Devops & Cloud Engineering

Industry 4.0 is moving towards automation, security, cloud, observability and containerization. The big organizations like Netflix, hotstar and spotify are using Devops and DevSecOps model.

So this course is designed to understand and explore these technologies hands-on

Why should you learn from us?

- A Team built with Professional Trainers having an experience of delivering for more than 20K students
- An outreach of 300+ colleges pan India
- Associated with multiple Corporate as hiring partners
- Minor & Major project development
- Internship opportunity.

The Fee structure is mentioned below:

DURATION	**6 Week / 90 Hours**
Course Fee	**INR 12500/-** + 18 % GST (INR 14,750/-)

Who can attend this program?

- Engineering Undergraduates/Computer Programming Pursuing
- Linux/Cloud Hobbyists
- Students willing to Get through with DevOps, Cloud, Docker, Kubernetes, Ansible
- Knowledge of any computer programming is advantageous

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Project Titles

Capstone Projects (8)

1. *Build and deploy two tier web application using docker compose with certbot*
2. *Setup and deployment and auto build and deployment of container-based application using jenkins file.*
3. *Design a microservice oriented container networking solution where there will be 3 tier models like fronted, backend and databases. Try to keep them in different network bridges.*
4. *Deploy statefulset for creating multiple mysql pods by keeping this in mind that your storage provisioner must be running within a cluster and keep database architecture in mind.*
5. *Using ansible create a working 3 node k8s cluster, use kubeadm inside ansible*
6. *Deployment of wordpress framework using EFS over multiple instances .*
7. *Design and deployment infra based on following requirements.*
    a. *Create such a docker image which must be capable of counting number of containers in particular host*
    b. *Deployment this image in k8s cluster in such a way so that they must count the number of containers in each instance*
    c. *Deploy another container which can take input from all previous containers and display the total count in a web page.*
8. *Design a terraform script which can provision and 2 ec2 instance and also setup below given things*
    a. *It must install all container related components*
    b. *Also copy an compose file from terraform instance*
    c. *Compose file must have such a design which must have two tier app*
    d. *All the container related work must be running 2nd instance only also first instance will be docker client.*

Industry Use Cases (10+)

- *Creating a command-line based chatting platform using netcat*
- *Sharing web application content with Apache httpd and NFS*
- *How RedHat Enterprise Linux is getting used by IRCTC & LIC*
- *Extending file system in real time of a running application server*
- *Deploying two tier application using amazon ELB*
- *Gathering logs in cloud watch for on prim and on cloud instances*
- *A multi-tier microservices testing using docker compose*
- *Containerizing a GUI app like notepad*
- *Accessing container portal with QR code*
- *Deploying a database replica using stateful-sets*
- *Eks and aks deployment for real time application*
- *HPA and CRD customer story*
- *Business use cases for deployment of eks or aks*
- *Terraform VPC design and ec2 planning*

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DevOps & Site Reliability Engineering

(Duration – 6 Weeks/90 Hours)

Linux M1 – 8 Days (20 Hours)	• Deep dive with Linux flavors • Installing Centos / Redhat
	• Basic command • The Environment • A Gentle Introduction to vi / vim / nano • Customizing the Prompt
	• Text Processing & IO • Tar extracting and compression
	• What Is the Shell? • Basic shell scripting
	• User management • Basic permission
	• Networking concept • DHCP & DNS
	• Firewalld • Creating partitions with XFS format
	• NFS, SSHFS • Growing partitions
	• SSH & RDP
	• Creating a command-line based chatting platform using netcat • Sharing web application content with Apache httpd and NFS • How RedHat Enterprise Linux is getting used by IRCTC & LIC • Extending file system in real time of a running application server
Planning Business Applications M2 – 9 Days (22.5 Hours)	• What is cloud computing • Types Of Cloud Computing • Cloud Computing Issues
	• Virtualization • Types of virtualization • Cloud Delivery Models
	• Features of Cloud Computing • Amazon Web Services (AWS) • Creating ec2 instances
	• Introduction to IAM services • Creating user groups and accounts using IAM • Creating permission boundary and policies
	• Deploying applications with apache httpd and nginx web servers

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	• Elastic Ip's, ELB (Elastic Load Balancer)
	• Storage services - EBS
	• introduction to amazon RDS • Creating RDS free tier instances
	• Monitoring with cloud watch • Introduction to other monitoring tools
	• Deploying two tier application using amazon ELB • Gathering logs in cloud watch for on prim and on cloud instances
Containerization using Docker & Podman M3 – 5 Days (12.5 Hours)	• Container History • Container runtime engines • Installation of docker on various platforms • Need of containers
	• Docker architecture understanding • Docker operations • Docker images and registry
	• Docker building with Dockerfile • Container basic operations • Python and java based containerization
	• Pushing image to docker registry • Pushing image to ECR and ACR
	• Docker networking • Docker webui demo using portainer • Docker compose demo and understanding
	• A multi tier microservices testing using docker compose • Containerizing a GUI app like notepad • Accessing container portal with QR code
Kubernetes M4 – 5 Days (12.5 Hours)	• Introduction to container orchestration engine • Setup k8s cluster using minikube & kubeadm
	• K8s client options • Pod concept • Pod details
	• Access k8s apis using curl • Introduction to service • Nodeport service demo
	• Configmap demo • Intro to deployment • Javabase app deployment
	• Kubernetes secrets

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	• Storage demo for local storage
	• K8s dashboard • App deployment using dashboard
	• Deploying a database replica using stateful-sets • Eks and aks deployment for real time application
Ansible & Terraform for Infrastructure Provisioning M5 – 4 Days (10 Hours)	• Introduction • Terraform Setup • Terraform configuration and HCL • provisioning of AWS for ec2 resources
	• Understanding terraform state file • Terraform provider and versioning • Terraform variables and data types
	• Introduction to ansible • Difference b/w ansible and terraform • Lab- Setup VMs and Install Ansible • Ansible inventory • Introduction to YAML • Ansible Playbooks
	• Business use cases for deployment of eks or aks • Terraform VPC design and ec2 planning
SCM & VSC – git/github M6 – 1 Day (2.5 Hours)	• Introduction to Github • Creating repo and updating code
CICD – Jenkins & Azure DevOps M7 – 3 Days (7.5 Hours)	• What is ci & cd • Need of the industry • Installing Jenkins
	• Understanding Jenkins and azure DevOps • Creating jobs and connecting to technology
	• Docker & k8s connecting • Aws connection • Design entire pipeline
Monitoring with Datalog M8 – 1 Days (2.5 Hours)	• Creating datadog account • Integrations and alerts
	• Container and cloud monitoring • Kubernetes monitoring

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