer support including how to obtain customer approval and to deliver several aspects of remote assistance from a helpdesk, service center, or personal workstation.	40		customers remote technical assistance from the helpdesk or personal workstation.
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully provide remote customer support and obtain customer approval. Deliver several aspects of remote assistance from a helpdesk, service center of personal workstation.			
<b>GP 4.4</b>	<b>Know:</b>	Organization's procedures for analyzing <b>customer assistance call trends</b> and systemic problems.			Ability to review and analyze customer assistance calls, to locate systemic trends and develop alternative remediation actions.
	<b>Do:</b>	Review, analyze and identify systemic trends in customer assistance calls, including identification of potential remediation actions. Develop a short paper or presentation on customer assistance call trends and possible remediation actions.	24		
	<b>ILT:</b>				
	<b>Exit:</b>	Develop a short paper or oral presentation on customer assistance call trends and possible remediation actions.			
<b>GP 4.5</b>	<b>Know:</b>	Organization's practices and procedures for providing <b>desk side customer assistance</b> with personal computer operations.			Ability to provide personal computer operations desk side IT support for customers.
	<b>Do:</b>	Successfully execute the organization's procedures for providing desk side IT support to customers. Make successful field calls to deliver desk side IT support for customers.	80		
	<b>ILT:</b>	PC hardware		40	
	<b>Exit:</b>	Make successful field calls to deliver desk side IT support for customers.			
<b>GP 4.6</b>	<b>Know:</b>	Organization's practices and procedures for <b>installing software upgrades</b> on users' personal computers.			Ability to install and test personal computer software upgrades.
	<b>Do:</b>	Successfully execute the organization's desk side support procedures for installing software upgrades. (Remote technical assistance - if applicable). Successfully deploy a significant software upgrade to a larger group of personal computer customers.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully deploy a significant software upgrade to a larger group of personal computer customers.			
<b>GP 4.7</b>	<b>Know:</b>	Organization's practices and procedures for desktop <b>computer hardware and software baseline configurations</b> .			Ability to install and configure basic personal

	<b>Do:</b>	Successfully execute the organization's procedures for personal computer hardware and software baseline configurations.	40		computer hardware and software configuration baselines.
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully develop and publish a personal computer hardware and software baseline configuration recommendation.			
<b>GP 4.8</b>	<b>Know:</b>	Organization's practice and procedures for implementing <b>personal computer hardware upgrades</b> .			Ability to install, configure and test personal computer hardware upgrades.
	<b>Do:</b>	Successfully execute the organization's procedures for implementing hardware upgrades such as; memory, disk drives, CD's, floppy drives, network cards, sound cards, CPU's, etc.	120		
	<b>ILT:</b>				
<b>GP 4.9</b>	<b>Exit:</b>	Successfully upgrade various hardware components for a significant number of personal computers. Obtain A+ hardware certification.			
	<b>Know:</b>	Organization's practices and procedures for developing and publishing customer <b>self-help guidance</b> and informational documents.	40		Ability to assess needs, develop and communicate customer self-help and informational guidance documents.
	<b>Do:</b>	Successfully execute the organization's procedures for developing and publishing customer self-help and informational documents.			
<b>ILT:</b>					
<b>GP 4.10</b>	<b>Exit:</b>	Successfully develop or revise a number of customer self-help or informational guidance documents.			
	<b>Know:</b>	Organization's practices and procedures for <b>back-up and recovery</b> of end user disk files.			Ability to assist end users in establishing backup and recovery of personal computer disk drives and files.
	<b>Do:</b>	Successfully execute the organization's procedures for backing-up and recovering end user disk drives and files including; manual back-ups, automated scheduled back-ups, making ghost images, etc.	24		
<b>ILT:</b>					
<b>GP 4.11</b>	<b>Exit:</b>	Successfully assist customers in using backup procedures and in recovering lost files. Develop a short paper or presentation on alternatives procedures for end-user personal computer disk and file backup and recovery.			
	<b>Know:</b>	How to configure and provide assistance to customers in using common <b>office software</b> tools.			Ability to install, configure and provide instruction on basics of using common office software tools.
	<b>Do:</b>	Successfully execute installation, configuration and customer assistance in using common office software tools such as; Word, Excel and Power Point.	40		
<b>ILT:</b>					
	<b>Exit:</b>	Provide a short training session on the basics of configuring and using the organization's office software tools.			

