Basics of Operating System & IT Fundamental

- Introduction about IT and Demanding Technologies
- Intro about DevOps & Cloud Computing
- Intro about tools and technology for DevOps & Cloud Computing
- Intro about Open Source Technology & Tools
- Hardware vs Software and How they works together
- Operating System Intro and Types of OS
- Installing OS (Linux) on Bare Metal, Virtual Machine, & Cloud
- Basics of Operating System and Performing Basic Tasks
- Understanding of Filesystem and It's architecture
- Accessing Linux Machine Remotely & Physically
- Understanding CLI & GUI & Managing Linux via CLI
- Shell Basics (Basic Commands, Variables, I/O Redirection)
- Getting Help in Shell

Linux Administration (RHCSA)

- Understanding Authentication, Authorization & Auditing
- User creation and Management
- Configuring Permission to restrict access (Basic Permission, Special Permission, ACL, Attributes)
- Understanding Process Management & Monitoring System activity via GUI and CLI with different-2 tools (ps, top, htop, vmstat, iostat)
- Understating rpm packages and Repository concepts in Linux
- Installing software and patching updates
- Service Management & Configuration using systemctl
- Understating Networking like how computer communicates with each other
- Understating IP addresses, Protocols, Server-Client Model, TCP/IP Model
- Configuring IP address via GUI & CLI and Troubleshooting Network Issues
- Understanding Storage Management & Configuring Partitions using fdisk and Parted command

- Configuring swap partition, LVM Partition, Thin Provisioning, VDO and Stratis along with understanding fstab file
- Creating shell script to automation system administration tasks
- Scheduling tasks using cronjob & anacron
- Understanding Log Management & Audit system using different-2 tools like auditctl and journalctl command
- Taking Backup using backup tools and remote data transfer
- Understanding Encryption & SSH and how ssh uses encryption to secure shell access
- Configuring secure login using password less authentication and SSH Hardening
- Understating Boot Process and Troubleshooting boot issues, reset root password
- Understanding run level and target
- Performance Tunning using static tunning profiles

Server Configuration & Management

- Domain Name System (Nameserver using Bind)
- Understanding Application Deployment and WebHosting
- Configure WebServer & Deploy Application and Host Website (httpd, nginx)
- DataBase Server (MySql, Mariadb)
- Mail Server (Postfix, Dovecot, Squirrelmail)
- NFS Server
- FTP & SFTP Server
- SSH Server (OpenSSH)
- Storage Server using ISCSI
- Network Security using Firewall (firewalld, iptables)
- Selinux
- Server Hardening
- Performance Tunning

Automation using Ansible (RHCE)

- Understanding Automation
- Intro about Ansible and Installation of Ansible
- Automate administrative task using adhoc command
- Understanding playbook and automating complex administrative tasks using playbook
- Understanding and using variables, secrets and facts
- Implementing task control using loop and conditionals
- Using handlers and handling errors
- Understanding jinja2 template and manage configuration with jinja2 template
- Editing configuration file using file management modules
- Managing large projects with dynamic inventories and implementing parallelism
- Include and import tasks in playbook
- Understanding roles, role creation, and deploy application role using ansible galaxy roles
- Troubleshooting ansible playbooks and hosts

Virtualization & Cloud Computing

- Understanding virtualization technology, types of virtualizations and need of virtualization in industry
- Understanding Datacenter concept
- Implement virtualization technology using hypervisor for creating virtual resources (Virtual Machines)
- Creation and Management of Virtual Machine
- Configuring snapshot of Virtual Machine
- Understanding Cloud Computing, Types of Cloud and Cloud Providers (AWS, Azure, GCP)

AWS Cloud (Amazon Web Service)

- On-premises v/s AWS Cloud and Understanding AWS Cloud Architecture
- Introduction & Manage Amazon Elastic compute cloud
- Compute Services – EC2
- Networking Services
- DNS Services – Route 53
- VPC Introduction & Configurations
- S3 & Glacier Storage services
- Database services
- Identity Access Management
- Amazon Cloud Watch Monitoring & Auditing
- Analytical Services
- Migration Services
- Application Services
- Deployment and Management Services
- Enterprise Application
- Disaster and Recovery
- Business Essentials
- Troubleshooting

