
APPENDIX A

WORK PROCESS SCHEDULE



ON-THE-JOB TRAINING OUTLINE

RELATED INSTRUCTION OUTLINE



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Appendix A

WORK PROCESS SCHEDULE NETWORK SUPPORT SPECIALIST

(Information Technology Specialist; Network Support Technician; Systems Administrator)

O*NET-SOC CODE: 15-1244.00 **RAPIDS CODE:** 1132CB

This schedule is attached to and a part of these Standards for the above identified occupation.

APPRENTICESHIP APPROACH

Time-based

Competency-based

Hybrid

TERM OF APPRENTICESHIP

The term of the apprenticeship is competency based with an OJL attainment of two to four years, supplemented the minimum required 591 hours of related instruction.

RATIO OF APPRENTICES TO JOURNEYWORKERS

The apprentice to journey worker ratio is: 1 Apprentice(s) to 1 journey worker(s).

PROBATIONARY PERIOD

Every applicant selected for apprenticeship will serve a probationary period of 90 days.



Appendix A

ON-THE-JOB TRAINING OUTLINE

NETWORK SUPPORT SPECIALIST

(Information Technology Specialist; Network Support Technician; Systems Administrator)

O*NET-SOC CODE: 15-1244.00 **RAPIDS CODE:** 1132CB

Occupational Description: Network Support Specialists analyze, troubleshoot, and evaluate problems with computer networks, which are crucial for keeping information moving safely and securely between everyone who does business with the company, including internal departments, external supply chains, and customers. Network Support Specialists play an important role in maintaining an

organization’s networks through configuration, monitoring, and proper training of end users. Network Support Specialists are responsible for day-to-day operations, making sure that networks have minimal downtime. They may progress in their knowledge and training to become Network Architects/Engineers who design and build local area networks (LANs), wide area networks (WANs), Intranets, and cloud implementations.

Part 1: Basic Hardware	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate knowledge of various mobile device types, their features, and purpose.			
Demonstrate skills required to manage and troubleshoot computer hardware and peripheral devices.			
Demonstrate knowledge of common computer hardware and interfaces.			
Demonstrate skills required to troubleshoot general computer hardware issues and printer problems.			
Demonstrate skills required to configure peripherals, printers, and related applications to support external hardware.			



Part 2: Basic Networking	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate knowledge of basic networking concepts (wired and wireless).			
Demonstrate skills required to configure and troubleshoot device connectivity (LAN and Internet Access).			
Part 3: Cloud and Virtualization Technologies	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate knowledge of cloud computing concepts, including cloud storage and security configurations.			
Demonstrate skills required to configure client-side virtualization, cloud storage applications, and file synchronization features.			
Part 4: Operating System Basics	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate knowledge of important Microsoft Windows 10 operating system features and their purpose.			
Demonstrate skills required to install, configure, and secure Microsoft Windows 10 operating system versions.			
Demonstrate skills required to troubleshoot Microsoft Windows operating system problems.			
Demonstrate knowledge of important Mac OS and Linux OS desktop operating system features and their purpose.			
Demonstrate skills required to configure, secure, and troubleshoot various operating systems Mac OS and Linux OS.			



Demonstrate skills required to troubleshoot mobile operating systems.			
Part 5: IT Security Basics	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate knowledge of basic enterprise security concepts and wireless security protocols.			
Demonstrate skills required to perform account management, configure wireless security, and detect and remove malware on workstations and mobile devices.			
Demonstrate skills to troubleshoot common computer security issues.			
Demonstrate skills required to troubleshoot application security issues.			
Part 6: General IT Operations	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate knowledge of ticketing systems and documentation procedures.			
Demonstrate knowledge of disaster recovery concepts and backup procedures.			
Demonstrate knowledge of licensing and privacy and policy concepts, including how to address prohibited content.			
Demonstrate knowledge of scripting languages, basic functions, and logic structures.			



