Systems Automation and Orchestration 2023-2024 Catal

[ARCHIVED CATALOG]

SVAD 260 - Systems Automation and Orchestration

PREREQUISITES: SVAD 150 - Cloud Foundations and (NETI 104 - Introduction to Networking or NETI 105 - Network Fundamentals or NETI 109 - Networking I)
PROGRAM: Cloud Technologies
CREDIT HOURS MIN: 3
LECTURE HOURS MIN: 2
LAB HOURS MIN: 2
DATE OF LAST REVISION: Fall, 2020

Systems Automation and Orchestration progresses from scripting specific tasks (automation) to coordinating processes (orchestration). Utilizing industry standard tools, students will undertake hands-on analysis and development of the skills needed to provide enterprise level systems administration. Identifying key manual tasks in local and cloud-based systems, the student learns how to automate them, identify processes that integrate multiple tasks together, and then orchestrate those processes both within and between systems.

MAJOR COURSE LEARNING OBJECTIVES: Upon successful completion of this course the student will be expected to:

1. Assess the use of automation and orchestration tools current within the industry, focusing on use case scenarios and best practices.
2. Evaluate the use of automation tools in both local and cloud computing infrastructures.
3. Identify key tasks appropriate for automation and implement scripts to structure process- centered solutions.
4. Design an orchestration solution that includes but is not limited to offering increased efficiency, security, visibility, and scalability.
5. Orchestrate a virtual infrastructure implementing the provisioning and management of an infrastructure for a single or multi-cloud environment.

COURSE CONTENT: Topical areas of study include -

- Scripting such as Python, Powershell, BASH, kubectl
- Automation through Ansible, Terraform, AWS CloudFormation, or similar tools
- Container orchestration through Docker, Kubernetes, Amazon ECS, or similar tools
- Workflow automation and orchestration tools
- Managing IT systems at scale for both physical and virtual machines
- Analysis of real world IT problems and implementation strategies
- Use of GIT, or similar version control tools

Course Addendum - Syllabus (Click to expand)