<b>GP 4.12</b>	<b>Know:</b>	How to configure <b>personal computer operating system</b> features.			Ability to install and configure personal computer operating system software.
	<b>Do:</b>	Successfully install and properly configure a personal computer operating system (DOS and Windows) features.	80		
	<b>ILT:</b>	Operating Systems		40	
	<b>Exit:</b>	Successfully install and configure personal computer operating system software on a number of computers. Obtain A+ Operating system certification.			
<b>GP 4.13</b>	<b>Know:</b>	Practices and procedures for installing, configuring and maintaining <b>network operating systems</b> and controllers.			Ability to install and properly configure basic network operating or control systems.
	<b>Do:</b>	Successfully install and configure network operating system components such as; Domain Name Servers (DNS), Windows Internet Network Servers (WINS), Primary and Backup Domain Controllers (PDC/BDC), etc.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully install and configure various network operating system components used by the organization.			
<b>GP 4.14</b>	<b>Know:</b>	Practices and procedures for <b>connecting end user devices</b> to the network.			Ability to install and properly configure common end user network devices.
	<b>Do:</b>	Successfully install and configure end-user network devices including servers, workstations, printers, plotters, scanners, <i>IP</i> phones, etc.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully install and configuration various end user network devices.			
<b>GP 4.15</b>	<b>Know:</b>	Practices and procedures for <b>connecting remote users</b> .			Ability to install and properly configure remote end user network connections.
	<b>Do:</b>	Successfully install and configure remote user connections such as; Remote Access Server (RAS), Virtual Private Network (VPN), Outlook Web Access (OWA), etc.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully install and configure various remote end user network connections.			
<b>GP 4.16</b>	<b>Know:</b>	Practices and procedures for <b>connecting wireless devices</b> and users.			Ability to install and properly configure wireless end user network devices and connections.
	<b>Do:</b>	Successfully install and configure wireless connections such as; Personal Digital Assistants (PDA), networked pagers, networked cell phones, RF wireless device connections, etc.	80		
	<b>ILT:</b>	Wireless / Telecommunications		30	
	<b>Exit:</b>	Successfully install and configure various wireless devices and end user network connections.			
<b>Generalist Practices (GP) - Web Services (GP5)</b>			<b>OJL</b>	<b>ILT</b>	<b>Job Related Competencies</b>

GP 5.1	<b>Know:</b>	Organization's <b>general purpose web based services</b> such as Intranet and Internet primary services.			Ability to explain, discuss and communicate general information about the organization's general purpose web services.
	<b>Do:</b>	Review and discuss the basic elements of the organization's general purpose web services including; hardware and software technologies employed, system architecture, system administrators, web masters and roles, etc. Develop a short paper or oral presentation on the organization's general purpose web services.	24		
	<b>ILT:</b>				
	<b>Exit:</b>	A short paper or oral presentation on the organization's general purpose web services.			
GP 5.2	<b>Know:</b>	Organization's practices and procedures for <b>developing and publishing web pages</b> .			Ability to develop and publish basic web pages.
	<b>Do:</b>	Review, learn and successfully practice the organization's procedures for developing, approving and publishing web pages including; using the standard web page development software, developing the standard look and feel, assuring security requirements are addressed , etc.	40		
	<b>ILT:</b>	Internet Applications		40	
	<b>Exit:</b>	Successfully develop new or revised general purpose web pages.			
GP 5.3	<b>Know:</b>	Organizations practices for assuring <b>web service survivability</b> , backups and recovers.			Ability to explain and independently install, configure and support web service survivability, availability, backup and recovery procedures.
	<b>Do:</b>	Review, learn and successfully practice the organization's procedures for assuring survivability/availability of web services. Successfully execute web services backups and recoveries. Implement, configure and test web services survivability features.	80		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully execute web services backups and recoveries. Implement, configure and test web services survivability features.			
GP 5.4	<b>Know:</b>	Organizations' practices and procedures for development of <b>web based application systems</b> .			Ability to develop smaller less complex application systems incorporating web technologies.
	<b>Do:</b>	Successfully execute the organization's procedures for incorporating web technologies into application systems. Participate in a project to develop an application system that uses web technologies.	120		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully develop a smaller less complex application system that incorporates basic web technologies.			
<b>Generalist Practices (GP) - Information Assurance (GP6)</b>			<b>OJL</b>	<b>ILT</b>	<b>Job Related Competencies</b>
<b>GP</b>	<b>Know:</b>	The "language" of security - <b>terms and acronyms</b> .			Ability to

