Trainer : Mr. Vikram Kumar		
Course Duration: 50 Hours		
Chapter No.	**Chapter Name**	**Chapter Topics**
Chapter -1	**SDLC**	Definition of SDLC
		Purpose of SDLC
		General Phases of SDLC
		Various Models of SDLC
		About Waterfall SDLC Model
		Waterfall SDLC Model - Advantages
		Waterfall SDLC Model - Disadvantages
		About Agile SDLC Model
		Agile SDLC Model - Advantages
		Agile SDLC Model - Disadvantages
		Discussion on Release Environments
Chapter -2	**DEVOPS**	Introduction to Devops
		History of Devops
		Why Devops
		What is Devops
		Fundamental Principles of Devops
		Values of Devops
		Definition of Devops
		Devops Features
		Benefits of Devops After Implementation
		Benefits of Devops for Business Organisations
		Devops Phases
		Devops Tools Overview
		Devops Roles and Responsibilities
Chapter -3	**VIRTUALIZATION**	Introduction to Virtualization
		Virtualization Types
		Hosted
		Bare metal
		Hypervisors
		Virtual Machine Setup on Oracle Virtual Machine
Chapter - 4	**VCS**	Introduction to VCS

			How to commit single files
			How to commit multiple files commits
			View all commit logs
			View only latest commit logs
			View log changes of each commit
			git show command
			How to delete the files in git before staging
			How to delete the files in git after staging
			How to delete the files that are tracked by git - Local Repository
			Git Parallel Development
			git branch
			git merge
			Comparing git project files from working area with Local Repo using git diff
			Git diff --staged
			Git Backout the Changes
			git reset HEAD
			git checkout
			Real Time Workflow of Git Branching
			Delete Git branch
			Git Revert
Chapter - 6		**GITHUB**	Introduction to Github
			Various vendors of Remote Repository
			Features of github
			Create Account in github
			Create Project Repository in github
			Create files in github
			Clone Github Repository
			Pull changes from github Repository
			Push changes to github Repository
			Git & Github Project
Chapter - 7		**UNDERSTANDING OF CI/CD**	What is CI/CD
			Need of C.I/CD
			Benefits of C.I/CD
			Best practices of C.I/CD
			Generic Architecture of C.I/CD in Projects

		Jenkins Menu-Build History
		Jenkins Menu-Manage Jenkins
		Jenkins Menu-views
		Build Queue Section
		Build Executor status Section
		Jenkins User administration
		Create Jenkins User Accounts
		Configure Jenkins User Accounts
		Delete Jenkins User Accounts
		Manage Jenkins Users based on Matrix Strategy
		How to change the Jenkins Admin Password
		What is Jenkins Change Home Directory
		Secure Jenkins
		Manage Jenkins Plugins
		Install Plugins
		Upgrade Plugins
		Jenkins - Creating Jobs in Jenkins
		Naming a Project or Job
		Choosing right Project Type
		About Project Descriptions
		Set the storage limits for old discard builds
		How to disable the build systems
		Source Code Management
		Build Triggers
		Configure Poll Source Code management in Jenkins
		Configure Poll SCM Changes using Crontab in Jenkins
		Trigger Builds Remotely using URL
		Trigger Builds using Token ID
		Trigger Builds based on build Pipeline or other Projects
		Build triggers Periodically
		Create a Sample Project to test build process in Jenkins
		Understand Jenkins Job Process
		How to check Build Information
		Jenkins Console Output
		Jenkins Build Color Code system
		Understand Jenkins Weather Report
		Distributed Builds

