The Full Stack JavaScript Techdegree is a structured, online learning program that will prepare you for a career in the tech industry.

Treehouse's Techdegree program is a structured, self-paced, online learning program that's designed to give you entry-level job skills as a Full Stack JavaScript Developer in as little as 5 months.

As a Full Stack Developer, you'll work on the complete "stack" of technologies required to create a dynamic web site or web application. In other words, you'll create the web pages visitors see in their web browsers as well as the behind-the-scenes technologies used to create web sites that can save data, deliver information, and talk to other computers.

You'll learn the fundamental building blocks -- HTML and CSS -- which are used to create web pages. You'll also dive deep into JavaScript, the world's most popular programming language. With JavaScript you can add interactivity to web pages, making them more fun, engaging and useful. JavaScript also works on the "back-end" -- meaning a program that runs on a web server -- to work with databases, create powerful web apps, and share and retrieve information from other servers. You'll also learn how to use React -- one of the most used frameworks for building user interfaces for web applications.

The Techdegree is a unique, self-paced, online learning environment which engages students through video, written instruction, interactive quizzes, code challenges, a live support community and a challenging set of projects which help you master your newly learned skills and build out a polished portfolio of professional quality projects.

What to Expect

The Techdegree curriculum is structured into units that each teach a core concept, skill, language component or framework. You'll learn by watching videos; reinforce your learning with quizzes and interactive code challenges; apply what you've learned in mini-practice sessions, and finally, apply all that you've learned in a challenging project that's individually graded with personalized feedback.

When you've completed the 10 projects in this Techdegree, and passed the final exam, you'll receive a certificate of accomplishment from Treehouse, and have strong skills to help you land an entry-level job as a Full Stack Developer.

Skills You'll Develop

- Coding web pages using HTML, CSS, and JavaScript
- Programming fundamentals and software development best practices
- Creating responsive and interactive web pages with JavaScript and jQuery
- Object-oriented programming techniques
- How to use the React front end framework to build complex user interfaces
- Debugging techniques to identify and fix coding problems
- Using common professional tools like text editors, the command line, Git and GitHub
- Creating responsive and interactive web pages with JavaScript and jQuery
- Communicating with web site APIs to grab information from other sites like photos from Flickr, data from Twitter, and space images from NASA
- Server-side programming with Node.js, npm and the Express framework
- Retrieving, storing and updating databases using SQL
- Creating REST APIs to provide information and services

How We'll Help You Succeed

Online learning can be challenging, and we know it can be tough to learn on your own. Fortunately, we've created more than just a great set of web development courses. We've made a program that provides support, guidance, and flexibility to fit your life:

- **Study at your own pace.** Life happens, and sometimes you'll have less time to study. Our self-paced, on-demand curriculum lets you study when you want to (and when you have time.)
- **Live support and a social learning community.** When you join the Techdegree, you join a community of other students and Treehouse Student Success Specialists in a live, interactive chat community. Ask questions, answer questions, make new colleagues and receive the help of a friendly, welcoming and supportive community. This chat community is often listed as one of the most important reasons our graduates succeed in the program.
- **Study and career guidance.** We don't just teach programming: we have courses that teach strategies to help you learn better, and courses to help you write a resume, create a social profile, build a professional network, and start your job search.

- **A finished portfolio to show off your skills.** When you've completed the projects in the Techdegree, you'll have a portfolio of projects that you can share with potential employers or just to demonstrate what you're able to do.

Unit 1:
HTML, CSS, and JavaScript

Learn the basics of building web pages using HTML and CSS with hands-on, follow along instruction: learn while doing. Begin to learn basic programming concepts using JavaScript.

- Start coding with HTML and CSS
- Build a game using JavaScript
- Programming concepts like variables, values, control structures and functions
- JavaScript Objects, JSON and array methods
- Principles of "DRY" (Don't Repeat Yourself) programming

Project: Random Quote Generator
Practice your knowledge of basic JavaScript syntax and data structures by building a Random Quote Generator, a program that displays a randomly selected quote each time the user clicks a button.

Unit 2:
DOM Programming

Creating interactive web pages requires using JavaScript to "control" a web page. This is done by working with the DOM (or Document Object Model) to add new web page content, remove content, change content and a lot more.

- CSS Selectors
- Controlling web pages with DOM programming
- Using JavaScript to respond to user interactions
- Debugging your code using exceptions, breaks and monitoring DOM changes

Project: Pagination and Content Filter
Long lists don't make for a good user experience on a web page. In this project, you'll enhance the usability of a web page by writing JavaScript to dynamically divide a long list of items into "pages". As a bonus challenge, you'll add a search feature to display only the students that match specific search criteria.

Unit 3:

Processing Forms

Learn important HTML elements for retrieving information from web site visitors using HTML forms. You'll also learn how to use jQuery -- a popular tool that simplifies adding interactivity to web pages as well as ways to add "conditional logic" so that your programs can adapt to different input and situations.

- The history and evolution of JavaScript
- How JavaScript works in different contexts such as a web server, web browser and on a desktop computer
- Build HTML forms to accept user input with text boxes, menus, and checkboxes
- Learn jQuery -- a popular library that makes adding interactivity to web pages easier
- Explore more complex methods for creating conditional logic in JavaScript, so that your programs can react more intelligently
- Use regular expressions to find patterns in text

Project: Build an Interactive Form

Full Stack JavaScript developers create forms to collect information from users for nearly every website and application they build. For this project, you'll use your skills to enhance a form so that it's engaging, interactive, and easy to use.