6.1	<b>Do:</b>	Study and learn security terminology and common security acronyms.	4		understand and explain security and Information Assurance terminology.
	<b>ILT:</b>				
	<b>Exit:</b>	Ability to understand and explain security and Information Assurance terminology.			
GP 6.2	<b>Know:</b>	The roles and responsibilities of the <b>Information Assurance Organization</b> .			Ability to explain and discuss the IA organizational titles, roles and responsibilities .
	<b>Do:</b>	Correctly identify the IT organization structure, roles and responsibilities including roles such as; System Administrator, Information Assurance Manager, Information Assurance Officers, Network Security Manager, Network Security Officers, and Designated Approval Authority. Provide a complete and accurate short presentation or paper on the organization's security roles and responsibilities.	24		
	<b>ILT:</b>				
	<b>Exit:</b>	A complete and accurate short presentation or paper on the organization's security roles and responsibilities.			
GP 6.3	<b>Know:</b>	<b>Password Security Concepts</b>			Ability to configure password characteristics for a domain.
	<b>Do:</b>	Become familiar with password policy and characteristics (length, complexity, age, etc...) associated with domains.	16		
	<b>Exit:</b>	Demonstrate the ability to configure password characteristics for a domain.			
GP 6.4	<b>Know:</b>	Common information <b>security risks and threats</b> .			Ability to explain, discuss and communicate the importance of Information and Systems security including common risks, threats and vulnerabilities.
	<b>Do:</b>	Review, discuss and learn the importance of Information Systems Security. Understand the importance of protection mechanisms.	4		
	<b>ILT:</b>	Information Age Technology", "Federal Information Systems Security Awareness", "Computer Security 101", "Protect your AIS", Protect your AIS, the Sequel", "Networks at Risk", "Identity Theft: Protect Yourself" (WBT) Videos		4	
	<b>Exit:</b>	Completion of video training and a monitored discussion with organization security personnel on the importance of IT security practices.			
GP 6.5	<b>Know:</b>	Organization's <b>security policies</b> and practices.			Ability to discuss, explain and communicate organizational security policies and practices and supporting rationale.
	<b>Do:</b>	Identify the organization's security policy and practices and how they combine to implement due care and due diligence within an organization. Develop a short presentation or paper to a security audience demonstrating a working knowledge of the organization's security policies and practices.	16		
	<b>Exit:</b>	A short paper or presentation to a security audience demonstrating a working knowledge of the organization's security policies and practices.			
GP 6.6	<b>Know:</b>	Organizational <b>security ethics</b> and federal ethics statutes.			Ability to explain,

	<b>Do:</b>	Demonstrate a working knowledge of the organization's security ethics, applicable National security ethics, statutes and organizations acceptable use policy. Provide a short presentation to a group on security ethics of the organization.	8		discuss and communicate the organization's security ethics policies and fundamental federal security statutes.
	<b>ILT:</b>				
	<b>Exit:</b>	A short presentation to a group on security ethics of the organization and federal statutes.			
<b>GP 6.7</b>	<b>Know:</b>	Organization's practices and procedures for installing, configuring and maintaining <b>workstation and network firewalls</b> .			Ability to install and properly configure basic workstation and network firewalls.
	<b>Do:</b>	Successfully install, configure and maintain firewall services such as; workstation firewalls, subnet firewalls, organizational firewalls, etc. Participate in installing firewall block and exception lists. Participate in firewall log analysis and reporting of anomalies.	120		
	<b>ILT:</b>	Security Concepts		40	
	<b>Exit:</b>	Successfully conduct firewall installations, configurations and maintenance activities.			
<b>GP 6.8</b>	<b>Know:</b>	Basic <b>concepts</b> , configurations and policies related to the organization's <b>firewall</b> services.			Ability to discuss and communicate basic information about the organization's firewall.
	<b>Do:</b>	Accurately describe the organization's firewall policies, configurations and general concepts. Deliver a short paper or presentation to a security audience demonstrating a working knowledge of the organization's firewall concepts, policies and practices.	80		
	<b>ILT:</b>				
	<b>Exit:</b>	A short paper or presentation to a security audience demonstrating a working knowledge of the organization's firewall concepts, policies and practices.			
<b>GP 6.9</b>	<b>Know:</b>	Practices and procedures for monitoring network <b>Intrusion Detection Systems (IDS)</b> .			Ability to monitor network IDS; to configure IDS alerts and to perform IDS log analysis and incident reporting.
	<b>Do:</b>	Accurately describe procedures for monitoring, assessing and reporting incidents detected by the organizations IDS. Participate in the establishment of IDS alerts, IDS log analysis and incident reporting practices. Conduct IDS monitoring, analysis and reporting activities.	80		
	<b>ILT:</b>				
	<b>Exit:</b>	Conduct IDS monitoring, analysis and reporting activities.			
<b>GP 6.10</b>	<b>Know:</b>	Practices and procedures for <b>network services back-up and recovery</b> .			Ability to perform network services back-ups and recoveries.
	<b>Do:</b>	Execute successful network services back-ups and recoveries. Validate that back-ups work properly in a lab environment.	24		
	<b>ILT:</b>				

