

DEEPCLOUDLABS

Training Courses and Consultancy Services 2026 Catalog

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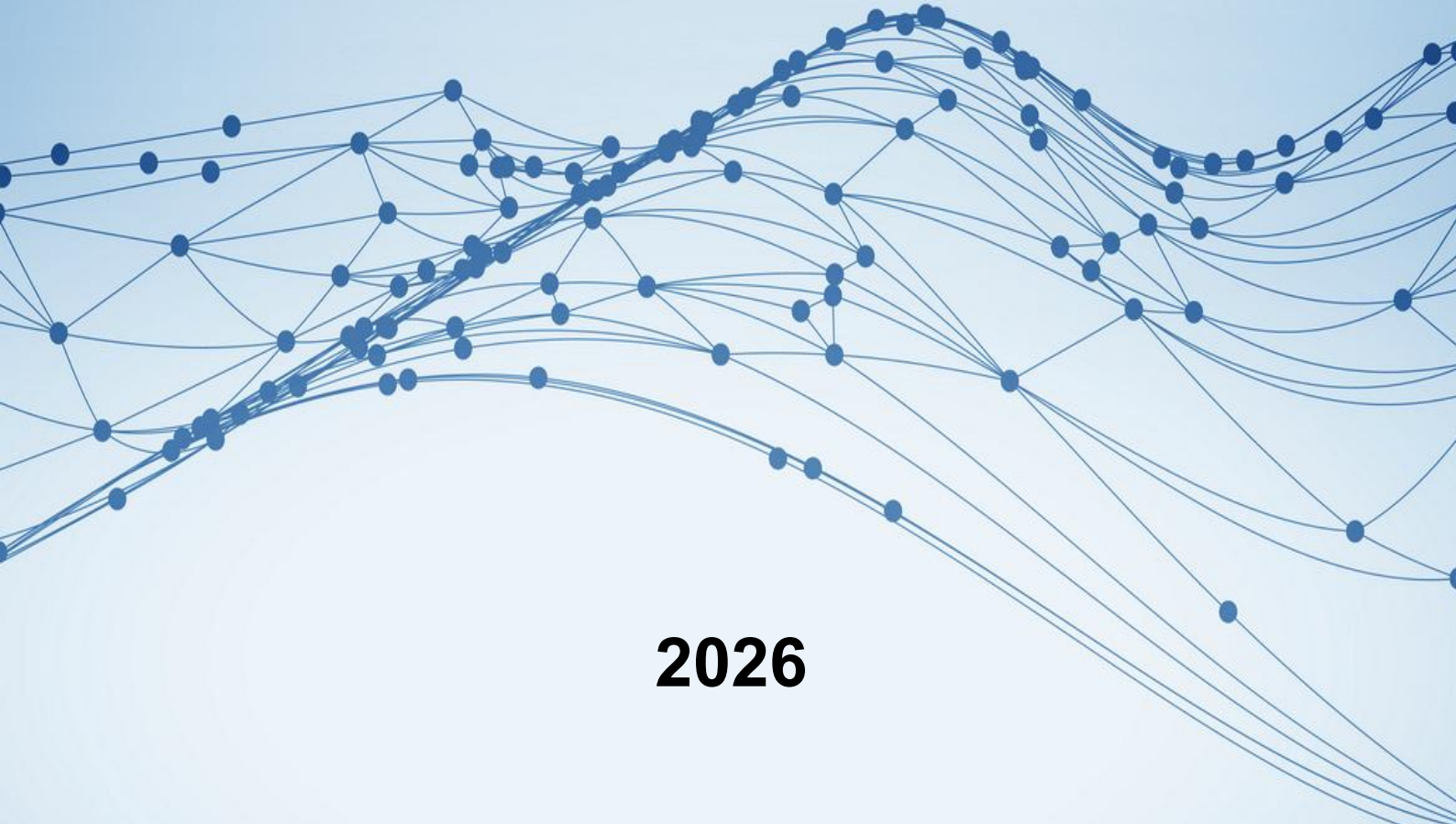


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1 INTRODUCTION

DEEPCLOUDLABS offers instructor-led technical classroom training for the Information Technology industry. "Our immersive, instructor-led ecosystem is designed to bridge the talent gap, accelerating digital transformation through high-impact technical mastery. Our proven training solution helps corporates enhancing organizational capabilities through empowering their employees with technical skills. Our fully configured lab environment provides students with hands-on access to applications taught in our classrooms, enabling them to learn on their schedules. Our mentoring service helps students to learn at their own pace with our highly skilled instructors in their workplace.

ABOUT DEEPCLOUDLABS

DEEPCLOUDLABS is an innovative company with Research and Development teams that focus on all aspects of the following topics.

- Cloud Computing
- Big Data Analytics
- Artificial Intelligence and Machine Learning
- Image and Video Analytics
- Blockchain and Cryptocurrency
- Algorithmic and High-Frequency Trading
- Project Management and Software Process Enhancement

DEEPCLOUDLABS Services provide access to the talent and systems you need to innovate faster and deliver real business value. We offer a full range of professional services:

- **CONSULTING:** DEEPCLOUDLABS provides advice, expertise, and consulting services for Blockchain Technology, AI-Machine Learning, and Software Development.
- **CORPORATE TRAINING:** DEEPCLOUDLABS provides hands-on training for real-world problems. We offer in-house and external corporate training and teaching seminars, workshops, and talks.
- **RESEARCH & DEVELOPMENT:** DEEPCLOUDLABS can help you apply Innovation & Prototyping around Data Analytics, AI-Machine Learning, and Blockchain Technologies.
- **SOFTWARE DEVELOPMENT:** Agile implementation of advanced Big Data Analytics applications. Increase accuracy and productivity using cognitive technology to process data.
- **OUTSOURCED DEVELOPERS:** Hire our talented developers for a certain period.

Our engineering team has been comprised of great individuals with Ph.D. and M.Sc. degrees and engineering experience, capable of making innovations and transforming these innovations into products.

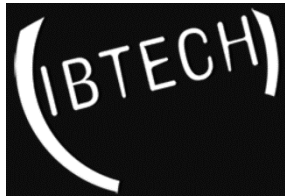


2 OUR TRAINING COURSES AND CONSULTANCY REFERENCES

Companies we have delivered **TRAINING COURSES** and **CONSULTANCY** services:

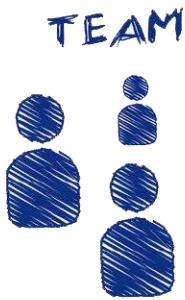


Companies we have delivered **TRAINING COURSES** and **CONSULTANCY** services:





TRAINING



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3 TRAINING COURSES OVERVIEW

DEEPCLOUDLABS offers training in the following fields:

- ARTIFICIAL INTELLIGENCE & MACHINE LEARNING TRAINING COURSES**

Course Code	Course Title	Duration (Days)
DCL-160	Python Programming	4
DCL-162	Advanced Python Programming	3
DCL-400	Big Data Essentials	3
DCL-402	Data Analytics using Python	3
DCL-410	Practical Machine Learning using Python	4
DCL-422	Deep Learning for Computer Vision	4
DCL-424	Deep Learning for Medical Image Analysis	4
DCL-426	Deep Learning with PyTorch	4
DCL-428	Deep Learning with TensorFlow	4
DCL-430	Foundation of Deep Learning with Backbone Architecture Papers	4
DCL-432	Deep Learning with Backbone Learning Paradigm Papers	4
DCL-434	Introduction to Generative AI with Python	3
DCL-436	Advanced Generative AI with Python	4
DCL-438	Introduction to ChatGPT	2
DCL-440	Introduction to Image Generation with Stable Diffusion	2
DCL-460	Edge Computing: Deployment & Inference with NVIDIA Jetson	4

- **TRAINING COURSES FOR EXECUTIVES**

Course Code	Course Title	Duration (Days)
DCL-450	Big Data and Artificial Intelligence for Executives	1
DCL-452	Cloud Computing and Microservice Architecture for Executives	1

