SYSTEMS ENGINEER
(Competency-Based)

APPENDIX A

O*NET CODE 15-1142.00

Competency/performance-based apprenticeship occupations are premised on attainment of demonstrated, observable and measurable competencies in lieu of meeting time-based work experience and on-the-job learning requirements. In competency/performance-based occupations apprentices may accelerate the rate of competency achievement or take additional time beyond the approximate time of completion.

This training outline is a minimum standard for Work Processes and Related Instruction. Changes in technology and regulations may result in the need for additional on-the-job or classroom training.

Potential Job Titles: Computer Network Architect, Computer Systems Engineer, System Architect, Systems Specialist

WORK PROCESSES

A. Workplace Orientation

1. Learn and follow employer-specific administrative policies, procedures, safety protocols.
2. Articulate and practice employer-specific “work culture” models (if applicable).

B. System Architecture

1. Architect, design, deploy, and support various server infrastructures.
2. Complete tutorials (e.g., DataCamp, Codeacademy) to attain basic knowledge and skills in common system architecture software and techniques (e.g. virtualization, Active Directory/New Technology (NT), Windows 200x, and Unified Computing Systems (UCS) architectures.
3. Continue practice in virtualization, Active Directory/NT, and internet small computer systems interface (ISCSI).
4. Provide guidance on cost of appropriate software and network hardware.

C. System Installation and Development

1. Perform Operating System (O/S) upgrades.

2. Install and connect components to Storage Area Network (SAN).
3. Provide hardware support to various computers, such as IBM, HP, and Dell machines (if applicable).
4. Build and implement new hardware configurations in virtualized and Storage Area Network (SAN) environments.
5. Implement server standards and follow guest policies when working on network system(s).
6. Use virtualization management software, such as Citrix Xen Server or VMware to design and deploy virtual applications.
7. Install solutions with end users that meet their objectives.
8. Migrate between computer systems (e.g. Windows 200x), and Domain Controllers (e.g. Active Directory).

D. System Administration

1. Work with Project Manager and learn how to schedule timelines and report on project progress, status, and issues.
2. Prepare appropriate documentation during project and at project wrap up.
3. Provide support for system administration questions including backup and restore, clustering, replication, and migration.
4. Analyze and measure system performance, capacity, and availability to better assist clients.
5. Collaborate with Sales departments in the design and configuration of system solutions.

E. Miscellaneous (Optional)

1. Continue to expand technical knowledge in emerging tech fields (where possible).
2. Gain query language proficiency (e.g., SQL, MS Share Point).

Approximate Total Hours 1000-2000

Apprentices in Competency-Based Programs shall participate in no fewer than 1,000 documented hours of on-the-job training, and until they have demonstrated a competency for each skill in the Work Processes.

Apprenticeship work processes are applicable only to training curricula for apprentices in approved programs. Apprenticeship work processes have no impact on classification determinations under Article 8 or 9 of the Labor Law. For guidance regarding classification for purposes of Article 8 or 9 of the Labor Law, please refer to https://dol.ny.gov/public-work-and-prevailing-wage

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APPENDIX B

RELATED INSTRUCTION

Safety and the Workplace

1. Sexual Harassment Prevention Training - must comply with Section 201-g of the Labor Law
2. Employer Onboarding (if applicable)

Trade Skills

1. Hardware/hardware support (if applicable)
2. Operating System: (Windows, iOS, Linux) where appropriate
3. Storage Area Networks (SAN) installations
4. ISCSI (internet small computer systems interface) installations
5. System administration
6. Virtualization management software
7. System analysis and system performance analysis
8. Query language(s)- SQL, SharePoint, Domain Controllers
9. Enterprise Application Integration
10. Backup, restore, clustering, replication, and migration
11. Costing Skills for network set-up and maintenance

Professional Development

1. Industry recognized credentials/certifications pertaining to the field

Other courses as necessary

At least 144 hours of Related Instruction per year must be available for the apprentice at the time of his/her indenture. However, the apprentice may test out earlier if able to demonstrate competence for each topic on the Related Instruction outline.

Appendix B topics are approved by New York State Education Department.