**DevOps Course Content**

**DevOps**

1. Introduction to DevOps

2. History of DevOps

3. What is DevOps

4. Definition of DevOps

5. Fundamental Principles of DevOps

6. Benefits of DevOps

7. After Implementation

8. DevOps Roles and Responsibilities

9. Continuous Integration in DevOps

**AWS Cloud**

1. Brief History of AWS

2. AWS Features

3. How to Create Account in AWS

4. Introduction to EC2

5. Features of EC2

6. EC2 Dashboard Overview

7. About Amazon Machine Images (AMI)

8. Different types of AMI’s 9. How to create AWS AMI

10. How to create a Key Pairs 11. What is EBS Volumes

12. Download a key pairs

13. How to connect EC2 instances

14. What is pem file

15. What is ppk file

16. What are default usernames to connect AMI’s

17. How to Login into LINUX AMI

18. How to reboot the Instance

19. How to stop instance

20. How to terminate instance

12. Download a key pairs

13. How to connect EC2 instances

14. What is pem file

15. What is ppk file

16. What are default usernames to connect AMI’s

17. How to Login into LINUX AMI

18. How to reboot the Instance

19. How to stop instance

20. How to terminate instance

**Linux**

1.Introduction to Linux

2.Why Linux

3.Linux Architecture

4.File system hierarchy

5.Linux and networking Commands

5.su

6.sudo

7.whoami

8.cd

9.pwd

10.ls -latr

11.touch

12.cat

13.vi

14.mkdir

15.cp

16.mv

17.rmdir

18.rm

19.grep

20.Less

21.Head

22.tail

23.Sort

24.Clear

25.tree

26.History

27.wget

28.Tar

29.Rpm

30.Yum

31.User

32.Group

33.History

34.Du

35.Df

36.Free

37.Uptime

38.wc

39.os-release

40.Diff

41.Find

42.systemctl

43.tracerout

44.Ping

45.Ifconfig

46.Route

47.Hostname

**Git**

1. Source code management

2. Version control system/Revision control system

3. SCM tools

4. Repository/Depot

5. Server

6. Work space/Work dir/Work tree

7. Branch/Trunk/Code line

8. Commit/Check-in

9. Version/Version-ID/Commit-ID

10. Tag

11. Advantages of Git

12. Git Snapshots

13. Work space

14. Staging area

15. Buffer area

16. Repository (Local/non-bare)

17. Repository (Central/bare)

18. Installation & configuration

19. Git add

20. Git commit

21. Git log

22. Git push

23. Git status

24. Git ignore

25. Git branch

26. Git checkout

27. git merge

28. Git Snapshots

29. Git conflict

30. Git stash

31. Git reset

32. Git revert

33. Repository (Central/bare)

34. Git remove

35. Git clean

36. Git tag

37. Git fetch

38. Git diff

39. Git cherry-pick

40. Git hub

41. Role of Git in Real Time

42. Git installation on Windows and Screen shots

43. Git installation on Linux

44. Git Architecture

45. What is Git Repository

46. Git with Local Repositories

47. Git with Remote Repositories

48. git config command usage

49. Setup git repository using git init

50. Git Making Changes

51. git status color coding system

52. Exercises on adding single files, multiple files commits

53. Committing Changes in one go

54. Git History - log and show

55. View all commit logs

56. View only latest commit logs

57. git show command

58. Comparing git project files from working area with Local Repo using git diff

59. Git diff –staged

60. git remote commands

61. Introduction to Github

62. Various vendors of Remote Repository

63. Features of github

64. Create Account in github

65. Create Project Repository in github

66. Public Repository

67. Private Repository

68. Create files in github

69. Clone Github Repository

70. Pull changes from github Repository

71. Push changes to github Repository

**Docker**

1. What is Container

2. Docker features

3. Docker history

4. Docker usage

5. Docker Architecture

6. Docker Editions

7. Docker system Requirements

8. Docker installation and setup

9. How to verify docker installation

10. About Docker version

11. OS-Level-Virtualization

12. Layered file system

13. VM Ware vs Docker

14. Docker components

15. Docker workflow

16. Docker benefits

17. Docker images

18. Docker Container

19. Docker file

20. Docker hub/registry

21. Docker daemon

22. Docker Install & Configure

23. Docker all commands

24. Docker Volumes

25. Docker Networking

26.Docker Compose

27. Port mapping

28. Registry server

