Digital Honors
Java Program Guide

What is the Digital Honors program?

Career aspirations are a huge motivator for success. We are pleased to launch GenC Digital Honors, a program dedicated to accelerated growth and career progression of self-driven, high performing GenC associates. This program is an opportunity for all GenCs at Programmer Analyst (PA) grade to get one step closer to the GenC Next / GenC Pro role, while fulfilling your career aspirations.

GenC Digital Honors provides eligible associates (GenCs), an opportunity to apply for a GenC Next / GenC Pro role, and also allows them to upskill during the program and help ready them to take on a new role with different, more challenging demands.

Pre-requisite skills

The program expects the aspirants to have working knowledge on the following skills. These skills would be tested through a skill-based assessment to qualify to enter into the program.

- Web User Interface – HTML5, CSS3, Javascript, Bootstrap, JQuery
- Database – MySql,Oracle PL/SQL
- Programming Languages – Core Java
- Core framework skills – Spring MVC using Spring Boot
- Testing – Junit

Program detail

The Digital Honors program runs for a period of 12 weeks to enter into the Enterprise Engineering (EE) Service Line from other Service lines. It is a 2-step process, where the aspirant prepares and takes up an assessment followed by an interview from EE BU to qualify for the program. Once qualified the aspirant would have 12 weeks to complete the

Following skills would be covered in the program:

- Angular
- Code Coverage
- Logging
- Spring Data JPA
- REST and Microservices
- Cloud – Standalone concepts and DevOps
- Engineering mindset

Through

1. Self-paced learnings with sufficient practice hands-on & Skill based assessments
2. Individual Cloud and DevOps based Project case study
3. HackerRank assessment

The aspirants would be registered to Vendor platform for the Hands-on practice, assessments and Project case study completion and evaluation. Cognizant Academy would provide self-paced learnings and guided hands-on to practice. The completion on the learning components will be through Multiple Choice Question (MCQ) type assessments, Project case study with Cloud deployment and DevOps. This will be followed by a HackerRank assessment covering the skills at code and knowledge levels. **The entry into the EE Service Line necessitates the participants to get FSE0 level Accreditation. This has 3 components. A minimum of 70% average in all the MCQ type assessments which will gauge the learning, a minimum of 70% in the Project case study and a minimum of 50% in the HackerRank assessment.**

The MCQ assessments will be on CLearn. The CLearn course code is provided in the table below. Upon logging to 'Cognizant Learn' on OneCognizant and search for the course code. The code is available to take it up anytime as per the participant's convenience. Learning and hands-on

completion is recommended to take up the MCQ assessments. Three attempts will be given for every MCQ assessment. The last score of every assessment will be considered for completion score.

Lab detail

Self-paced learning detail along with the sharepoint link containing Hands-on questions for practice is provided below. The participants are advised to use their machine to install and practice the hands-on. The list of softwares needed are available here. OneIT request can be raised through OneCognizant portal to install the softwares.

GitHub is available for all Code work or project work to be put on a repository. You can follow the instructions to use GitHub, available here, for reference.

Finally once the project is complete, please upload your code to IIHT Git url, follow the normal sign-up process using Cognizant email address.

Cloud lab access will be provided for a period of 60 days of $100 credits to work on the hands-on and final project.

Note:

- Go through the skills in the same sequence as given in the Handbook.

Recommended sequence provided below.

Skill order	Skill (Assessment inclusive)	Recommended duration (Days)	Day range	Has Assessment or not?
1	Angular	12	1 to 25	Yes
2	Code Analysis and Code Coverage	3	26 to 28	
3	REST, Spring Data JPA and Microservices	17	29 to 50	Yes(2)
4	Cloud - AWS	10	51 to 63	
5	Cloud Project	15	64 to 85	
6	Behavioral learning	2	86 to 90	
7	HackerRank assessment	1	86 to 90	
8	BU Interview	1		

Angular

Scope:

- Refer to the below mentioned link for detailed list of topics and subtopics covered

  Angular Scope

Note:

- Go through the skills in the same sequence as given in the Handbook.
- Few of the Practice Hands-on will contain reference to the exercises completed in the previous module.