- **JAVA SE TRAINING COURSES**

Course Code	Course Title	Duration (Days)
DCL-200	Java Performance Tuning and Optimization	3
DCL-204	Java SE 26 Programming	5
DCL-206	Advanced Java Development with Modern Design and Programming Paradigms	4
DCL-208	Clean Architecture and Code (Java SE and Spring Boot)	3
DCL-210	Advanced Java Programming	3
DCL-215	Test-Driven Development with JUnit 5	3
DCL-220	OOP Principles and Design Patterns with Java SE 26	2
DCL-235	Effective Java Programming	3
DCL-252	New Features in Java SE 8-25	2

- **SPRING TRAINING COURSES**

Course Code	Course Title	Duration (Days)
DCL-168	Kotlin Programming	3
DCL-370	Spring Framework 6	4
DCL-374	Developing Spring Boot 3 Applications	3
DCL-376	Spring Data	3

• MICROSERVICE TRAINING COURSES

Course Code	Course Title	Duration (Days)
DCL-350	Implementing Microservices Architecture using Spring Cloud	5
DCL-352	Domain-Driven Design Essentials	2
DCL-355	Microservices Patterns with examples in Spring Boot	4
DCL-356	Cloud Architecture Patterns	2
DCL-358	Implementing Event-Driven Microservices Architecture using Spring Boot and Apache Kafka	3
DCL-380	Apache Kafka: Architecture and Development	2
DCL-382	RabbitMQ: Architecture and Administration	2

• JAVASCRIPT TRAINING COURSES

Course Code	Course Title	Duration (Days)
DCL-302	Node.js Programming	3
DCL-304	Advanced JavaScript Programming	3
DCL-305	Developing Angular Applications	3
DCL-306	Developing React Applications	3
DCL-318	Developing Vue 3 Applications	3

• JAKARTA EE TRAINING COURSES

Course Code	Course Title	Duration (Days)
DCL-342	Jakarta Persistence 3.2	3
DCL-364	Best Practices in Jakarta EE 11	3
DCL-390	Developing Enterprise Applications on Jakarta EE 11	4

- **C/C++ TRAINING COURSES**

Course Code	Course Title	Duration (Days)
DCL-100	C Programming	4
DCL-112	Object-Oriented Programming using C++23	4
DCL-113	Functional Programming in C++23	2
DCL-115	Multi-Threaded Programming in C++23	3
DCL-140	Linux System Programming	4

4 BIG DATA AND MACHINE LEARNING TRAINING COURSES



Course Code	Course Title	Duration (Days)
DCL-160	Python Programming	4
DCL-162	Advanced Python Programming	3
DCL-400	Big Data Essentials	3
DCL-402	Data Analytics using Python	3
DCL-410	Practical Machine Learning using Python	4
DCL-422	Deep Learning for Computer Vision	4
DCL-424	Deep Learning for Medical Image Analysis	4
DCL-426	Deep Learning with PyTorch	4
DCL-428	Deep Learning with TensorFlow	4
DCL-430	Foundation of Deep Learning with Backbone Architecture Papers	4
DCL-432	Deep Learning with Backbone Learning Paradigm Papers	4
DCL-434	Introduction to Generative AI with Python	3
DCL-436	Advanced Generative AI with Python	4
DCL-438	Introduction to ChatGPT	2
DCL-440	Introduction to Image Generation with Stable Diffusion	2
DCL-460	Edge Computing: Deployment & Inference with NVIDIA Jetson	4

4.1 Python Programming



Course Code : DCL-160
Course Title : Python Programming
Duration : 4 Days

Course Overview

This course provides a practical introduction to Python programming. Participants will build a solid foundation in core Python concepts, including variables, data structures, control flow (conditionals and loops), functions, file operations, and the effective use of Python Standard Library modules.

DCL-160 is designed for beginners with little to no programming experience. Prior exposure to programming can be helpful, but it is not required.

Course Modules

Module 1 - Introduction to Programming and Basics of Python

Module 2 - Variables and Expressions

Module 3 - Python Data Types

Module 4 - Conditional Control Statements

Module 5 - Loop Control Statements

Module 6 - Defining Functions for Code Reuse

Module 7 - Error and Exception Handling

Module 8 - File Operations

Module 9 - Object Oriented Programming

Module 10 - Modules and Packages

Module 11 - Python Standard Library

Module 12 - Python Projects: Use Case Examples

4.2 Advanced Python Programming



Course Code : DCL-162
Course Title : Advanced Python Programming
Duration : 3 Days

Course Overview

This training is built on the Python Programming course, expanding core concepts in greater depth and introducing advanced topics. It includes an in-depth treatment of classes and object-oriented design, functional programming, working with file-based data, unit testing, database integration, building RESTful services, and implementing event-driven architectures with Apache Kafka.

Course Modules

- Module 1 - Object-Oriented Programming in Python
- Module 2 - Functional Programming in Python
- Module 3 - Unit Testing in Python using PyTest
- Module 4 - File Operations in Python
- Module 5 - XML Processing in Python
- Module 6 - Concurrent & Asynchronous Programming (AsyncIO/Threading)
- Module 7 - MySQL Programming in Python
- Module 8 - MongoDB Programming in Python
- Module 9 - Introduction Web Architectures
- Module 10 - Designing and implementing RESTful services in Python using Flask
- Module 11 - Event-Driven Architecture using Apache Kafka

4.3 Big Data Essentials



Course Code : DCL-400
Course Title : Big Data Essentials
Duration : 3 Days

Course Overview

This course delivers a structured, end-to-end overview of Big Data platforms and analytics, from core concepts through production-ready processing pipelines. Participants will explore the Hadoop ecosystem in depth, including HDFS, MapReduce, and cluster planning, installation, and job management. The course then transitions to modern distributed analytics with Apache Spark, covering Spark SQL and Spark Streaming for batch and real-time workloads. Finally, it connects the platform layer to business value by introducing data science and machine learning fundamentals, culminating in practical machine learning workflows implemented with Spark.

Course Modules

- Module 1 – Understanding Big Data
- Module 2 – Understanding Hadoop
- Module 3 – HDFS
- Module 4 – MapReduce
- Module 5 – Hadoop Ecosystem
- Module 6 – Planning Hadoop Cluster
- Module 7 – Hadoop Installation
- Module 8 – Managing Jobs
- Module 9 – Apache Hive
- Module 10 – Apache Spark
- Module 11 – Apache Spark SQL
- Module 12 – Apache Spark Streaming
- Module 13 – Data Science
- Module 14 – Machine Learning
- Module 15 – Machine Learning with Spark

4.4 Data Analytics using Python



Course Code : DCL-402
Course Title : Data Analytics using Python
Duration : 3 Days

Course Overview

This course equips participants with the practical skills needed to perform end-to-end data analytics using Python. Starting with a focused refresher on Python fundamentals, it quickly moves into the analytics stack with NumPy for efficient vectorized computation and Pandas for data manipulation at scale. Participants will learn how to load and store data across common formats, clean and prepare messy datasets, and perform core wrangling operations such as joining, reshaping, and combining data. The course also covers visualization and exploratory analysis, plus aggregation and group-based operations for extracting actionable insights. It concludes with hands-on analytics practices using real-world datasets to reinforce best practices and build confidence in applied analysis workflows.

Course Modules

- Module 1 - Python Language Basics
- Module 2 - Built-in Data Structures, Functions, and Files
- Module 3 - NumPy Basics: Arrays & Vectorized Computation
- Module 4 - Pandas
- Module 5 - Data Loading, Storage, and File Formats
- Module 6 - Data Cleaning and Preparation
- Module 7 - Data Wrangling: Join, Combine, and Reshape
- Module 8 - Plotting and Visualization
- Module 9 - Data Aggregation and Group Operations
- Module 10: Data Analytics Practices with Real World Data

4.5 Practical Machine Learning using Python



Course Code : DCL-410
Course Title : Practical Machine Learning using Python
Duration : 3 Days

Course Overview

This course provides a hands-on introduction to practical machine learning, guiding participants from foundational concepts to building and evaluating real models. It begins with core ML principles and immediately anchors learning through a structured project workflow. Participants will develop proficiency in supervised learning, with a strong focus on classification and model training, then explore widely used algorithms such as Support Vector Machines, decision trees, and ensemble methods including random forests. The course also covers essential techniques for improving performance and interpretability, such as dimensionality reduction, alongside key unsupervised learning approaches. It concludes with an introduction to artificial neural networks, connecting classical machine learning methods to modern deep learning foundations.