Part 7: Network Fundamentals	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate knowledge of the OSI model and relevant encapsulation concepts.			
Demonstrate knowledge of network topologies and network types.			
Demonstrate knowledge of cables, types of connectors, and the purpose for each.			
Part 8: Network Implementations	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate knowledge of network devices, their features, and placement within a network.			
Demonstrate knowledge of routing technologies and concepts for bandwidth management.			
Demonstrate skills required to configure and deploy Ethernet switching solutions, including VLANs.			
Demonstrate skills required to deploy wireless standards configurations and technologies.			
Part 9: Network Operations	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate skills required to leverage statistics and sensors in support of network availability.			
Demonstrate knowledge of organizational documents and policies.			
Demonstrate knowledge of high availability and disaster recovery concepts.			



Part 10: Network Security Part 3-Cloud Virtualization Technologies	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate knowledge of network security concepts.			
Demonstrate knowledge of types of network attacks.			
Demonstrate skills required to implement network hardening techniques.			
Demonstrate knowledge of remote access techniques and related security risks.			
Part 11: Network Troubleshooting	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate skills and best practices required to troubleshoot networking issues.			
Demonstrate skills required to troubleshoot cable connectivity issues.			
Demonstrate skills required to use network software tools and commands.			
Demonstrate skills required to troubleshoot wireless connectivity issues.			
Part 12: Business Acumen	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate a basic understanding of the employer's corporate structure and business model, including its product and services portfolio, its primary customers, and its top competitors.			
Demonstrate a basic knowledge of the employer's brand messaging, its value			



Part 13: Employability Skills	Date: Rating:	Date: Rating:	Date: Rating:
Demonstrate skills to provide competent customer service using active listening and empathy during various interactions (e.g., in-person, over telephone, email, and chat).			
Demonstrate ability to manage stress and other emotions in the workplace to reduce conflict, foster collaboration, and promote wellness.			
Demonstrate skills required to take and give productive critical feedback.			
Demonstrate skills required to problem-solve using critical thinking, clarifying questions, and knowing when to escalate a situation to a superior.			
Demonstrate skills to explain complex issues to non-technical customers without jargon or blaming.			
Demonstrate ability to conduct oneself with integrity, professionalism, and in accordance with organization policy and procedure.			
Demonstrate skills to communicate with colleagues, managers, and end users effectively and clearly, in a timely manner.			
Demonstrate ability to use language, tone of voice, and non-verbal communication to neutralize conflict in the workplace.			
Demonstrate skills required to collaborate effectively with team members from across the organization.			
Demonstrate ability to use respectful cross-cultural communication to work successfully across the organization and with diverse coworkers.			



Demonstrate knowledge required to manage time effectively, minimizing distractions to maintain productivity, prioritize work appropriately, and meet deadlines with situational awareness.			
Demonstrate ability to adapt to changing organizational landscape.			

EVALUATING PERFORMANCE SCALE

This rubric is an example that may be used to rate apprentices:

Rating	Definition
0	Learning: Apprentice has not learned this through RTI or OJL.
1	Understands: Apprentice can explain and discuss issues and concepts; has studied applications; and is familiar with this function, competency, and performance indicators of this occupation.
2	Developing: Apprentice integrates relevant knowledge and skill, and demonstrates this performance indicator with a limited degree of consistency in routine tasks.
3	Competent: Apprentice applies relevant knowledge and skill, and demonstrates this performance indicator with consistency in routine interactions and responsibilities.
4	Skilled: Apprentice demonstrates, applies, and integrates relevant knowledge and skills, and demonstrates this performance indicator with a high degree of consistency and effectiveness in most situations.
5	Master: Apprentice is especially skillful in demonstrating, applying, and integrating relevant knowledge and skills, and demonstrates this performance indicator with a high degree of consistency and effectiveness in routine and complex situations.

Level 3 ratings are expected for each performance indicator within each competency for successful completion of an apprenticeship program.

Levels 4 and 5 ratings should only be used occasionally to describe exceptional performance.