Angular – The complete guide

- Learn the sections listed below in this Udemy course
  - Section 1: Getting started
  - Section 2: The basics
  - Section 11: Changing pages with Routing
  - Section 15: Handling Forms in Angular Apps
  - Section 17: Using Pipes to Transform Output
  - Section 18: Making Http Requests
  - Section 20: Authentication & Route Protection in Angular
  - Section 23: Deploying an Angular App
  - Section 28: A Basic Introduction to Unit Testing in Angular Apps

Implement the examples along with the author.

Hands-on are available here for your practice.

Angular Knowledge Based Assessment:

Enroll and Complete the CLearn code mentioned below.

Note:

You will have 3 attempts for every assessment. PLEASE PREPARE for the assessment and then utilize the attempt. DO NOT WASTE AN ATTEMPT.

Course code	Assessment name
ATHDH224907	DigitalHonors_Angular–Knowledge Based Assessment [101-Angular]

Code Analysis and Code Coverage

Scope:

- Refer to the below mentioned link for detailed list of topics and subtopics covered

  LoggingCodeQuality Scope

Lombok and SONAR

Lombok link1
Lombok link2
Sonar link1
Sonar link2

ECL Emma

ECL Emma link

Hands-on practice

Hands on link

REST, Spring Data JPA and Microservices

Scope:

- Refer to the below mentioned link for detailed list of topics and subtopics covered

  Spirng REST Scope
  Spring Data JPA Scope
  Microservices Scope

Note:

- Go through the skills in the same sequence as given in the Handbook.
- Few of the Practice Hands-on will contain reference to the exercises completed in the previous module.

Spring REST using Spring Boot

Master Java Web Services and RESTful API with Spring Boot

- Learn the sections listed below in this Udemy course
  - Section 6: RESTful Web Services with Spring and Spring Boot

Implement the examples along with the author.

MockMVC

Angular Restful Webservice Integration

Performance Testing of Restful Webservice

JWT Authentication for RESTful Web Service using Spring Security

Hands-on practice

- Hands-on Link

Microservices and Docker

Master Microservices with Spring Boot and Spring Cloud

- Learn the sections listed below in this Udemy course

  Section 6: Microservices with Spring Cloud - V2

Implement the examples along with the author.

Need and Benefit of Microservice

Docker for the Absolute Beginner - Hands On - DevOps

- Learn the sections listed below in this Udemy course

  Section 1: Introduction

Section 2: Docker Commands
Section 3: Docker Run
Section 4: Docker Images
Section 5: Docker Compose

Implement the examples along with the author.

Hosting a MySQL server with schema creation using docker

Hosting a REST API Microservice using docker

Docker Compose

Hands-on Practice
- Hands on link

Spring REST and Microservices Knowledge Based Assessment:

Enroll and Complete the CLearn code mentioned below.

Note:

You will have 3 attempts for every assessment. PLEASE PREPARE for the assessment and then utilize the attempt. DO NOT WASTE AN ATTEMPT.

Course code	Assessment name
ATHDH224908	DigitalHonors_Spring REST and Microservices–Knowledge Based Assessment [101-Basics]

Spring Data JPA

Master Hibernate and JPA with Spring Boot in 100 Steps
- Learn the sections listed below in this Udemy course
  Section 5: JPA and Hibernate in Depth
  Section 6: Establishing Relationships with JPA and Hibernate - OneToOne
  Section 7: Let's review with a few FAQs about Hibernate and JPA
  Section 8: Establishing Relationships with JPA and Hibernate – OneToMany
  Section 9: Inheritance Hierarchies with JPA and Hibernate
  Section 10: Queries with Entities using JPQL
  Section 11: Queries using Java API - Criteria Queries
  Section 13: Spring Data JPA & Spring Data REST

Implement the examples along with the author.

HQL

Restful Webservice – Spring Data JPA Integration

UserDetailsService

Hands-on Practice
Hands on link

Spring DataJPA Knowledge Based Assessment:

Enroll and Complete the CLearn code mentioned below.

Note:

You will have 3 attempts for every assessment. PLEASE PREPARE for the assessment and then utilize the attempt. DO NOT WASTE AN ATTEMPT.

Course code	Assessment name
ATHDH224906	DigitalHonors_SpringDataJPA–Knowledge Based Assessment [101-Basics]

Cloud - AWS

Scope:

- Refer to the below mentioned link for detailed list of topics and subtopics covered

  Cloud and AWS Scope

Note:

- Go through the skills in the same sequence as given in the Handbook.
- Few of the Practice Hands-on will contain reference to the exercises completed in the previous module.

