ETECHCONSULTINGLLC

Devops Engineering Master Program syllabus
"We Train you from scratch to Pro"
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New York,USA.
TOTAL COURSE HOURS= 260 hrs

Module 0: Devops Essentials Total= 6 hrs

Topics:

- Why Devops?
- What is Devops?
- Agile and Devops
- Devops lifecycle
- Devops Market Trends
- Devops Delivery Pipeline
- Devops Ecosystem and use case
- Introduction to virtualization
- Introduction to cloud computing

Module 1: Linux/Unix Operating System Administration Total=36hrs +18hrs

Topics:

- What is an Operating system(OS)?
- Differences between an Application and OS?
- Types of Operating systems
- Linux OS installations and configurations
- Linux commands
- User Account management
- Linux shell and kernel theory
- What is a filesystem?
- File management
- Disk management
- Network management

- **Linux kernel process management**
- **Linux process automations (bash)**
- **Shell scripting**
- **Cronjob configurations**
- **Module 1 projects**

Module 2: Mysql Database Administration **Total= 12 hrs**

Topics:

- **What is a database?**
- **Why do we need databases?**
- **Types of databases**
- **Mysql database server installations**
- **Mysql commands**
- **How to create a database(db)**
- **How to create a table within a db**
- **How information can be change within a db**
- **How an application communicate with a db**
- **Database performance troubleshootings**
- **Applications cases for mysql db**
- **Module 2 projects**

Module 3: Source Code Management with Git and Github **Total= 15 hrs**

Topics:

- **Overview of version control systems**
- **Central vs Distributed version control systems**
- **Introduction to Git**
- **Git file workflow**
- **Important Git commands**
- **Git Branching workflow**
- **Introduction to Github**
- **Git and Github integrations**
- **Git Operations(GitOps)**
- **Github runners concepts**
- **Git security with talisman tool**
- **Module 3 projects**

Module 4: Code Build tools with Maven **Total= 9 hrs**

Topics:

- **Overview of various Build tools**
- **What is maven**
- **Maven plugins**
- **What is a plugin?**
- **Maven build lifecycle**
- **Source control integration**
- **Project Object Model (POM)**
- **Technical terms concepts (compile, validate,execute)**
- **Module 4 projects**

Module 5: Code Quality control **Total= 6 hrs**

Topics:

- **Sonarqube configurations**
- **What is a quality gate?**
- **What is quality profile?**
- **Sonarqube plugins**
- **Sonarqube-maven integration**
- **Module 5 project**

Module 6: Continuous Integration using Jenkins **Total= 18 hrs**

Topics:

- **Overview of continuous integration**
- **Overview of jenkins**
- **Jenkins architecture**
- **Installing and configuring jenkins**
- **Jenkins management**
- **Jenkins build pipeline**
- **Jenkins multi-branch pipeline**
- **Jenkins shared library**
- **Jenkins parameterized build pipeline**
- **Module 6 project**

Module 7: Continuous testing **Total= 12 hrs**

Topics:

- **overview of continuous testing**
- **software testing life cycle**

- Different types of testing
- test - driven development approach using junit
- Testing web application using selenium
- Module 7 project
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Module 8: Containerization with Docker **Total= 21 hrs**

Topics:

- What is a Docker container?
- Why containerization
- Difference between virtual machine and containerization
- Docker architecture and components
- Image Distribution using Docker hub and ECR
- Dockerfile
- Multi-stage dockerfile
- Docker Networking
- Docker-compose
- Docker volume
- Docker swarm
- Docker projects

Module 9: Kubernetes **Total= 33 hrs**

Topics:

- What is kubernetes?
- Basics of kubernetes container orchestration engine
- Docker swarm vs Kubernetes
- Kubernetes architecture
- Installing kubernetes using kubeadm
- Kubernetes objects
- Creating kubernetes objects using yaml
- Using Replicaset and rolling updates
- Scheduling applications on container pods
- Services in kubernetes
- Kubernetes security

- **ServiceMesh technology with Istio**
- **Kubernetes on AWS (EKS)**
- **Kubernetes on Azure (AKS)**
- **Kubernetes on GCP (GKE)**
- **Kubernetes-jenkins integration**
- **Kubernetes cluster maintenance**
- **Kubernetes cluster failures troubleshootings**
- **Cluster app monitoring with prometheus/Grafana**
- **Overview of Datadog agent injections**

