Azure Training

Introduction to Microsoft Azure

- Account Setup, Adding Subscription, Free and Paid Subscriptions
- Introduction to Console, General Settings.

Manage Resource Groups

- Concept and Regions of Resource Group,
- Creation and Deletion of Resource Group
- Use Azure policies for resource group
- Configure resource locks
- Configure resource policies
- Implement and set tagging on resource groups
- Network Watcher Resource Group

Virtual Networks (VNET)

- Introduction to Networking and IP Addressing.
- Concepts, Limits, Pricing and Features of VNET.
- Concepts of Private and Public IP Address, CIDR,
- Azure Regions and Availability Zones.
- Create and Con gure VNET, Subnets.
- Routing theory, design and implementation for VNET.
- Create and Con gure VNET Peering – Local & Global
  Design and Implementation of network security

- with Network Security Groups.
- Create and Configure VPN Gateway in Gateway Subnet.
- Create and Configure On-Prem to Cloud-Prem
- connectivity with Site to Site VPN

Virtual Machines (VM)

- VM purchase options in Azure.
- VM types and pricing in Azure.
- KeyPair concepts, creation on non-Azure tools, .ppk and .pem format.
- Diploy Windows and Linux Vms.
  - **Manage Azure VM:**
    - Manage VM Sizes.
    - Add Data Disk.
    - Add Network Interface.
    - Opening Ports.
    - Configuring Static IP to Instance.
    - Configure Boot Scripts.
    - Configure Monitoring VM
    - Move VMs from one Resource Group to another.
  - **VM Storage:**
    - Introduction to Managed Disks.
    - Types of Disks.
    - Creating Managed Disks.
    - Attaching Managed Disks to Instances.
    - Managed Disk Snapshots.
    - Migration of Managed Disk Snapshots.
    - Restoring Managed Disk Snapshots.

- **Automate Deployment of Vms:**
  - Introduction to Load Balancer(LB).
  - Public facing and Internal LB.
  - Concepts of Availability Set, Fault Domains Update Domains.
  - Configure and Implement LB.
  - Backend Pool, Health Probe and Load balancing Rules Concepts.
  - Adding VMs to Backend Pool.
  - Test Load Balancing and High availability.

- **VM Load Balancing:**
  - Introduction to Load Balancer(LB).
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  - Adding VMs to Backend Pool.
  - Test Load Balancing and High availability.

- **VM Scale Sets:**
  - Introduction and concepts of Auto Scaling.
  - Configure and deploy Scale Sets.
  - Scale Out and Scale In
  - Auto Scaling Policies.
  - Testing Auto Scaling Configuration

- **Manage VM backups:**
  - Configure VM backup
  - Define and Implement backup policies
  - Perform VM restor

- **Migrating On-Prem VM to Azure:**
  - Migration concepts and Prerequisite.
  - Migrate by using Azure Site Recovery (ASR).
  - Migrate using P2V.
  - Create a recovery services vault.
  - Prepare source and target environments.
  - Deploy Azure Site Recovery (ASR) agent, prepare virtual network.
  - Set up a Replication Policy.
  - Enable Replication.

Azure Storage

- **Azure Storage Account:**
  - Introduction to Storage Accounts.
  - Create and configure Storage Account.
  - Storage Performance types.
  - Types of Storage Accounts.
  - Storage redundancy options.
  - Storage Access Tiers.
  - Azure Storage Services – Blobs, Files, Disks, Queues and Tables.
  - Storage Secure Transfer, Allow Access and Data Protection
  - Manage Access Keys.
  - Storage account scale limits

- **Azure Blob Storage:**
  - Create and Configure Blob Container.
  - Blob Container Access level.
  - Upload data in container.
  - Access data from container.
  - Manage snapshots of Blob Objects.
  - Azure Storage Explorer
  - Cloudberry Storage Explorer
  - Configure Access Policy.

- **Azure Files Storage:**
  - Introduction to File shares.
  - Configure File Share Quota.
  - Mounting File Share on multiple Instances Simultaneously.
  - Configure Access Policy.

- **Azure Backup:**
  - Backup Concepts.
  - Pricing of Azure Backup vs On-Prem Backup Technologies.
  - Configure Recovery Service Vault.
  - Perform backup operation
  - Create and configure backup policy
  - Perform a restore operation

Azure Storage

- **Azure SQL Databases:**
  - Introduction to MSSQL.
  - Create SQL Database.
  - Configure Compute and Storage tiers.
  - Disaster recovery – DB Backup.
  - Configure and use SQL Server Management Studio.
  - Configure and Manage SQL Database.

