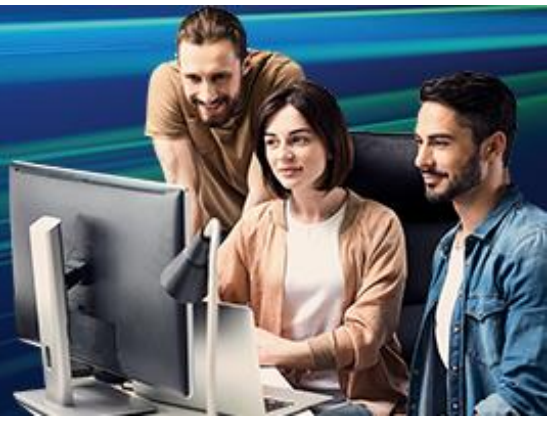
Cognizant Academy

ADM (Standard to FSE) Java Learning Guide



Why do we need this Full Stack Engineering Prep-up Program?

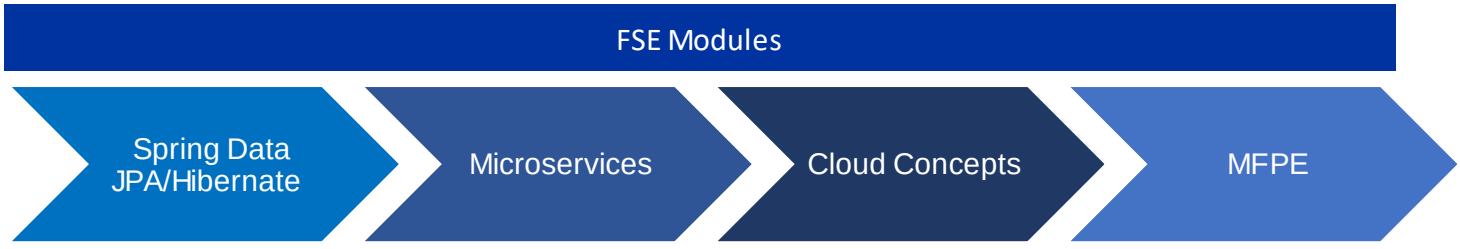
Full Stack Prep-up program engages young talents with a comprehensive learning pathway, giving these millennials an opportunity to become a Full Stack Engineer, understand the corporate environment and groom themselves even before they join us.

Cognizant emphasizes on Learner Autonomy where students take charge of their own learning pathway, with the available tools and resources. More focus is given to "learning" than "teaching". Get ready to embark your own learning adventure!

Program at a glance

Learnings are provided along with Hands-on to practice. Trainer guidance would be available for the Instructor led training. Hands-on questions are available to practice followed by Knowledge based assessment to gauge the learning effectiveness.

Recommended Program Sequence



FSE modules would be executed with **complete trainer guidance for a duration of 5 weeks**. Software on the local machine will be used to work on the enablement and case study requirements. The modules would follow a model of **Enablement through Objectives**, practice through Hands-on questions and case studies. As part of the knowledge check, there would be KBA and case studies.

There are **Good to Have** skills which can be learnt outside of this program's scope.

Program Completion Criteria

Complete all the mandatory KBA with benchmark of 70%.

Spring Data JPA with Spring Boot

Overall duration: 3 days

This module deals with topics on Spring Data JPA**.**

Note: The sample datasets required for Hands-on can be downloaded from the SharePoint link.

Day 1

Learning reference:

Objectives:

Download the Learning objectives of Spring Data JPA.

- Refer the objectives with objective ORM-001 to ORM-006 of the learning objectives.

Hands-On:

- 04-01-spring-data-jpa-handson

Day 2

Learning reference:

Objectives:

Download the Learning objectives of Spring Data JPA.

- Refer the objectives with objective ORM-007 to ORM-0010 of the learning objectives.

Hands-On:

- 04-02-spring-data-jpa-handson
- 04-03-spring-data-jpa-handson

Day 3

- **Spring Data JPA Knowledge Based Assessment**

Microservices

Overall duration: 5 days

Day 4 to 5

Learning reference:

Objectives:

Download the Learning objectives of Microservices.

- Refer the objectives with objective SPCLD-001 to SPCLD-005 of the learning objectives.

Hands-On:

- 05-01-microservices-handson

Day 6

Learning reference:

Download the Learning objectives of Microservices.

- Refer the objectives with objective SPCLD-007 to SPCLD-012 of the learning objective.

Hands-On:

Demo Reference:

- 05-02-docker-handson
- 05-03-docker-handson

Note:

The GenC need not implement Docker Hands-on Trainer to show the demo of the given objectives.

Day 7, 8

Practice Check

- truYum-fse-microservice-specification given in the platform should be implemented.

SpringRestandMicroservices – Knowledge Based Assessment

Note: Assessment will cover spring REST and Microservices concepts.

Cloud and AWS

Overall Duration: 10 days

Day 9

Compute: Cloud Fundamentals, Network and Delivery, VPC, Security Groups, Gateway, NACL, Different Services Available in AWS

Learning Reference:

Objectives:

Download the Learning objectives of Cloud and AWS in the Milestone

- Refer the Objectives with Objective Ids: AWS-001, AWS-002, ECC-001 to ECC-005, SSS-001 to SSS-003, AWSDB-001 to AWSDB-005, AWSNET-001 of the learning objectives.

Hands-On:

- EC2-Hands-on
- S3-Hands-on
- RDS-Hands-on
- DynamoDB-Hands-on
- AWS-lab-hands-on-practice.mp4

Day 10, 11

Developer Tools: DevOps, AWS Code Commit, AWS CI/CD

Learning Reference:

Objectives:

Download the Learning objectives of Cloud and AWS.

