

INT334:ENTERPRISE APPLICATION AUTOMATION

L:2 T:0 P:2 Credits:3

Course Outcomes: Through this course students should be able to

CO1 :: Understand the fundamentals of containerization and Kubernetes.

CO2 :: Visualize best practices for managing and maintaining deployments in production environment.

CO3 :: Analyze the centralized management of logs across the Kubernetes infrastructure.

CO4 :: Understand to Gain expertise in leveraging Splunk for data analysis, security monitoring, and operational optimization in the computer industry.

CO5 :: Analyze the data monitoring, analytics, security intelligence, and compliance management, empowering organizations to harness the power of data for operational excellence and strategic decision-making.

CO6 :: Analyze the data management, analysis, and visualization, enabling organizations to optimize operations, enhance security, and drive data-driven insights.

Unit I

Introduction to Kubernetes : Containerization, Tools for Containerization, Kubernetes Overview, Kubernetes Concept, Use of Kubernetes, Kubernetes Master-Slave Architecture.

Unit II

Deployment of Kubernetes : Installing Kubernetes, Steps for Kubernetes Master, Steps for Kubernetes Slave, Kubectl Commands.

Unit III

Services in Kubernetes : Creating a deployment, YAML Introduction, Creating a Service, Service Types, Creating a NodePort Service, Steps for Master & Slave.

Unit IV

Ingress and Dashboard Environment in Kubernetes : Creating an Ingress, Installing Ingress Controller, Steps for master and slave, Defining Ingress Rules, Viewing Ingress Rules, Introduction to Kubernetes Dashboard, Installing Kubernetes Dashboard, Introduction to Minikube, Configuring Minikube, Working with Kubernetes using Minikube

Unit V

Installation & Components of Splunk : Installation of Splunk Search Head, indexer, Installation of Splunk Universal Forwarder and Heavy forwarder, Components of Splunk: Deployment server and Cluster master.

Unit VI

Installation and various Components of Splunk : : Installation of Splunk Search Head, indexer, Installation of Splunk Universal Forwarder and Heavy forwarder, Components of Splunk : Deployment server and Cluster master.

List of Practicals / Experiments:

DevOps Tools: - Kubernetes and Splunk

- What is Kubernetes and what is the difference in Docker and Kubernetes tool?
- How to do Master and slave node installation in Kubernetes?
- How to create deployment and services in Kubernetes?
- How to create ingress in Kubernetes?
- How to create dashboard environment in Kubernetes?
- Introduction to Splunk tool and use of Splunk in software industry
- Products of Splunk: Splunk Cloud, Splunk Enterprise, Splunk Light
- How to installation of Splunk Search Head, indexer?
- How to installation of Splunk Universal Forwarder and Heavy forwarder?
- Components of Splunk : Deployment server and Cluster master

Text Books:

1. "KUBERNETES ESSENTIALS: A COMPREHENSIVE GUIDE FOR 2024" by JANE, Code Academy

References:

1. KUBERNETES - A COMPLETE DEVOPS COOKBOOK by MURAT KARSLIOGLU, PACKT PUBLISHING
2. SPLUNK 7 ESSENTIALS by J-P CONTRERAS, ERICKSON DELGADO, ET AL, PACKT PUBLISHING