

	DATE	COURSE CONTENT	REMARKS
JAVA FOUNDATION	15/01/2025 WEDNESDAY	<b>Fundamentals of Java8 Features</b> * Java 8: why should you care?free audio * Passing code with behavior parametrization * Lambda expressions * Introducing streams free audio * Working with streams * Collecting data with streams * Parallel data processing and performance * Refactoring, testing, and debugging * Default methods * Using Optional as a better alternative to null * Completable Future: composable asynchronous programming * New Date and Time API * Thinking functionally * Functional programming techniques	LAB SESSION:SETTING UP ENVIRONMENT
	16/01/2025 THURSDAY	<b>FLOW CONTROLS</b> if and switch Statements & if-else Branching switch Statements, Loops and Iterators Using while, do, for, loops Using break and continue String Class & Important Methods <b>ADVANCED CLASS DESIGN &amp; OOPS</b> Abstract classes and type generalization Field modifier best practices The static and final modifiers How to start with Classes, Objects, constructors & so on.. Abstraction, Inheritance, Polymorphism, encapsulation & other oops concepts Java Interfaces, collections Immutability, Sub-classing, Overloading methods,Variable argument methods Access modifiers: private, protected and public Method overriding, Constructor overloading The instance of operator, Virtual method invocation, Polymorphism Casting object references, Overriding Object methods	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
	17/01/2025 FRIDAY	<b>THREADING</b> Operating system task scheduling Recognizing multithreaded environments Creating multi-threaded solutions Sharing data across threads Synchronization and Deadlock Immutable objects Thread-safe collections  <b>Design Patterns &amp; usage:</b> Creational Design Pattern * Factory Pattern * Singleton Pattern * Prototype Pattern Structural Design Pattern * Decorator Pattern * Facade Pattern * Proxy Pattern Behavioural Design Pattern * Chain Of Responsibility Pattern * Iterator Pattern * Observer Pattern * State Pattern Presentation Layer Design Pattern * Intercepting Filter Pattern * Front Controller Pattern * View Helper Pattern Business Layer Design Pattern * Business Delegate Pattern * Session Facade Pattern * Transfer Object Pattern Integration Layer Design Pattern * Data Access Object Pattern	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
	17/01/2025 FRIDAY		
	18/01/25	<b>SATURDAY HOLIDAY</b>	
	19/01/25	<b>SUNDAY HOLIDAY</b>	
	20/01/2025 MONDAY	<b>EXCEPTION &amp; File HANDLING</b> :Basics of file navigation & I/O hierarchy Types of stream, serilization The Catch or Specify Requirement Catching and Handling Exceptions The try Block The catch Blocks The finally Block The try-with-resources Statement Putting It All Together Specifying the Exceptions Thrown by a Method How to Throw Exceptions Chained Exceptions Creating Exception Classes Unchecked Exceptions — The Controversy Advantages of Exceptions	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
	21/01/2025 TUESDAY	<b>GENERICS &amp; COLLECTIONS</b> Generic classes and type parameters Type inference (diamond) Collections and generics List, set and Map Stack and Deque Inner and Anonymous class  <b>INTERFACE &amp; LAMDA EXPRESSIONS</b> Defining a Java interface Choosing between interface inheritance and class inheritance Extending an interface, Defaulting methods, Anonymous inner classes Defining a Lambda Expression Collections Streams, and Filters, Describing the Builder pattern Iterating through a collection using lambda syntax Describing the Stream interface Filtering a collection using lambda expressions Calling an existing method using a method reference Chaining multiple methods together Defining pipelines in terms of lambdas and collections	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
	22/01/2025 WEDNESDAY	<b>J2EE Framework</b> Web Basics Java EE & Servlet Containers Installing Tomcat Servlet Life Cycle Working with Java Server Pages Scripting Element in JSP Implicit Objects Model View Control (MVC) Object persistence and EL JSP Standard Tag Library(JSTL) JAR/War Files - Introduction Demo: Creating & Manipulating JAR/war Files	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