- **Azure Databases for MySQL:**
  - Introduction to MySQL.
  - Create MySQL Database.
  - Configure Pricing Tiers.
  - Disaster recovery – DB Backup.
  - Configure and use MySQL Workbench.
  - Configure and Manage SQL Database.

Azure Storage

- **Introduction to On-Prem Application Hosting Technologies.**
- **Introduction to VAPP.**
- **App Service Pricing Tiers.**
- **Application Insights.**
- **Build and Deploy VApp using GitHub Repository.**
- **Build and Deploy VApp using Local Git Repository.**
- **Configuration of Application Environment.**
- **Deploy a Custom Application.**
- **Creating Application Clone.**
- **Swapping Application URL's**
- **Configure Azure content delivery network (CDN) integration**

Manage Identities

- Introduction to AD, Adding custom Domain to Azure.
- Creating AD Users and Groups.
- Manage User and Group properties.
- Synchronizing AD tenants to Azure AD.
- Configure Azure AD Connect.
- Managing Azure AD with PowerShell.

Access Control (IAM)

- Introduction to Access Control (IAM)
- Manage role-based access control (RBAC)
- Adding Role Assignments.
- Implement Multi-Factor Authentication (MFA) for an Azure AD tenant.

DNS Zones

- Introduction to Name Resolution.
- Domain Name Registration and Domain Name Registrars.
- Hosting Zones in Azure DNS zones.
- Public and Private Zones.
- Creating Records and testing them.
- Record Types, Load Balancing.

Introduction to Automated Provisioning.

- Azure Cloud Formation concepts.
- Introduction to Runbooks, Runbooks Library.
- Runbook Types – PowerShell, Python, Graphical
- Configure and Publish Runbooks templatesfrom Library.
- Import and Export Runbooks.
- Configure and Publish Customized Runbooks.
- Link a schedule to Runbook.

Application Gateway

- Introduction to Application Layer Load Balancing.
- A web traffic load balancer.
- Application Gateway Profile, prepare web servers.
- Application Gateway backend pool.
- Prepare testing Environment.
- Application Gateway Pricing.

Traffic Manager

- Introduction to DNS-based traffic load balancer.
- Traffic Manager Profile, Routing Methods.
- Prepare web servers, Traffic Manager endpoints.
- Prepare testing virtual machines.
- Check DNS based load balancing.
- Traffic Manager Pricing

AWS TRAINING

Introduction to Cloud Computing

▶ Legacy Datacenters and Software Defined Datacenters. IaaS, PaaS and SaaS

Introduction to Cloud Computing

▶ Account Setup, Introduction to Console, General Settings

Virtual Private Cloud (VPC)

▶ 1. Introduction to On-Prem Networking and Addressing.

▶ 2. Concepts, Limits, Pricing and Features of VPC.

▶ 3. Concepts of CIDR, EIP and Public Address in AWS.

▶ 4. AWS Regions and Availability Zones.

▶ 5. Create and Manage VPC, Subnets.

▶ 6. Concepts, creation and management of Internet Gateways, NAT Gateways.

▶ 7. Routing theory, design and implementation for VPC.

▶ 8. Concepts and creation of Inter VPC Peering.

▶ 9. Design and Implementation of network security with ACL's and Security Groups.

▶ 10. Designing and configuring On-Prem to Cloud-Prem connectivity with VPN.

▶ 11. Site to Site IPSec VPN12. Security Group and Access Control Lists

Virtual Private Cloud (VPC)

