

DevOps B.Tech (ASO03)

Lectures	:	2 Hours / Week	Tutorial	:	0	Practical	:	3
CIE Marks	:	30	SEE Marks	:	70	Credits	:	3.5

Prerequisites:

Course Objectives:

Students will be able to

CO1: Understand the concepts of DevOps.

CO2: Learn GitHub and Jenkins tools.

CO3: Use continuous Integration and Testing tools.

CO4: Use Configuration management and Continuous Monitoring Tools.

Course Learning Outcomes:

After the course the students are expected to

CLO 1: Use Git for Version Control.

CLO 2: Use Jenkins for Continuous Integration and Delivery.

CLO 3: Use tools like Docker & Selenium.

CLO 4: Use Puppet, Ansible and Nagios tools.

UNIT - I

(12 Hours)

DevOps Basics & Version Control: Definition of DevOps, DevOps Stakeholders, DevOps goals, DevOps life cycle.

Version Control, Continuous Integration, Continuous Delivery, Continuous Deployment, Continuous Monitoring.

Git basics, Git features, installing Git, Git essentials, common commands in Git, Working with remote repositories.

List of Experiments

1. Demonstrate Deploying an Application to GitHub.
2. Demonstrate working with Git Shell commands.
3. Demonstrate working with remote repositories.

UNIT - III

(12 Hours)

Continuous Integration using Jenkins: Introduction-Understanding Continuous Integration, introduction about Jenkins, Build Cycle, Jenkins Architecture, installation, Jenkins management.

Adding a slave node to Jenkins, Building Delivery Pipeline, Pipeline as a Code.

List of Experiments

1. Demonstrate Building Delivery Pipeline using Jenkins.
2. Demonstrate using Selenium tool.

UNIT - III

(12 Hours)

Continuous Deployment: Containerization with Docker, Containerization using Kubernetes.
List of Experiments

1. Demonstrate Containerization with Docker.
2. Demonstrate Containerization with Kubernetes.

UNIT - IV

(12 Hours)

Configuration Management and Continuous Monitoring: Configuration Management with Puppet, Ansible, Continuous Monitoring with Nagios.

List of Experiments

1. Demonstrate Configuration Management using Puppet.
2. Demonstrate Configuration Management with Ansible.
3. Demonstrate Continuous Monitoring with Nagios.

TEXT BOOKS:

1. Patrick Debois Gene Kim, Jez Humble and John Willis. *The DevOps Handbook*. IT Revolution Press, LLC, 1 edition, 2016. ISBN 978-1942788003

REFERENCES:

1. Jennifer Davis & Ryn Daniels. *Effective DevOps*. O'Reilly publications, 1 edition, 2018. ISBN 978-1-492-07309-3
2. George Spafford Gene Kim, Kevin Bher. *The Phoenix Project*. IT Revolution, 1 edition, 2018. ISBN 978-194278294