treehouse

Techdegree Curriculum

Full Stack JavaScript

Build a portfolio, create a network,
and land your dream job.

teamtreehouse.com/techdegree

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Welcome

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. 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.

This program is a unique online learning environment which engages students through video, written instruction, interactive quizzes, code challenges, a live support community and an

Bootcamp-style program that prepares you for a high-paying career in tech

engaging set of projects which help you master your newly learned skills and build out a polished portfolio of professional quality projects. 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-practices sessions, and finally, apply all that you've learned in a challenging project that's individually graded with 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 the skills that better prepare you for an entry-level job as a Full Stack Developer.

Designed For Success

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 busy lifestyle.

Key Benefits of the Techdegree Program

Study at your own pace

Live support and an online community

Study and career guidance

A professional and finished portfolio

Our Mission

Treehouse strives to create inclusive and accessible education in order to empower people to achieve their dreams. Since 2011, we've taught over 650,000 people how to code and design, and our goal is to create lasting, systemic change in tech. Treehouse courses and programs use competency-based learning to enforce what students are learning. We've rethought the learning process and built a proven system to get you the skills and knowledge you need to accomplish your goals. We use gamification, which is scientifically proven to increase motivation: stay on track with our points system, badges, and weekly activity log. When you're done with a course, you haven't just watched a video—you learned, practiced, and absorbed a concept. Plus, Techdegree takes you through an immersive project at the end of each unit—so you'll have a ready-to-show portfolio of work as soon as you're done. Techdegree, like all our programs, is designed with beginners in mind— however, if you're starting out with some knowledge but want to level-up, Techdegree provides current and relevant skills in order to help get you where you need to be. And no matter what your prior experience level is, you'll benefit from the Techdegree Slack, a vibrant online community where you can ask questions and network with fellow students. Treehouse support staff are available for tips and encouragement, and you'll have weekly office hours, too.

> **We designed this program to be an accessible alternative to bootcamps**

> **Treehouse's mission is to diversify the tech industry through online-learning**

In order to diversify the tech industry, we realized there needed to be a program that was completely beginner-friendly, wouldn't result in student debt, and wouldn't require any payment back. Many bootcamps cost thousands of dollars; or, worse, require a cut of graduates' salaries after they land a job. With Techdegree, you'll get high-quality courses, robust learning support, and career knowledge, at a fraction of the cost of bootcamps.

Units & Overview

Unit 1	HTML, CSS, and JavaScript Basics
Unit 2	DOM Programming
Unit 3	Processing Forms
Unit 4	Object-Oriented JavaScript
Unit 5	Retrieving API Data with AJAX and Fetch
Unit 6	Introducing Node.js and Express
Unit 7	Introducing React
Unit 8	Store and Retrieve Data from Databases
Unit 9	Build a REST API
Unit 10	Create a Full Stack App with React

Unit 1

HTML, CSS, and JavaScript Basics

Learn the basics of building web pages using HTML and CSS with hands-on, follow along instruction: learn while doing. You will be introduced to the GitHub desktop app and VS Code text editor. 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 1: 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.

- 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 2: 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. Develop an accessible website that meets the requirements of the Web Content Accessibility Guidelines (WCAG).

- 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
- 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 3: 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

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

Project 4: 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 API 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 5: 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 website
- How to debug Node applications

Project 6: Build a Node.js and Express-powered Website

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 7: 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 8: 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

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 receives and processes incoming requests, and then responds with the necessary information, like search results, or a purchase or sign in confirmation, or an error notification if an error has occurred. 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 9: 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 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
- Learn Algorithms and Data Structures
- Learn additional React topics