Unit 4:

Object-Oriented JavaScript and Callbacks

Learn the basics of software design and best practices for writing modular, reusable code. Object-oriented programming is a professional technique that's important to learn and master.

- Make your code more professional, modular and reusable with object-oriented JavaScript
- Learn how to create objects with properties, methods, constructors and getters and setters
- Use specific array methods like forEach(), filter(), map() and reduce() to work with arrays of data more quickly and efficiently
- Create "callback functions" to respond to timers, user actions, and work with advanced array methods

Project: Build an Object-Oriented Game Show App

Create a browser-based, word guessing game: "Phrase Hunter." You'll use JavaScript and OOP (Object-Oriented Programming) to select a random, hidden phrase. A player tries to guess the phrase by selecting individual letters from an onscreen keyboard. Can they guess the phrase before they run out of attempts?

Unit 5:
Retrieving Data with AJAX and Fetch

As a developer you'll need to learn some of the powerful tools used to manage projects. A lot of tools require learning the "command line" or computer terminal. Use the command line to manage projects with Git. You'll also learn how JavaScript can be used to retrieve information from sites like Twitter, Flickr, and Facebook.

- Learn how to tap into the power of your computer's operating system by writing commands in the Terminal to control tools like Git
- Dive deeper into the Git version control system, so you can keep your software projects on track and back out of any errors you might introduce into a project
- Discover the basis for how the web works with the HTTP communication protocol
- Use AJAX and the Fetch API to retrieve information from other web sites and display it on your web pages

Project: Use an API to Create an Employee Directory

Many sites — Twitter, Facebook, IMDB, and Wikipedia to name a few — offer a vast sea of data that you can access and display on your own web pages. Using JavaScript, you'll create an employee directory by communicating with a third-party API (Application Programming Interface).

Unit 6:

Introducing Node.js and Express

JavaScript is just as powerful on web servers as it is in web browsers. In this unit, you'll learn how to use Node.js -- a version of JavaScript that runs on servers and desktop computers. You'll learn how to write "command line" applications you can run on your own computer; how to create your own web server; and how to use a web "framework" -- Express -- to rapidly build a website.

- Learn the basics of Node.js
- Create "command line" applications you can run on your own computer to automate tedious tasks
- Create your own HTTP web server using Node.js
- Use the Express web framework to quickly create a dynamic web site
- How to debug Node applications

Project: Build a Node.js and Express-powered Web Site

Node.js and Express make a powerful pair when used together on the server side. They're used every day to make fast, modular and dynamic web applications. For this project, you'll use Node.js, Express and templates to create a portfolio site to show off the projects you've built.

Unit 7:

Introducing React

React is a popular front end framework used by companies like Facebook, Instagram, and Netflix, to create advanced, interactive user interfaces.

- Learn the basics of React
- Develop and use React components to make modular user interfaces for faster development and quicker DOM updates
- Build a simple React app
- Fetch data and use React to display information in real time

Project: Build a React Photo Gallery App

React is one of the most popular development libraries on the web, which is why React developers are in such great demand. In this project you'll build a fast and lightweight photo gallery application with a modern approach.

Unit 8:

Store and Retrieve Data from Databases

Databases are critical to a web application: they store data about businesses, users, products, and all the information needed to make a website run. In this unit, you'll learn about SQL, or Structured Query Language -- the language used to communicate with databases.

- Learn the basics of SQL to retrieve data from a database
- Update, delete and create data records in a database
- Use Node.js and JavaScript to "talk" to databases

Project: Build a Library Manager

Working with databases — storing, retrieving, updating and deleting information — is an important software developer skill. In this project, you'll create a web application for listing, adding, updating, and deleting books in a library application, using JavaScript, Node.js, Express, Pug, and SQL.

Unit 9:

Build a REST API

REST is a common "language" for computers to talk to each other. A REST API is a server-side web application that receives and provides information from/to a browser or another computer. A REST API doesn't send out web pages -- instead it sends out and receives information and processes that input to store data or complete a process like completing an online order or returning the results of a search. REST APIs are very common and an important skill for a Full Stack Developer to master.

- Understanding REST APIs
- Handling requests, responses and security
- Create a REST API with Express
- Database design and modelling

Project: Build a REST API

In this project, you'll create a REST API using Node.js and Express. The API will provide a way for users to administer a school database containing information about courses: users can interact with the database by retrieving a list of courses, as well as adding, updating and deleting courses in the database.

Unit 10:

Create a Full Stack App with React

In this final unit, you'll learn more about the professional tools and processes of a software developer. In addition, you'll bring together everything you've learned so far to build a complete Full Stack application.

- Learn Agile software development for rapid software creation
- Use GitHub, a collaborative Git-based tool, that helps teams work more effectively on projects
- Learn fundamental computer science concepts like algorithms and data structures

Project: Full Stack App with React

In your final project, you'll use React to create a client for your existing school database REST API (that you created in a previous project). When completed, your Full Stack JavaScript application will allow users to view a list of courses and the detail for a specific course, sign up to create an account or sign in with an existing account, and create, update, or delete courses.

Additional Coursework:

Communication and Soft Skills

In addition to the technical curriculum detailed above, we also teach general communication and career guidance courses:

- Slack for the Treehouse Techdegree so you can learn how to use a popular communication tool used in the tech industry
- How to ask a technical question to get the answers you need
- How to Learn: strategies and techniques to learn better, faster
- Career Help: courses and workshops to help you create a resume, build a professional network, create a professional social profile and organize your job search

In addition, as a Techdegree student you have access to hundreds of other courses, workshops and learning material on Treehouse, like mobile app development, web design and UX (user experience), and much more.