

Software Engineering Bootcamp

Complete Outline

About

Program Length:

23 Weeks

Instruction Format:

Mentor-led cohorts (online)

Program Overview:

The Bootcamp program is rigorous and packed with challenges covering concepts, theories and projects; but you will have all the help needed to navigate through the process in the form of academic counselling, mentor office hours and assessments. The Software Engineering Bootcamp will provide fully immersive learning through lecture videos, workshops & weekly projects, code-a-thons, and a Capstone Final project. You will learn front-end to back-end web development programming, deep dive into databases for web projects and become an expert at various tools within the development environment. Finally, you will receive career support to build your employer facing portfolio and possible internship opportunities.

Certifications Covered:

This bootcamp will cover the material needed for following certification:

- ITF+

Learning Outcomes:

- Programming Concepts
- HTML
- CSS
- Javascript
- jQuery
- Responsive Design
- Bootstrap & Wordpress
- React.js
- Git
- Python
- MySQL

- MongoDB
- Node.js
- Express.js

Weekly Study plan	Courses
Week 1	Study and Learning Skills for College and University Students
	Principles of Software Engineering I: principles of engineering, software development lifecycle
Week 2	CompTIA IT Fundamentals ITF+
	Starting with Git & GitHub
Week 3	Introduction to Web Development
	Introduction to HTML and CSS
Week 4	Introduction to UX and Product Management
	Introduction to Bootstrap
Week 5	Project 01: Basic Business or Personal Website
Week 6 - 8	Fundamentals of Modern JavaScript - ES6 and Beyond
	Dynamic and Interactive Web Pages - Beginners JavaScript DOM
	JavaScript Async
Week 9	Project 02: Website with a Search Engine
Week 10	Data structures and algorithm theory
	Principles of Software Engineering III: System Design
Week 11	JavaScript Objects and OOP Programming with JavaScript
	Principles of Software Engineering II: Software design, UML
Week 12-13	Introduction to React
	React Router and Redux
Week 14	Project 03: Task Management Web App
Week 15	Scrum and Agile immersion
Week 16-17	Introduction to Python
	Learn Python Django from Scratch
Week 18	Project 04: Python Django
Week 19	Querying Data with SQL
Week 20	Node.js - From Zero to Web Apps
Week 21	Introduction to FastAPI
Week 22-23	Project 05: Nodejs Express

Courses & Modules

1. Study and Learning Skills for College and University Students

- Introduction
- How The Brain Works
- Modes Of Thinking
- Competency
- Study Techniques Part 1 Familiar Practices and Notorious Practices
- Study Techniques Part 2 Elaborative Interrogation
- Study Techniques Part 3 Self Explanation
- Study Techniques Part 4 Practice Testing
- Study Techniques Part 5 Spaced Repetition
- Study Techniques Part 6 Interleaving

2. Principles of Software Engineering I: principles of engineering, software development lifecycle

- Module 1: Software Engineering
- Module 2: Software Development Lifecycle
- Module 3: Lifecycle Models and Processes
- Module 4: The Project Team
- Course Summary
- Final Exam

3. CompTIA IT Fundamentals ITF+ (FCO-U61)

- Course Introduction
- Module 1: Using Computers
- Module 2: Using Apps and Databases
- Module 3: Using Computer Hardware
- Module 4: Using Networks
- Module 5: Security Concepts
- Course Summary
- Practice Exams

4. Starting with Git & GitHub

- Course Introduction
- Git Defined
- GitHub Defined
- The Development Workflow
- Installing Git Locally
- Using Git
- Getting Things Started
- Managing Files
- Working with a Repo
- A Local Workflow
- Using GitHub
- Using GitHub
- Working with Remote
- An Extended Workflow
- Pull Requests
- Branching & Merging
- Additional Features

5. Introduction to Web Development

- Course Introduction
- Module 1: What does a Web Developer Do?
- Module 2: Installing Software for Web Development
- Module 3: Folders, Files, Terminal, Computer Networks
- Course Summary

6. Introduction to HTML and CSS

- Course Introduction
- Module 1: HTML Fundamentals
- Module 2: HTML Forms and Multimedia
- Module 3: CSS Fundamentals
- Course Summary

7. HTML5 Assessment

8. CSS3 Assessment

9. Introduction to UX and Product Management

- Course Introduction
- Module 1: Product Management
- Module 2: User Experience Design
- Course Summary

10. Introduction to Bootstrap

- Introduction to Bootstrap
- Layout Design with Bootstrap
- Page Navigation in Bootstrap 4
- Page Content Components
- Application Setup, Deployment, and Hosting

11. Project 01: Basic Business or Personal Website

12. Fundamentals of Modern JavaScript - ES6 and Beyond

- Course Introduction
- Module 1: Datatypes and Variables
- Module 2: Sequence, Selection, and Iteration
- Module 3: Working with Functions in Modern JavaScript

13. Dynamic and Interactive Web Pages - Beginners JavaScript DOM

- Introduction to JavaScript DOM course
- Setup Developer Environment
- Create an Index Page
- Script File JS
- Console Log Options
- JS Document Object
- Selecting Elements
- Selection by Tag
- QuerySelector
- QuerySelectorAll
- Complex CSS querySelectorAll