			What is Distributed Build
			Architecture of Distributed Build
			Configure Jenkins Master Server
			Configure Jenkins Slave Server
			Configure authentication between Master-Slave
			Setup Relationship between Master and Slave
			Configure Project to build on Jenkins slave server
			Email Notifications in Jenkins
			Purpose of Email Notification
			Email Notification plugins
			Configure Email Notification in Jenkins
			Demonstrate usage of email notification on builds
			Understanding of Jenkins Pipeline
Chapter -9		**BUILD TOOL - MAVEN**	What is Build
			Purpose of Build Tools
			Build Tools Ideology
			Evolution of Build Tools
			Few Notable Build Tools
			Introduction to Apache Maven
			Various Phases of Maven
			Installation of Maven
			Confiugration of Maven on Jenkins Build Server
			Jenkins-Maven Project
Chapter -10		**FUNDAMENTALS OF CONFIGURATION MANAGEMENT**	Introduction Configuration Management
			Configuration Management terminologies
			Configuration Management Server
			What is IAC
			Configuration Repository
			Configuration Management Methologies
			Pull Method
			Push Method
			Popular Configuration Management tools
Chapter -11		**ANSIBLE**	Introduction To Ansible
			Features Of Ansible
			Use Cases Of Ansible

		What is Pem file in Chef
		Chef Workstation setup
		What is Knife.rb file in chef
		How to create knife.rb file
		How to establish communication between Chef Server and Chef Workstation
		How to configure the firewall for chef infrastructure
		How to perform SSL check for knife.rb
		Chef node setup
		What is Bootstrap in chef
		Chef Client commands
		Chef knife commands
		How to setup a Chef Configuration Repository
		Chef Cookbooks
		Create Cookbooks
		Structure of Cookbook
		About Receipes
		Procedure to be followed when made changes to a Cookbook
		How to apply Semantic versioning on Cookbook
		How to verify the syntax errors in recipe file
		LAB Exercises on Cookbook and Recipe
		Applying semantic versioning with changes on cookbook
		Setup apache web server
		Demonstrate functionality test on recipe files in a cookbook
		Chef Resources
		What is a chef Resource
		Resource Types
		Resources Definition
		What is Desired State in chef
		What is Convergence in chef
		Case Study on Resources
		How to Execute a Resource file (Recipe)
		Exercise on Resources
		Applying chef-client methods
		How to apply single recipes using chef-client in local mode
		What is Local mode
		What is Runlist
		How to apply chef-client using runlist on single cookbook

		How to apply chef-client using runlist on multiple cookbooks
		How to use include_recipe method
		Sample case studies
		Chef knife commands
		Create a cookbook using knife command
		Delete a cookbook using knife command
		How to Upload a cookbook to chef server
		How to attach a recipe or cookbook to chef node
		list nodes using knife command
		See details about node using knife command
		knife command to check all cookbook list
		Download a cookbook from Chef Server to Workstation
		How to generate metadata of a cookbook
		How to test a cookbook syntax using knife commands
		How to check recent change status on chef node
		How to delete a node
		Use of Chef Supermarket
		Chef Project
Chapter - 13	**DOCKER**	Introduction to Docker
		Why docker
		What is a container
		Relation between container and docker
		Docker features
		Why docker is so popular
		Difference between container and image
		Containers History
		Docker Architecture
		Docker Editions
		Docker system Requirements
		Docker installation and setup
		How to verify docker installation
		About Docker version
		How to see list images in docker
		What is Docker Registries
		How to see all docker images
		How to pull images from docker registries

		What is Pulling in docker
		Difference between Docker Pull, run, Push
		How to run docker image
		How to exit from container without killing it
		How to exit from container by killing it
		How to see all running container on docker host
		How to check history of all containers
		How to stop a container that is running
		How to find latest containers that are created
		How to get inside of already a running container
		How to start a container and remove it once task is completed
		How to delete or remove a container
		How to delete or remove image from docker host
		Relation between Images and Containers
		How to attach a port of docker host to docker container
		How to run a container in background
		Difference between docker container run and docker container start
		How to specify a name to docker container
		How to see container logs
		How to see processes that are currently running in a docker container
		How to see all commands related to a container
		How to remove docker multiple containers
		How to check docker container metadata using docker inspect
		how to see docker container stats
		How to list what ports are being used by docker container
		How to see Docker Image History
		How to see docker image metadata
		How to tags docker images
		How to log into docker registries using docker CLI
		How to logout from docker registries using docker CLI
		How to push docker image to docker registries
		About Docker file
		How to create Dockerfile to build an image
		How to build an image from Dockerfile
		About Dockerfile Instructions
		Docker Project

