



# Sky SEA Bootcamp

## **Sky SEA Bootcamp**

Programme code: ZSKYGSEA

Duration: 25 days/5 weeks

Lead Instructor: Victoria Lloyd

Client Lead: Sam Gilkes

### **About this programme**

The Sky Software Engineering Academy is a 5-week bootcamp designed to run in specialised streams: Developers, Software Testers, Mobile App Developers and C Programmers. There are common elements and stream-specific modules. From week 2, learners will be given the opportunity to work on a summative project in Agile Teams. This will take place each afternoon for not less than 2 hours. This outline refers to the Developer and Tester stream modules.

## Programme Pre-course Reading via Cloud Academy

- Developing Web Applications with HTML and CSS: <https://app.qa.com/learning-paths/html-and-css-1395/>  
Recommended duration 10 hours
- Web Development Fundamentals – JavaScript Primer: <https://app.qa.com/learning-paths/javascript-primer-1384/>  
Recommended duration 5 hours

### Recommendations for Testing Stream

- Initial project set-up using Maven & 1<sup>st</sup> set of JUnit5 Unit Tests : <https://app.qa.com/course/java-test-driven-development-td-using-junit-1251/initial-project-setup-using-maven-first-set-of-junit5-unit-tests/>  
Recommended duration 1 hour 49 mins
- JUnit5 Introduction: <https://app.qa.com/course/java-test-driven-development-td-using-junit-1251/junit5-introduction/>  
Recommended duration 5 minutes
- Introduction to Test Driven Development TDD (for Java) using Junit: <https://app.qa.com/learning-paths/java-test-driven-development-1-2610/>  
Recommended duration 4 hours
- Continuous Testing: <https://app.qa.com/course/devops-playbook-part1/devops-adoption-playbook-part-1-book-7-continuous-testing/>  
Recommended duration 8 minutes

## Programme outline

### Week 1 – Agile Fundamentals, Introduction to Git, Java

*Developer Stream: Software Engineering*

*Tester Stream: Software Testing*

- *All: Agile Fundamentals*
  - What is Agile, benefits of using Agile, Values & principles
  - Self-organising teams
  - Scrum & Kanban methodologies
  - Software Development Lifecycle
  - Planning & Estimation
  - Complementary Practices



- *All: Introduction to Git*
  - Repositories
  - File Lifecycles
  - Branches
  - Working with Remotes
- *Developer Stream - Software Engineering*
  - Relationships between Project Management, Software Management and Software Engineering
  - Goals and Principles of Software Engineering
  - Data and Software Modelling
  - Architecture Frameworks
- *Tester Stream – Introduction to Software Testing*
  - Types of Testing
  - Frameworks
  - SDLC Integration, V-model, ISTQB focus
- *All: Introduction to Java Fundamentals*

## **Week 2 – Java & Secure Code Warrior Tournament**

- *All: Java*
  - Flow Control
  - Classes and Objects
  - Arrays and Strings
  - Inheritance, Abstract Classes and Interfaces
  - Unit Testing, Advanced Java Syntax
  - Collections
  - Files and Exceptions
  - Streams and Lambdas
- *Secure Code Warrior Tournament*
  - *Gamified series of challenges that ask graduates to identify security issues, locate the insecure code & fix the vulnerability. Delivered through a mix of Assessments, challenges, metrics within the Secure Code Warrior platform*



## Week 3 – Introduction to Spring & Spring Boot and Secure By Design

*Developer Stream: Spring & API Development with Spring*

*Tester Stream: Introduction to Testing Frameworks & Mobile Automated Testing*

- **All- API Development with Spring**
  - Spring Boot
  - Bean Validation
  - Dependency Injection
  - Components, Configuration
  - Connecting to a Database
  - Entities
  
- **Developer Stream - API Development with Spring Continued**
  - Controllers, Services, Repositories
  - DTOs
  - Swagger
  
- **Tester Stream – Introduction to Testing Frameworks and Mobile Automated Testing**

Introduction to Testing Frameworks

  - Selenium (4 pillars)
  - Element Locators and use cases
  - Selenium WebDriver
  - Selenium IDE
  
- **Secure By Design - ALL**
  - *Secure Development Lifecycle Models*
  - *Secure Development Processes*
  - *Application Security*
  - *Defensive Coding*



## Week 4 – DevOps Intro and ReactJS

*Developer Stream: Spring Continued*

*Tester Stream: Mobile Automated Testing*

- **Developer Stream** - API Development with Spring
  - Spring Profiles
  - Pre-populating Databases for testing
- **Tester Stream** – Mobile Automated Testing
  - Framework Overviews (Sky to confirm which framework they use eg Espresso, Appium, TestComplete)
  - Appium Introduction
  - Android Studio Integration
  - Testing Applications
- *All:* – Introduction to DevOps Pipelines
- *All: Developing applications with ReactJS*
  - *React Introduction*
  - *Components & JSC*
  - *Thinking in React*
  - *Working with External Data*
  - *Introduction to Testing with Jest*



## Week 5 – Group Workshop Presentations

*Developer Stream: ReactJS Routing, State Management and Authentication*

*Tester Stream: Performance Testing Automation, API Testing*

- *Developer Stream – ReactJS*
  - *Single page applications using React Router*
  - *State Management*
  - *Securing React Applications*
  
- *Tester Stream - Performance Testing Automation and API Testing*
  - *Performance Testing Automation*
  - *API Testing, API Security, API Testing tools, API Testing Framework*
  
- **All:** *Completion and Presentation of Sky Graduate Project to business*

## Secure Code Warrior Tournament

*This programme includes a Secure Code Warrior Tournament. Tournaments provide engaging events that get your developers involved and interested in secure coding. Players are presented with a series of challenges that will ask them to identify the security problem, locate the insecure code, and fix the vulnerability. All challenges are based on real code examples, and are ranked from easy through to fiendishly hard! Tournaments are a great fun and engaging way to create awareness of the critical need to design and develop securely and to promote application security throughout.*

*Tournaments are delivered through a mix of Assessments, Challenges, Metrics, Tournaments and Courses all within the Secure Code Warrior platform.*

### *Secure By Design*

*This programme includes a 2 day Secure By Design course which covers the following topics:*

- *Secure Development Lifecycle Models*
  - *Secure Development Processes*
  - *Application Security*
  - *Defensive Coding*
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