Appendix A

RELATED INSTRUCTION OUTLINE

O*NET/SOC CODE: 15-1244.00 RAPIDS CODE: 1132CB

Related Training Provider



Class Number	Class Name	Credits	Hrs/Wk Class	Hrs/Wk Lab	Total Hours
CIS102M	A+ Preparation Hardware	3	2	2	45
CIS103M	A+ Preparation Software	3	2	2	45
CIS116M	Network+ Preparation	4	3	3	60
CYBD220M	Security+ Preparation	4	3	3	60
CIS110M	Microsoft Applications	3	2	2	45
CSIT109	AWS Cloud Foundations	3	2	2	45
CSIT226	AWS Academy Cloud Operations	4	3	3	60
CSIT230	AWS Cloud Architecting	4	3	3	60
CIS105M	Introduction to Computer Science	3	2	2	45
CIS107M	Introduction to Android Apps Development	3	2	2	45
CIS126	Python	3	2	2	45
	WorkReadyNH				60
TOTAL MINIMUM HOURS					615



Course Curriculum Outline or Course Descriptions:

CIS102M	A+ Preparation Hardware
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The A+ Preparation class is the starting point for a career in IT. It covers maintenance of PCs, mobile devices, laptops, operating systems and printers and prepares students for CompTIA's A+ hardware exam

Course Objectives

Upon successful completion of this course the student will be able to:

- Identify all major components of a PC computer system and to describe the function of each.
- Describe the main technologies associated with computer networking.
- Identify all major components of a Laptop computer system and to describe the function of each.
- Identify all major components of a printer and to describe the function of each.
- Describe the main technologies associated with the operational procedures of computer hardware.
- Prepare for the CompTIA A+ hardware Exam.

CIS103M	A+ Preparation Software
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The A+ Preparation classes are the starting point for a career in IT. The class covers maintenance of PCs, mobile devices, laptops, operating systems and printers, this class prepares students for CompTIA's A+ software including additional materials for the Cyber Investigator.

Course Objectives

Upon successful completion of this course the student will be able to:

- Identify and describe major components of Computer Security
- Identify major components of a Mobile Device Operating systems
- Demonstrate the ability to troubleshoot computer device system software
- Prepare to take the CompTIA A+ software Exam.

CIS116M	Network+ Preparation
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Introduces the fundamental concepts and principles that underlie computer network technologies, installation and configuration, media and topologies, management and security. This class prepares students for CompTIA's Network + Exam.

Course Objectives

Upon successful completion of this course, the student will be able to:

- Explain the differences between standard cable types and their properties.
- Explain the functions performed at each level of the TCP/IP layers.
- Describe the functions of communication devices which work at each level of the OSI reference model.



- Distinguish network topologies and types of transmission mediums.
- Determine when connection-oriented or connectionless communication is required.
- Define the advantages and disadvantages of various communication mediums.
- Define the functional areas of LAN management and control and explain the design considerations of a local area network.
- Define and identify performance issues by monitoring networks.
- Recognize and distinguish the different LAN and WAN topologies and the architectures associated with each.
- Define methods of user authentication and issues that affect device security.
- Explain the use of multimedia networking.
- Explain the requirements of wireless and mobile networks.

CYBD220M**Security+ Preparation**

This course provides students with the knowledge of security concepts, tools and procedures that will enable them to react to security incidents and allows them to create procedures ensuring security personnel. Also it can anticipate computer and computer network related security risks and guard against them. Potential roles include security architect, security engineer, security consultant/specialist, information assurance technician, security administrator, systems administrator and network administrator.

Course Objectives

Upon successful completion of this course the student will be able to:

- Implement computer network security
- Insure compliance and operational security to computer systems and networks
- Identify and deter computer and computer network threats and vulnerabilities
- Explain data and host security methods
- Configure computer and network access control and identity management
- Apply different methods of cryptography being able to identify various uses and types

CIS110M**Microsoft Computer Applications I**

This is a one semester course that introduces the student to the world of MS Applications Office Suite. Topics will include the use of Microsoft Internet Explorer as a research tool and MS Applications Office Suite (the most current version the college is licensed for). This grouping of programs includes MS Word, MS Excel and MS Power Point. This is not a course for a student with no computer skills and should not be considered as such; it is an intense and rapid instruction in the use of the most common MS Applications programs. Students will be issued a computer competency examination on the first day of class

Course Objectives

Upon completion of this course the student will be able to do the following.



