**Day 1 and 2 (8 Hours)**

**Prerequisites:**

Need cloud labs

Participants should have knowledge of scripting

Participants should have knowledge of Linux platforms

* DevOps Introduction
  + DevOps and Evolution of Software Development
  + Before DevOps - Evolution to Agile
  + DevOps - An Overview
* Why Puppet?
* Installation puppet Agent standalone and Master-Agent
* Puppet Architecture & state model
* Puppet Server and Agent
* Understanding version control (Git)
  + Git Overview
    - Installing Git
    - Short History of Git
    - What is Git?
  + Git Concepts
    - Focus and Design
    - Git Object Types
    - The Git Data Model
    - Branching and Merging
    - The Treeish
    - The Git Directory
    - Working Directory
    - The Index
    - Non-SCM Uses of Git
  + Git in Practice
    - Setting Up Your Profile
    - Getting a Git Repository
    - Normal Workflow Examples
    - Log - the Commit History
    - Browsing Git
    - Git Diff
    - Branching
    - Simple Merging
    - Stashing
    - Tagging
    - Exporting Git
    - Distributed Workflow Examples
    - Sharing Repositories
    - Hosted Repositories

**Day 3 and 4 (8 Hours)**

* Puppet Ad-hoc commands
* Puppet Facts
* Puppet Server and Agent Configuration
* Puppet Dashboard - Overview
  + What is Puppetboard?
  + Installing Puppet Dashboard
  + Configuring Dashboard
* Modules overview
  + Module structure
  + Module names
  + Files in modules
  + Templates in modules
  + Writing modules
* Common Built in Modules
* Writing Manifest files
* Working with Heira
* Puppet Language
  + More Resources
  + File Serving
  + Relationships
  + Package / File / Service
  + Variables
  + Conditionals
  + Data Types
  + Functions
  + Templates
  + Parameterized Classes
  + Defined Resource Types
  + Advanced Resource Declarations in Puppet

**Day 5 and 6 (8 Hours)**

* Namespaces
* Relationships
* Dependencies
* Environments
* Node classification
* Grouping
* Puppet custom Facts and Facter
* Management Puppet code in Git
  + Different Environment - Branches
* Working with Puppet Forge
* Introduction to PDK
  + Code manager
  + r10k for module creation
* Mcollective
  + Introduction
  + What is MCollective?
  + Why Parallel Execution?
  + How MCollective Works?
  + Why Use MCollective?
* Hiera configuration
  + Configuration Overview
  + Creating a minimal Hiera configuration

**Day 7 and 8 (8 Hours)**

* Hiera Basics
  + Overview of Hiera data
  + Adding data to Hiera
  + Using the puppet lookup command from the CLI
  + Querying data using the lookup function in Puppet code
* Automatic data binding
* Puppet Enterprise
  + Install Puppet Enterprise
  + Adding Nodes to PE
  + Dynamically Classifying Nodes with Groups

**Use Case Lab**

* Linux Patching
* Windows Patching
* Custom Facts
* Custom scheduling Agents to run configuration
* windows env
* Windows feature
* Harden windows server
* Scheduled task
* Windows AD

**Day 9 and 10 (8 Hours)**

**Upgrading Puppet to PE 2019**

* Upgrade paths
* Upgrade precautions
* How to migrate PuppetDB?
* Upgrade Java version
* Upgrade Database Layers
* TLS enablement
* Approach to handling MCollective removal
* Testing Modules before upgrade
* How to upgrade a standard installation?
* How to upgrade a standalone PE-PostgreSQL installation?
* How to upgrade via Migrate PE?
* Migrate a standard installation