TEKsystems Own change | Global Services

WEB DEVELOPMENT BOOT CAMP PROGRAM GUIDE

Curriculum overview

The digital revolution has transformed virtually every area of human activity. You can launch your career and build up your professional arsenal by learning the latest skills for web development in a fraction of the time. This accelerator program is a full-time, 13-week program that gives you the knowledge and skills to build dynamic end-to-end web applications.

The program is rigorous and fast-paced, covering both theory and application of web development. As you expand your skills, you'll use what you learn with hands-on projects. Upon successfully completing the program, you'll have an impressive portfolio of applications and the opportunity to tap into rewarding employment possibilities through TEKsystems Global Services.

Is this program right for you?

Are you creative, curious and looking to start your personal journey in the technology field? Enrolling in our coding boot camp could be a smart career move if:

- You recognize the ever-changing nature of today's technological economy and want to keep up with industry changes and gain relevant technological skills
- You have a foundation of technical skills and want to invest in your future development
- You would enjoy a fast-track career with the opportunity to get on-site experience at Fortune 500 companies

Course structure

Over the course of 13 weeks, you'll attend virtual informative lectures, collaborate with team members via Slack, and take part in a variety of individual and team exercises. Homework assignments will provide an opportunity to apply what you've learned and build on it. The goal? Provide a comprehensive learning experience and true insight into all the skills you'll need for full-stack web development.

Opportunity within

This boot camp focuses on more than just coding skills. It also provides you an opportunity to explore career options developing solutions and leading business transformation within TEKsystems Global Services. You'll meet various TEKsystems Global Services leaders and experience what it's like to work in a highly collaborative and professional environment. The final selection process will consider not only your technical skills but also your cultural fit within TEKsystems' core values.

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BOOT CAMP SCHEDULE: *A day in the life*

A typical week of the virtual boot camp will have a recurring flow of daily activities.

Virtual Instructor Presentation – 9 –11 a.m. CT: Participate in virtual instructor-led discussions using WebEx covering technology background, use cases, key concepts and coding demos. Break out into smaller groups to complete coding challenges. Guest speakers from TEKsystems' various practices present weekly to discuss real-life examples of technologies in use.

Complete Course Assignments and Exercises – 11 a.m.–2:30 p.m. CT: Each day you will be assigned virtual training and exercises to complete. Exercises are graded and must be completed by a specific due date. Interact with team members and your TEKsystems instructors via Slack to get support and build relationships.

Daily Team Standup – 2:30–3:00 p.m. CT: You will be part of a virtual team led by an experienced teaching assistant (TA), allowing you to build relationships and get the support you need to be successful. Boot camp teams meet daily during standup to discuss progress and potential blockers.

Deep-dive and Open Office Hours Sessions—Evenings: Go further on specific topics during optional afternoon/evening deep-dive sessions where the instructor or TA provides additional instruction on specific topics. Or attend one of the recurring open office hours sessions with the instructor to discuss specific support topics.

Homework—Evenings: Any assigned training or exercises not completed during the day will be completed in the evening prior to class the next morning. Additional resources on topics are also provide for those that want to dig a little deeper into subjects.

Individual Support and Weekly 1:1s: Get the support you need to be successful by requesting individual support from your assigned TA or instructor. Individual support sessions can be set up when you need that extra level of assistance. Your TA will also meet with you for a weekly one-on-one to discuss your progress and grades, providing insights into how you're progressing and what areas you need to work on.

Portfolio Capstone Projects: At specific points in the boot camp, you'll work on cumulative capstone projects that bring together the various technologies you've learned up to that point. The capstone projects are spread across multiple days and then presented to the entire class. The capstones allow you to build a substantial portfolio of projects that demonstrate your abilities across a wide variety of technologies.

