

EXECUTIVE POST GRADUATE CERTIFICATION IN

AI-POWERED FULL STACK DEVELOPMENT



Now integrated with
Generative AI



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About

upGrad and IIITB

upGrad has delivered over 20 million hours of learning, delivering programs by collaborating with universities across the world including Duke CE, IIT Madras, IIIT Bangalore and Deakin Business School among others.

Online education is a fundamental disruption that will have a far-reaching impact. **upGrad** was founded taking this into consideration. upGrad is an online education platform to help individuals develop their professional potential in the most engaging learning environment.

Since inception, upGrad has delivered over 20 million hours of learning, delivering programs by collaborating with universities across the world including Duke CE, IIT Madras, IIIT Bangalore and Deakin Business School among others.

upGrad is focused on helping working professionals in their bid to learn, grow and move up in their career through a wide-range of programs designed to improve their expertise.

IIITB is a renowned university offering programs specialising in Computer Science, data science, machine learning and artificial intelligence.

The IIITB faculty includes an average of 15+ years of experience. IIITB's experienced faculty will teach the core concepts of computer science along with important software development principles. These will be complemented by industry relevant case studies from major industry verticals by industry leaders with 8+ years of experience from upGrad's industry network.

The Executive Post Graduate Certification in AI-Powered Full Stack Development offers a unique and exciting combination of core Computer Science concepts, development principles and industry-led, hands-on application development experience. Additionally, learners will get opportunities to work on industry-relevant projects and interact with industry experts through upGrad's strong industry network. The program has been designed keeping in mind that the future belongs to the software developers who can think and implement end-to-end.

Program Highlights



Executive PG Certification from IITB

Get certified by IITB on successful completion of the program.



For the Industry, by the Industry

Learn and apply concepts on industry projects along with personalised industry mentorship.



Programming Languages & Tools

Learn programming languages and tools like Java, DSA, Git, OOPs, JUnit, Python, SQL, Apache Hadoop, Spark, Kafka, Sqoop, Hive, Airflow, Amazon Redshift, Amazon Glue, ElasticSearch, Kibana, Tableau & more.



100+ DSA Questions to Practice

Solve 100+ DSA questions throughout the program to master this interview skill.



Exclusive Access

- Gain free access to micro-courses in Data Science and Machine Learning.
- Gain free access to micro-course in Cloud Infrastructure.



Blended Learning

Learn with the ease and flexibility of recorded sessions as well as live sessions, designed to ensure a wholesome learning experience.



Personalised Mentorship

Get unparalleled personalised mentorship and doubt resolution from Industry experts.



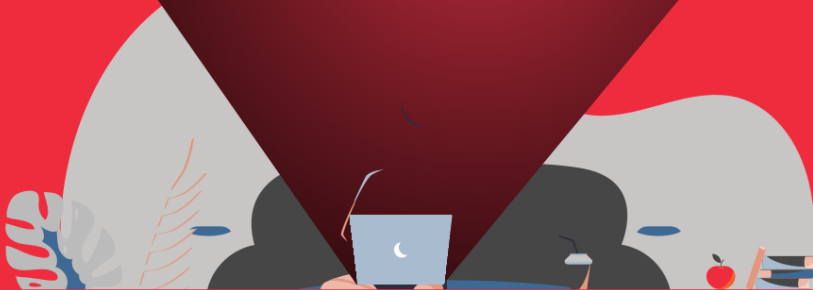
Hands-on Learning

- Experiential Learning for Software Development Life Cycle
- Git and Version control concepts
- DSA Bootcamp for transition learners
- Design, Develop & Deploy - Data Pipelines & Dashboards for Pandemic Tracking and Online Gaming User Activities.
- Work on 4 industry projects to apply your learnings.
- 5+ hands-on practice projects & various Big Data coding questions to keep your hands dirty.



E-portfolio

Showcase your expertise and skills to potential employers using an e-portfolio. Get expert advice on how to craft your stellar GitHub profile.



Menternship

Mentorship + Internship

A menternship is where students & Moreover, apart from the projects, young professionals can work on the Menternship will include 1:1 ses-real-time situations. These Mentern-sions and a chat feature to discuss ships are procured in collaboration doubts with your mentor. The maxi-with organizations from various mum duration for completing this industrial & functional backgrounds. Menternship project is 60 days. A simple user interface coupled However, the total learner time with game concepts facilitates an required will be around 20 hours. engaging experience. These well-curated projects will help the learners build real skills in the careers of their choice.

Learn from Academic & Industry Experts



Chandrashekar Ramanathan
Professor & Dean (Academics)

Dr. Chandrashekar Ramanathan, a faculty at IIIT-B since 2007, has spent 25+ years in computing, and he specializes in data science, software engineering, and large-scale app development. As head of MINRO and CTRI-DG he focuses on Data Science and Tech for Education. He has authored research papers, supervised PhD students, and served on government advisory panels. Passionate about tech-enhanced education, he was a BITES board member (2013-2023).



Meenakshi D'souza
Professor & M.S. Ph.D. Programme Coordinator

Prof. Meenakshi is a distinguished faculty at IIIT Bangalore, specializing in Formal Methods, Software Testing, and Model-Based Development for Embedded Software. Committed to gender diversity and IT accessibility, she teaches impactful courses and her NPTEL Swayam Software Testing course has attracted 57,000+ learners since 2017. With a Theoretical Computer Science background, she has made significant contributions during her tenure at Honeywell Technology Solutions.

