**Day 1**

Azure, GIT, Jenkins, Azure DevOps, Docker, Kubernetes, Terraform, Puppet

* 8 Topics
* Starting with Azure
  + Overview of Azure
  + Concepts in Azure
* Deploy and Manage Azure compute resources
  + The Virtual Machine Service
  + Deploying a virtual machine
  + Hands-on - Building a Windows virtual machine
  + Connecting to the Virtual Machine
  + State of the Virtual Machine
  + Hands-on - State of the Virtual Machine
* Implement and manage storage
  + What are storage accounts?
  + Hands-on - Creating an Azure storage account
  + Azure Blob service
  + Hands-on - Blob service - Uploading a blob
  + Hands-on - Blob service - Accessing the blob
  + Hands-on - Using Access keys
  + Hands-on - Shared Access Signatures
* Azure Resource Manager Templates
  + What are Azure Resource Manager templates?
  + ARM Template structure
  + Hands-on - Azure Storage Account - Building the template
* DevOps Introduction
  + DevOps and Evolution of Software Development
  + DevOps - An Overview
* Git Concepts
  + The Git Directory
  + Working Directory
* Git by Example
  + Creating a Git repository on a shared server (git init)
  + Cloning a remote repository (git clone)
  + Adding files to a local Git repository (git add)
  + Checking for status of files in a local Git repository (git status)
  + Committing files to a local Git repository (git commit)
  + Pushing changes in a local git repository to a remote Git repository (git push)
  + Pulling files from a remote Git repository (git pull)
  + Looking at commit logs/history (git log)
  + Looking at file changes (git diff)

**Day 2**

* Using The GitHub Website
  + Intro to GitHub
  + Working with Repositories
  + README, .gitignore, and Live Editing
  + Organizations, Teams, and Collaborators
  + Issues, Wikis, and Pages
* Start DevOps with Docker
  + First DevOps Use case with Docker
  + Important Docker Concepts - Registry, Repository, Tag, Image
  + Docker Images - Java, JavaScript and Python
  + Hands-On
  + Docker - Detached Mode and Logs
  + Docker Images and Containers
  + Understanding Docker Architecture - Docker Client, Docker Engine
  + Hands-On
  + Learning Docker Images - Commands
  + Learning Docker Containers - Commands
  + Learning Docker Commands - system and stats
  + Hands-On
  + Building Docker Images for Python Application
  + Pushing Python App Docker Image to Docker Hub

**Day 3**

* DevOps with Docker and Kubernetes
  + Docker and Kubernetes
  + Deploy Your First Docker Container to Kubernetes Cluster
  + Quick Look at Kubernetes Concepts - Pods, Replica Sets and Deployment
  + Understanding Pods in Kubernetes
  + Hands-On
  + Understanding Deployment in Kubernetes
  + Understanding Services in Kubernetes
  + Understanding Kubernetes Architecture - Master Node and Nodes
  + Understand Kubernetes YAML Configuration
  + Using Kubernetes YAML Configuration to Create Resources
  + Hands-On
  + Understanding Kubernetes YAML Configuration - Labels and Selectors
  + Kubernetes Commands - Top Node and Pod
  + Delete Hello World Deployments
* What is Infrastructure as Code?
* Azure DevOps - Continuous Integration, Deployment & Delivery - Docker
  + What is Azure DevOps?
  + Setting up Git Repo for Azure DevOps Pipeline
  + Creating your first Azure DevOps Pipeline
  + Hands-On
  + Creating Azure DevOps Pipeline for Stages
  + Hands-On
  + Build and Push Docker Image in Azure DevOps
  + Hands-On

**Day 4**

* Getting Started with Jenkins
  + Introducing Jenkins
  + Jenkins Dashboard
  + Jenkins Global Configuration
  + Jenkins Security
  + Jenkins Plugin Management
  + Jenkins Projects
  + Freestyle Projects – Scheduled Builds
  + Working with Git SCM
  + Introduction to a Java Web Project
  + Upstream and Downstream Projects
  + Visualizing the Status of the Builds
* Learn Continuous Integration with Jenkins
  + What is Jenkins?
  + Introduction and Launching Jenkins as Docker Container
  + Initializing Jenkins Plugins and Creating Github Repo
  + Setting up Docker and Maven in Jenkins and First Pipeline Run
  + Understanding Scripted Pipelines in Jenkins
  + Understanding Declarative Pipelines in Jenkins - Stages
  + Using Docker Images as Jenkins Pipeline Agents
  + Review Pipeline Syntax and Understanding Variables
  + Configuring Jenkins Pipeline Path with Docker and Maven Tools
  + Running Unit Tests and Integration Tests in Jenkins Pipelines
  + Build and Push Docker Image in Jenkins Pipelines

**Day 5**

* Terraform
  + Introduction
  + Why Terraform?
  + What is infrastructure as code?
  + An Introduction to Terraform Syntax
  + Read, Generate, Modify Configurations
    - Overview
    - Understanding Attributes and Output Values in Terraform
    - Referencing Cross-Account Resource Attributes
    - Terraform Variables
    - Approaches for Variable Assignment
    - Data Types for Variables
    - Fetching Data from Maps and List in Variable
    - Count and Count Index
    - Conditional Expressions
    - Local Values
  + Understanding Provisioners in Terraform
* Getting started with Puppet
  + Why Puppet
  + Installing Puppet
  + Puppet Resources
  + The Puppet Language
  + Puppet Server and Agent