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Module	Description	You'll learn how to
Module 1: Git, GitHub, Merge Conflicts, etc.	Created in 2005, Git is a distributed version-control system for tracking changes in source code during software development that has become the de facto industry standard. It is designed for coordinating work among programmers but can be used to track changes in any set of files. GitHub is the most well-known cloud-based service that provides Git functionality.	• Install a Git client • Create a sample repository • Clone a repository into a local workspace • Push and pull code into/from a repository • Check out code
Module 2: HTML and CSS	HTML and CSS are the foundational building blocks for creating content for the web, from simple web pages to commercial quality products consumed by millions of users. It is essential for any web professional to understand what HTML and CSS are and how to use them.	• Design and develop HTML templates • Set the look and feel and responsiveness of HTML templates via CSS • Use the Bootstrap library • Style HTML pages using tools such as FlexBox
Module 3: JavaScript	JavaScript is one of the most popular programming languages and the de facto standard to develop web-based applications. A good command of JavaScript can go a long way in the career of a developer, and according to the Stack Overflow Developer Survey Results 2019, JavaScript is the most commonly used programming language, used by 69.7% of professional developers. In many job surveys, JavaScript ranks as the most sought-after skill set by employers, and its recent growth shows the demand for good JavaScript developers is ever-growing.	• Explain what JavaScript is • Define data types, loops, conditionals and events • Use core features of JavaScript ES6 • Learn functional programming techniques (immutability, higher order functions, function chaining) • Learn DOM manipulation techniques
Module 4: React.js	Modern web development frameworks such as React.js extend, expand and simplify web development and allow you to spend your time focusing on solving business problems rather than fine-tuning low-level code and behavior.	• Write a simple application that calls a back-end service and shows the data coming from the back-end service in a grid • Develop the user interface (UI) (with grid control) • Call the back-end service • Retrieve the data from the database • Populate the data into the UI component • Debug the code, as needed

Module	Description	You'll learn how to
Module 5: Object-oriented Programming	Object-oriented programming is about how developers imagine and conceive their approach to software. By approaching code as "real-world" objects, developers can logically compartmentalize functionality and data within applications, which allows for cleaner, better and more easily testable code.	• Explain the principles of object-oriented programming • Write code in both Java and JavaScript using Object Oriented Programming Principles.
Module 6: Java Programming Language	Java is a general-purpose programming language that is class-based, object-oriented and designed to have as few implementation dependencies as possible. It is intended to let application developers write once, run anywhere (WORA), meaning that compiled Java code can run on all platforms that support Java without the need for recompilation. As of 2019, Java was one of the most popular programming languages in use, particularly for client-server web applications, with a reported 9 million developers. Learning Java will help you understand object-oriented programming patterns and practices and serve as a foundation for learning other modern programming languages.	• Write a simple application that demonstrates the basic core concepts in Java • Identify common problems • Find and fix common problems (debug) • Use Java tools, such as IntelliJ
Module 7: Java Advanced Concepts	Java is crucial for developing and delivering stable, extensible and maintainable software applications, services and platforms. If you want to stand out, you have to master Java advanced concepts so you can build high-quality Java-based software to meet the requirements of your clients.	• Explain collections and data structures • Use the Java Stream API
Module 8: Object Oriented Design (OOD)	Applying the S.O.L.I.D. principles of object-oriented design to your code helps you develop software that is easy to maintain and extend. Following these principles improves your code quality and helps you avoid bad design that leads to inflexible, brittle code. Design patterns are typical solutions to common problems in software design. Each pattern is like a blueprint that you can customize to solve a particular design problem in your code.	• Identify the basic core principles to write code (S.O.L.I.D.) • Learn to recognize and properly utilize design patterns in code.
Module 9: Test Driven Development (TDD)	Test-driven development (TDD) is an agile approach to developing software, where user requirements are the basis for writing code. In other words, it's a way to think through user requirements or design before writing production code. With TDD, you write a test first, then you write just enough production code to pass that test, followed by a further refactoring of the tests. The primary goal of TDD is to write clean code and to write code that is doing what it is expected to do. It is a way to specify what the code must do before it's written.	• Describe the CI/CD pipeline • Identify opportunities for automation

Module	Description	You'll learn how to
Module 10: Databases	Businesses run on data—operational customer- or partner-related, accounting, inventory management and dozens of other types of data. And this data needs to be stored, managed and accessed by the software programs that those businesses use. "Databases" are the various formats and systems that exist to store and manage this data. As a web developer, you need to know how to interact with various databases.	• Explain the difference between relational and nonrelational databases • Structure a relational database • Understand database constraints • Write basic SQL queries
Module 11: Spring Boot	Spring Boot is one of the most popular frameworks to develop the REST APIs and microservices. It is used extensively in back-end development to perform CRUD operations, serve business data, integrate with other applications and exchange the data over the web. Organizations are adopting microservices architectures to innovate, scale more easily and respond to change more quickly.	• Explain what REST is • Identify best practices of writing REST APIs • Explain what Spring is • Write REST APIs using Spring Boot and Spring JPA • Develop REST APIs that can interact with the database or other systems