Introduction to Cloud, EC2, S3, DynamoDb, RDS and CI/CD

Introduction to Cloud Computing on Amazon AWS for Beginners

- Learn the sections listed below in this Udemy course
  - Section 2: The Building blocks of Cloud Computing
  - Session 3: Introduction to Cloud Computing
  - Section 4: Demystifying Cloud Architecture
  - Section 5: AWS Basics
  - Section 6: Amazon Elastic Compute Cloud(EC2)
  - Section 7: AWS Storage Services
  - Section 8: AWS Databases

Implement the examples along with the author.

More learning material:

Link 1
Link 2
Link 3

DevOps CI/CD

Introduction to Cloud Computing on Amazon AWS for Beginners

- Learn the sections listed below in this Udemy course
  - Section 10: DevOps on AWS - Creating a Code Pipeline

Implement the examples along with the author.

More learning material:

Link 1

Hands-on Practice

- Hands on links
  - Hands-on 1
  - Hands-on 2
  - Hands-on 3
  - Hands-on 4
  - Hands-on 5
  - Hands-on 6

SQS

AWS Certified Cloud Practitioner 2021

- Learn the sections listed below in this Udemy course

Section 2: Understanding Core AWS Services

- 68. Simple Queue Service (SQS)
- 69. SQS - PracticalImplement the examples along with the author.

Link 1

Hands-on Practice

- Hands on link

Apache Kafka

Apache Kafka Series - Learn Apache Kafka for Beginners v2

- Learn the sections listed below in this Udemy course

Section 1: Kafka Introduction
Section 3: ====== Kafka Fundamentals
Section 4: Kafka Theory
Section 5: Starting Kafka
Section 6: CLI (Command Line Interface) 101
Section 7: Kafka Java Programming 101

Link 1

Hands-on Practice

- Hands on links
  - Hands-on 1
  - Hands-on 2

AWS MSK

AWS Data Architect Bootcamp - 43 Services 500 FAQs 20+ Tools

- Learn the sections listed below in this Udemy course
  Section 5: Amazon Managed Streaming for Kafka

Link 1

Hands-on Practice

- Hands on link
  - Hands-on 1
  - Hands-on 2

Spring REST with DynamoDb backend

Link 1

Link 2

Hands-on Practice

- Hands on link

ECS

Docker in AWS - Deploy Java Spring Boot to AWS Fargate & ECS

- Learn the sections listed below in this Udemy course
  Section 1: Deploying Spring Boot Microservices with ECS and AWS Fargate
  …
  Section 3: Getting Started with ECS and AWS Fargate
  Section 5: Introduction to Microservices
  Section 6: Deploying Currency Exchange Microservice with H2 to AWS Fargate
  Section 7: Deploying Currency Exchange Microservice with MySQL to AWS Fargate
  Section 8: Deploying Currency Conversion Microservice to AWS Fargate
  Section 11: Implement Auto Scaling and Load Balancing with AWS Fargate
  Section 13: Implement CI and CD with AWS Code Pipeline

Link 1

Hands-on Practice

- Hands on link

EKS

[Kubernetes for Beginners: Google Cloud, AWS & Azure]

- Learn the sections listed below in this Udemy course
  Section 12: Kubernetes on AWS with EKS

Swagger

[Link 1]

Hands-on Practice

- [Hands on link]

Note:

Please note that you would be provided with Cloud lab access for a period of 60 days for $100 credit INCLUDING the Final project. Hence please use the Cloud resources very carefully. **Delete the resources by the end of the day ONCE COMPLETED. Leaving any resource unutilized will lead to credits usage unnecessarily and might end up no credits for the final project.**

Cloud Project

There a set of Project requirements available here, that involves the usage of Microservices and its consumption thru an Angular application. Cloud deployment has to be done for the Microservices, with CI/CD pipeline setup, Docker containerization and Kubernetes orchestration. You can choose any one from that to complete it within the 3-month program duration.

[Project Requirement Repository Link]

1. Spend one week for Application local development and deployment. Follow the requirements to create the Web application and the Microservices. Follow best coding standards and practices, logging etc. as per the requirement.

2. Use the second week for Cloud deployment of the Microservices. Use CICD for DevOps.

    - Continuous Integration and deployment to be done using Code commit, Code Build and Code Pipeline
    - Containerization to be done using Docker and Orchestration to be implemented using AWS ECS

Note: Implement the HandsOn given in cloud section, which contains detailed instruction on how to perform Cloud deployment of the Microservices.