Course Modules

- Module 1 - Introduction to Machine Learning
- Module 2 - Machine Learning Project
- Module 3 - Classification
- Module 4 - Training Models
- Module 5 - Support Vector Machines
- Module 6 - Decision Trees
- Module 7 - Ensemble Learning and Random Forests
- Module 8 - Dimensionality Reduction
- Module 9 - Unsupervised Learning Techniques
- Module 10 - Introduction to Artificial Neural Networks

4.6 Deep Learning for Computer Vision



Course Code : DCL-422
Course Title : Deep Learning for Computer Vision
Duration : 3 Days

Course Overview

This course provides an applied, end-to-end introduction to deep learning for computer vision, combining foundational concepts with hands-on model development. Participants will start with a quick grounding in machine learning and deep learning, then move into core computer vision tasks and the datasets commonly used to solve them. After a focused Python refresher, the course introduces modern deep learning frameworks (PyTorch or TensorFlow) and builds up convolutional neural networks (CNNs) and the standard training pipeline, including data preparation, training, evaluation, and iteration. Participants will also learn how to leverage pre-trained models through transfer learning and fine-tuning to accelerate results. The course concludes with practical coverage of key vision applications: image classification, object detection, semantic segmentation, and image generation.

Course Modules

- Module 1 - Fundamentals of Machine Learning
- Module 2 - Introduction to Deep Learning
- Module 3 - Introduction to Computer Vision
- Module 4 - Open Datasets for Computer Vision Tasks
- Module 5 - Python Review for Deep Learning
- Module 6 - Basics of Deep Learning Frameworks (PyTorch or TensorFlow)
- Module 7 - Convolutional Neural Networks
- Module 8 - Fundamental Model Development Pipeline
- Module 9 - Pre-trained Models, Transfer Learning and Fine-Tuning
- Module 10 - Image Classification
- Module 11 - Object Detection
- Module 12 - Semantic Segmentation
- Module 13 - Image Generation

4.8 Deep Learning with PyTorch



Course Code : DCL-426
Course Title : Deep Learning with PyTorch
Duration : 4 Days

Course Modules

- Module 1: Short Review of Machine Learning
- Module 2: Introduction to Deep Learning
- Module 3: Basics of PyTorch
- Module 4: Training Deep Neural Networks
- Module 5: Convolutional Neural Networks
- Module 6: Deep Sequence Modeling
- Module 7: Generative AI
- Module 8: Computer Vision Applications
- Module 9: Natural Language Processing Applications
- Module 10: Serving Deep Learning Model

4.9 Deep Learning with TensorFlow



Course Code : DCL-428
Course Title : Deep Learning with TensorFlow
Duration : 4 Days

Course Modules

- Module 1: Short Review of Machine Learning
- Module 2: Introduction to Deep Learning
- Module 3: Basics of TensorFlow
- Module 4: Training Deep Neural Networks
- Module 5: Convolutional Neural Networks
- Module 6: Deep Sequence Modeling
- Module 7: Generative AI
- Module 8: Computer Vision Applications
- Module 9: Natural Language Processing Applications
- Module 10: Serving Deep Learning Model

4.10 Foundation of Deep Learning with Backbone Architecture Papers



Course Code : DCL-430
Course Title : Foundation of Deep Learning with Backbone Architecture Papers
Duration : 3 Days

Course Overview

This training aims to get trainees gained hands-on experience with backbone papers of deep learning as well as the theoretical foundations of these papers.

Trainees will have a solid understanding of commonly used architectures, how to implement them from scratch and be familiar with various datasets used for computer vision & image recognition. They will also become proficient in PyTorch.

Course Modules

- Module 1 - Introduction to Deep Learning
- Module 2 - Python Review for Deep Learning
- Module 3 - Intensive PyTorch Training
- Module 4 - Visualizing and Understanding Convolutional Networks
- Module 5 - AlexNet
- Module 6 - VGG Net
- Module 7 - Res Net
- Module 8 - Dense Net
- Module 9 - U-Net

4.11 Deep Learning with Backbone Learning Paradigm Papers



Course Code : DCL-432

Course Title : Deep Learning with Backbone Learning Paradigm Papers

Duration : 3 Days

Course Overview

This training aims to get trainees to gain hands-on experience with different applications of deep learning from natural language processing, computer vision and image generation to advanced CNN features and various learning paradigms.

Trainees will have a broad view of deep learning and do the best practice. They will also gain a deep Pytorch knowledge.

Course Modules

Module 1 - Fundamentals of Machine Learning

Module 2 - Introduction to Deep Learning

Module 3 - Intensive PyTorch Training

Module 4 - Object Detection with YOLO

Module 5 - Attention Is All You Need

Module 6 - Sequence to Sequence Learning with Neural Networks

Module 7 - Image Generation with DCGAN

Module 8 - FaceNet & Metric Learning

Module 9 - Prototypical Networks for Few-shot Learning

4.12 Introduction to Generative AI with Python

Course Code : DCL-434
Course Title : Introduction to Generative AI with Python
Duration : 3 Days

Course Modules

- Module 1: Introduction to Generative AI
- Module 2: Python Review for Generative AI
- Module 3: Variational Autoencoders (VAEs)
- Module 4: Generative Adversarial Networks (GANs)
- Module 5: Transformer Neural Networks
- Module 6: Diffusion Models
- Module 7: Prompt Engineering
- Module 8: Text Generation
- Module 9: Image Generation
- Module 10: Using Large Pretrained Models



4.13 Advanced Generative AI with Python

Course Code : DCL-436
Course Title : Advanced Generative AI with Python
Duration : 4 Days

Course Modules

Part 1: Introduction and Review

Module 1: Introduction to Generative AI

Module 2: Python Review for Generative AI

Part 2: Deep Generative Modeling Methods

Module 3: Variational Autoencoders (VAEs)

Module 4: Generative Adversarial Networks (GANs)

Module 5: Autoregressive Models

Module 6: Transformer Neural Networks

Module 7: Diffusion Models

Part 3: Generative AI Applications

Module 8: Prompt Engineering

Module 9: Text Generation with Transformer Neural Networks

Module 10: Image Generation with Multimodal Models

Module 11: Audio and Music Generation

Module 12: Using Large Pretrained Models

4.14 Introduction to ChatGPT

Course Code : DCL-438
Course Title : Introduction to ChatGPT
Duration : 2 Days

Course Modules

Part 1: Introduction:

Module 1: Introduction to Generative AI

Module 2: General Introduction to ChatGPT

Module 3: Generative AI Ethics

Part 2: Using ChatGPT for Productivity and Efficiency

Module 4: Prompt Engineering

Module 5: Using ChatGPT as a Personal Assistant

Module 6: Using ChatGPT for Software Development

Module 7: Using ChatGPT for Problem Solving

Module 8: Using ChatGPT for Creative Ideas

Module 9: Using ChatGPT for Researching

Part 3: OpenAI ChatGPT API

Module 10: Introduction to OpenAI ChatGPT API

Module 11: Building Applications with ChatGPT using Your Own Documents

4.15 Introduction to Image Generation with Stable Diffusion

Course Code : DCL-440

Course Title : Introduction to Image Generation with Stable Diffusion

Duration : 2 Days

Course Modules

Module 1: Introduction to Generative AI

Module 2: General Introduction to Stable Diffusion

Module 3: Generative AI Ethics

Module 4: Prompt Engineering

Module 5: Introduction to Stable Diffusion WebUI

Module 6: Text-to-Image Generation

Module 7: Image-to-Image Generation

Module 8: Controlling Image Generation

Module 9: Image Inpainting and Outpainting

Module 10: Styling Images

Module 11: Text-to-Video Generation

Module 12: Useful Stable Diffusion WebUI Extensions

4.16 Edge Computing: Deployment & Inference with NVIDIA Jetson



EDGE COMPUTING
with JETSON

DEEPCLOUDLABS

Course Code : DCL-460
Course Title : Edge Computing: Deployment & Inference with NVIDIA Jetson
Duration : 3 Days

Course Overview

This training introduces the NVIDIA Jetson Nano Development Kit which is small, powerful and capable of employing deep neural networks in parallel. First, an introduction to deep learning with a well-known Python framework will be made. Then, the NVIDIA Jetson Nano Kit will be explored through the fundamentals, system setup and comprehensive edge computing modules.