	<b>Exit:</b>	Execute successful network services back-ups and recoveries.			
<b>GP 6.11</b>	<b>Know:</b>	Practices and procedures for obtaining and installing <b>Public Key Infrastructure (PKI)</b> user certificates.			Ability to obtain and assist in installing and configuring PKI software certificates on a workstation or server.
	<b>Do:</b>	Successfully execute activities related to obtaining, installing and testing PKI certificates for end-user workstations and servers.	16		
	<b>ILT:</b>				
	<b>Exit:</b>	Execute activities for user account management and management of access privileges such as PKI.			
<b>GP 6.12</b>	<b>Know:</b>	Basics of the organizational <b>anti-virus</b> practices and tools.			Ability to support and maintain organizational anti-virus services.
	<b>Do:</b>	Successfully install, configure and maintain anti-virus software on organizational servers. Successful and complete participation in operating and maintaining organizational virus perimeter systems and workstation anti-virus definition servers.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Successful installation, configuration and maintenance of organization's anti-virus services.			
<b>GP 6.13</b>	<b>Know:</b>	Practices and procedures for user <b>account management</b> and access privileges.			Ability to establish, update and disestablish user accounts and access privileges.
	<b>Do:</b>	Successfully demonstrate the ability to maintain user accounts and access privileges. Participate in establishing, updating and disestablishing user accounts and access privileges (infrastructure access pass-words, account rights, system level pass-words, strong pass-words, etc.)	24		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully demonstrate the ability to maintain user accounts and access privileges.			
<b>Generalist Practices (GP) - Networks &amp; Infrastructure (GP7)</b>					<b>Job Related Competencies</b>
			<b>OJL</b>	<b>ILT</b>	
<b>GP 7.1</b>	<b>Know:</b>	Basic understanding for <b>organization's network architectures</b> and technologies.			Ability to explain basic organization's network architectures and supporting technologies.
	<b>Do:</b>	Participate in document reviews and discussions on organizational network architecture and supporting technologies. Develop a short paper or presentation that accurately explains the organizational network architecture and supporting technology.	16		
	<b>ILT:</b>				
	<b>Exit:</b>	A short paper or oral presentation that accurately explains the organizational network architecture and supporting technologies.			
<b>GP 7.2</b>	<b>Know:</b>	Organizational <b>safety procedures</b> and policies.			Ability to maintain a safe working environment.
	<b>Do:</b>	Successfully complete safety training for network topics such as chemicals, confined spaces, electrical hazards, falls, ladder, lifting, lockouts,	4		