Minimal trainer support will be provided for query clarification on the learning and Project. This opportunity can be utilized well.

There would be a detailed demo and Viva Voce with the Vendor evaluator to check the completion, through Teams meeting. The aspirant would receive meeting invite for the project review based on the evaluator availability.

The Project evaluation templates placed here. Go through them to understand the aspects of check in the evaluation. Do a self-evaluation of the project based on the parameters in every layer.

Finally once the project is complete, please upload your code to IIHT Git url, follow the normal sign-up process using Cognizant email address. This will help the evaluator to go through your code for easier evaluation.

Quick Checklist

1. Reserve a minimum $70 for the project cloud deployment.
2. MFPE walkthrough video is available here. Please go through for detailed understanding.
3. **The aspirant is recommended do a self-evaluation of the project through the self-evaluation templates. Recommendation to self-evaluate on ALL the layers as per the evaluation template. This helps the candidate to know the set of aspects that the evaluator would check on so that during the evaluation there won't be any confusion.**
4. A minimum of 70% is required to score an overall 70% in the project evaluation. The worksheet 'FSD Layer Analysis' for your self-analysis score.
5. Upload your code to IIHT Git url for the vendor evaluation.

HackerRank assessment pattern

HackerRank assessments will be conducted to complete the knowledge on the skills learnt. This is a component of the EE SL Accreditation. A mock assessment followed by Actual assessment will be conducted based on the participant availability. Shown below is the assessment pattern.

Mock HackerRank assessment			
Java sections	Duration(In minutes)	DotNet sections	Duration(In minutes)
Section 1: Data Structures and Algorithms - Coding	60	Section 1: Data Structures and Algorithms - Coding	60
Section 2: Java - Multi Choice Questions	10	Section 2: WebApi - Multi Choice Questions	5
Section 3: Microservices - Multi Choice Questions	5	Section 3: Microservices - Multi Choice Questions	5
Section 4: Spring Boot - Multi Choice Questions	5	Section 4: Problem Solving - Coding	60
Section 5: Problem Solving - Coding	50	Section 5: Angular	50
Section 6: Angular	50		
Total	180		180

Final HackerRank assessment			
Java sections	Duration(In minutes)	DotNet sections	Duration(In minutes)
Section 1: Data Structures and Algorithms - Coding	35	Section 1: Data Structures and Algorithms - Coding	35
Section 2: Problem Solving - Coding	50	Section 2: Problem Solving - Coding	50
Section 3: Java - Multi Choice Questions	15	Section 3: C# - Multi Choice Questions	15
Section 4: Microservices - Multi Choice Questions	15	Section 4: Microservices - Multi Choice Questions	15
Section 5: Spring Boot - Multi Choice Questions	30	Section 5: WebApi - Multi Choice Questions	30
Section 6: Angular	50	Section 6: Angular	50
Total	195		195

Self-paced behavioral learning detail

Engineering mindset

Learn:

Consulting Approach to Problem Solving
Change management
Creating a Mindset for Change

- Learn all the sections listed in the above listed Udemy courses.

FAQ

1. **All program detail are available here.**

2. **Are the learnings mandatory to take up the MCQ assessments?**

   A. No. The learnings are recommendation only and not mandatory. If you're confident to take up the assessments without the learning, it can be done.

3. **Are there multiple attempts for the MCQ assessment? If so, which score will be considered?**

   A. Yes, Three attempts will be given for every MCQ assessment. The last score of every assessment will be considered for completion score.

4. **Can I work on the project from Day 1?**
    A. Yes, you can. Git Lab is available from Day 1. Hence coding can be done and saved in the repository.
5. **Whom do we contact for any query?**
    A. KBA & Project case study requirement – GenCDigitalHonors@cognizant.com
6. **What is the passing criteria for FSE0 as part of this program?**
    A. The program has 2 steps of completion. The first part is to enter into Enterprise Engineering (EE) Service Line (SL). This can be achieved by getting a minimum average of 70% in the MCQ type assessment, a minimum of 70% in the Project case study and a minimum of 50% in the HackerRank assessment. All these individual components put together forms the FSE0 accreditation which is the passing criteria of this part of the program.
7. **Will there be trainer support during the project phase?**
    A. Yes, there would be minimal trainer support for the query clarification before/during the project phase.