Moreover, practical applications and possible future research directions will be covered as well to prepare you for the real-world problems.

Course Modules

- Module 1 - Fundamentals of Machine Learning
- Module 2 - Introduction to Deep Learning
- Module 3 - Python Review for Deep Learning
- Module 4 - Introduction to Nvidia Jetson Nano
- Module 5 - Nvidia Jetson System Setup
- Module 6 - Nvidia Jetson Model Deployment
- Module 7 - Nvidia Jetson Inference
- Module 8 - Edge Computing with Nvidia Jetson
- Module 9 - Computer Vision Applications on Nvidia Jetson
- Module 10 - Future Directions with Nvidia Jetson

5 TRAINING COURSES FOR EXECUTIVES

PROGRAM OUTLINE

Course Code	Course Title	Duration (Days)
DCL-450	Big Data and Artificial Intelligence for Executives	1
DCL-452	Cloud Computing and Microservice Architecture for Executives	1

5.1 Big Data and Artificial Intelligence for Executives

Course Code : DCL-450

Course Title : Big Data and Artificial Intelligence for Executives

Duration : 1 Day

Course Overview

Governments recognize big data and AI as a system change, transforming what organizations do and how they do it. This creates challenging tasks for executives and managers. Training suitable for all senior managers seeking basic data and AI literacy. You will also learn and practice creative data-driven strategies to enhance decision making across every facet of your organization:

- Uncover hidden or unexpected connections, correlations, patterns, and trends to drive better decisions.
- Apply design thinking and Agile methodologies to develop big data solutions that are usable and deliver value.
- Explore the future of big data, machine learning, and artificial intelligence.

Recommended Audience

C-Level and D-Level Executives.

5.2 Cloud computing and Microservice Architecture for Executives

Course Code : DCL-452

Course Title : Cloud computing and Microservice Architecture for Executives

Duration : 1 Day

Course Overview

This course will teach you what cloud computing is, why and how to adopt microservices architecture for your own applications. You will find the answers to the following questions:

- What is Cloud Computing?
- What are the challenges of Architecting Software for the Cloud?
- What Are Microservices?
- What Problems Do Microservices Solve?
- How Can Microservices Help?
- What Does Typical Microservices Architecture Look Like?
- What Are Some Challenges of Microservices?
- What Tools and Technologies Do I Need?
- How Can I Successfully Lead a Microservices Project?

Recommended Audience

IT Directors, Technology Department Directors, Technology Project Managers, Project Managers.



6 JAVA SE TRAINING COURSE



Overview: Java Platform, Standard Edition lets you develop and deploy Java applications on desktops and servers. Java offers a rich user interface, performance, versatility, portability, and security that today's applications require. Our development team uses Java in projects. We offer comprehensive training on the latest Java technology developed in collaboration with our development team.

PROGRAM OUTLINE

Course Code	Course Title	Duration (Days)
DCL-200	Java Performance Tuning and Optimization	3
DCL-204	Java SE 26 Programming	5
DCL-208	Clean Architecture and Code (Java SE and Spring Boot)	3
DCL-210	Advanced Java Programming	3
DCL-215	Test-Driven Development with JUnit 5	3
DCL-220	OOP Principles and Design Patterns with Java SE 26	3
DCL-235	Effective Java Programming	3
DCL-252	New Features in Java SE 8-25	2

6.1 Java Performance Tuning and Optimization



Course Code : DCL-200

Course Title : Java Performance Tuning and Optimization

Duration : 3 Days

Course Overview

At the completion of this course, you should be able to describe basic principles of performance, monitor operating system performance on Linux, and Windows, monitor performance at the JVM and application level, profile the performance of a Java application, describe various garbage collection schemes, tune garbage collection in a Java application, apply basic performance tuning principles to a Java application, tune the performance of a Java application at the language level, apply best practices for performance testing.

Course Modules

Module 1 - JVM Overview and Performance Methodology

Module 2 - Monitoring Operating System Performance

Module 3 - Monitoring JVM and JIT Performance

Module 4 - Profiling (VisualVM/Java Flight Recorder and Java Mission Control)

Module 5 - Garbage Collection Schemes

Module 6 - Garbage Collection Tuning

Module 7 - Language and GC Concerns

Module 8 - Performance Tuning at Language Level

Module 9 - Performance Tuning at API Level

Module 10 - Benchmarking Java Applications

Module 11 - Maximizing Performance with GraalVM and Quarkus

6.2 Java SE 26 Programming

Course Code : DCL-204
Course Title : Java SE 26 Programming
Duration : 5 Days

Course Overview

Java SE 26 Programming training covers the core language features and Application Programming Interfaces (API) you will use to design object-oriented applications with Java Standard Edition 24 Platform.

Course Modules

- Module 1 - Java Platform Overview
- Module 2 - Java Syntax and Class Review
- Module 3 - Encapsulation and Sub-classing
- Module 4 - Overriding Methods, Polymorphism, and Static Classes
- Module 5 - Abstract and Nested Classes
- Module 6 - Interfaces and Lambda Expressions
- Module 7 - Module System
- Module 8 - Collections and Generics
- Module 9 - Collections Streams, and Filters
- Module 10 - Lambda Built-in Functional Interfaces
- Module 11 - Lambda Operations
- Module 12 - Exceptions and Assertions
- Module 13 - Java Date/Time API
- Module 14 - I/O Fundamentals and NIO.2
- Module 15 - Concurrency API

6.3 Advanced Java Development with Modern Design and Programming Paradigms

Course Code : DCL-206

Course Title : Advanced Java Development with Modern Design & Programming Paradigms

Duration : 4 Days

Course Overview

This comprehensive course is designed to equip software engineers, architects, and senior developers with a robust understanding of modern software architecture principles, advanced design patterns, and the latest advancements in the Java platform (Java SE 8 through 26). Participants will gain both theoretical foundations and practical insights to architect, design, and implement scalable, modular, and reactive systems in enterprise environments.

Course Modules

Module 1: Software Architecture and Architectural Patterns

- Tiered and Layered Architecture, MVC, REST Architecture
- Hexagonal/Clean Architecture
- Event Patterns and Event-Driven Architecture
- SOA and MSA
- Microservices Patterns

Module 2: Design Patterns

- Object Design Fundamentals and OOP Principles
- Interface Patterns: Adapter, Facade, Composite, Bridge
- Responsibility Patterns: Singleton, Observer, Mediator, Proxy, Responsibility, Flyweight
- Construction Patterns: Builder, Factory Method, Abstract Factory, Prototype, Memento
- Operation Patterns: Template Method, State, Strategy, Command, Interpreter
- Extension Patterns: Decorator, Iterator, Visitor

Module 3: New Features in Java SE 8 to 26

Module 4: Modularity and Java SE 9+ Module System

- Motivation and architecture
- Creating, compiling, and deploying modules
- module-info.java and access control

Module 5: Functional Programming in Java SE 8+

- Fundamentals: Higher-order functions, Pure Functions, Immutability
- Lambda Expressions and Method References
- Functional Interfaces: Consumer, Supplier, Function, Predicate

Module 6: Asynchronous and Reactive Programming in Java SE

- CompletableFuture, Future vs ExecutorService
- Exception handling and chaining
- Flow API: Reactive Streams API, Flow.Publisher and Flow.Subscriber

Module 7: Thread Programming Model in Java SE 21+

- Platform Threads and Virtual Threads
- Structured Concurrency and Context Propagation
- Parallel Programming
- Executors, Synchronizers, and Thread Safety

6.4 Clean Architecture and Code (Java SE and Spring Boot)

Course Code : DCL-208

Course Title : Clean Architecture and Code (Java SE and Spring Boot)

Duration : 3 Days

Course Modules

Module 1 – Introduction to Software Architectures

Module 2 – Introduction to Clean Architecture

Module 3 – SOLID Principles

Module 4 – Clean Architecture Components

Module 5 – Introduction to Clean Code

Module 6 – Meaningful Names

Module 7 – Functions

Module 8 – Comments

Module 9 – Formatting

Module 10 – Objects and Data Structures

Module 11 – Error Handling

Module 12 – Boundaries

Module 13 – Clean Test

Module 14 – Clean Concurrency



6.5 Advanced Java Programming



Course Code : DCL-210
Course Title : Advanced Java Programming
Duration : 3 Days

Course Overview

The main goal of this training is to become a better Java programmer and a true master of the Java Programming Language, to truly understand threading, Java NIO, to understand the intricacies of Java memory model to improve the performance of your Java application.

