**DevOps Course Content**

1. **Introduction to DevOps**
   1. What is DevOps?
   2. Expectation from DevOps team.
   3. Role of the DevOps engineer.
   4. DevOps Workflow.
   5. DevOps Tool Chain.
2. **Source Code Management**
   1. How to manage code.
   2. Version control system
   3. Overview about version control system like SVN, Git/Github.
   4. Discussion on SVN vs. Github.(Link will be given to students to review this points)
   5. Git installation and configuration.
   6. Git commands-In Progress
   7. Branching and Merging(Pull request)
   8. Create project using Maven.
   9. Artifactory mapping
   10. Manage Repositories.
   11. Roles and team on repositories
3. **Automation CI & CD Engines**
   1. Overview of various tools for CI & CD (Jenkins, Bamboo, Travis, Circle, AntHillPro etc…)
   2. Installing Jenkins setup and configuration.
      1. Java Installation and config.
      2. Maven Installation and config.
      3. Configuration of Java & Maven under Jenkins Global tool configuration
      4. User permissions and roles (Enabling Security).
   3. Architecture of Jenkins
   4. Plug-in management
      1. Maven Integration plugin
      2. Build Pipeline plugin
      3. Github Plugins
      4. Pipeline Maven integration plugin
      5. Sonarqube Scanner plugin for Jenkins
      6. Managed Scripts
      7. [CloudBees Docker Build and Publish plugin](https://wiki.jenkins-ci.org/display/JENKINS/CloudBees+Docker+Build+and+Publish+plugin)
      8. NodeJS
      9. Artifactory plugin
      10. Ansible /Terreform
   5. Jenkins Job templates and Build a Job
      1. Freestyle
      2. Maven
      3. Pipeline Jobs
      4. Github Organization
      5. Multibranching
   6. Jenkins Web hook configuration.
   7. Integration of Jenkins & Github.
   8. Pipeline for automation
   9. Jenkinsfile (To create automated pipeline)
4. **Containerize using Docker**
   1. What is container?
   2. What is Docker?
   3. How to create containers.
   4. Docker Hub account creation.
   5. Docker installation and configuration at AWS EC2 instance.
   6. Docker Commands
   7. Pull and Push images to registry.
   8. Tagging images for build.
   9. Dockerfile
   10. Set preparatory to deploy to cloud infrastructure
5. **AWS Overview**
   1. Create EC2 instance to setup Jenkins.
   2. Security configurations.
   3. Port forwarding.
   4. Manage EC2 instance.
   5. Setting up services at EC2.
6. **Open Shift Overview**
   1. OSE Architecture.
   2. Kubernetes cluster management.
   3. Container registry.
   4. What is Pods?
   5. Build and Deploy to Pods.
   6. Manage configurations.
7. **SonarQube**
   1. Setup SonarQube local/Cloud to manage code coverage.
   2. Configure Analysis properties.
   3. Run sonar against Projects.
   4. Sonar Dashboard administration.
8. **Artifactory Repository configuration & Management**

**JFrog artifactory account creation**

1. **Configuration Management tools**
   1. Ansible setup
   2. Playbooks
   3. Tasks
   4. Overview of k8s,PuppetLab, Chef & Saltstack
2. **Continuous Integration and Deployment Strategy**
   1. Jenkins Pipeline to deploy to be live
3. **Monitoring tool**
   1. Discuss various monitoring tool availability in market.
   2. Setting up Nagios a monitoring tool.
   3. Logs
   4. Discussion on how to get reports.
4. **Summarize or Recap of DevOps Session**