Container Technology (Docker)

- Understanding challenges before Containerization
- Understanding microservices
- Understanding Bare Metal Deployment, VM Deployment and Deployment in the form of Container
- What is container and VM v/s Container
- Benefits of Containerization
- Introduction about Docker
- Understanding Docker Architecture and Installing Docker
- Basic Docker commands and Creating containers and deploy application in the form of container using docker image
- Understanding Registry and Docker Hub

- Understanding Docker Images and Image management using Docker registry
- Understanding Docker file and image creation using Docker Image
- Understanding Docker Networking and Implement in containers
- Understanding Docker volume and configure persistent volume for containers
- Understanding Docker Compose and manage multi-tier application using Docker Compose
- Intro About Container orchestration (Docker Swarm, Kubernetes, Mesos)

Kubernetes

- Intro about Kubernetes and it's architecture
- Understanding Kubernetes core components and container orchestration using Kubernetes
- Setup and configure Production ready Kubernetes cluster with network plugins
- Performing basic operation using kubectl command
- Understanding pods and deploying pods using command & Definition file
- Understanding pod's architecture and Networking
- Understanding Deployment strategies (Pod, ReplicationController, ReplicaSet, Deployment, DaemonSet)
- Deploy application using deployment strategies
- Understanding labels and selectors and using them on resources
- Scaling application and limit resources on pods
- Understanding and managing namespaces
- Configure permission using RBAC (role and cluster role)
- Expose application on internet using Services
- Understanding and using certificate to authenticate on resources
- Understanding networking in cluster and configure network policies
- Understanding ingress and implementing in cluster
- Monitor cluster events and alerts
- Troubleshooting resources and Cluster
- Intro about OpenShift Container Platform

Terraform (IaaC)

- Introduction to Infrastructure as Code
- Getting Started with Terraform
- Terraform Basics
- Terraform State
- Working with Terraform
- Terraform with AWS, Azure, GCP
- Remote State
- Terraform Provisioners
- Terraform Import, Tainting Resources and Debugging
- Terraform Modules
- Terraform Functions and Conditional Expressions

DevOps

- Introduction about DevOps
- Challenges before DevOps
- Understanding DevOps lifecycle
- Understanding CI/CD
- Benefits of DevOps

DevOps Tools

Git

- Why VCS (version Control System)?
- VCS tools Distributed VCS
- What is Git & Why Git?
- Features Of Git
- Git Workflow
- Git Configurations

- Creating Git Repository and Syncing Repositories
- Adding Origin
- Pushing changes & Pulling changes
- Clone operation Perform, Review & Commit Changes
- Stacking Unfinished Changes
- Move, Rename & Delete Operations
- Tagging Versions In Repository

➢ Maven

- Understanding concepts of code building
- Building code using maven
- Automating code building

➢ Jenkins

- Challenges before Continuous Integration
- What is Continuous Integration?
- Benefits of Continuous Integration
- Tools of Continuous Integration
- Introduction to Jenkins
- Configuring Jenkins
- Build Setup in Jenkins
- Jenkins Dashboard
- Creating jobs in Jenkins
- Configuring Security in Jenkins
- Plugin Management in Jenkins
- Notification System
- Jenkins Maven Integration
- Jenkins Best Practices

➢ Nagios

- What is Continuous Monitoring?
- Introduction to Nagios
- Nagios Setup
- Nagios Plugins
- Introduction to Events
- Objects in Nagios
- Nagios Commands
- Nagios Notification

- Grafana
- Sonarcube
- Prometheus
- GitLab
- PagerDuty
- Snort

Live Industry Projects

- 5+ live industry projects to deploy production ready application on AWS Cloud using different-2 services
- 5+ live industry projects to configure and deploy application using DevOps tools like Jenkins for CI/CD pipeline and integration with ansible, terraform, Kubernetes