Course Modules

Module 1 - Annotations and Reflection API

Module 2 - Collection API, Stream API, Flow API

Module 3 - XML Processing

Module 4 - RMI and Distributed Programming

Module 5 - JMX and Programming MBeans

Module 6 - Threads and Concurrent Programming

Module 7 - Database Programming: JDBC, JPA, JTA

Module 8 - NIO and NIO2

Module 9 - Networking (Non-Blocking Sockets, Selector)

Module 10 - Security: Digital Signatures, Message Digests, Symmetric/Asymmetric Ciphers

Module 11 - New Language Features in Java 8-25

6.6 Test-Driven Development with JUnit 5



Course Code : DCL-215
Course Title : Test-Driven Development with JUnit 5
Duration : 3 Days

Course Overview

JUnit is a unit testing framework for the Java programming language. JUnit has been important in the development of test-driven development. In this training, the student will get a deep understanding of JUnit and will be able to use and execute test frameworks, test cases for Java programs.

Course Modules

- Module 1 - Java SE 8-26: New Features Boot Camp
- Module 2 - Introduction to JUnit 5
- Module 3 - Unit Testing with JUnit 5
- Module 4 - Microservice Architecture, Domain-Driven Design, Hexagonal Architecture
- Module 5 - Test-Driven Development
- Module 6 - Test Doubles: Dummy Object, Stub, Spies, Mocking
- Module 7 - Testing Strategies in Microservice Architecture
- Module 8 - Spring Boot Testing
- Module 9 - Guidelines for Testable Design (Java SE 26, Spring Framework 6)

6.7 Object-Oriented Programming Principles and Design Patterns with Java SE 26



Course Code : DCL-220

Course Title : Object-Oriented Programming Principles and Design Patterns with Java SE 26

Duration : 3 Days

Course Overview

This course provides an overview of all the Gang of Four (GoF) design patterns as outlined in their seminal book, together with modern-day variations, adjustments, discussions of intrinsic use of patterns in the Java language.

Course Modules

Module 1 - Object Design Fundamentals

Module 2 - OOP Principles and Design Patterns

Module 3 - Interface Patterns: Adapter, Facade, Composite, Bridge

Module 4 - Responsibility Patterns: Singleton, Observer, Mediator, Proxy, Responsibility, Flyweight

Module 5 - Construction Patterns: Builder, Factory Method, Abstract Factory, Prototype, Memento

Module 6 - Operation Patterns: Template Method, State, Strategy, Command, Interpreter

Module 7 - Extension Patterns: Decorator, Iterator, Visitor

6.8 Effective Java Programming



Course Code : DCL-235
Course Title : Effective Java Programming
Duration : 3 Days

Course Modules

- Module 1 – Creating and Destroying Objects
- Module 2 - Methods common to all objects
- Module 3 - Classes and Interfaces
- Module 4 - Generics
- Module 5 - Enums and Annotations
- Module 6 - Lambdas and Streams
- Module 7 - Methods
- Module 8 - General Programming
- Module 9 - Exceptions
- Module 10 - Concurrency
- Module 11 - Serialization

6.9 New Features in Java SE 8-25

Course Code : DCL-250
Course Title : New Features in Java SE 8-25
Duration : 2 Days

Course Overview

This training summarizes features and enhancements in Java SE 8-25.

Course Modules

Module 1 - Language Changes (Java SE 7-25)

Module 2 - JVM Changes (Java SE 7-25)

Module 3 - Changes in APIs (Java SE 8-25)

Module 4 - Using Lambda Expressions and Method Enhancements (Java SE 8)

Module 5 - Collections and Streams API (Java SE 8-25)

Module 6 - Using the New Date and Time API (Java SE 8)

Module 7 - Miscellaneous New Features (Java SE 8-25)

Module 8 - Module System (Java SE 9)

Module 9 – Asynchronous and Reactive Programming (Java SE 9)

Module 10 - New Language Features in Java SE 9-25

7 SPRING TRAINING COURSES



Overview: Spring technologies help you to build enterprise applications that are scalable, mobile, secure and robust. Our Spring Framework training empowers software developers to solve concrete business problems by mapping application-level issues to Spring-centric solutions.

PROGRAM OUTLINE

Course Code	Course Title	Duration (Days)
DCL-168	Kotlin Programming	3
DCL-370	Spring Framework 6	4
DCL-374	Developing Spring Boot 3 Applications	3
DCL-376	Spring Data	3

7.1 Kotlin Programming

Course Code : DCL-168
Course Title : Kotlin Programming
Duration : 3 Days

Course Modules

Module 1 - Introduction to Kotlin

Module 2 - Control flow

Module 3 - Classes and Objects

Module 4 - Collections Framework

Module 5 - Getting started with Functional Programming

Module 6 - Functions – Function Types and Side Effects

Module 7 - Lambda, Generics, Recursions, Correcursion

Module 8 - Delegates in Kotlin

Module 9 - Asynchronous processing with Coroutines

Module 10 - Collections and Data Operations in Kotlin

Module 11 - Functional Programming, OOP, and Reactive Programming

Module 12 - Monads, Functors and Applicatives

Module 13 - Working with Streams



7.2 Spring Framework 6



SPRING
FRAMEWORK

DEEPCLOUDLABS

Course Code : DCL-370
Course Title : Spring Framework 6
Duration : 4 Days

Course Overview

This training presents hands-on experience with Spring and its major features, including configuration, data access, web and REST applications, Spring Boot, Spring Security and Spring Boot to build enterprise-ready applications.

Course Modules

Module 1 - Introduction to Spring: Inversion of Control and Containers

Module 2 - Bean Configuration

Module 3 - Dynamic Proxy and Spring AOP

Module 4 - Spring Boot

Module 5 - Spring JDBC Template

Module 6 - Spring Transaction

Module 7 - Spring ORM

Module 8 - Spring Data

Module 9 - Spring REST

Module 10 - Spring Testing

Module 11 - Spring Web Services

Module 12 - Spring Security

7.3 Developing Spring Boot 3 Applications



DEVELOPING SPRING BOOT APPLICATIONS

DEEPCLOUDLABS

Course Code : DCL-374
Course Title : Developing Spring Boot 3 Applications
Duration : 3 Days

Course Overview

This training presents hands-on experience with Spring and its core features, including configuration, data access, web and REST applications, and Spring Boot to build enterprise-ready applications.

Course Modules

- Module 1 - Introduction to Spring Boot
- Module 2 - Spring Boot Auto-Configuration and Features
- Module 3 - Spring Boot Essentials
- Module 4 - Building REST APIs Using Spring Boot
- Module 5 - Spring Data with Spring Boot
- Module 6 - Spring Testing with Spring Boot
- Module 7 - Spring Security with Spring Boot
- Module 8 - Spring Messaging with Spring Boot
- Module 9 - Health Monitoring with Spring Boot Actuator
- Module 10 - Deploying Spring Boot Applications

7.4 Spring Data



**SPRING DATA
with
HIBERNATE 5**

DEEPCLOUDLABS

Course Code : DCL-376
Course Title : Spring Data
Duration : 3 Days

Course Overview

Hibernate is the most popular object-relational mapping framework and the most used JPA provider. Hibernate maps our java classes to database tables. Spring data JPA makes it super easy to use powerful features of Hibernate by removing all the configuration and use of low-level APIs. Spring Data makes it possible to remove the DAO implementations entirely.