	23/01/2025 THURSDAY	<b>JUNIT – DOCUMENTATION</b> Overview on Unit Testing Frameworks Definition and Purpose: Understanding what unit testing is and why it's Test Cases: Writing effective test cases to cover different scenarios. JUnit (for Java): Basics of JUnit and writing tests. Mockito: Using Mockito for mocking in Java. Other Frameworks: Overview of frameworks like NUnit, PyTest, etc. Red-Green-Refactor Cycle: Writing tests before code and refactoring. Benefits and Challenges: Advantages of TDD and common obstacles.	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
SPRING & MAVEN	24/01/2025 FRIDAY	<b>RDBMS</b> SQL Programming Concepts: DDL/DML, Grouping SQL and Service performance thought process DB Design: ER and EER Creating ER/ERR using workbench Normalization and Keys Working on Enterprise DB Case study Queries on Multiple Relations: manual mapping technique, Nested queries (==, IN, NOT IN, EXISTS)	LAB SESSION:SETTING UP ENVIRONMENT
	25/01/25	<b>SATURDAY HOLIDAY</b>	
	26/01/25	<b>SUNDAY HOLIDAY</b>	

RDBMS, JPA, HIB	27/01/2025 MONDAY	<b>JDBC and MultiThreading + JPA AND HIBERNATE with Maven</b> JDBC API and driver installation connect to database and insert query CRUD Operations Maven features, understand pom.xml file and install maven Create a quickstart maven project and understand various mvn commands Create a maven webapp project JPA and Hibernate: what is JPA and ORM framework, hibernate architecture and core API OneToOne annotation, map list(ElementCollection) OneToMany unidirectional mapping bidirectional mapping and manytomany CRUD Operations with EntityManager HQL	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
	28/01/2025 TUESDAY	<b>SPRING CORE + SPRING MVC mini project with Spring JDBC/JPA CRUD Ops.</b> Spring core and MVC Introduction & evolution of Spring framework Overview of the Spring Framework and its Need. Dependency Injection (DI) and Inversion of Control (IoC) principles. Types of Dependency Injection (constructor and setter) Configuring Beans using XML and annotations. Differentiates between ApplicationContext and BeanFactory in Spring. Bean Lifecycle and Scopes.	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
SPRING FRAMEWORK	29/01/2025 WEDNESDAY	<b>SPRING BOOT BASICS</b> Advantages of Spring Boot over Traditional Spring Framework and its Purpose Setting up a Spring Boot project using Spring Initializr. Understanding Spring Boot auto-configuration. Creating and running a Spring Boot application. Spring Boot Annotations. Packaging and deploying Spring Boot applications <b>SPRING BOOT ESSENTIALS</b> Application Development, Configuration, Embedded Servers, Data Access, and many more Common application properties Auto-configuration classes Spring Boot Dependencies <b>SPRING CONTROLLERS</b> Using @ResponseBody JSON and XML data exchange	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
	30/01/2025 THURSDAY	<b>SPRING BOOT REST APIs</b> Spring Boot:spring initializr and STS hello world spring project Spring Boot Crud Repository: Crud Repository interface introduction and database configuration in <b>spring boot(application.properties)</b> Spring Boot Auto configuration and MVC Spring Boot REST: GET, POST, PUT, DELETE	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
	31/01/2025 FRIDAY	<b>PROFESSIONAL API TECHNIQUES</b> REST API Essentials Pagination, Sorting content negotiation: DTOs Global Exception Handlers: exception handling @ControllerAdvice Working with swagger and actuator DB independent custom queries using JPQL API SECURITY Spring BootSecurity: configure spring security with JDBC and in memory authentication	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
	01/02/25	SATURDAY HOLIDAY	
	02/02/25	SUNDAY HOLIDAY	
	03/02/2025 MONDAY	<b>MICRO SERVICES (Spring Framework)</b> Micro services vs. monolithic architecture Eureka SD, Spring cloud Gateway Create 2 spring micro services Routing your Micro services Traffic API Gateway Intro to hystrix SONAR Introduction	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
	04/02/2025 TUESDAY	<b>KAFKA &amp; Project oriented</b> Kafka introduction Kafka Installation Kafka Topic, Producer, Consumer, Kafka Integration with Spring Boot	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
PROJECT DEPLOYMENTS	05/02/2025 WEDNESDAY		
	06/02/2025 THURSDAY	<b>DEVOPS &amp; DEPLOYMENT</b> Introduction to DevOps Version Control with Git Continuous Integration/Continuous Deployment (CI/CD) Containerization with Docker Deploying Applications on Cloud Platforms (AWS)	AFTERNOON LAB SESSION & DAY TOPIC RECAP(QUIZ)
	07/02/2025 FRIDAY	<b>CAPSTONE PROJECT : USING SPRING FRAMEWORK WITH JPA</b>	
		SATURDAY HOLIDAY	
		SUNDAY HOLIDAY	
	10/02/2025 to 13/02/2025	<b>CAPSTONE PROJECT : USING SPRING FRAMEWORK WITH JPA</b>	