▷ **1. Introduction to EC2.**

▷ **2. VM purchase options in EC2.**

▷ **3. VM types and pricing in EC2.**

▷ **4. Key Pair concepts, creation on AWS console and non-AWS tools.**

▷ **A. Instance Management:**

    1. Instance Tags.

    2. Changing Instance Size.

    3. Increasing Storage.

    4. Opening Ports.

    5. Configuring Elastic IP to Instance.

    6. Boot Scripts.

    7. Monitoring Instance with Cloud Watch.

    8. Using Placement Group.

    9. Configuring Alarms and Event Notification.

▷ **B. Instance Storage:**

    1. Introduction to Elastic Block Storage(EBS).

    2. Types of EBS.

    3. Creating EBS volumes

    4. Attaching EBS volumes to Instances.

    5. EBS Snapshots.

    6. Migration of EBS Snapshots.

    7. Restoring EBS Snapshots

▷ **C. Instance Image:**

    1. Introduction to Amazon Machine Image(AMI).

    2. Various methods of creating AMI.

    3. Creating AMI and using AMI to create Instances

D. Instance Load Balancing:

1. Instance Tags.
2. Changing Instance Size.
3. Increasing Storage.
4. Opening Ports.
5. Configuring Elastic IP to Instance.
6. Boot Scripts.
7. Monitoring Instance with Cloud Watch.
8. Using Placement Group.
9. Configuring Alarms and Event Notification.

E. Instance Auto Scaling:

1. Introduction and concepts of Auto Scaling.
2. Concepts of Launch Configuration.
3. Creating a custom Launch Configuration.
4. Creating Auto Scaling Group.
5. Auto Scaling Policies.
6. Adding Target Group to Auto Scaling.
7. Testing Auto Scaling Configuration

F.Migrating On-Prem VM to EC2:

1. Migration concepts and Prerequisite.
2. Preparing VM for Migration.
3. IAM Role for Migration.
4. Uploading.ova or .vmdk of VM to S3.
5. AWS CLI Intro.
6. Creating AMI from Files in S3.
7. Create the Instance.

AWS Storage

A. Simple Storage Service (S3):

1. Introduction to S3.

2. Pricing of S3.

3. Concepts of Buckets and creating Buckets in S3.

4. Public vs Private Buckets.

5. S3 Object Class and their differences.

6. S3 Versioning.

7. S3 Objects Replication and Limitations.

8. S3 Objects lifecycle policy.

9. S3 Locks.

10. S3 Bucket Encryption.

11. S3 Static Website Hosting.

12. AWS CloudFront for low latency delivery of S3 Objects

B. Azure Blob Storage:

1. Introduction to EFS.

2. Pricing of EFS.

3. Concepts of NFS vs SMB.

4. Configuring EFS and various configuration options.

5. Mounting EFS Shares on multiple Instances Simultaneously.

C. Glacier:

1. Glacier Concepts.

2. Pricing of Glacier vs On-Prem Backup Technologies.

3. Creating Glacier Vault.

4. Backup Data to Glacier Vault.

5. Data Recovery from Glacier Vault.

6. Data Recovery Options and Pricing

D. Storage Gateway:

1. Introduction to Storage Gateway.
2. Concepts and Pricing of ASG.
3. Prerequisites for implementation of ASG virtual appliance on premises.
4. Connecting ASG to Cloud-Prem Storage.
5. Testing ASG Implementation.

AWS Database

A. Relational Database Service(RDS):

1. Introduction to SQL and On-Prem SQL solutions.
2. Introduction to RDS.
3. Introduction to AWS Elasticache.
4. SQL solutions supported by RDS.
5. Special introduction to Amazon Aurora Database.
6. Creating Database in RDS.
7. Multi-Az Deployment.
8. Connection to RDS
9. RDS Snapshots and Restore.
10. RDS ReadOnly Replica.
11. Promoting ReadOnly Replica.
12. RDS Backup.

B. DynamoDB:

1. Introduction to NoSQL and On-Prem NoSQL solutions.
2. Introduction to DynamoDB.
3. Creating Tables in DynamoDB.
4. Writing to tables in DynamoDB.
5. Security concepts for DynamoDB.
6. Performance configuration and AutoScaling.

▶ **C. RedShift:**

1. Data Warehousing concepts and On-Prem Solutions.
2. Introduction to AWS RedShift.
3. Comparing AWS RedShift to On-Prem solution

Elastic Bean Stalk (EBS)

▶ **1. Introduction to On-Prem Application Hosting Technologies.**

▶ **2. Introduction to EBS.**

▶ **3. Creating EBS Applications.**

▶ **4. Configuration of Application Environment.**

▶ **5. Hosting a Custom Application.**

▶ **6. Creating Environment Clone.**

▶ **7. Swapping Environment URL's**

Identity and Access Management (IAM)