		PPE, tools and fiber optics.			
	<b>ILT:</b>				
	<b>Exit:</b>	Successful and complete participation in safety training for network topics such as chemicals, confined spaces, electrical hazards, falls, ladder, lifting, lockouts, PPE, tools and fiber optics.			
<b>GP 7.3</b>	<b>Know:</b>	Basic operational concepts of <b>Internet Protocols</b> and the Internet.			Ability to explain basic operational concepts of Internet Protocols
	<b>Do:</b>	Complete training and discuss observations. Provide a demonstration of basic knowledge.	4		
	<b>ILT:</b>	"Warriors of the Net"		1	
	<b>Exit:</b>	Completion of training and a demonstration of basic knowledge.			
<b>GP 7.4</b>	<b>Know:</b>	Common concepts and practices of <b>Local Area Networks (LAN)</b> and architectures.			Ability to define requirements, common technologies and appropriate uses of LAN.
	<b>Do:</b>	Participate in classroom training, document reviews and discussions of LAN architectures. Participate in reviews of organizational network documentation of technical approaches and designs for these architectures. Deliver a short presentation or paper describing the concepts and practices related to LAN and how these architectures are employed by the organization.	40		
	<b>ILT:</b>	Network Essentials Level I (Networking)		40	
	<b>Exit:</b>	A short paper or oral presentation describing the concepts and practices related to LAN and how these architectures are employed by the organization.			
<b>GP 7.5</b>	<b>Know:</b>	Basic understanding of <b>network cabling technologies</b> such as copper and fiber optics.			Ability to install, test, dress and place cable systems into production.
	<b>Do:</b>	Participate in the design and installation of cabling technologies including; calculating cable lengths accounting for bend and termination requirements, pulling cable through conduits, terminating cables, conducting continuity checks, applying final dressings and placing the cables into production. Successfully install, terminate and test copper and fiber optic cables.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully install, terminate and test copper and fiber optic cables.			
<b>GP 7.6</b>	<b>Know:</b>	Basics of common <b>network routers and switches</b> technologies and specific technologies used by the organization.			Ability to define requirements, install and configure basic switches and routers.
	<b>Do:</b>	Participate in the installation, configuration and maintenance of the organization's switches and routers. Assist with the installation, configuration, and maintenance of various switches and routers used in the organization's network.	40		
	<b>ILT:</b>				

	<b>Exit:</b>	Assist with installation, configuration and maintenance of various switches and routers used in the organization's network.			
<b>GP 7.7</b>	<b>Know:</b>	Practices and procedures for installing, configuring and using <b>network basic monitoring and troubleshooting</b> tools.			Ability to install, configure and use basic network monitoring systems and troubleshooting tools.
	<b>Do:</b>	Participate in the installation, configuration and use of network monitoring systems and troubleshooting tools such as; Network Traffic Graphing tools, Enterprise Service Monitors, Ping-plot tools, etc. Prepare and present a short presentation on network monitoring systems and troubleshooting tools.	120		
	<b>ILT:</b>				
	<b>Exit:</b>	Prepare and present a short presentation on network monitoring and troubleshooting. Successfully install and use network monitoring systems and troubleshooting tools.			
<b>Generalist Practices (GP) - Multi-Media (GP8)</b>					<b>Job Related Competencies</b>
			<b>OJL</b>	<b>ILT</b>	
<b>GP 8.1</b>	<b>Know:</b>	Organization's multi-media <b>operational concepts</b> and supporting technologies.			Ability to explain, discuss and communicate information on the organization's multi-media capabilities.
	<b>Do:</b>	Review, discuss, practice and learn organization's multi-media implementations, supporting technologies, and functional services supported. Deliver a short paper or presentation on the organization's multi-media implementation including identification of business benefits and potential new uses of the technology.	24		
	<b>ILT:</b>				
	<b>Exit:</b>	Short paper or oral presentation on the organizations' multi-media implementation including identification of business benefits and potential new uses of the technology.			
<b>GP 8.2</b>	<b>Know:</b>	<b>Video Tele-Conferencing</b> systems and solutions used by the organization.			Ability to establish and manage point-to-point and multi-point VTC sessions and to do basic VTC troubleshooting and maintenance to the extent applicable to the organization.
	<b>Do:</b>	Review and learn about the VTC systems used by the organization. Review, learn and successfully practice how to establish and manage VTC sessions for point-to-point and point-to-multi-point sessions including troubleshooting basic problems and knowing who to contact for the more complex problems. (if applicable)	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully establish and manage VTC sessions. (If applicable)			
<b>GP 8.3</b>	<b>Know:</b>	<b>Video production</b> and broadcasting system basics and systems used by the organization. (If applicable)			Ability to discuss and communicate

