

# DevOps With AWS Course

**Content**

Date: ………………….Timings:…………………………. Duration:…………….Fee: ………………………………. Faculty:………………………………………………………..

## *Configuration Management Tools*

* **Ansible**
* **Chef**

*Virtualization platforms*

* **Vagrant**
* **Docker**
* **Kubernetes**
* **Swarm**

*Build Tools*

* **ANT**
* **Maven**

*Version Controlling*

* **GIT**

*Continuous Integration*

* **Jenkins**
* **Bamboo**

*Monitoring*

* **Nagios**

*Cloud*

* **AWS**

*Scripting Language*

* **Python**

#### Introduction of Devops

* + Devops for entire Business
  + Devops for entire IT
  + Devops for Developer
  + Devops for Testing
  + Devops for Operations Team
  + Role of Devops in Agile Scrum

**Ansible**

#### Ansible Introduction & Setup

* + Configuration Management & Orchestration
  + Set up of Ansible
  + Set up of controller and managed nodes

#### Foundation

* + Inventory
  + Dynamic Inventory
  + Host Selection
  + Tasks
  + Plays
  + Playbook Execution
  + Ansible.cfg

#### Modules and Ad hoc Commands

* + Firewalld
  + Uri
  + Get\_URL
  + APT/YUM
  + Service
  + User
  + Command
  + Shell
  + Copy
  + Fetch
  + Archive / Unarchive
  + File
  + Setup
  + Debug
  + include
  + Stat
  + Git
  + Docker\_contianer
  + Docker\_image
  + Docker\_login
  + Etc.

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* **YML Scripting**
  + Basics of YML
  + How to write & test YML Scripts
  + YML scripting for writing Play Book.

#### PlayBook for CM automation

* + Writing play books
  + Execution of playbooks
  + Playbooks for configuring NFS,tomcat,Apache2,FTP etc.
  + System facts and Custom facts
  + Play book Notification
  + Play book tags & handlers
  + Exception handling

#### Roles

* + Roles Overview
  + Converting to Roles:
  + Using roles for implementing tomcat, apache etc.
  + External Roles & Galaxy

#### Advanced Execution

* + when conditions
  + Loops (with\_items,with\_sequence)
  + Removing Unnecessary Steps
  + Extracting Repetitive Tasks
  + Limiting Execution by Hosts

### Docker

#### Docker Introduction

* + Installing Docker
  + Docker Introduction
  + Virtualization and Containerization
  + Code or Text Editor for Docker and Compose files
  + Terminal Emulator and Shell for Docker

#### Creating and Using Containers

* + Starting application server, databases and operating systems as containers
  + What Happens When We Run a Container
  + Container VS. VM
  + Manage Multiple Containers
  + CLI Process Monitoring
  + Linking of containers
  + Docker Volumes
  + Reusable volumes
  + Getting a Shell Inside Containers: No Need for SSH
  + Package Management Basics: apt, yum, dnf, pkg
  + Docker Networks: Concepts for Private and Public

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* + Docker's --format option for filtering cli output

#### Container Images

* + What's In An Image
  + Official Docker Image Specification
  + The Mighty Hub: UsingDocker Hub Registry Images
  + List of Official Docker Images
  + Images and Their Layers: Discover the Image Cache
  + Images and Containers From Docker Docs
  + Image Tagging and Pushing to Docker Hub
  + Building Images: The Dockerfile and docker commit
  + Building Images: Running Docker Builds
  + Building Images: Extending Official Images

#### Docker Compose: The Multi-Container Tool

* + Docker Compose and The docker-compose.yml File
  + The YAML Format: Sample Generic YAML File
  + Compose File Version Differences (Docker Docs)
  + Compose file for creating Development and QA environment
  + Setting CI-CD environment for Jenkins uisng Docker

#### Docker Swarm:

* + Container Orchestration
  + Load balancing using swarm
  + Scalling using swarm
  + Handling fail over scenarios using swarm
  + Rolling updates using swarm.
  + Handling failover scenarios using swarm
  + Docker stack