- Update Images
- ChildNodes Children and More
- Element Style Update
- Multi Element Style Update
- Add Classes to Elements
- Set Attribute
- JavaScript Create Element
- Append and Prepend
- AddEvent Listeners
- AddEvent Multiple Listeners
- Mouse Move Events
- Fun with Images
- Form Values
- Annoying Blinker
- Animation JavaScript
- DOM Conclusion

14. JavaScript Async

- Course Introduction
- Module 1: JavaScript Promises
- Module 2: Orchestrating Promises – Promise.all and allSettled
- Module 3: ES2018+ Async-await Syntax
- Final Exam

15. Project 02: Website with a Search Engine

16. Data Structures and Algorithm Theory

- Course Introduction
- Module 1: Big O notation
- Module 2: Basic Data Structures: Lists, Dictionaries, Tuples, Stacks, and Queues
- Module 3: Recursion
- Module 4: Linked Lists and Binary Trees
- Module 5: Heaps and Sorting
- Module 6: Dynamic Programming
- Course Summary
- Final Exam

17. Principles of Software Engineering III: System Design

- Course Introduction
- Module 1: System Design Introduction
- Module 2: System Design Elements
- Module 3: System Design Details
- Module 4: Case Study
- Course Summary
- Final Exam

18. JavaScript Objects and OOP Programming with JavaScript

- Introduction To Course Content
- OOP Objects Introduction
- Section Intro
- Introduction Dev Setup
- JavaScript Objects
- JavaScript Objects
- Car an Object
- Output Object Data Dot notation and Bracket notation
- Object Data iterating contents
- Creating Elements using Object Information to output content on web pages.
- Shopping Cart Challenge
- Shopping Cart Challenge 2
- Shopping Cart Challenge 3
- 6 Shopping Cart Challenge 3-1
- Object Oriented Programming JavaScript
- Object Oriented Programming
- Constructor Functions
- Objects Construction
- Dice Game OOP
- Dice Game OOP 2
- Shopping cart OOP
- Shopping cart OOP 2
- Shopping cart OOP 3
- Shopping cart OOP 4
- Shopping cart OOP 5

19. Principles of Software Engineering II: Software design, UML

- Course Introduction
- Module 1: Software Design
- Module 2: UML Diagrams
- Final Exam

20. Introduction to React

- Course Introduction
- Module 1: Getting Started with React
- Module 2: Functional Components
- Module 3: Class Components
- Module 4: API, Lifecycle Methods, Use Effect
- Module 5: Deployment to GitHub Pages
- Course Summary

21. React Router and Redux

- What is React Router
- Setting up React Router locally
- Setting up React Router using CodeSandbox
- Routers and Routes
- Links
- Switches
- Redirects
- Prompts
- React Router Summary

22. Project 03: Task Management Web App

23. Scrum and Agile immersion

- Module 1: Introduction
- Module 2: Agile Overview
- Module 3: Scrum Overview
- Module 4: Roles and Responsibilities
- Module 5: Project Lifecycle
- Module 6: Building High Performing Teams
- Module 7: Scaling Agile
- Module 8: Closure

24. Introduction to Python

- Course Introduction
- Lecture 0: What is Colab?
- Lecture 1: Variables
- Lecture 2: Operators
- Lecture 3: Flow Control
- Lecture 4: Compound Data Types
- Lecture 5: Loops
- Lecture 6: Functions
- Lecture 7: Error Handling
- Lecture 8: Commenting and Good Practices
- Lecture 9: Objects and Classes Part 1
- Lecture 10: Objects and Classes Part 2
- Lecture 11: Built-in Modules
- Lecture 12: Python Installation
- Course Summary

25. Learn Python Django From Scratch

- Course Introduction
- Introduction to Django
- Quiz Review
- Creating a User Authentication System
- Quiz Review
- Frontending
- Quiz Review
- E-Commerce
- Quiz Review
- File Uploading, Ajax and E-mailing
- Quiz Review
- Geolocation and Map Integration
- Quiz Review
- Django Power-Ups: Services and Signals
- Quiz Review
- Testing Your Site
- Quiz Review
- Course Conclusion

26. Project 04: Python Django

27. Querying Data with SQL

- Course Introduction
- Introduction to SQL
- Intermediate Functions
- Output Control
- Table Modification
- Common Table Expressions

28. Node.js - From Zero to Web Apps

- Course Introduction
- Discover Node.js
- Work with Express
- Kick a Node Web App
- Work with Gulp
- Work with Node Templating Engines
- More Express Routing
- Use a database with Node.js
- Course Wrap-up

29. Introduction to FastAPI

- Course Introduction
- Lecture 1: What is an API
- Lecture 2: Setting up FastAPI
- Lecture 3: Endpoints
- Lecture 4: Path Parameters
- Lecture 5: Query Parameters
- Lecture 6: Request Body
- Lecture 7: String Validations
- Lecture 8: Numeric Validations + Response Models
- Lecture 9: Handling Errors
- Lecture 10: FastAPI on a server
- Course Summary

30. Project 05: Nodejs Express