Module 10: Infrastructure as a Code (IAC) with Terraform Total= 21 hrs

Topics:

- **What is terraform?**
- **Terraform vs cloudformation**
- **Terraform installations and configurations**
- **Hashicorp Configuration Language (HCL) Introductions**
- **What are Terraform plugins?**
- **Terraform configuration directory**
- **Terraform configuration file structure**
- **Terraform module concept**
- **Terraform security with vault**
- **Terraform with AWS**
- **Terraform with Azure**
- **Terraform with GCP**
- **Terraform-jenkins integrations**
- **Terraform projects**

Module 11: Amazon Web Services Devops **Total= 18 hrs**

Topics:

- **Aws global service vs Regional service**
- **EC2 setups**
- **Aws security Group**
- **Aws EC2 network concepts**
- **Classless InterDomain Routing (CIDR)**
- **Virtual Private Cloud (VPC)**
- **Aws IAM**
- **Aws ElasticBlockStore (EBS)**
- **Aws ElasticFile System (EFS)**
- **Aws ElasticSearch (ELK)**
- **Aws Simple Storage Services (S3)**
- **Aws ElasticContainerRegistry (ECR)**
- **Aws devops overview**
- **Aws ElasticContainerServices (ECS)**
- **Aws serverless technologies**
- **Aws Relational Database Services (RDS)**
- **Aws cache technologies (redis and memcached)**

Module 12: Azure Devops **Total= 9 hrs**

Topics:

- **Azure cloudshell**

- **Azure virtual machine configuration using template**
- **Azure Subscription**
- **Azure DNS**
- **Azure Disk**
- **Azure Active directory services**
- **Azure functions**
- **Azure App services**
- **Azure kubernetes operations**
- **Azure container Registry**
- **Azure resource manager (azurerm)**
- **Azure Pipeline**
- **Azure Repos**
- **Azure Artifacts**

Module 13: Google Cloud Platform **Total= 9 hrs**

Topics:

- **Google cloudshell (gcloud utility tool)**
- **Google projects dashboard**
- **Google Virtual machine build**
- **Google persistentDisk**
- **Google kubernetes Engine(GKE)**
- **Google compute Engine**
- **Google container Registry (GCR)**
- **Google cloud build**
- **CI/CD pipeline concepts**
- **Single Page App deployment (GKE)**

Module 14: Python for Devops Engineers (Optional for students) free 12hrs
Topics:

- Why learning python?
- What is python?
- Python IDE set up
- Python programming syntax overview
- Python libraries for automation flow
- Python functions
- Python task scripting
- How to write a web base app using python
- How to write python codes to automate linkedin job applications
- Python-mysql integration for web applications
- How to write Terraform config files using python

Module 15: IT organization infrastructure work tools stack Total= 3 hrs
Topics:

- Pagerduty
- Jira
- Confluence
- Servicenow
- Incident management systems
- slack

Course Requirements:

Computer device:

- **Laptop or desktop of the following specifications**
- **RAM = At Least 8GB**
- **CPU = i5 and up intel or amd processor**
- **storage= At least 250 GB SSD harddrive**
- **STRONG and STABLE internet connections**
- **Computer device with webcam integrated**

Q&A: Do i need prior IT knowledge to take the course?
Answer: NO

Why? "Because we train you from scratch to professional"

What kind of jobs can i work after training?

- **Devops Engineer**
- **Multi-cloud platform Engineer**
- **Infrastructure Engineer**
- **Application support Engineer**
- **Senior System Engineer**
- **Devsecops Engineer**
- **IT consultant**
- **IT manager**
- **Site Reliability Engineer**
- **Aws solutions architect**
- **Senior linux systems engineer**
- **Application security engineer**

Questions: Can i obtain a certification with the course ?
Ans: yes
We can prepare you for

- **Aws certified solutions architect associate exam**
- **Certified kubernetes administrator(CKA)**
- **Terraform hashicorp certifications**
- **RedHat certified systems engineer (RHSE)**
- **RedHat certified systems administration (RH**