	<b>Do:</b>	Successfully participate with a team in utilizing the organization's video production and broadcast capabilities. (If applicable)	20		basics of video production and to contribute to the production or broadcasting of a video segment.
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully participate with a team in utilizing the organization's video production and broadcast capabilities. (If applicable)			
<b>GP 8.4</b>	<b>Know:</b>	How to incorporate multi-media techniques into a <b>PowerPoint presentation.</b>			Ability to develop more complex Power Point presentations.
	<b>Do:</b>	Develop more advanced Power Point presentation by incorporating various multi-media technologies.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Independently develop and deliver a more advanced Power Point presentation.			
<b>Generalist Practices (GP) - Software (GP9)</b>			<b>OJL</b>	<b>ILT</b>	<b>Job Related Competencies</b>
<b>GP 9.1</b>	<b>Know:</b>	Organization's <b>software system architectures</b> and design concepts.			Ability to explain, discuss and communicate SW system architectures and supporting technologies used by the organization.
	<b>Do:</b>	Review, discuss, and learn the organization's general software system architecture approach and supporting technologies, software development lifecycle and software development policies. Create a short paper or oral presentation that describes the software system architectures and supporting technologies used by the organization.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Short paper or oral presentation that describes the software system architectures and supporting technologies used by the organization.			
<b>GP 9.2</b>	<b>Know:</b>	Functionality of the organizations primary <b>software application systems.</b>			Ability to decompose software application systems and to develop functional decomposition diagrams.
	<b>Do:</b>	Review, discuss and learn about the primary software application systems used by the organization including; identifying customers of the systems, functions performed by the system, administrators of the system, technologies used by the systems, etc. Develop an accurate and complete top-level functional decomposition diagram for one of the organization's critical software application systems.	80		
	<b>ILT:</b>				
	<b>Exit:</b>	Develop an accurate and complete top-level functional decomposition diagram for one of the organization's critical software application systems.			
<b>GP 9.3</b>	<b>Know:</b>	Basic <b>software development concepts</b> used by the organization.			Ability to deliver minor

	<b>Do:</b>	Actively participate on a software team that develops or maintains software application systems and apply basic concepts and procedures for developing or maintaining software applications. Successfully and actively participate on this software development team by generating some code, completing some supporting documentation and provide support for testing.	120		contributions such as code, documentation or quality testing to a software development effort.
	<b>ILT:</b>	Programming/Software Development		40	
	<b>Exit:</b>	Successfully and actively participate on a software development team by generating some code, completing some supporting documentation and support for testing.			
<b>GP 9.4</b>	<b>Know:</b>	How to <b>troubleshoot</b> the organization's common application systems to determine if problems are with the application, user procedures or desktop software.			Ability to perform less complex application systems troubleshooting and problem isolation.
	<b>Do:</b>	Work with journey application programmers to apply approaches for isolating problems to specific areas and arranging for the appropriate support staff to correct identified problems. Independently isolate application system problems to specific areas and arrange for the appropriate support staff to correct identified problems.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Independently isolate application system problems to specific areas and arrange for the appropriate support staff to correct identified problems.			
<b>Generalist Practices (GP) - Database (GP10)</b>					<b>Job Related Competencies</b>
			<b>OJL</b>	<b>ILT</b>	
<b>GP 10.1</b>	<b>Know:</b>	Database <b>concepts and technologies</b> used by the organization.			Ability to explain, discuss and communicate high-level information about the database tools and technologies used by the organization.
	<b>Do:</b>	Review, discuss and apply the organization's database tools and technologies including; database engines, applications, system support tools and utilities, backup and recovery procedures and roles and responsibilities of the support staff. Deliver a short paper or oral presentation on the database concepts and technologies used by the organization.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	A short paper or oral presentation on the database concepts and technologies used by the organization.			
<b>GP 10.2</b>	<b>Know:</b>	Basics concepts of <b>database design</b> (Field, cell, record) and relationships.			Ability to design simple databases that incorporate basic concepts of records,
	<b>Do:</b>	Participate with a team in the logical and physical design of a database. Independently design a simple database schema.	40		
	<b>ILT:</b>	Database concepts		40	