- Refer the Objectives with the Objective Ids: DevOps-001, DevOps-002, DevOps-003 of the learning objectives.

Hands-On:

- EC2-Instance-Software-Installation-And-Access-Hands-On.mp4
- cicd-lab.mp4

Day 12, 13

AWS Dynamo DB, ECS, ECR, ALB, Fargate Deployment, CI/CD

Learning References:

Objectives:

Download the Learning objectives of Cloud and AWS.

- Refer the Objectives with the Objective Ids: AWSSRV-001 to AWSSRV-003, DevOps-004 of the learning objective.

Hands-On

- Microservice-with-DynamoDB-backend
- refer to CICD-Jenkins-EC2-Hands-on.mp4 in KPoint)

Note: Trainer to demonstrate creating a simple "Hello World" Microservice, creating an image, pushing the image to the ECR, creating a container out the of image from ECR using the "Getting Started" wizard of ECS and deploy the application in ECS. Access the application from anywhere. Gencs to replicate the same demo done by the trainer.

Day 14

AWS Dynamo DB, ECS, ECR, ALB, Fargate Deployment, CI/CD

Learning References:

Objectives:

Download the Learning objectives of Cloud and AWS.

- Refer the Objectives with the Objective Ids: AWSSRV-004 and AWSSRV-005 of the learning objective.

Hands-On:

- AWS ECS Microservices – Deployment.mp4
- Swagger-Hands-on

Day 15, 16

AWS Dynamo DB, ECS, ECR, ALB, Fargate Deployment, CI/CD

Learning References:

Objectives:

Download the Learning objectives of Cloud and AWS.

- Refer the Objectives with the Objective Ids: AWSSRV-006 and AWSSRV-007 of the learning objective.

Hands-On:

- React-Spring-REST-Integration-Hands-on

  Or

- Angular-Spring-REST-Integration-Hands-on

Day 17, 18

Integrate: AWS Dynamo DB, ECS, ECR, ALB, Fargate Deployment, CI/CD

Microservices with AWS and Spring Security

- truYum-fse-Microservices-AWS-specification given in the platform to be implemented. (Apply all the topics covered so far in Microservices and AWS with Spring Security)

My First POD Engagement (MFPE)

Overall duration: 10 days

This Project phase will be executed in agile methodology, the duration of which is 10 days. With the matured Product backlog, High-level design document & Wireframes as base the POD team translates the backlog items into engineering design and logical units of work (tasks)and release it sprint wise. Project Evaluation will be based on:

- Contribution to Sprint Goal
- Sprint Participation
- User Story Completion
- Standards and Best Practices
- Confidence and Articulation

Learning references:

1. Agile Crash Course: Agile Project Management; Agile Delivery
2. The DevOps Essentials - The Handbook
3. AWS Essentials

Project Requirements Repository:

Refer to the project Case Study requirement document is present in the link.

Good to Have - Lombok, SONAR, Application Debugging, Tools

Objectives:

Download the Learning objectives of Lombok, SONAR.

- Refer the objectives with objective SQW-006 to SRW-009 of the learning objectives.

Spring Framework 5: Beginner to Guru

- Go through Section 9 : Project Lombok

Reference Links:
http://www.javabyexamples.com/lombok-log4j-slf4j-and-other-log-annotations

https://projectlombok.org/

https://www.sonarqube.org/

https://dzone.com/articles/how-quickly-get-started-sonar

Hands On:

- Flight Management
- Patient Intake System
- Trainee Manager

Application Debugging

- Go through the video and download the code. Debug the application as per the video and do the hands-on

Learning reference:

Download the Learning objectives of Application debugging.

Demo Video:

1. Eclipse_Debugging.mp4 - Basic application debugging concepts using eclipse

Hands-On:

- Debugging_HOL_001

Additional Learning:

Eclipse Debugging Techniques And Tricks

- Go through the entire course.

Learning reference:

Download the Learning objectives of **Jenkins**.

- Refer the objectives with Topic Id **Jenkins-T01** of the learning objectives.

Jenkins - The Complete Tutorial | Master CICD and DevOps

- Go through the entire course.

Hands-On:

- Jenkins_Java

Learning reference:

Please go through the learning Jira for Beginners - Detailed Course to Get Started in Jira to understand the basic and use of Software Configuration Management tool Jira.

Learning Strategy & Approach

Find below few imaginary profiles. For each of these profiles we have defined a recommended learning approach. This is not an exhaustive list. The approaches below might help invent a new way of learning.

Profile #1

Harry Reacher

Engineering Discipline: Electronics

Skills: Python, Ruby on Rails, nginx

Project: Mining Crime Data to get Route Cause Insights

Learning Approach to Programming Languages: I do not want to waste my time learning. I am more practice oriented. I want to work on the problem immediately

What will work for me?

- Directly complete hands on exercises
- Refer Internet or Udemy Courses
- If hands on are implemented early, clarify your friends questions and troubleshoot their issues

Profile #2

Olivia Richards

Engineering Discipline: Computer Science

Skills: Java, C, C++

Project: Library Management System

Learning Approach to Programming Languages: I have interest, but I don't know where to start.

What will work for me?

- Go through the recommended Udemy Course
- Try completing the hands on exercises
- Get your clarifications solved with help from Tech SME
- Get help from other learners in your batch whom had already completed

Profile #3

Greg Anderson

Engineering Discipline: Civil

Skills: C

Project: Fiber reinforced concrete

Learning Approach to Programming Languages: I am scared of programming languages. I haven't got my hands dirty with coding

What will work for me?

- Go through the recommended Udemy Course
- Implement the coding along with the author of the Udemy Course

	• Try completing the hands on exercises • Clarify queries with SME • Troubleshoot programming issues with help from SME or learner from your classroom whom had already completed