▶ **1. Introduction to IAM.**

▶ **2. Creating Users and Groups.**

▶ **3. Password Policies.**

▶ **4. MFA and Access Keys.**

▶ **5. User Policies and defining custom policies.**

▶ **6. I AM Roles and creating Roles.**

Route53

- 1. Introduction to Name Resolution.
- 2. Domain Name Registration and Domain Name Registrars,
- 3. Hosting Zones in AWS Route 53.
- 4. Public and Private Zones.
- 5. Creating Records and testing them.
- 6. Record Types, Load Balancing.
- 7. Traffic Management Concepts

AWS Lambda

- 1. Introduction to Serverless Computing.
- 2. Introduction to Lambda.
- 3. Creating Functions in Lambda.
- 4. Creating IAM Roles for Lambda.
- 5. Triggering Lambda Functions.
- 6. Testing a simple Python Boto3 function in Lambda.

Containers in AWS

- 1. Introduction to Containers
- 2. Introduction to Docker
- 3. Introduction to Elastic Container Services (ECS)
- 4. ECS Cluster, Task Definitions, Service and Load Balancer
- 5. ECS with IAM, Data Volumes and Auto Scaling
- 6. Introduction to Image Repository
- 7. Introduction to Elastic Container Registry (ECR)
- 8. Implementing ECR
- 9. Introduction to Fargate

AWS Cloud Formation

- 1 Introduction to Automated Provisioning.
- 2 AWS Cloud Formation concepts.
- 3 Introduction to JSON and YAML.
- 4 Defining a JSON or a YAML template. 5 Using CloudFormation Designer..
- 6 Create Stack and Provision Resources in AWS

Simple Notification Service (SNS)

▶ 1. Introduction to SNS.

▶ 2. Creating SNS Topics.

▶ 3. Email and SMS subscriptions.

▶ 4. Triggering SNS Topic,

Other AWS Services

▶ 1. Introduction to AWS SnowBall.

▶ 2. Introduction to AWS SnowMobile.

▶ 3. Introduction to AWS Kenisis.

▶ 4. Introduction to AWS Lex.

▶ 5. Introduction to AWS Poly.

▶ 6. Introduction to AWS SQS.

▶ 7. Introduction to AWS SES.

Introduction to DevOps

▶ 1 Introduction to AWS CodeCommit.

▶ 2 Introduction to AWS CodeBuild,

▶ 3 Introduction to AWS CodePipeline

DevOps Training

Introduction to DevOps :

- ▶ **What is DevOps?**
- ▶ **Why DevOps?**
- ▶ **Principles of DevOps**
- ▶ **History of DevOps**
- ▶ **SDLC models**
- ▶ **Understand Agile Methodology**
- ▶ **Prerequisites for DevOps**
- ▶ **DevOps with Agile using Scrum**
- ▶ **Overview of DevOps Tools**
- ▶ **How to achieve DevOps?**
- ▶ **What is CICD?**

Introduction to Virtualization :

- ▶ **What is Virtualization?**
- ▶ **What is Hypervisor?**
- ▶ **Types of Server Virtualization**
- ▶ **Benefits of Virtualization**
- ▶ **Important Virtualization products**
- ▶ **Create VM's using Hypervisors**

Cloud Fundamentals :

- Introduction to Azure and AWS.
- Cloud App Deployment Basics.
- Cloud Networking and Storage Basics.
- VM's in AWS and Azure.

Application Server Implementation :

- Need for application and web server
- Deploy Tomcat server in different environments
- Setup, configuring Tomcat, Apache.

IDE (VSCode):

- Introduction to VS Code, Installation.
- Interface and workspace overview.
- Extension and customization.
- Shortcut and settings.
- VS Code for Web Developers.
- VS Code Terminal.
- Python and VS Code.
- Git and GitHub on VS Code.

GIT :

- **What is Version Control System?**
  (Initialize, Status, Add, Commit, Clone, Pull, Push, Difference, Reset, Log, Show, Tag, Stash, Remove)
- **Advanced Git operations** (Branching, Merging, Rebasing, Merge vs Rebase, Conflict resolving, Deleting remote repositories, Fork Operation).
- **What Is Git?**
- **Git Installation with Different environments**
- **Commands and Operations in Git with GitHub**

Build Tool :

Ansible :
- Introduction to maven
- Maven is compared with ant and other tools
- Maven setup in multiple environments
- Maven lifecycle
- Maven repository structure
- Real-time maven settings for the project
- Maven structure coding and implementation with Eclipse

Ansible:

- Introduction to Ansible, Deploying Ansible.
- Ansible Inventory, Ansible Ad-Hoc Commands.
- Ansible Architecture.
- Intro to YAML.
- Ansible Playbooks, Modules, Variables, Conditions & Loops.
- Ansible Roles
- Ansible with AWS, VPC, Ec2.