Course Modules

- Module 1 - Core Spring and Spring Boot Review
- Module 2 – Spring Data JDBC
- Module 3 - Introduction to the Java Persistence API
- Module 4 - Modeling Relational Databases with JPA Entities
- Module 5 - Working with the Entity Manager
- Module 6 - Persisting Enums and Collections
- Module 7 - Java Persistence Query Language
- Module 8 - Mapping Stored Procedures
- Module 9 - Criteria API
- Module 10 - Entity Inheritance Relationships
- Module 11 - Spring ORM
- Module 12 - Spring Transaction
- Module 13 - Spring Data JPA
- Module 14 - Spring Data Mongo

8 MICROSERVICE TRAINING COURSES



Course Code	Course Title	Duration
DCL-350	Implementing MicroService Architecture using Spring Cloud	5
DCL-352	Domain-Driven Design Essentials	2
DCL-355	Microservices Patterns with examples in Spring Boot	4
DCL-356	Cloud Architecture Patterns	2
DCL-358	Implementing Event-Driven MicroService Architecture using Spring Boot and Apache Kafka	3
DCL-380	Apache Kafka: Architecture and Development	2
DCL-382	RabbitMQ: Architecture and Administration	2

8.1 Implementing Microservices Architecture using Spring Cloud



Course Code : DCL-350

Course Title : Implementing Microservices Architecture using Spring Cloud

Duration : 5 Days

Course Overview

This training will give you the tools and techniques to build, manage and deploy containerized Microservices. This course is based on Spring Framework, Spring Boot, and Spring Cloud. On the other hand, we focus on the key considerations for well-planned Microservices Architectural Design.

Course Modules

Module 1 - Introduction to Microservices Architecture

Module 2 - The Evolutionary Architecture

Module 3 - Modeling Services

Module 4 - Spring Boot Bootcamp

Module 5 - Integrating Services with Spring MVC

Module 6 - Integrating Services with Spring WebSocket

Module 7 - Spring Cloud and Microservices

Module 8 - Spring Boot Actuator

Module 9 - Spring Cloud Config

Module 10 - Service Discovery with Spring Netflix Eureka

Module 11 - Client Resiliency patterns with Resilience4j

Module 12 - Service Routing with Gateway

Module 13 - Data Integration with Spring Data

Module 14 - Data Integration with Spring Messaging

Module 15 - Distributed Logging and Tracing

Module 16 - Microservices Deployment with Docker

8.2 Domain-Driven Design Essentials

Course Code : DCL-352
Course Title : Domain-Driven Design Essentials
Duration : 2 Days

Course Modules

- Module 1 – Introduction to DDD
- Module 2 – DDD: Modeling Problems in Software
- Module 3 – Elements of a Domain Model
- Module 4 – Aggregates in Domain-Driven Design
- Module 5 – Repositories
- Module 6 – Domain Events and Anti-corruption Layers
- Module 7 – Extending Domain-Driven Design

8.3 Microservices Patterns with examples in Spring Boot

Course Code : DCL-355

Course Title : Microservices Patterns with examples in Spring Boot

Duration : 4 Days

Course Modules

Module 1 - Microservices Architecture Basics

Module 2 - Application Architecture Patterns

Module 3 - Decomposition Patterns

Module 4 - Messaging style Patterns

Module 5 - Reliable Communications Patterns

Module 6 - Service Discovery Patterns

Module 7 - Transactional Messaging Patterns

Module 8 - Data Consistency Patterns

Module 9 - Business Logic Design Patterns

Module 10 - Querying Patterns

Module 11 - External API Patterns

Module 12 - Testing Patterns

Module 13 - Security Patterns

Module 14 - Cross-cutting Concerns Patterns

Module 15 - Observability Patterns

Module 16 - Deployment Patterns

Module 17 - Refactoring to Microservices Patterns

8.4 Cloud Architecture Patterns

Course Code : DCL-356
Course Title : Cloud Architecture Patterns
Duration : 2 Days

Course Modules

- Module 1 - Cloud Design Patterns
- Module 2 - Scalability Primer
- Module 3 - Horizontally Scaling Compute Pattern
- Module 4 - Queue-Centric Workflow Pattern
- Module 5 - Auto-Scaling Pattern
- Module 6 - Eventual Consistency Primer
- Module 7 - Map-Reduce Pattern
- Module 8 - Database Sharding Pattern
- Module 9 - Multi-tenancy and Commodity Hardware Pattern
- Module 10 - Busy Signal Pattern
- Module 11 - Node Failure Pattern
- Module 12 - Network Latency Primer
- Module 13 - Colocate Pattern
- Module 14 - Valet Key Pattern
- Module 15 - CDN Pattern
- Module 16 - Multi-Site Deployment Pattern

8.5 Implementing Event-Driven Microservices Architecture using Spring Boot and Apache Kafka

Course Code : DCL-358

Course Title : **Implementing Event-Driven Microservices Architecture using Spring Boot and Apache Kafka**

Duration : 3 Days

Course Modules

Module 1 - Software Architecture and Microservices

Module 2 - Event Patterns and Event-Driven Architecture

Module 3 - Designing Domain Model using Event Sourcing

Module 4 - Overview of Apache Kafka and Kafka Broker

Module 5 - Events and Commands

Module 6 - Event Sourcing and CQRS

Module 7 - Event Streams and Event Stores

Module 8 - Consistency, Concurrency, and Transactions in Event-Driven Systems

Module 9 - Implementing Event-Driven MS using Spring Boot and Apache Kafka

8.6 Apache Kafka: Architecture and Development

Course Code : DCL-380

Course Title : Apache Kafka: Architecture and Development

Duration : 2 Days

Course Overview

This training will introduce you to Apache Kafka and provides a detailed tour of its architecture so you can develop your solution based on Apache Kafka using Java and Spring Boot.

Course Modules

Module 1 - Introduction to Apache Kafka

- Kafka Architecture
- Core Concepts and Features
- Kafka Components and Installation

Module 2 - Developing Kafka Producer

- Sending a Message Synchronously & Asynchronously in Java and Spring Boot
- Configuring Kafka Producer

Module 3 - Developing Kafka Consumer

- Creating a Kafka consumer and subscribing to Topics in Java and Spring Boot
- Configuring Kafka Consumer
- Implementing different types of commits

Module 4 - Kafka CLI

- Kafka Topic CLI
- Kafka Console Producer/Consumer CLI
- Kafka Consumer Group CLI

Module 5 - Kafka Connect

- Kafka Connect Architecture and Use-cases
- Building Data pipelines using Kafka Connect

Module 6 - Kafka Stream Processing

- Kafka Stream Architecture and Stream Processing Design Patterns
- Kafka Stream API
- Kafka Stream with Spring Boot

8.7 RabbitMQ: Architecture and Administration



Course Code : DCL-382
Course Title : **RabbitMQ: Architecture and Administration**
Duration : 2 Days

Course Overview

This training provides a deep dive into how to install, configure and develop applications which leverage **RabbitMQ** messaging. The course begins with **RabbitMQ** installation and general configuration. It continues with developing messaging applications using Spring AMQP and Node.js and delves into more advanced topics including clustering, high availability, performance tuning.

Course Modules

- Module 1 - Enterprise Messaging and **RabbitMQ**
- Module 2 - Messaging Patterns in **RabbitMQ**
- Module 3 - Administration and Configuration
- Module 4 - Developing Messaging Applications using Spring AMQP and Node.js
- Module 5 - Clustering
- Module 6 - High Availability
- Module 7 - Performance Tuning and Troubleshooting

9 JAVASCRIPT TRAINING COURSES



Overview: Whether you want a career in front end or back-end development, it's essential that you have a solid understanding of JavaScript. This curriculum focuses on the job-ready skills in highest demand for front-end web developers, from HTML, CSS, and JavaScript, to Angular, Bootstrap, and jQuery. Students will learn, practice, and prove they have the skills employers are looking for in a series of training courses with hands-on labs.

