ETHANS TECH

#PUNE'S NO. 1 TRAININIG

DEVOPS CURRICULUM

We Are Open For Career Counselling At Our Branches

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DEVOPS ON CLOUD DETAILED SYLLABUS

Module-1: DevOps Introduction (3 Hours)

- What is DevOps?
- DevOps Roles
- DevOps Necessities
- DevOps Problems & Solution
- Making a DevOps Transition
- DevOps: Continuous Delivery and Benefits
- DevOps: Lean thinking, a change of culture
- Linux Fundamentals
- Commands in Linux
- Networking Concepts

Module 2 - Cloud Computing and Amazon Web Services (12 Hours)

- Introduction to Cloud Computing, Service Models, Deployment Models.
- AWS Overview
- Create an AWS account and browse the components

Recognise AWS Global Infrastructure

- AWS Regions
- AWS Availability Zones

- Describe the security measures AWS provides
- Hosting a web App on Amazon Web Service

AWS VPC

- VPC Overview
- VPC creation and Lab
- Subnet management

AWS Compute Services

- EC2 Overview,
- EC2 Type,
- Security Groups
- Elastic Load Balancer Overview, ELB type and ELB Lab
- Auto Scaling and Lab

AWS IAM Service

- IAM User
- IAM Policy
- IAM Role
- IAM Groups

AWS S3 storage service

- S3 Storage Classes
- S3 Policy
- S3 Lifecycle Management

Module - 3 : Continuous Integration with Jenkins (15 Hours)

- Introduction to Continuous Integration
- Introduction to Version Control (GIT)
- GIT commands and GitHub
- Configuration Management and Automation
- Jenkins: Introduction and installation
- Jenkins Configuration
- Installing Artifactory
- Setting Up Version Control system
- Jenkins Maven Integration
- Jenkins Best Practices
- Jenkins Master Slave Architecture
- Integrate SonarQube for static code analysis

Module 4 - Ansible for configuration management (12 Hours)

- Introduction of Ansible tool
- Introduction to YAML Syntax
- How to Installation Ansible?
- Ansible: First Playbook
- Ansible: First Playbook demo
- Basic: Running Commands
- Ansible: Roles, Files and Handlers
- Utilizing Ansible Vault for Encryption/Decryption
- Ansible: Best Practices

DEVOPS ON CLOUD DETAILED SYLLABUS

Module 5 - Docker Session & Orchestration Tools (12 Hours)

Introduction to Docker and Docker installation

- What is a Docker
- Why docker
- Use case of Docker
- Dockers vs. Virtualization
- Installing Docker on Linux
- Docker commands

Docker Architecture

- Docker Architecture
- Understanding the Docker components
- Docker best practices

Docker Hub and Docker Image Repository

- Downloading Docker images
- Uploading the images in Docker Registry and own registry.
- Understanding the containers
- Running commands in container
- Running multiple containers

Docker Custom images

- Creating a custom image though dockerfle
- Running a container from the custom image.
- Publishing the custom image

Docker Networking

- Understanding of docker networks
- Docker network creation and management
- Accessing containers
- Linking containers

MicroService Deployment

- Create Dockerize application
- Understanding microservice architecture
- Deploying microservice to docker container

Overview of Docker Compose and Docker Swarm

- Overview of Docker compose
- Terminology in Docker compose
- Build applications using Docker compose
- Docker Swarm Functioning
- Swarm cluster creation
- Docker container communication in cluster.

Module - 6 : Kubernetes (12 Hours)

- Kubernetes Introduction
- What is Kubernetes
- Why Kubernetes
- Kubernetes advantages over other container management tools

Kubernetes Installation and Cluster Setup

- Installation and cluster creation
- Understanding various installation methods

Kubernetes Components

- Kubernetes features
- Kubernetes pod creation
- Kube API Server
- Kube Controller Machine
- Kube etcd
- Kube Scheduler
- Replica sets/Replication Controller

Kubernetes Deployment

- Deploying dockerize application to the Kubernetes cluster
- Kubernetes scaling Management
- Working with Labels

Kubernetes Architecture

- Understanding of Kubernetes Architecture
- Exploring Kubernetes Master and Node component

DEVOPS ON CLOUD DETAILED SYLLABUS

Module - 7 : Terraform (9 Hours)

- What is Terraform
- Build infrastructure using Terraform code
- Change, destroy, manage infrastructure
- Integrating Terraform on AWS
- Updates to existing setup using Terraform

Module - 8 : Nagios (4 Hours)

- Nagios Architecture
- Performance and Automated Monitoring
- Nagios plugins to monitor application performance

Projects:

- **Project 1: Automating Webserver and Website hosting with Ansible**
- **Project 2: Microservices Automation and Deployment Using AWS and Docker**
- **Project 3: End to End Continuous Delivery Automation with Git, Jenkins, Ansible including Continuous Integrations, Continuous Testing and Continuous Deployment Pipeline**
- **Project 4: Packaging Microservices on Docker Containers**
- **Project 5: Complete CI/CD pipeline setup using Git, Jenkins, Tomcat, AWS**
- **Project 6: CI/CD by Dockerizing a Jenkins Pipeline**
- **Project 7: CI/CD Pipeline setup through Jenkins Pipeline Job**
- **Project 8: Docker based CI/CD Pipeline**
- **Project 9: Kubernetes based CI/CD Pipeline.**