Caltech | Center for Technology & Management Education

Post Graduate Program in Full Stack Web Development

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About the Program

This Post Graduate Program, designed in collaboration with the Caltech CTME, will prepare you for a high-growth career path in software development. You will be taken on a journey of end-to-end software development through a mix of theory, case studies, and extensive hands-on practice through labs. Students also have access to mentorship sessions, providing a high-engagement learning experience; and real-world applications to help you master essential full stack web development skills.

The course curriculum is designed with a special emphasis on a practical learning experience. You will hone your programming continuously through regular practice in high-quality virtual labs. The course includes a Capstone project where learners can choose from four different fields and build high quality applications using the latest technologies—which will become a part of their portfolios.

At the end of this course, learners will be able to work on both front-end and back-end Java technologies. The course begins with the basic concepts and progressively takes you to advanced aspects of web development. Gaining expertise in technologies such as Angular, Spring Boot, Hibernate, Servlets, JSPs, MVC, and web services will open multiple career avenues for you.

Key Features of the Post Graduate Program in Full Stack Web Development in Collaboration with Caltech CTME

Caltech CTME Post Graduate Certificate

Simplilearn Job Assistance with IIMJobs (India Only)

Receive up to 20 CEUs from Caltech CTME upon course completion

Online Convocation by Caltech CTME Program Director

Master Classes taught by Caltech CTME instructor

Build your own portfolio on GitHub

Capstone Project in 4 domains

8X higher live interaction with live online classes by industry experts

Caltech CTME Circle Membership

About Caltech CTME

Founded in 1891, Caltech is a world-renowned science and engineering research and education institution. Caltech's scientific, engineering, and technological contributions have earned national and international recognition, including the 32 Nobel Prizes awarded to its faculty and alumni.

Caltech CTME has a unique role to play in applying the capabilities of scientists and engineers to the challenges of today's technology-driven businesses. This program directly applies executive education and professional development to real-world problems. Our experts teach the tools and perspectives that elevate careers and help companies achieve their goals.

Upon completing this program, you will receive:

- Caltech CTME Post Graduate Certificate
- Individual course completion certificate for all the courses in the learning path from Simplilearn
- Program performance report for the entire learning path in the program
- Receive up to 20 CEUs from Caltech CTME upon course completion
- Access to Caltech Circle Membership

About Simplilearn

Simplilearn is the world's #1 online bootcamp provider that enables learners through rigorous and highly specialized training. We focus on emerging technologies and processes that are transforming the digital world, at a fraction of the cost and time as traditional approaches. Over one million professionals and 2000 corporate training organizations have harnessed our award-winning programs to achieve their career and business goals.

Program Eligibility Criteria and Application Process

Those wishing to enroll in the Post Graduate Program in Full Stack Web Development, in collaboration with Caltech CTME, will be required to apply for admission.

Eligibility Criteria

For admission to this Post Graduate Program in Full Stack Web Development, candidates:

- Should have a Bachelor's degree in any discipline with an average of 50% or higher marks
- Require basic programming knowledge
- Having 2+ years of work experience is preferred

Application Process

The application process consists of three simple steps. An offer of admission will be made to selected candidates and accepted by the candidates upon payment of the admission fee.

STEP 1

Submit an Application

Complete the application and include a brief statement of purpose to tell our admissions counselors why you're interested and qualified for this Post Graduate Program in Full Stack Web Development.

STEP 2

Application Review

After you submit your application, a panel of admissions counselors will review your application and statement of purpose to determine your qualifications and interest in the program.

STEP 3

Admission

An offer of admission will be made to qualified candidates. You can accept this offer by paying the program fee.