Course Code	Course Title	Duration (Days)
DCL-302	Node.js Programming	3
DCL-304	Advanced JavaScript Programming	3
DCL-305	Developing Angular Applications	3
DCL-306	Developing React Applications	3
DCL-318	Developing Vue Applications	3

9.1 Node.js Programming

**NODE.JS PROGRAMMING**

DEEPCLOUDLABS

Course Code : DCL-302
Course Title : Node.js Programming
Duration : 3 Days

Course Overview

In this training, you will learn how to build, test, and launch node applications. This training also studies how to create REST APIs using Express.js. You will study persistence using MongoDB and Mongoose API. Finally, you will develop real-time web applications using Socket.io. In the training you will use ES6-13 JavaScript.

Course Modules

- Module 1 - Scalable Web Architectures
- Module 2 - Server-side JS with Node.js
- Module 3 - JavaScript
- Module 4 - Advanced JavaScript
- Module 5 – New Features in ES6-ES13
- Module 6 - Writing Node Modules
- Module 7 - Node Package Manger
- Module 8 - MongoDB
- Module 9 - Node.js and MongoDB integration
- Module 10 - Express.js
- Module 11 - Socket-IO
- Module 12 – Reactive Programming using RxJs
- Module 13 – Event-Driven Programming using Node and Apache Kafka

9.2 Advanced JavaScript Programming



Course Code : DCL-304
Course Title : Advanced JavaScript Programming
Duration : 3 Days

Course Overview

In this training, you will learn advanced JavaScript techniques that include working with the ECMAScript 6-13. This training includes a thorough exploration of advanced objects, arrays, and functions; Training also includes reactive programming using RxJS.

Course Modules

- Module 1 - Accustoming Yourself to JavaScript
- Module 2 - Variable Scope
- Module 3 - Working with Functions
- Module 4 - Objects and Prototypes
- Module 5 - Arrays and Dictionaries
- Module 6 - Library and API Design
- Module 7 - Concurrency
- Module 8 - Functional Programming
- Module 9 - Reactive Programming using RxJs
- Module 10 – Event-Driven Architecture and Event-Driven Programming
- Module 11 - New Features in ES6-ES13

9.3 Developing Angular Applications



DEVELOPING ANGULAR APPLICATIONS

DEEPCLOUDLABS

Course Code : DCL-305
Course Title : Developing Angular Applications
Duration : 3 Days

Course Overview

This training helps students to learn Angular and build responsive, enterprise-strength applications that run smoothly on desktop and mobile. Angular provides a robust framework that facilitates the development of richly interactive applications running on multiple platforms. In this training, you will gain experience building components, creating directives, modularizing applications, and building template-driven forms.

Course Modules

- Module 1 - Introduction to Angular
- Module 2 - Writing Applications using Angular CLI
- Module 3 - TypeScript Essentials
- Module 4 - Template, Binding, and Directives
- Module 5 - Components
- Module 6 - Services and Dependency Injection
- Module 7 - RxJS and Observables
- Module 8 - HTTP Service
- Module 9 - Routing
- Module 10 - Pipes
- Module 11 - Validation Directives
- Module 12 - Testing

9.4 Developing React Applications



Course Code : DCL-306
Course Title : Developing React Applications
Duration : 3 Days

Course Overview

React is a declarative, efficient, and flexible JavaScript library for building Web Applications. It follows a component-based approach. It is easy to create smaller components and build large-scale applications. This training will teach you the core knowledge you need to deeply understand, and build React components and structure applications with Redux.

Course Modules

- Module 1 - Introduction to React
- Module 2 - HTML, CSS, and JSX
- Module 3 - Data Flow and Life Cycle Events
- Module 4 - Handling Events
- Module 5 - Working with Forms
- Module 6 - React Routing
- Module 7 - Working with Data using Hooks Context API and Reducer
- Module 8 - Working with Data using Redux
- Module 9 - Performance Tuning of React Applications

9.5 Developing Vue 3 Applications

Course Code : DCL-318
Course Title : Developing Vue 3 Applications
Duration : 3 Days

Course Overview

Vue is a JavaScript Framework for building Frontend Applications. Vue.js mixes the best features of Angular and React Frameworks. You will learn the theory behind Vue and how to use Vue to build highly interactive and large enterprise-level web applications.

Course Modules

Module 1 - Introduction to Web Architectures and Vue

Module 2 - Writing Applications in Vue using Vue-Cli

Module 3 - Writing a Component

Module 4 - Data Binding and Directives

Module 5 - State Management with Pinia

Module 6 - Vue-Router

Module 7 - Composition API

Module 8 – Working with External Data

Module 9 - Advanced Rendering, Dynamic Components, and Plugin Composition

Module 10 - Transitioning and Animation

Module 11 - Testing Vue Components

Module 12 - Server-Side Rendering in Vue

10 JAKARTA EE TRAINING COURSES

Overview: Jakarta EE training teaches you the concepts, tools, and functions you will need to know in order to build web applications using Jakarta Enterprise Edition. By the completion of these trainings, you will have the knowledge and skills needed to create fully functional Jakarta EE applications.

Course Code	Course Title	Duration (Days)
DCL-342	Jakarta Persistence 3.1	3
DCL-364	Best Practices in Jakarta EE 10	3
DCL-390	Developing Enterprise Applications on Jakarta EE 10	4

10.1 Jakarta Persistence 3.2

Course Code : DCL-342

Course Title : Jakarta Persistence 3.2

Duration : 3 Days

Course Overview

This training explores the Jakarta Persistence API within the context of a web-based Java Enterprise Edition application, as well as within a stand-alone Java Standard Edition application. This includes using Jakarta Persistence API with the Enterprise JavaBeans technology and Context and Dependency Injection.

Course Modules

Module 1 - Introduction to the Jakarta Persistence API

Module 2 - Working with JPA in a Jakarta EE Environment

Module 3 - Modeling Relational Databases with JPA Entities

Module 4 - Working with the Entity Manager

Module 5 - Persisting Enums and Collections

Module 6 - Creating Queries with Java Persistence Query Language

Module 7 - Using the Criteria API

Module 8 - Implementing Bean Validation with JPA

Module 9 - Applying Transactions and Locking

Module 10 - Entity Inheritance Relationships

Module 11 - Optimizing JPA Performance

10.2 Best Practices in Jakarta EE 11

Course Code : DCL-364
Course Title : Best Practices in Jakarta EE 11
Duration : 3 Days

Course Overview

This training reviews common and emerging patterns specific to Java SDK and EE development. You'll learn the depth and evolution of pattern-based techniques in Java, with particular emphasis on Jakarta EE 10 conventions.

Course Modules

- Module 1 - Reviewing Object-Oriented Principles in Java
- Module 2 - Reviewing Gang of Four Patterns
- Module 3 - Implementing Patterns in Java
- Module 4 - Jakarta EE 11: Overview
- Module 5 - Implementing Integration Patterns
- Module 6 - Implementing Patterns in Business Components
- Module 7 - Implementing Infrastructural Patterns in Jakarta EE 11
- Module 8 - Implementing More Infrastructure Patterns
- Module 9 - Exploring Anti-Patterns
- Module 10 - Selecting Patterns for Architecture
- Module 11 - Domain Driven Design Essentials
- Module 12 - Introduction to Microservices Architecture
- Module 13 - Implementing Microservices Architecture in Jakarta EE 11 using MicroProfile

10.3 Developing Enterprise Applications on Jakarta EE 11

Course Code : DCL-390

Course Title : Developing Enterprise Applications on Jakarta EE 11

Duration : 4 Days

Course Overview

This training teaches you the skills you need to successfully build and deploy enterprise applications. You'll explore applications that comply with the Java Platform, Enterprise Edition 9 Platform.

