

**DevOps**  
**18ITD4**  
**B.Tech.,(Semester- VII)**

<b>Lectures</b>	<b>:</b>	<b>3 Periods/Week , Practical: 2</b>	<b>Continuous Assessment</b>	<b>:</b>	<b>50</b>
<b>Final Exam</b>	<b>:</b>	<b>3 Hours</b>	<b>Final Exam Marks</b>	<b>:</b>	<b>50</b>

**Course Objectives:** The student will understand:

**COB 1:** The introduction of DevOps environment and the key concepts and principles of DevOps.

**COB 2:** Learn about the different actions performed through git

**COB 3:** How to perform Continuous Integration using Jenkins by building and automating test cases.

**COB 4:** List the most common and popular DevOps tools.

**Course Outcomes:** Upon successful completion of the course, the student will be able to:

**CO 1:** Understand the key concepts and principles of DevOps.

**CO 2:** Learn about the different actions performed through git

**CO 3:** Understand continuous Integration using Jenkins by building and automating test cases

**CO 4:** Learn the basics of Kubernetes and its integration with Docker and Nagios Commands.

### **UNIT - I**

**Introduction to Devops:** Waterfall model, Limitations of waterfall model, agile methodology, Limitations of agile method, waterfall vs agile, definition of Devops, Devops stakeholders, Devops goals, Devops life cycle, Devops stages: version control, continuous integration, continuous deliver, continuous deployment, continuous monitoring.

### **UNIT – II**

**Version control with Git:** introduction, version control system and types, difference between centralized version control and distributed version control, Git basics, Git features, installing Git, Git essentials, common commands in Git, Working with remote repositories.

### **UNIT-III**

**Continuous integration using Jenkins:** Introduction-Understanding continuous integration, introduction about Jenkins, Build Cycle, Jenkins Architecture, installation, Jenkin Management, Adding a slave node to Jenkins, Building Delivery Pipeline, Pipeline as a Code, and Continuous Testing with Selenium.

## **UNIT-IV**

**Continuous Deployment:** Containerization with Docker, Containerization using Kubernetes, Ecosystem and Networking, Configuration Management with Puppet, Configuration Management with Ansible, Continuous Monitoring with Nagios.

### **TEXT BOOKS:**

Gene Kim, Jez Humble, Patrick Debois and John Willis, "The DevOps Handbook".

### **REFERENCES:**

Jennifer Davis & Ryn Daniels, "Effective DevOps" O'Reilly publications

Jez Humble, David Farley "Continuous Delivery".

Gene Kim, Kevin Behr, George Spafford, "The Phoenix Project",