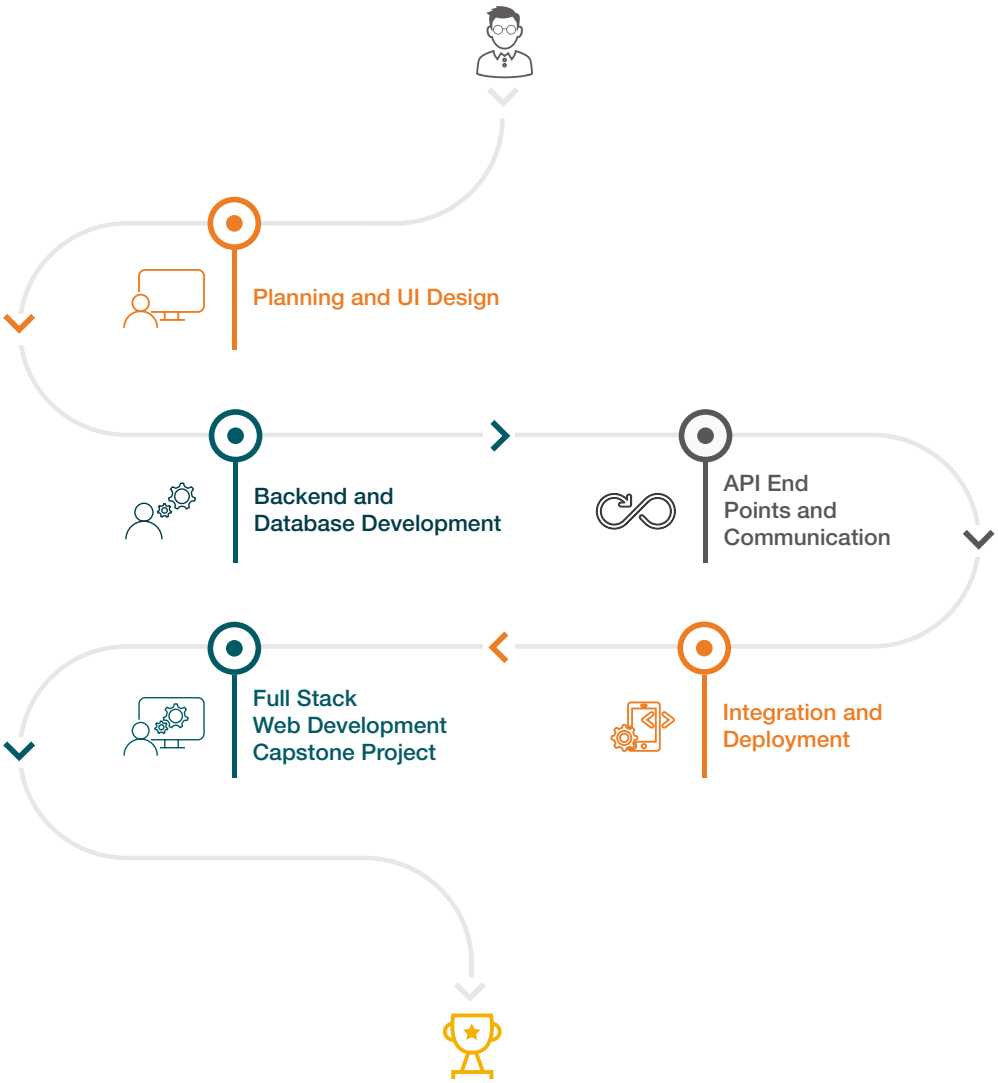
Talk to an Admissions Counselor

We have a team of dedicated admissions counselors who are here to help guide you in the application process and related matters.

They are available to:

- Address questions related to the application
- Assist with financial aid (if required)
- Help you better understand the program and answer your questions

Learning Path



Full Stack Web Development Masterclass – *Caltech CTME*

Program Outcomes

At the end of this Post Graduate Program, you will:

Master software programming concepts—the basic building blocks of designing great apps

Become an agile practitioner with the ability to work on an ongoing industry project quickly

Build industry standard front-end features

Architect scalable back-end infrastructure

Choose your own stack as per the requirements and delivery timeline

Who Should Enroll in this Program?

This program caters to a wide audience, from those who are hoping to enter the industry to those who already have some experience and aspire to become full stack web developers.

The following are the few professional profiles that are ideal students for this course:

- New graduates who are ready to take the plunge into the job market
- Developers who are working in front-end or back-end development and want to shift to full stack web development
- System engineers, and others who want to make a career shift to development

Planning and UI Design

STEP 1 2 3 4 5

Module Overview

Learn Agile and Scrum methodologies to deliver projects on time, and learn the building blocks of Java data structures and their application in object-oriented. Develop a comprehensive understanding of Git to manage version control systems and key concepts of SQL.

Module curriculum

- Concepts of Agile, Git, SQL
- Front-end technologies: HTML/CSS, JavaScript, Angular
- Planning projects with Agile
- Dividing projects into epics and stories
- Creating a central Git repository
- Create DB tables
- Creating home, about us, contact us pages
- Create category and product pages
- Adding product info
- Adding additional pages like add to cart, wishlist, order details, searching items

Back-end and Database Development

STEP

1

2

3

4

5

Module Overview

Learn all aspects of back-end technologies by acquiring in-depth skills of Core Java, JDBC, etc. Solidify your learning by implementing your new skills on real-world projects.

Module curriculum

- Concepts of Core Java, JDBC, Servlets, Maven, JSP, and MongoDB
- Setting up the development environment
- Configuring Java, Tomcat, JDBC, servlets, and JSP packages/ plugins
- Setting up an admin portal
- Creating Java classes for features like reg, login, wishlisting, and cart
- Creating Java classes for services to connect to databases

API End Points and Communication

STEP

1

2

3

4

5

Module Overview

Learn important concepts such as Spring Boot, Web Services, Microservices, etc. Harden your understanding by implementing your new skills on real-world industry projects.