- Use the Internet as a viable research tool.
- Use Microsoft Word to write, edit, rewrite, reedit and produce a research paper in a variety of styles as required by the professors.
- Use Microsoft Excel to produce a working spreadsheet.
- Use Microsoft PowerPoint to produce a viable presentation

CSIT109**AWS Cloud Foundations**

AWS Cloud Foundations is intended for students who seek an overall understanding of cloud computing concepts, independent of specific technical roles. It provides a detailed overview of cloud concepts, AWS core services, security, architecture, pricing, and support.

Course Objectives

Upon completion of this course, students will be able to:

- Define the AWS Cloud
- Explain the AWS pricing philosophy
- Identify the global infrastructure components of AWS
- Describe the security and compliance measures of the AWS Cloud, including AWS Identity and Access Management (IAM)
- Create a virtual private cloud (VPC) by using Amazon Virtual Private Cloud (Amazon VPC)
- Demonstrate when to use Amazon Elastic Compute Cloud (Amazon EC2), AWS Lambda, and AWS Elastic Beanstalk
- Differentiate between Amazon Simple Storage Service (Amazon S3), Amazon Elastic Block Store (Amazon EBS), Amazon Elastic File System (Amazon EFS), and Amazon Simple Storage Service Glacier (Amazon S3 Glacier)
- Demonstrate when to use AWS database services, including Amazon Relational Database Service (Amazon RDS), Amazon DynamoDB, Amazon Redshift, and Amazon Aurora
- Explain the architectural principles of the AWS Cloud
- Explore key concepts related to Elastic Load Balancing, Amazon CloudWatch, and Amazon EC2 Auto Scaling

CSIT226**AWS Cloud Operations**

AWS Cloud Operations is designed to prepare participants to pursue entry-level DevOps, support, and cloud operations roles. It will also help prepare them to take the AWS SysOps Administrator – Associate exam. Emphasizing best practices in the AWS Cloud and recommended design patterns, this course will teach students how to solve problems and troubleshoot various scenarios. The course will show students how to create automatable and repeatable deployments of networks and systems on AWS and covers specific AWS features and tools related to configuration and deployment. With case studies and demonstrations, students will learn how some AWS customers design their infrastructures and implement various strategies and services.



Course Objectives

Upon completion of this course, students will be able to:

- Understand AWS infrastructure as it relates to system operations, such as global infrastructure, core services, and account security
- Use the AWS Command Line Interface (AWS CLI), and understand additional administration and development tools
- Manage, secure, and scale compute instances on AWS
- Manage, secure, and scale configurations
- Identify container services and AWS services that are available for serverless computing.
- Manage, secure, and scale databases on AWS
- Build virtual private networks with Amazon Virtual Private Cloud (Amazon VPC)
- Configure and manage storage options using the storage services offered with AWS
- Monitor the health of your infrastructure with services such as Amazon CloudWatch, AWS CloudTrail, and AWS Config
- Manage resource consumption in an AWS account by using tags, Amazon CloudWatch, and AWS Trusted Advisor
- Create and configure automated and repeatable deployments with tools such as Amazon Machine Images (AMIs) and AWS CloudFormation

CIS105M

Introduction to Computer Science

Introduction to Computer Science uses broad coverage and clear exposition to present a complete picture of the dynamic computer science field. Accessible to students from all backgrounds, and encourages the development of a practical, realistic understanding of the field. An overview of each of the important areas of Computer Science provides students with a general level of proficiency for future courses.