Course Modules

Module 1 - Introduction to Jakarta EE 11 Platform

Module 2 – Servlet 6 and Java Server Pages 3.1

Module 3 - Jakarta Server Faces 4

Module 4 - Enterprise JavaBeans 4

Module 5 - Contexts and Dependency Injection 2.0

Module 6 – Concurrency 3.0

Module 7 - Bean Validation 3.0

Module 8 - Java Persistence 3.1

Module 9 - Java Transaction 2.0

Module 10 - Java Message Service 3.1

Module 11 - Batch Processing 2.1

Module 12 - Jakarta Restful Web Services: JAX-RS 4

Module 13 - Jakarta XML Web Services 4.0

Module 14 - JSON-P 2.1 and JSON-B 3.0

Module 15 - WebSocket 2.1

11 C/C++ TRAINING COURSES



Overview: Even with the rise of more modern programming languages, C/C++ remains the most popular language in the world. C/C++ code is platform independent and found in almost every OS. Developers fluent in this language can produce a wide variety of applications for embedded systems, mobile devices, games and much more.

PROGRAM OUTLINE

Course Code	Course Title	Duration (Days)
DCL-100	C Programming	3
DCL-112	Object-Oriented Programming using C++23	4
DCL-113	Functional Programming in C++23	2
DCL-115	Multi-Threaded Programming in C++23	3
DCL-140	Linux System Programming	4

11.1 C Programming



Course Code : DCL-100
Course Title : C Programming
Duration : 3 Days

Course Overview

This course introduces you to the basics of programming in C. You will learn how to work with data, how to control program flow, and how to use functions. You will also learn how to create data structures, how to build complex C programs and how to run them.

Course Modules

Module 1 - Introduction to Computing

Module 2 - Basic C Constructs

Module 3 - Selection

Module 4 - Repetition

Module 5 - Derived DataTypes

Module 6 - Arrays and Strings

Module 7 - Multidimensional Arrays

Module 8 - Functions

Module 9 - Pointers

Module 10 - File Operations

Module 11 - Preprocessor

Module 12 - Recursion

11.2 Object-Oriented Programming using C++23



Course Code : DCL-112
Course Title : Object-Oriented Programming using C++23
Duration : 4 Days

Course Overview

This course introduces several programming paradigms including Object-Oriented Programming, Generic Programming, Functional Programming and how to use these programming schemes with the C++23 programming language to build “good” programs.

Course Modules

Module 1 - Introduction to Object-Oriented Programming

Module 2 - C++: A Better C

Module 3 - Classes and Objects

Module 4 - Constructors and Destructors

Module 5 - Operator Overloading

Module 6 - Inheritance

Module 7 - Pointers to Objects

Module 8 - Polymorphism

Module 9 - Lambda Expressions and Closure

Module 10 - Exceptions

Module 11 - Templates

Module 12 - The Standard Template Library – STL

Module 13 - Multithreading

Module 14 - Advanced I/O: C++ Streams

11.3 Functional Programming in C++23



Course Code : DCL-113
Course Title : Functional Programming in C++23
Duration : 2 Days

Course Overview

This training is not just designed to teach the C++ programming language itself. It is also about functional programming and how it fits in with C++. Functional programming provides a different way to think about software design and a different way of programming, compared to the imperative, object-oriented styles commonly used with C++. The training is split into two parts. The first part covers functional programming idioms, and how they can be applied to C++. The second part of the training deals with more advanced concepts, mostly pertaining to functional software design.

Course Modules

- Module 1 - Introduction to Functional Programming
- Module 2 - Getting started with functional programming.
- Module 3 - Function objects
- Module 4 – Partial Functions
- Module 5 – Pure Functions and Lazy evaluation
- Module 6 - Ranges

11.4 Multi-Threaded Programming in C++23

MULTI-THREADED PROGRAMMING



Course Code : DCL-115
Course Title : Multi-Threaded Programming in C++23
Duration : 3 Days

Course Overview

Multithreaded applications execute multiple threads in a single processor environment, allowing developers achieve concurrency. This training will teach you the finer points of multithreading and concurrency concepts and how to apply them efficiently in C++23. Divided into ten modules, we start with a brief introduction to the fundamentals of multithreading and concurrency concepts. We then take an in-depth look at how these concepts work at the hardware-level as well as how both operating systems and frameworks use these low-level functions. We will also learn about the native multithreading and concurrency support available in C++ since the 2011 revision, synchronization, and communication between threads.

Course Modules

- Module 1 - Introduction to Concurrency in C++23
- Module 2 - Managing Threads
- Module 3 - Sharing Data between Threads
- Module 4 - Synchronizing concurrent operations
- Module 5 - C++ memory model and operations on atomic types
- Module 6 - Designing lock-based concurrent data structures
- Module 7 - Designing lock-free concurrent data structures
- Module 8 - Designing concurrent code
- Module 9 - Advanced thread management
- Module 10 - Parallel Algorithms: Parallel STL and Ranges



11.5 Linux System Programming



Course Code : DCL-140
Course Title : Linux System Programming
Duration : 4 Days

Course Overview

This training is designed to bring C developers up to speed with a variety of tools and capabilities of Linux. This includes development and debugging tools as well as system and library functions. You will learn

- How to use GNU tools for compiling and debugging
- How to use an integrated development environment.
- How to write POSIX Threaded applications
- How to use system calls for such things as inter-process communication, interacting with the file system, signals, time, creating a daemon and scheduling.

Course Modules

Module 1 - Introduction to Linux Programming

Module 2 - Spawning New Tasks

Module 3 - System and Process Information

Module 4 - Files

Module 5 - Directories

Module 6 - Signals

Module 7 - Threads

Module 8 - Overview of IPC

Module 9 - Short Messages

Module 10 - Shared Memory

Module 11 - Synchronization

Module 12 - Sockets

12 BOOTCAMPS

12.1 Machine Learning Bootcamp

- [Python Programming](#)
- [Advanced Python Programming](#)
- [Data Analytics using Python](#)
- [Practical Machine Learning using Python](#)
- [Deep Learning with PyTorch](#)
- [Deep Learning with TensorFlow](#)
- [Foundation of Deep Learning with Backbone Architecture Papers](#)

12.2 Full-stack Development Bootcamp

- [Java SE 26 Programming](#)
- [Developing Enterprise Applications Using Spring Framework 6](#)
- [Developing React Applications](#)
- [Implementing MicroServices Architecture using Spring Cloud](#)



13 CONSULTANCY SERVICES: APPLICATION DEVELOPMENT

13.1 Custom AI & Machine Learning Engineering: From Discovery to Scale

13.2 Big Data Solution and Application Development

13.3 Scalable Web Application Development

13.4 Advanced Computer Vision Solution and Application Development

13.5 Advanced Image Processing Solution and Application Development

13.6 Cloud Native Application Development

13.7 Quantitative Finance & Automated Trading Systems Development for Stock Markets

13.8 Quantitative Finance & Automated Trading Systems Development for Cryptocurrency Exchange Markets

13.9 Ultra-Low Latency & High Frequency Trading Application Development

13.10 Blockchain Application Development

13.11 Wallet Management Application Development for Cryptocurrencies

13.12 Cryptocurrency Exchange Platform Development

14 CONSULTANCY SERVICES: PROJECT MANAGEMENT

14.1 Application Lifecycle Management Consultancy Service

14.2 Managing Enterprise Transition to Agile Methodologies

14.3 Key Performance Indicator (KPI) Development and Measurement

14.4 Proof of Concept Development and Project Benefits and Risks Analysis

14.5 Scrum based Project Management and Software Development



15 PRIVATE GROUP CLASSES

DEEPCLOUDLABS offers a private group of classes that provide flexible, customizable training solutions to fit your organization's unique needs. Private training allows organizations to train an entire team or department with one unified learning experience ensuring that everyone obtains the same knowledge and skills. Courses can be delivered "off the shelf", slightly modified or completely customized to meet your organization's learning initiatives. Private training can be delivered in any of our locations, on-site at your offices, or at a location of your choice.

Contact us to learn more about our private group class options through phone call or e-mail:

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Head Office : 0 850 259 2 444

E-MAIL

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16 COMPANY INFORMATION

DEEPCLOUDLABS BİLİŞİM TEKNOLOJİLERİ EĞİTİM VE DANIŞMANLIK HİZMETLERİ TİCARET LİMİTED ŞİRKETİ

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