INT331:FUNDAMENTALS OF DEVOPS

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

Course Outcomes: Through this course students should be able to

CO1 :: describe Study of various Software Development Methodologies and Cloud Computing

CO2 :: understand the basic Linux commands with respect to Devops and basic of version control.

CO3 :: understand the concept of Devops commands and workflow in a systematic way

CO4 :: apply the advanced concept of DevOps with real time applications.

CO5 :: understand the concept of DevOps Methodology and tools in a systematic way.

CO6 :: determine the concept of Maven with the help of working.

Unit I

Introduction to Software Development : What is Software Development, Software Development Life Cycle, Traditional Models for SDLC, Elaborate software development life cycle: Waterfall model, iterative waterfall model, Prototype model, evolutionary model, spiral model, agile model., software testing and debugging, software verification and validation, Comparison of different life cycle models, User Interface Design, Coupling and Cohesion, Pham-Nordmann-Zhang Model (PNZ model), Schick-Wolverton software reliability model

Unit II

Introduction to DevOps and software version control : What is DevOps, Industry Importance of DevOps, DevOps Lifecycle, Continuous Development, Continuous Testing, Configuration Management, Continuous Integration, Continuous Monitoring of software throughout its development life cycle, Understanding basics of version control, Control Concepts of different types of Version Control Systems

Unit III

Basic Git : introduction to Git, Git lifecycle, Common Git command, Git Workflow, Working with Remote Repository, Version controlling using Git

Unit IV

Advanced Git : Source code management with Git, Comparison commands, Branching and merging, Rebasing, Stashing, Tagging

Unit V

DevOps Trends : DevOps Market Trends, DevOps Engineer Skills, DevOps Delivery Pipeline, DevOps Ecosystem, Role of a DevOps Engineer, Devops Tools: Git, Docker, Selenium, Maven, Jenkins, Puppet, Ansible, Kubernetes, Nagios

Unit VI

Working with Maven : Introduction to maven, maven build lifecycle, maven repository, project object model, maven dependencies, maven plugins, maven project structure

List of Practicals / Experiments:

List of Practicals

- Practical1:Installation of Oracle VM Virtual Box and create Virtual MachinePractical 2:Installation of Linux, Implemention of basic Linux commands□chmod, grep, wget, chown, find, cat, echo, ifconfig, cp,ping,kill, tail, rm, rmdir, cd, mkdir, vi, mv. Practical 3:Installation of packages using RPM and YUMPractical 4:Installation of Git, Implementing common Git CommandPractical 5:Repository creation in Git, Git Branch,source code management with GitPractical6:Installation of Maven and Work

Text Books:

1. LINUX POCKET GUIDE: ESSENTIAL COMMANDS by DANIEL J. BARRETT, O'REILLY

References:

1. DEVOPS: A SOFTWARE ARCHITECT'S PERSPECTIVE (SEI SERIES IN SOFTWARE ENGINEERING) by LEN BASS , INGO WEBER, LIMING ZHU, ADDISON-WESLEY