Docker :

- Introduction to Docker, Installing Docker.
- Docker Architecture, Container vs VM's.
- Running your first WebApp container in Docker.
- Docker Networking, DNS config, SSH, etc.
- Images, Docker hub, Image Layers, Image Tagging,
- Pushing, Docker File, Customising Images.
- Docker Volumes: Data Persistence, Bind Mounting.
- Docker Compose, compose.yml, Image building.
- Docker Swarm, Implement multi-node Swarm Cluster.
- Scale-out with Overlay Networking and Routing Mesh,
- Multi-Node WebApp.
- Secret storage for Swarm
- Swarm App Lifecycle.
- Container Registries.

Kubernetes :

- Introduction to Kubernetes, Deploying Kubernetes,
- Minikube, Basics of Kubectl.
- Kubernetes Architecture, Scaling, Labels & Selectors,
- Health Checking, Web Interface.
- DNS, Volumes, Secrets, Usage and Resource Monitor
- Auto Scaling.
- HA, Masters, Configuration.

Jenkins :

- Introduction to Jenkins, Installing Jenkins
- Overview of Jenkins UI.
- Jenkins Architecture.
- Jenkins plugins for Git, GitHub and Maven.
- Continuous Inspection with Jenkins.
- Continuous Delivery with Jenkins.
- Jenkins File: Pipeline as code.
- Integration with Docker.
- Distributed Builds

Terraform :

- Introduction to Terraform
- Introduction to Infrastructure as a Code (IaaC).
- Installing Terraform, HCL Basics.
- Terraform Providers, Configuration Directories,
- Input Variables, Resource Attributes, Dependencies,
- Output Variables.
- Introduction to Terraform State.
- Commands, Mutable and Immutable Infra, Life Cycle Rules
- Data Sources, Meta-Arguments, Count, Version Constraints.
- Terraform with AWS, IAM, S3, DynamoDB, VPC, EC2.
- Remote State.
- Terraform Modules
- Terraform Functions, Conditional Expressions, Workspace.

Monitoring Tools :

- Introduction to Nagios XI and Zabbix
- Installation and setup of Nagios
- Adding nodes to Nagios master
- Monitor Windows Servers
- Monitor Linux Servers
- Monitor EC2 Instances
- Monitoring different metrics in Nagios

DevOps Projects :

- ▶ **Project 1:** Simple DevOps project for CI/CD through Jenkins
- ▶ **Project 2:** CI/CD pipeline using GIT, Jenkins, and Ansible
- ▶ **Project 3:** Automatic deployment using Docker

Linux

Rh124 - Red Hat System Administration I

- Accessing the Command Line
- Managing Files from the Command Line
- Getting help in Red Hat Enterprise Linux
- Creating, Viewing and Editing Text Files
- Managing Local Linux Users and Groups
- Controlling Access to Files
- Monitoring and Managing Linux Processes
- Controlling Services and Daemons
- Configuring and Securing OpenSSH Service
- Analyzing and Storing Logs
- Managing Red Hat Enterprise Linux Networking
- Archiving and Copying Files Between Systems
- Installing and Updating Software Packages
- Accessing Linux File Systems
- Analyzing Servers and Getting Support

Rh134 - Red Hat System Administration II

- Installing Red Hat Enterprise Linux
- Improving Command Line Productivity
- Scheduling Future Linux Tasks
- Managing Priority of Linux Processes
- Controlling Access to Files with Access Control Lists (ACLs)
- Managing SELinux Security
- Maintaining Basic Storage
- Managing Logical Volume Management (LVM) Storage
- Implementing Advanced Storage Features

