**Learning Plan (Week 1)**

*Windows PowerShell*

* Introduction To PowerShell
* Cmdlets
* Modules
* Rest API’s
* Remote Management
* Custom Script Extensions
* GIT

*Version Controlling System, Tools*

* GIT Commands
* Git Strategies
* Working With GitHub
* Policies & Pull Requests

**Learning Plan (Week 2)**

*Shell Scripting*

* Introduction To Shell
* Basic Commands and shell scripting
* Networking

*Introduction To Networking, Classful and Classless routing*

* Subnets, Masking
* Public, and Private IP
* Route Table, Firewall, NAT

**Learning Plan (Week 3)**

*Azure*

* About Azure Cloud, Regions, Zones, Data Center and Availability Sets
* Active Directory Management
* Policies and RBAC
* Subscriptions & Types
* Resource Groups
* Types of Service models IAAS, PAAS, SAAS
* Virtual Machine
* Storage Account, SQL server and Database
* Virtual Network
* Azure Web App Service

**Learning Plan (Week 4)**

*Azure - 2*

* Load Balancers
* Application Gateway
* Key Vault
* Logic App
* Recovery Service Vault
* ARM templates
* Azure PowerShell and CLI module

**Learning Plan (Week 5)**

*Terraform*

* Basics of terraform Language
* Terraform providers, variables, outputs
* Basic Terraform commands (init, plan, apply)
* Creating Modules
* Configuring remote backend

**Learning Plan (Week 6)**

*Docker*

* Introduction to Docker and its workflow
* Docker commands
* Images, Containers, Volumes
* About Dockerfile and steps to create a Dockerfile
* Docker-Compose file
* Docker networks and types

**Learning Plan (Week 7)**

*Kubernetes*

* Learn about basic kubernetes Architecture
* Master and worker node (API Server, Scheduler, Controller Manager, etcd - the cluster brain)
* K8s objects (Read about Pods, Service, Replicasets, Replica-controller, secrets, config maps, Volume,Namespace, Jobs, Daemonsets), Labels, selectors.
* Setup Minikube on the local machine
* Understanding the difference between a minikube and an independent cluster.
* Understand the Kubectl command line tool for managing the cluster
* Learn Azure Kubernetes service and architecture of AKS

**Learning Plan (Week 8)**

*Jenkins*

* Understanding About Jenkins & Architecture
* About CI/CD process
* Installation and Configuration of Jenkins on Server
* RBAC Role Creation and user account setup
* Jenkins Job and File
* Multi-Stage Pipelines Job Creation
* Pipeline script (create pipeline jobs using the groovy script)

**Learning Plan (Week 9)**

*Azure DevOps*

* Introduction to Azure DevOps
* Basics of Agile methodology
* The difference between TFS and VSTS
* Difference between Server & Services
* Azure DevOps Components: Boards, Repos, Pipelines
* About Agent and Deployment pools
* Branch and Build policies
* Yaml and custom Pipeline Jobs

*Security Testing Integration*

* Code Coverage and Linting
* SAST
* DAST
* SCA

**Final Project**

*Create a .NET core-based sample web application with MSSQL as the backend database server using the below information:*

* Develop web applications using visual studio, vscode, or any editor
* Create a repo on Azure DevOps to store the application code
* Implement GIT workflow strategy on the source code
* Implement branch and build policy on the repository to prevent bad code commits
* Create infrastructure as code using Terraform to deploy the resources (Web app service, SQL Service)
* Deploy the Terraform IAC using Azure pipelines
* Dockerize the sample web application you created and push the image to ACR
* Deploy the application using Jenkins job on to azure web app
* Test the web application execution and fetch the data from database
* Deploy the dockerized app on a minikube cluster hosted in a VM(VM should be created using terraform script and kubectl, minikube should be installed in it). Use Azure Pipelines for the deployment.