Chapter - 14	KUBERNETES	What is kubernetes
		Features of kubernetes
		Architecture of kubernetes
		Installation of Kubernetes
		Kubernetes Master
		Kubernetes nodes
		Kubernetes components
		Kube-api server
		etcd (cluster store)
		Kube-scheduler
		Node
		Kube-proxy
		Kubelet
		pods
		Multi container pod
		Pod limitations
		Replica sets
		Deployments
		Kubernetes GUI - Dashboard
		Scale up Pods
		Scale down pods
		Kubernetes Deployment Project
Chapter - 15	SHELL SCRIPTING (BASH)	Introduction to Scripting
		About Shell
		Shell Scripting
		Purpose of Shell Scripting
		Various Types of Shells
		Shell Flavours and their default shells
		Scripting Basics
		How to view available shells in system
		How to switch to different shells
		How to exit from shell
		How to create a script file
		File permissions for Script file
		How to Execute Script file using relative and absolute methods
		Exercise on creating a sample script file

		Use of shebang or hashbang
		Case Study on error message related to bad interpreters
		Commenting in bash scripting
		Variables
		What is variable
		Types of variable
		Difference between System Defined and User Defined variables
		Naming Conventions to declare a Variable
		Syntax for Variable Declaration
		Few Case studies on Valid and invalid variable declarations
		Scalar Variables
		Accessing the Variables
		Reading variables from standard input
		Reading single variables from standard input
		Reading multiple variables from standard input
		Reading Variables in Silent Mode
		Reading Variables into an array
		Reading Variables into inbuilt System Built Variable REPLY
		Passing Arguments
		Passing arguments to shell script
		Passing arguments to arrays
		Difference between passing arguments to shell script and to array
		Print all arguments passed into array
		How to count number of arguments of an array using script
		Operators
		Arithmetic Operators
		Numeric comparison Operators
		Logical Operators
		Assignment Operators
		Control Statements
		If condition
		If else conditions
		While Loop
		For loop
		Continue
		Break
		Case condition

		File Operations using Bash Scripting
		How to find if the file exists or not
		How to know file type
		How to know if the directory exists or not
		How to know file permissions using script
		How to know if the file is empty or not
		Shell Scripting Project
Chapter -16	**NAGIOS**	Why monitoring tool
		Ways of monitoring
		Architecture of Nagios
		Plugins, Config files
		Dashboard overview
		Nagios working process
		Nagios Installation & Nagios Configuration
Chapter - 17	**VAGRANT**	Introduction
		Installation, Configuration
		Mini Project
		Hand-on
Chapter - 18	**CLOUD COMPUTING FUNDAMENTALS**	What is Cloud
		Uses of Cloud Computing
		Core terminologies of cloud
		Advantages of Cloud
		Concerns of Cloud
Chapter - 19	**CLOUD COMPUTING TYPES & SERVICES**	Cloud Computing types
		Public Cloud
		Private Cloud
		Hybrid Cloud
		Community Cloud
		Cloud Computing Services
		IAAS
		PAAS
		SAAS
		XAAS

Chapter - 20	INTRODUCTION TO AWS & AWS - EC2	Why AWS
		Brief History of AWS
		AWS Features
		How to Register Account in AWS
		Introduction to EC2
		Features of EC2
		EC2 Dashboard Overview
		About Amazon Machine Images (AMI)
		Different types of AMI's
		About Key Pair
		How to connect EC2 instances
		What is pem file
		How to create EC2 Linux instance
		How to create EC2 Windows instance
		How to reboot the Instance
		How to stop instance
		How to terminate instance
	ASSESSMENTS	SLDC Fundamentals, Waterfall, Agile, Devops
		Linux Basics, VCS, Git, Github
		CI Fundamentals, Jenkins, Maven
		CM Fundamentals, Ansible, Chef
		Containerisation Fundamentals, Docker, Kubernetes
	OTHERS	Fresher Resumes will be shared
		Experienced Resumes will be shared
		Assistance on Resume Preparation
		Discussion on Strategies for Devops Preparation
		Devops Lab Technician Availability
		Course Completion Certificate from NareshIT