Course Objectives

Upon successful completions of this course the student will be able to:

- Illustrate the operation of algorithms for:
 - multiplication by repeated addition
 - sequential search of a collection of values
 - finding the maximum element in a collection
 - finding a pattern string in a larger piece of text
- Translate between base-ten and base-two numbers, and represent negative numbers using both sign-magnitude and two's complement representations
- Explain how floating-point numbers, characters, sounds, and images are represented inside the computer
- Describe the components of a random access memory system, including how fetch and store operations work, and the use of cache memory to speed up access time



- List and explain the types of instructions in a typical instruction set, and how instructions are commonly encoded
- Explain the benefits of writing system software in assembly language, rather than machine language
- Describe and compare different network technologies, including dial-up, broadband, and wireless
- Describe the purpose of each special-purpose language: SQL, HTML, and JavaScript

CSIT230

AWS Cloud Architecting

AWS Cloud Architecting covers the fundamentals of building IT infrastructure on AWS. The course teaches students how to optimize use of the AWS Cloud by understanding AWS services and how they fit into cloud-based solutions.

Upon completion of this course, students will be able to:

- Make architectural decisions based on AWS architectural principles and best practices
- Use AWS services to make infrastructure scalable, reliable, and highly available
- Use AWS managed services to enable greater flexibility and resiliency in an infrastructure
- Increase performance and reduce cost of a cloud infrastructure built on AWS
- Use the AWS Well-Architected Framework to improve architectures that use AWS solution

CIS107M

Introduction to Android Apps Development

This class will introduce students to Computer Science providing a solid foundation of common Computer Science concepts and practices. Students will learn various techniques used in Android development. The main technologies associated with the deployment of Android Apps will be presented.

Course Objectives

Upon successful completion of this course the student will be able to:

- Understand the roots of modern computer science in mathematics and mechanical machines.
- Explain the benefits of pseudocode over natural language or a programming language.
- Illustrate the operation of algorithms.
- Develop and debug Android applications
- Set up text input from the hardware or software keyboard
- Display scrolling lists and grids with custom layouts
- Develop a program that listens and reacts to touch event.

CIS126M

Introduction to Python



Python is an object-oriented programming language that is simplistic yet has great capabilities. This class will focus on instructing students to harness the full power of Python to write exceptionally robust, efficient, maintainable, and well-performing code.

Course Objectives

Make the student competent in the Python Programming language, this includes:

- Recognize how numbers and strings are expressed and dealt with in Python
- Show how to do basic lists in Python
- Create If/Else statements in Python
- Create looping in Python
- Identify basic functions in Python
- Explain Basic Data Structures in Python
- Examine modularity as it applies to Python
- Construct Input and outputs in Python
- Examine how error handling is done in Python
- Manipulate classes in Python

WorkReadyNH

Interpersonal Skills & Teamwork: Demonstrate the ability to work effectively with others

- Interact professionally and respectfully with supervisors and coworkers; work effectively with people who have diverse personalities and backgrounds; respect the diverse opinions, perspectives, customs, contributions, and individual differences of others; understand workplace sensitivity as it relates to harassment, tolerance, diversity and respect; use appropriate strategies and solutions for dealing with conflicts and differences to maintain a smooth workflow; be flexible and open-minded when dealing with a wide range of people; listen to and consider other's viewpoints; use effective strategies to manage conflicts appropriately; use networking and relationship building skills to develop and maintain good working relationships; understand the need for reasonable accommodations in the workplace.

Integrity: Display accepted social and work behaviors

- Treat others with honesty, fairness, and respect; comply with ethical standards for your field; take responsibility for accomplishing work goals within accepted timeframes; accept responsibility for one's decisions and actions; perform quality work; understand the fundamentals of responsible social networking.

Professionalism & Personal Acceptability: Maintain a socially acceptable demeanor

- Demonstrate self-control by maintaining composure and dealing calmly with stressful situations; accept & give constructive criticism and attempt to learn from mistakes; demonstrate



a positive attitude; follow rules and standards of appropriate dress; follow rules and standards of personal hygiene (incl. body cleanliness, clothing, odors); refrain from substance misuse.

Initiative: Demonstrate a willingness to work

- Take initiative in seeking out new responsibilities and work challenges; pursue work with energy, drive, and effort to accomplish tasks; persist at a task until completion, despite interruptions, obstacles, or setbacks; establish and maintain personally challenging and realistic goals; demonstrate the capacity to adapt to new, different or changing environments and requirements; accomplish tasks in a timely manner.

