Master in DevOps

An IIT-M & IIM-A Incubated Company

Instructor: Industry Mentors

Course Duration: 5 months(Weekends)

COURSE DESCRIPTION

DevOps is a software development methodology that combines software development (Dev) with information technology operations (Ops) participating together in the entire service lifecycle, from design through the development process to production support.

System Requirements:

Processor: I5/I7
Ram: 8GM n above
HDD: 500GM & above or SSD(preferred)

Tools: Git, Git-CLI, AWS, Jenkins, Docker, Python, Oracle VM ware, Ubuntu, Kubernetes, Ansible, Vagrant Box, AWS & GitHub Account

Module 01: Introduction to DevOps

- What is SDLC?
- Types Of SDLC Methods.
- What is Agile Methodology?
- What is SCRUM Methodology?
- What is DevOps?
- Need for DevOps Culture.
- What is a Continuous Integration?
- What is Continuous Delivery?
- Benefits Of DevOps

Module 02: Vagrant Setup

- What is Vagrant?
- Vagrant Basic Commands
- What is a Vagrant File?
- Vagrant File Initialization
- Vagrant Automation

Module 03: Linux(Centos7/Ubuntu)

- Introduction to Linux
- Basic Commands
- More Commands (mkdir, cp, mv, touch, etc)
- Filters
- Redirections
- Users and Group
- File permissions
- Process
- Archiving
- Ubuntu Based Commands

Module 04: GIT

- Introduction
- Versioning, staging & un-staging
- Branching, Merging, and rebase

- Rollback, reset
- Git ssh login

Module 05: Vagrant and Linux File servers

- Vagrant IP, RAM & CPU
- Website Setup
- Website Setup, WordPress
- Automate Website setup
- Introduction to networking and OSI models
- Understanding the networking, IP
- Networking Commands

Module 06: Bash Scripting

- Introduction to Bash Scripting
- VM setup
- First Setup
- Sample script
- Variables
- Command Line Arguments
- System Variables
- Exporting the variables
- user input
- Decision Making
- Loops
- While Loops
- Writing the shell script to host the website

Module 07: Introduction to Container

- What are containers
- What is Docker
- Hands-On Docker Containers
- Microservices

Module 08: AWS Infrastructure -1

- What is cloud computing?
- EC2
- Launching an EC2 and accessing it using CLI
- EBS & Mounting on EBS
- EBS snapshots
- ELB
- Cloud watch

Module 09: AWS Infrastructure -1(Cont'd)

- EFS & Autoscaling
- S3
- RDS
- Beanstalk
- RDS & App setup on Beanstalk
- Code commit
- Code build
- Build Deploy and Codepipeline

Module 10: Dockers

- Introduction
- Docker installation and commands setup
- Docker logs and Docker volumes
- Building images
- Docker Compose

Module 11: Kubernetes

- Introduction
- Minikube setup for K8s setup
- Kops for K8s setup
- Object and Documentations
- Kube config

- Namespace
- Pods
- Different levels of logging
- Service
- Deployment

Module 12: Continuous Integration using Jenkins

- Introduction to Jenkins
- How to change Home Directory
- How to use Jenkins from the command line
- How to create Users + Manage + Assign Roles
- Jenkins authentication and authorization

Module 13: Continuous Integration using Jenkins (Cont`d)

- Basic Configurations
- Jenkins integration with GIT (SCM)
- How to add GitHub Credentials
- How to do Automated Deployment
- How to send Email from Jenkins

Module 14: Infrastructure as a Cloud Using AWS

- Introduction to Cloud Formation
- Simple example using Cloud Formation & Intrinsic Function
- Create Multiple resources using the Cloud Formation Template

Projects:

Setup a DevOps CI/CD pipeline for web application

Automated Website deployment with Docker

Create a monitoring dashboard for the web application

Building a scalable application with docker & Kubernetes

Implement CI/CD for DevENV/ProdENV deployments

Automated resource allocation.