29. Pull/push images from /to registry

30. CMD

31. RUN

32. ENTRYPOINT

33. Introduction to Docker

34. Why docker

35. Relation between container and docker

36. Why docker is so popular

37. Difference between container and image 38. Containers History

39. How to see list images in docker

40. What is Docker Registry

41. How to see all docker images

42. How to pull images from docker registries

43. What is pulling in docker?

44. Difference between Docker Pull, run, Push

45. How to run docker image

46. How to exit from container without killing it

47. How to exit from container by killing it

48. How to see all running container on docker host

49. How to check the history of all containers

50. How to stop a container that is running

51. How to find latest containers that are created

52. How to get inside of already a running container

53. How to start a container and remove it once task is completed

54. How to delete or remove a container

55. How to delete or remove image from docker host

56. How to attach a port of docker host to docker container

57. How to run a container in background

58. Difference between docker container run and docker container start

59. How to specify a name to docker container

60. How to see container logs

61. How to see all commands related to a container

62. How to remove docker multiple containers

63. How to check docker container metadata using docker inspect

64. How to list what ports are being used by docker container

65. How to tags docker images

66. How to log into docker registries using docker CLI

67. How to logout from docker registries using docker CLI

68. How to push docker image to docker registries

69. About Docker file

70. How to create Dockerfile to build an image

71. How to build an image from Dockerfile

72. About Dockerfile Instructions

73.Docker file

74.Docker swarm introduction and advatages

75.Docker swarm setup

76.Creating servicees in docker swarm

77.Docker universal Control pane

**Ansible**

1. Configuration Management tool

2. Introduction To Ansible

3. History

4. Advantages of CM tool

5. Why Ansible

6. Ansible Advantages

7. Ansible Architecture setup

8. Install & configure Ansible

9. Features Of Ansible

10. Use Cases Of Ansible

11. What Can Do In Production Environment

12. Ansible Documentation

13. How Ansible Is Different From Configuration Management Tools

14. Ansible Architecture

15. Ansible Control Machine Requirements

16. Ansible Installation Process

17. Ansible Terminologies

18. How Ansible Works

19. Ansible Lab-setup

20. Ansible Inventory

21. Test Environment setup

22. Host Patterns

23. Ad-Hoc commands

24. Modules

25. Gathering facts

26. Playbooks

27. YAML Language

28. Target section

29. Variable section

30. Task section

31. Handle section

32. Dry run

33. Loops

34. Conditionals

35. Vault

36. Group Inventory File

37. Ansible Inventory Parameters

38.Ansible Exercise - To Setup Inventory File And Perform Ping Test

39. Ansible Playbooks and Modules

40. Ansible Playbooks

41. Sample Ansible Playbook

42. Ansible Playbook Format

43. Ansible Modules

44. Ansible Tasks

45. How To Run A Playbooks

46. How to check the syntax of a Playbook

47. How to Run a playbook on multiple hosts

48. How to Run a playbook on target hosts

49. Ansible Run Command Methods

50.Ansible Roles

51.Ansible Tower

52.Ansible Galaxy

**Maven**

1. What is Build

2. Purpose of Build Tools

3. Build Tools Ideology

4. Evolution of Build Tools

5. Few Notable Build Tools

6. Java Based Build Tools

7. Build management

8. Advantages of Build tool

9. Architecture of Maven

10. Maven build life-cycle

11. Maven directory structure

12. Maven repositories

13. Pom.xml

14. Multi module project(over view)

**Nagios**

1. Why monitoring tool

2. Ways of monitoring

3. Why Nagios so cool?

4. Architecture of Nagios

5. Plugins

6. Config files

7. Dashboard overview

8. Nagios working process

9. Nagios Installation

10. Naagios Configuration

11. Nagios Directory structure

**Jenkins**

1. Introduction to Jenkins

2. Why Jenkins

3. Relation between Jenkins and Hudson

4. History of Jenkins

5. Why Jenkins is so popular