Dependability and Reliability: Display responsible behaviors at work

- Behave consistently, predictably, and reliably, fulfill obligations, complete assignments, and meet deadlines; follow written and verbal directions; comply with organizational rules, policies, and procedures; adhere to company policies regarding time and attendance; understand safety in the workplace as it relates to company policy.

Lifelong Learning: Display a willingness to learn and apply new knowledge and skills

- Demonstrate an interest in personal and professional lifelong learning and development; treat unexpected circumstances as opportunities to learn and adopt new techniques; seek feedback and modify behavior of improvement; broaden knowledge and skills through job shadowing, continuing education and seek mentoring opportunities and volunteering; use newly learned knowledge and skills to complete specific tasks and improve work processes; take charge of personal career development by identifying personal interests and career pathways; pursue opportunities to develop new knowledge, skills, and expertise to address changing workplace demands.

Communications: Give full attention to what others are communicating verbally, non-verbally, or in writing and responding well enough to be understood

- Understand the current job search (and application) process (cover letter, resume, interview, networking resources); provide prompt and efficient responses to meet the requirements, requests, and concerns of customers; receive, attend to, interpret, understand, and respond to verbal messages and other cues; apply active listening skills using reflection, restatement, questioning, and clarification; speak clearly and confidently using common English conventions; confidently present ideas in a persuasive manner in a workplace situation.

Critical and Analytical Thinking: Use logic, reasoning, and analysis to address problems

- Use logic and reasoning to identify strengths and weaknesses of alternative solutions, conclusions, or approaches to problems; use reasoning to analyze, synthesize, compare and interpret information; draw conclusions from relevant or missing information; understand the



underlying relationships among facts and connections between issues; solve problems by breaking them into manageable tasks.

Final Project and Presentation

- Demonstrate the ability to work effectively with others; display accepted social and work behaviors; maintain a socially acceptable demeanor; demonstrate a willingness to work; display responsible behaviors at work; display a willingness to learn and apply new knowledge and skills; give full attention to what others are communicating verbally, non-verbally, or in writing and respond well enough to be understood; use logic, reasoning, and analysis to address problems; actively participate in presentation of final project



SELECTION PROCEDURES

SECTION I – APPLICATION PROCEDURES

- Applicants will be accepted for open apprentice roles based on business conditions. Every person requesting an application will have one made available. Applications are available upon request.
- All applications will be identical in form and requirements.
- Receipt of the properly completed application form will constitute receipt of a completed application.
- Completed applications will be checked for minimum qualifications. No further processing of applicants will occur if deficient in one or more qualifications or requirements or if false statements are made on their applications.
- Applicants meeting the minimum qualifications and submitting the required documents will be notified where and when to appear for an interview.
- The Sponsor will conduct pre-screening interviews with candidates and the make referral to signatory employers. The Sponsor will schedule interviews based on hiring needs.
- Applicants who score a 3 or higher on standardized question rubric will invited for a second interview with employers based upon applicant location, applicant career goals, and applicant interest in scope of practice.
- Applicants who do not score a 3 or higher and are not selected will receive an email notifying them they were not selected for an interview.
- Applications of candidates who do not meet the minimum requirements are stored in a secure location for five years.

SECTION II – SELECTION PROCEDURES

The sponsor has adopted the following selection procedures, consistent with the requirements set forth in 29 CFR § 30.10(b):

- The Sponsor will schedule interviews based upon hiring needs. All applicants who have met the minimum qualifications and have submitted the required documents must be notified of the date, time, and place to appear.
- Prior to the interview, each applicant will be required to review the Apprenticeship Standards and will be provided information about the program. If the applicant has any additional questions on the qualifications of needs additional information, it will be provided by the sponsor.
- The interviewer(s) will rate each applicant during the interview utilizing standardized questions taking into account the information on the application and required documents. The questions and responses will be maintained on file.
- Candidates who score a 3 or higher on interview rubric and selected by consensus of interviewers will notified of a formal offer of employment.
- Selected applicants must respond to the notice of selection within 72 hours of notice.
- Candidates who are not being hired for the apprenticeship will be notified within two weeks from their last interview.