	<b>Exit:</b>	Complete ILT training on database concepts and design a simple database schema.			fields and cells.
<b>Generalist Practices (GP) - Information Exchange (GP11)</b>			<b>OJT</b>	<b>ILT</b>	<b>Job Related Competencies</b>
<b>GP 11.1</b>	<b>Know:</b>	Basics of the organization's network based <b>collaboration services</b> , such as portals and shared workspaces.			Ability to install, configure and maintain network collaboration services, portals and basic web pages.
	<b>Do:</b>	Participate in installing, configuring and maintaining organizational collaboration services such as those offered by Microsoft Share Point Team Services and other vendors. Successfully install, configure and maintain the organization's collaboration services.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully install, configure and maintain the organization's collaboration services.			
<b>GP 11.2</b>	<b>Know:</b>	Basics of the organization's <b>shared file services</b> , back-ups and recoveries.			Ability to support and maintain organizational file sharing services.
	<b>Do:</b>	Participate in installing, configuring and maintaining shared file services such as; file servers, storage area networks, file transfer servers, etc. Successfully install and configure the file server, and independently execute file back-up and recovery in a test lab.	40		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully install and configure the file server, and independently execute file back-up and recovery in a test lab.			
<b>GP 11.3</b>	<b>Know:</b>	Basics of the organization's <b>E-mail services</b> , directory services and public folder services.			Ability to support and maintain organizational E-mail, directory and public folder services.
	<b>Do:</b>	Participate in installing, configuring and maintaining E-mail services and establishing and maintaining end user E-mail accounts. Participate in creating and maintaining distribution lists and public folder hierarchies. Successfully install and configure an E-mail service, create user accounts, public folders, resource accounts and distribution lists.	80		
	<b>ILT:</b>				
	<b>Exit:</b>	Successfully install and configure an E-mail service, create user accounts, public folders, resource accounts and distribution lists.			
<b>GP 0</b>	<b>ILT</b>	Composition and Math		80	
<b>Totals of OJL and ILT Hours</b>			<b>2880</b>	<b>643</b>	
			OJL	ILT	

**CERTIFICATIONS:** *The apprentice must complete the A+ Certification for completion of apprenticeship, along with the above requirements.*

**RELATED INSTRUCTION SCHEDULE  
IT GENERALIST**

**Method of Delivery:** In House Training, Vocational/Technical Institution, Community College Classroom, College/University Classroom, and/or e-Learning.

**Source of Instruction:** Local education or training providers.

<b>Instructor Led Training (ILT)</b>		
<b>Corresponding Qual Area</b>	<b>Class / Course Title</b>	<b>Hours</b>
GP 0	Composition	40
GP 0	Math	40
GP 0	New employee orientation session and safety training	6
GP 1	Seven habits of highly effective people	40
GP 0	Office Tools SW training (optional)	24
GP 0	Communications	40
GP 0	Technical Writing	40
GP 1	Business Management	30
GP 2	Principles of Team building	4
GP 3	Project Management Concepts (PMI or equivalent)	24
GP 4	Operating Systems	40
GP 4	Tech Support / Helpdesk Functions	40
GP 4	PC Hardware	40
GP 5	Internet Applications	40
GP 6	Security Concepts	40
GP 6	"Information Age Technology "Federal Information Systems Security Awareness" "Computer Security 101", "Protect your AIS", Protect your AIS, the Sequel" "Networks at Risk" "Identity Theft: Protect Yourself" (WBT) Videos	4
GP 7	"Warriors of the Net" (WBT)	1
GP 7	Network Essentials Level I (Networking)	40
GP 7	Wireless / Telecommunications	30
GP 9	Programming / Software development	40
GP 10	Database concepts	40

643

<b>Total ILT (classroom) Hours</b>	<b>643</b>
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**RELATED INSTRUCTION SCHEDULE FOR:**

**RELATED INSTRUCTION SCHEDULE  
IT GENERALIST**

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Instructor Led Training (ILT)		
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GP 0	Technical Writing	40
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GP 4	Operating Systems	40
GP 4	Tech Support / Helpdesk Functions	40
GP 4	PC Hardware	40
GP 5	Internet Applications	40
GP 6	Security Concepts	40
GP 6	"Information Age Technology" "Federal Information Systems Security Awareness" "Computer Security 101", "Protect your AIS", Protect your AIS, the Sequel" "Networks at Risk" "Identity Theft: Protect Yourself" (WBT) Videos	4
GP 7	"Warriors of the Net" (WBT)	1
GP 7	Network Essentials Level I (Networking)	40
GP 7	Wireless / Telecommunications	30
GP 9	Programming / Software development	40
GP 10	Database concepts	40

643

Total ILT (classroom) Hours	643
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