Module curriculum

- Key concepts of JUnit, Spring, Spring Boot, Web Services, and Microservices
- Integrating Maven and Spring Boot
- Using annotations to create services to add features
- Using Angular services connect frontend to backend
- Using service methods to handle HTTP requests and responses
- Setting up Jenkins Pipeline

Integration and Deployment

STEP

1

2

3

4

5

Module Overview

Learn how to create seamless development and production environments using containerization with a widely used tool—Docker—and manage your applications on Amazon S3 servers.

Module curriculum

- Concepts of Docker, Jenkins, and AWS Cloud
- Connect Jenkins with GitHub Repositories
- Using Docker for the pipeline
- Set up EC2 and S3
- Deploy an application on EC2 using Docker

Full Stack Web Development Capstone Project

STEP

1

2

3

4

5

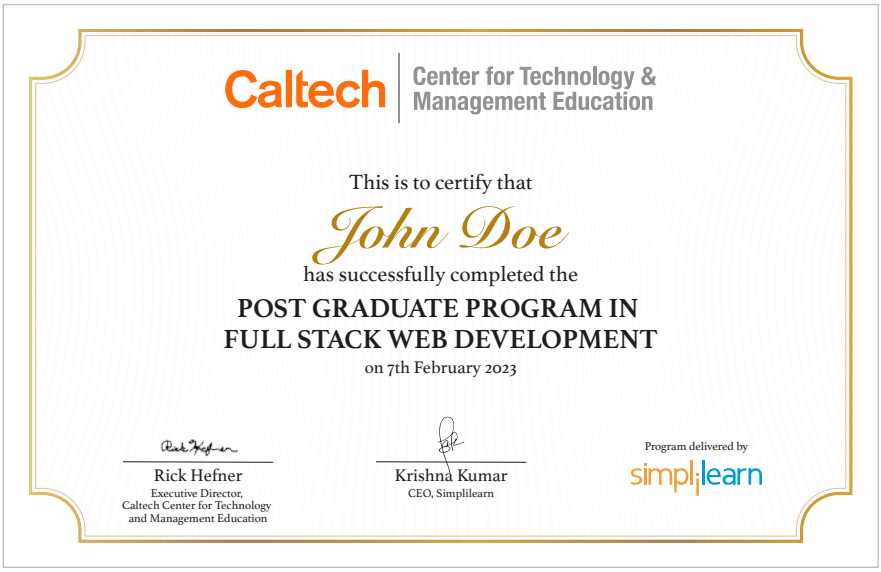
The Full Stack Web Developer Capstone project will introduce you to real world applications. You will be given a choice among 4 industries/domains. Comprehensive mentoring will guide you while you work on challenging problems that these industries face today. You will work on an original problem from scratch and learn how to apply your skills in an industry-specific context. The Capstone project helps to create a portfolio which will speak for your skills to a wide audience including prospective employers.

Full Stack Web Development Master Classes

– Caltech CTME

Attend an online interactive masterclass conducted by an instructor from Caltech CTME and gain insights about advancements in full stack web development. Understand how the most technologically-advanced companies today are developing new technologies.

Certificates



Upon completion of this Post Graduate Program in Full Stack Web Development you will receive the Post Graduate Certification from Caltech CTME. You will also receive certificates from Simplilearn for the courses in the learning path. These certificates will testify to your skills as an expert in full stack web development.

Advisory Board Members

Rick Hefner, Ph.D.

Program Director, Caltech Center for Technology & Management Education

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Rick Hefner, PhD, specializes in systems development and maintenance; project management; Lean Six Sigma; process improvement, technology transfer; and risk management. His experience spans over 35 years. Dr. Hefner recently served as Director of Process Management at Northrop Grumman Corporation, where he managed corporate process initiatives related to Lean Six Sigma and program management.

Previous positions at Northrop Grumman (formerly TRW) included managing technology process initiatives and helping to establish the corporate engineering and program management processes. Previously, at Aerospace Corporation, Dr. Hefner was the Director of their Software Development department. He served as an engineer, technical specialist, project manager, and section manager.

Dr. Hefner has also worked with companies in the communications, electronics, and health sciences industries, including Applied Physics Laboratory, Ares Management, Boeing, DRS Technologies, Herbalife, Honeywell, Jet Propulsion Laboratory, John Deere, L-3 WESCAM, Maytag, Motorola, Pacific Bell, Raytheon, Schlumberger, Southern California Edison, St. Jude Medical, Toshiba, U.S. Navy, and Xerox. Dr. Hefner is credited with over 200 publications and presentations. He earned his PhD from the University of California, Los Angeles, in applied dynamic systems control. He received his MS and BS from Purdue University in interdisciplinary engineering.

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SL-PGP-25-234-202304