#### Kubernetes

* + Container Orchestration
  + Controllers
  + Load balancing using kubernetes
  + Scalling using kubernetes
  + Handling fail over scenarios using kubernetes
  + Rolling updates using kubernetes.
  + Handling failover scenarios using kubernetes
  + Creatng kubernetes yml scripts for container orchestration

### Vagrant

#### Introduction to Vagrant

* + Introduction & Installing vagrant
  + The Vagrant file & Boxes
  + Communicating with Vagrant Box
  + Network Access

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* **Deploying your Vagrant Machine**
  + Deploying a Complete Environment
  + Setting Environment
  + Finalizing the Environment
  + Vagrantfile

### Jenkins

#### Getting started with Jenkins

* + Getting started with Jenkins
  + Introduction to Continuous Integration
  + Install Jenkins on windows and Linux
  + Setup of Dev environment,QA environment ,Prod Environment for Jenkins
  + Jenkins' Architecture and Terms of Jenkins
  + Jenkins UI : Dashboard and Menus
  + Create Our First Jenkins Job

#### Understanding stages of CI;-CD

* + Continuous download
  + Continuous build
  + Continuous deployment
  + Continuous testing
  + Continuous delivery

#### Continuous Integration with Jenkins

* + Continuous Integration with Jenkins
  + Install Git and Jenkins GitHub Plugin
  + Install Maven on Our Local Box
  + Configure Jenkins to Work with Java, Git and Maven
  + Create our Jenkins Project
  + Trouble Shooting: Create our First Jenkins Project
  + Run our First Jenkins Build and Jenkins Workspace
  + Source Control Polling in Jenkins
  + Other Build Triggers of Jenkins
  + Jenkins' Shell Scripts
  + Archive Build Artifacts
  + Install and Configure Tomcat as the Staging Environment
  + Deploy to Staging Environment
  + Jenkins Build Pipeline
  + Parallel Jenkins Build
  + Deploy to Production
  + Trouble Shooting: Deploy to Production

#### Distributed Builds

* + Introduction to Distributed Jenkins Build
  + Creating master slave setup
  + Install Jenkins Master Node in the Cloud
  + Install Jenkins Slave Agents in the Cloud
  + Concurrent Jenkins Build and Label Jenkins Build
  + Continuous Delivery with Jenkins
  + Code as Pipeline

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* + CI-CD using Jenkinsfile
  + Groovy Scripting

#### Pipeline

* + Scripted Pipeline
  + Declarative Pipeline
  + MultiBranch Pipeline

### Bamboo

#### Setup of Bamboo

* **Continuous Integration using Bamboo**

**Git**

* + Installation
  + Version Controlling
  + Centralised and Distributed Version Controlling
  + Git local repo and GIT Hub
  + Configuration
  + Basic Commands
  + Branches
  + push and pull from GIT Hub
  + Git squash and stash
  + gitignore
  + Git Tags
  + Git rebase
  + Git amend and revert
  + Git log and git reflog
  + Git merging and rebasing
  + Cherrypicking

### Maven

* + Introduction
  + Understanding build process
  + Creating Maven from command prompt
  + Maven Dependencies
  + Maven Stages
  + Maven Repositories
  + Maven Plugins
  + Integrating maven with Jenkins

### Chef

* + Installing Chef
  + Configuration Management using Chef

### ANT

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* + Introduction
  + Configuring ANT
  + Using Build.xml
  + ANT Build stages
  + Run the code through Build.xml
  + Integrating ANT with Jenkins

### Nagios

* + Installation of Nagios
  + Configuring Nagios
  + Monitoring with Nagios
  + Triggering Alerts

### AWS

* + Environment setup in AWS
  + Cloud Deployment Scenarios in AWS
  + Continuous Delivery in AWS
  + Using Vagrant in AWS
  + Using Docker containers in AWS
  + Amazon Elastic Compute Cloud (EC2)
  + Amazon Simple Storage Service (S3)
  + AutoScalling
  + VPC

### Linux (Basics)

* + Basic Commands
  + File Operations
  + Redirection
  + Piping
  + Permissions
  + User Controls

### Python

* + Basic Scripting
  + Understanding methods, classes and objects
  + Creating customized modules
  + Using Python to Automate docker
  + Using Python scripts to automate Jenkins