Project 10: 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

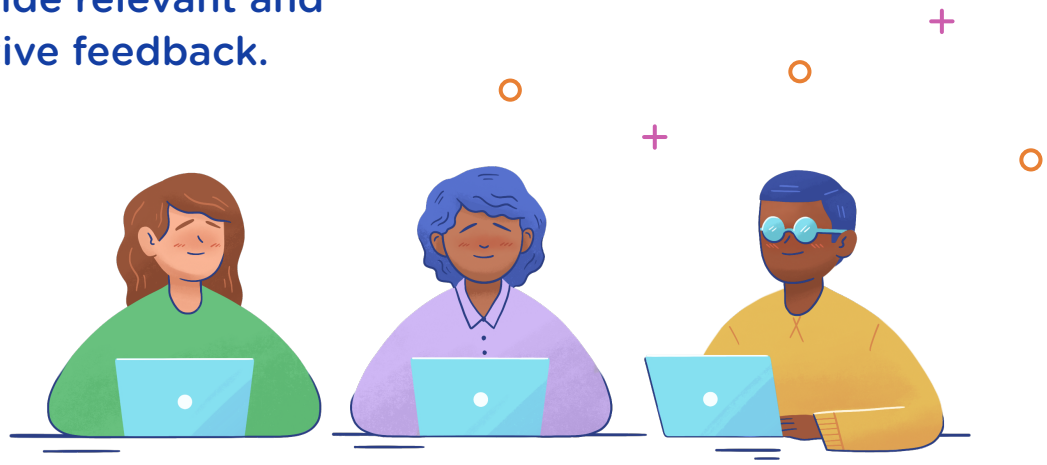
In addition to the technical curriculum detailed above, we also teach general communication and career guidance courses:

- 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 answer you need
- How to Learn: Strategies and techniques to learn better and 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

As a Techdegree student, you also have access to hundreds of other courses, workshops and learning material on Treehouse, like mobile app development, web design, UX, and much more.

Assessment

Our instructors are real-world tech professionals who provide relevant and constructive feedback.



The Techdegree program features project-based learning which allows you to put the skills you are developing to use by building projects of ever-increasing complexity. Each of the projects you build will be individually reviewed using a detailed grading rubric that is unique to that project. In addition to an overall grade of Exceeds Expectations, Meets Expectations, or Needs Work, you will receive personalized written feedback on your project. If your project is marked as Needs Work, don't worry. You will have the opportunity to address the issues and resubmit the project for additional review. Along with building projects, you will demonstrate your growing skillset by completing quizzes and code challenges as you progress through the Techdegree, culminating in a Final Exam. The Final Exam is your chance to showcase everything you have learned through the Techdegree. To successfully pass the Final Exam, you will need to get at least 70% of the questions correct. If you fall short of that mark you can study up and retake the exam as soon as the next day.

Career Statistics

After receiving your Techdegree you will be ready to start your new career journey within the tech industry! Here is a quick glance at some of the opportunities you will have as an entry-level Full Stack Developer.

Day to Day Tasks as a Full Stack Developer

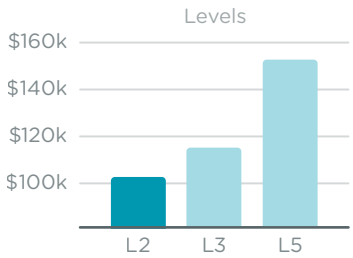
- Website development
- Light work with APIs
- Code checks

$105,813

Low: $72k High: $145k

The average base salary in the US according to glassdoor.com

An average entry-level Full Stack Developer role will earn you +$10,000 more annually than the National Average Wage Index.



Average Salary Growth

The tech industry has been growing every year and shows no sign of slowing down, with new technologies being developed every day.

Testimonials

Treehouse is absolutely phenomenal. I am more than halfway through my Full Stack JavaScript Techdegree, and I am impressed and pleased with everything I've learned.

- Joseph B.

The Slack community for Techdegree is so supportive and fun. Treehouse does a great job of updating courses and content. Peer reviews are invaluable, and the projects themselves are also really good.

- Samantha A.

One of the things that has always held me back from learning to code is the pretentious attitude of many developers... I love how Treehouse does not have that gatekeeping mentality, and makes code approachable and open to everyone.

- Rhys M.

Partnerships

We work with a variety of tech companies to ensure that our students are receiving the most relevant and up-to-date education.

Companies We Work With

HubSpot verizon mailchimp

ezcater Chegg vacasa

toast NIANTIC