6. Features of Jenkins

7. Jenkins Architecture

8. Jenkins Prerequisites

9. Continues Integration(CI)

10. Jenkins workflow

11. Ways of CI

12. Benefits of CI

13. Why only Jenkins

14. Jenkins installation & configuration

15. Free style project

17. Maven project by Jenkins

18. Jenkins Plugins

19. Scheduled Projects

20. Source code polling (Git)

21. Upstream & Downstream projects

22. CI-CD pipeline

23. Jenkins Views

24. User management

25. Jenkins Slaves

26. Tomcat web server

27. Minimum Hardware Requirements

28. Recommended Hardware Requirements

29. Jenkins Terminologies

30. Master

31. Slave or Node

32. Job or Project

33. Executor

34. Build

35. Plugin

36. Jenkins Dashboard Overview

37. Job Listing Section

38. Setup Jenkins Server

39. Jenkins Menu Section

40. Jenkins Menu- Item

41. Jenkins Menu-People

42. Jenkins Menu-Build History

43. Jenkins Menu-Manage Jenkins

44. Jenkins Menu-views

45. Build Executor status Section

46. Jenkins - Creating Jobs in Jenkins

47. Naming a Project

48. About Project Descriptions

49. How to disable the build systems

50. Source Code Management

51. Build Triggers

52. Create a Sample Project

53. Understand Jenkins Job Process

54. How to check Build Information

55. Jenkins Build Color Code system

56. Configure Jenkins Build Server

57. Configure Apache Maven for Jenkins Build Server

58. Configure the JAVA JDK for Build jobs in Jenkins

59. Configure the Maven for Build Jobs in Jenkins

60. Configure Github for Build Jobs in Jenkins

61. Configure SCM-Git Plugin for Build Jobs in Jenkins

62. Secure Jenkins

63. Manage Jenkins Plugins

64. Install Plugins

65. Upgrade Plugins

66. Backup plugins

67. Jenkins User administration

68. Create Jenkins User Accounts

69. Delete Jenkins User Accounts

70. Configure - Executors, Labels, SCM Checkout Retry Count

71. Build Triggers

72. Configure Poll Source Code management in Jenkins

73. Configure Poll SCM Changes using Crontab in Jenkins

74. Trigger Builds Remotely using URL

75. Trigger Builds based on build Pipeline or other Projects

76. Build triggers Periodically

77. Build triggers when changes pushed to Github or SCM

78. Architecture of Distributed Build

79. Configure Jenkins Master Server

80. Configure Jenkins Slave Server

81. Configure authentication between MasterSlave

82. Setup Relationship between Master and Slave

83. Configure Project to build on Jenkins slave server

84. Pipeline

85. Purpose of Jenkins backup

86.Backup Notification plugins

87. CI-CD Pipeline Project

**Kubernetes**

1. What is kubernetes

2. Features of kubernetes

3. Architecture of kubernetes

4. Kubernetes Master

5. Kubernetes nodes

6. Kubernetes components

7. Kube-api server

8. etcd (cluster store)

9. Kube-scheduler

10. Node

11. Kube-proxy

12. Kubelet

13. pods

14. Multi container pod

15. Pod limitations

16. Replica sets

17. Deployments

18. Installation of Kubernetes

19.Installation and setup kubernetes

20.Adding worker in Kubernetes master

21.Pod creation

22.Service creation

**Tomcat Web Server**

1. Installation

2. Configuration

3. Tomcat manager

4. Application management

5. App deployment methods.Deployment creation

**SonarQube**

1.What is sonarqube

2.Advantages of sonar

3.installation and configuring sonar

4.Integration sonar with jenkins

**Nexus**

1.What is Nexus

2.Types of reposistories in Nexus

3.Installation and setting up Nexus

4.Integration of Nexus with jenkins

**Release management**

1.What is Release management

2.What is CRQ and CAB prcess

**Jira**

1.What is Jira

2.Usage of Jira as bug tracking tool

**Virtual box**

1) What is VM

2) Uses of VMs

3) Setting up VM

**Projects**

1. Devops Real CI-CD pipeline project

2. Interview questions

3. Mock Interviews (Technical, Manager & HR)

4. Resume preparation & Evaluation

5. Real time Scenarios

6. Day-to Day activities

7. Provide Material

8. Exam at the end of course

**My way of Teaching**

1. Theoretical Knowledge

2. Practical Knowledge

3. Interview & Exam Points

4. Provide material

5. Exam at the end of course

6. Resume preparation (Fresher’s & Experience)

7. Provide project

8 Interview cracking tips