Rh294 - Red Hat System Administration III

- Introduction to Ansible
- Deploying Ansible
- Implementing Playbooks
- Managing Variables and Facts
- Implementing Task Control
- Deploying Files to Managed Hosts
- Managing Large Projects
- Simplifying Playbooks with Roles
- Troubleshooting Ansible
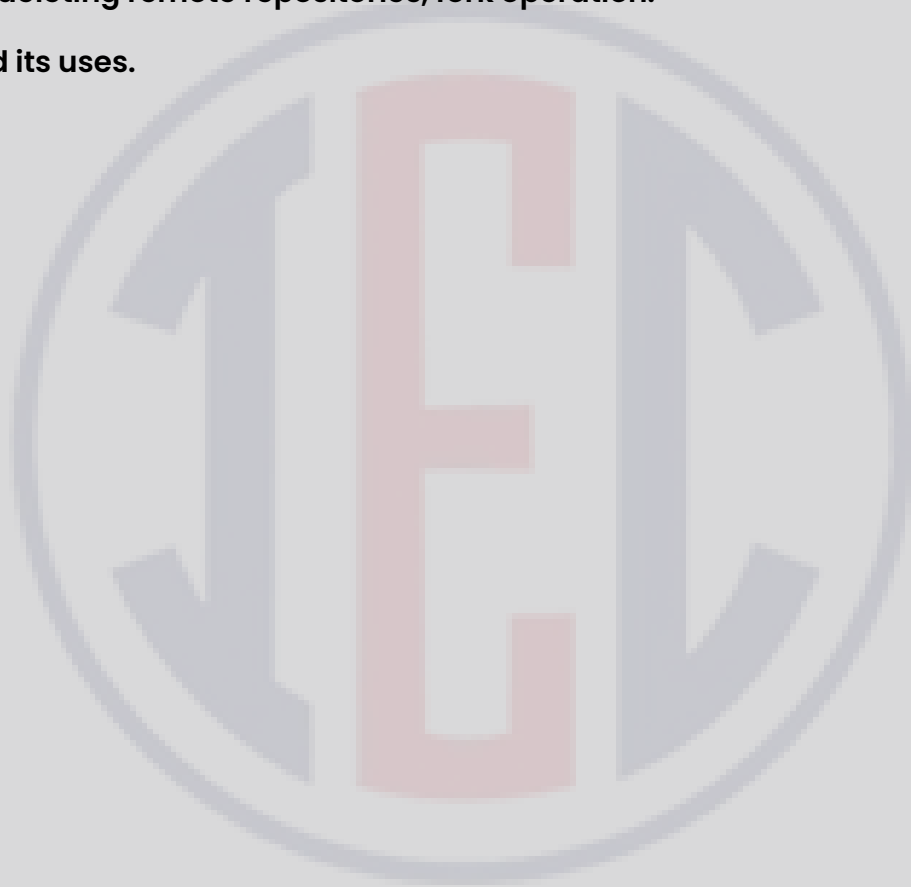- Automating Linux Administration Tasks

Services

1 DNS server configuration

2 DHCP server configuration

3 HTTP, HTTPS Server configuration

Shell Scripts

1 Introduction to shell scripting

2 Use cases of shell scripts

3 How to write simple scripts and execute it.

Introduction to Git

Soft Skills

IEC IT EDUCATION CENTRE

Soft Skills

Communication

Adaptability

Teamwork

Creativity

Problem-Solving

Basic

- Introduction, Parts of Speech
- Noun- Types -
- Pronouns- Types, Activity
- Be form, Have form, Do form
- Adjectives and Verbs
- Simple Present Tense, Activity
- Simple Past Tense, Past experience sharing
- Simple Future Tense, Activity
- Present Continuous Tense, Past Continuous Tense
- Future Continuous Tense, Activity
- Adverbs- Types
- Prepositions
- Conjunctions, interjections
- Conditional sentences, Activity
- Present Perfect Tense
- Past Perfect Tense
- Future Perfect Tense
- Present Perfect Continuous Tense
- Past Perfect Continuous Tense
- Articles
- Modal Auxiliary Verbs
- Active and Passive Voice, exercises

Intermediate

- Group Discussion
- Debate
- Roleplays
- Presentation
- Ex-tempore
- Body language (Gestures, posture, eye contact, Facial Expressions)
- Proverbs, Idioms and Phrases
- SWOT Analysis
- General Etiquettes

Advanced

- Time Management
- Interview Skills (Before, During, After Interview)
- Email Writing
- Resume writing
- Telephone etiquettes, Role plays
- Phrasal Verbs
- Presentations
- Mock Interviews