launch code

Learn to Code / Get a Job / Hire Talent

Software Development

Course Overview

This course equips students with essential skills to launch their career in technology. Students will build a solid foundation in software development, focusing on widely-used programming concepts and techniques. Alongside technical skills, the course emphasizes critical problem-solving abilities, effective use of developer tools, and communication and team building—key competencies for thriving as a professional software developer. Additionally, this course develops key skills related to the job search, including developing a resume, behavioral and technical interviews, and developing a portfolio that demonstrates students' professional and technical skills. Upon successful completion of the course, students qualify to enter our Career Liftoff Program.

Structure

The course is organized around four core tasks: Foundations, Prep Work, In-Class Activities, and Graded Assignments. Active participation in each is essential for success. Falling behind on assignments or skipping prep work can lead to challenges and delays.

- **Foundations:** Foundations occur in advance of the start of class in order to prepare learners for the content and learning experience.
- **Prep Work**: Prepares students for each lesson. This includes independent reading, video lessons, review questions, and brief coding exercises.
- **In-Class Activities**: Sessions will include large-group Q&A sessions, coding demonstrations, and small-group hands-on coding exercises called studios. Instructional Staff will lead the small-group activities.

- **Graded Assignments**: Larger projects designed to reinforce what students learned. These assignments will often span multiple lessons and are critical to course completion.

Evaluation

This course operates on a Pass/Fail grading system. Each graded assignment is evaluated using a 4-point rubric, and students must earn a score of at least 3 ("meeting expectations") on all graded components to pass. Failure to meet this requirement will prevent students from progressing to the next unit or completing the course. Below is a breakdown of the types of evaluations students must complete:

- **Foundations:**
  Foundations is a self-guided preparatory session that takes place before official enrollment in the course. All activities and graded assignments in this session must be completed by the deadline with a passing grade. Individuals who do not pass are ineligible for course enrollment but may reapply to future cohorts.

- **Assignments:**
  Assignments help reinforce learning through practice and demonstration of skills, such as coding exercises and professional learning plans.
    - All assignments must be submitted on time and meet a “meeting expectations” score on all graded components.
    - Students are allowed up to two (2) extensions or resubmissions during the course.
- **Projects:**
  Projects allow students to apply their knowledge to industry-relevant tasks that demonstrate their technical and professional skills, such as developing a full-stack application and creating a professional portfolio.
    - All projects must be submitted on time and achieve a “meeting expectations” score on all graded components.
    - Students are permitted one (1) extension or resubmission per project.
- **Mock Interviews:**
  Mock interviews prepare learners for the hiring process.
    - Learners must pass the graded mock interview to graduate from the program.
    - One (1) redo opportunity is allowed if the graded mock interview is not passed.

Course Objectives

Upon successful completion, students will be able to:

- Apply foundational coding structures to solve problems using JavaScript and Java.
- Develop full stack web applications that integrate databases to manage user data and a front end in React to display that data.
- Use common developer tools and best practices to write professional-quality code.
- Build software projects from the ground up using in-demand skills and technologies.
- Communicate and demonstrate their professional and technical skills.

Course Breakdown

Foundations of Programming

A self-guided series of lessons that sets the foundation for the course. It introduces learners to the tools and foundational programming concepts they will use throughout the class.

Topics:

- Why Learn to Code & JavaScript
- How Computers and Programs Work
- Software Engineering Environment & Resources
- JavaScript Fundamentals
- Boolean Logic and Conditionals
- Debugging Practices
- Data Types, Iteration, and Loops

Unit 1: Front-End Development

This unit covers essential programming concepts using JavaScript, focusing on problem-solving and front-end web development, including an introduction to React.

Topics:

- Functions and Modularity
- Anonymous Functions & Recursion

- Object Literals & Math Module
- Modules in JavaScript
- Unit Testing & Test-Driven Development
- Variable Contexts & Hoisting
- Data Types & Complex Types
- Exception Handling
- Classes & Inheritance
- File System Navigation
- HTML & CSS
- Git Version Control
- DOM Manipulation
- Form Handling & Validation
- JSON Data Format
- Promises & Async Programming
- React

Unit 2: Back-End Development + Career Development

Unit 2 introduces students to object-oriented programming using Java and then delves into industry-standard web frameworks such as Spring Boot MVC. It also covers essential development tools, providing hands-on experience in building robust web applications. Students also participate in lessons that will help them prepare for interviews and develop a professional portfolio.

Topics:

- Java Development Environment
- Java Data Types & Programs
- Control Flow & Collections
- Object-Oriented Programming
- Memory in Java (Stack vs Heap)
- Inheritance & Abstract Classes
- Polymorphism & Interfaces
- Unit Testing
- Java Streams & Optionals
- Class Diagrams

- SOLID Principles
- Spring Boot & MVC
- Exception Handling
- Gradle in Spring Boot
- Using AI as a Development Tool
- CSS Templates
- Model Binding & Form Validation
- Object-Relational Mapping
- Authentication & Security
- RESTful APIs
- Full-stack Web Development
- Mock Interviews
- Resume
- Professional Learning Plans
- Portfolio Development