Learn from Academic & Industry Experts



Prof. Muralidhara
IIIT Bangalore

Prof. Muralidhara, a PhD holder in Computer Science from IIT Delhi, specializes in algorithms, with expertise in combinatorial optimization and approximation algorithms. As a faculty member at IIITB since 2009, his focus lies in the theory of algorithms and complexity, and their practical applications.



Mrigank Kaushik
Software Developer, Atlassian

Mrigank Kaushik, an experienced software engineer with expertise in C++, Angular, Java, Apache Pig, Neo4j, and SQL, holds a Bachelor's degree from the National Institute of Technology Warangal. Currently an SDE II at Atlassian, he contributes to innovative solutions driving customer success.



Sakshi Jain
Principal Engineer, Kapstan

Sakshi is a Principal Engineer at Kapstan. Over the past six years, she has built various web applications and has worked extensively on all layers, from the User Interface to the Database. She leads the Log Search Experience team at Sumo Logic. Sakshi is an alumnus of BITS Pilani.



Yogesh Singh
Senior Software Engineer, Microsoft

Yogesh has 12 years of experience in software industry. He is a highly skilled software engineer with over nine years of experience in software development and expertise in different frontend technologies such as React, Angular and Typescript..



Sachin Bhatnagar
Program Director, KnowledgeHut upGrad

Sachin, a seasoned professional in technology & education, has played a pivotal role in shaping KnowledgeHut. They excel in designing full-stack training programs and are acclaimed for developing industry-centric courses. As a dedicated educator and tech enthusiast, Sachin has made a lasting impact on students and award-winning projects throughout their career.



Srishti Gupta
Software Engineer, Meesho

Srishti is a Software Development Engineer (Frontend) at Meesho, specializing in Data Structures, Algorithms, and Front-end Web Development. With expertise in the .NET framework, including C#, HTML, LESS, and TypeScript, she has also worked on automation tools like Gulp and Grunt. Srishti holds a master's degree in computer science from the National Institute of Technology, Tiruchirappalli.

upGrad Learning

Experience

Job Opportunities

upGrad Opportunities

- upGrad Elevate: Virtual hiring drive giving you the opportunity to interview with upGrad's 300+ hiring partners
- Job Opportunities Portal: Gain exclusive access to upGrad's Job Opportunities portal which has 100+ openings from upGrad's hiring partners at any given time
- Be the first to know vacancies to gain an edge in the application process
- Connect with companies that are the best match for you

Career Assistance

Career Mentorship Sessions (1:1)

Get mentored by an experienced industry expert and receive personalised feedback to achieve your desired outcome

High Performance Coaching (1:1)

Get a dedicated career coach after the program to help track your career goals, coach you on your profile, and support you during your career transition journey

AI Powered Profile Builder

Obtain specific, AI powered inputs on your resume and LinkedIn structure along with content on real time basis

Interview Preparation

- Get access to Industry Experts and discuss any queries before your interview
- Career bootcamps to refresh your technical concepts and improve your soft skills

Learning Support

Industry Expert Guidance

- Interactive Live Sessions with leading industry experts covering curriculum + advanced topics
- Personalised Industry Session in small groups (of 10-12) with industry experts to augment program curriculum with customized industry based learning

Student Support

- We have a dedicated/ Student Support Team for handling your queries via email or callback requests.
- You can write to us via studentsupport@upgrad.com Or for urgent queries, use the "Talk Us" option on the Learn platform

Practical Learning and Networking

Networking & Learning Experience

- Live Discussion forum for peer to peer doubt resolution monitored by technical experts
- Peer to peer networking opportunities with a alumni pool of 10000+
- Lab walkthroughs of industry-driven projects
- Weekly real-time doubt clearing sessions

Career Services and BootCamp

Jobs on Career Centre

- Career Centre offering upGrad jobs across experience levels and CTC ranges
- Easy apply feature for upGrad hiring partner vacancies.
- Create resume at profile builder and with one click to apply for various jobs

upGrad Elevate

- Recruitment Drive to connect you with the best talent admirers in the industry
- Get access to a wide range of opportunities and find the perfect job
- Apply your learnings to real industry problems

Interview Preparation

Pre-recorded content on topics such as:

- Profile building, communications etc
- Problem solving approach
- Approaching guesstimates
- Domain specific interview question bank and much more...

Personalised Industry Session

90-minute sessions over the weekend by leading industry experts

Session categories:

- Career, Technical and Communications
- Doubt resolution Develop proof of concepts and apply theoretical concepts in the real world
- Assess skill levels
- Peer Networking
- Classroom element
- Business communication sessions and much more

Profile Builder (AI Powered)

- An easy to use Resume, LinkedIn and Cover letter preparation tool.
- Resume Score: AI-Driven Resume Score
- Realtime recommendations to improve
- Match your resume to the JD and check fitment
- LinkedIn Profile Review
- Cover Letter creation

Just In Time Interview Prep (JIT)

- For upcoming job interviews JITs are conduct-ed within 48 hours for eligible programs.
- Tailored to job role and target domain. Real time feedback and tips for improvement

High Performance Coaching

- Dedicated coaches working with you to identify best suited career opportunities.
- Help you define your value proposition
- Lay out a Career Path and help you adhere to your timelines and goals
- Help you with interview preparations, finding jobs in the market, salary negotiations and other preparation as required

Career mentorship Sessions

- Get personalised career advice through 1-1 sessions with industry experts.
- Goal setting for better employment results

Career

Transition Bootcamp

1. Learn skills to help you transition to Software Development roles (SD1, SD2, SD3, Senior Software Engineer, Senior Software Developer)

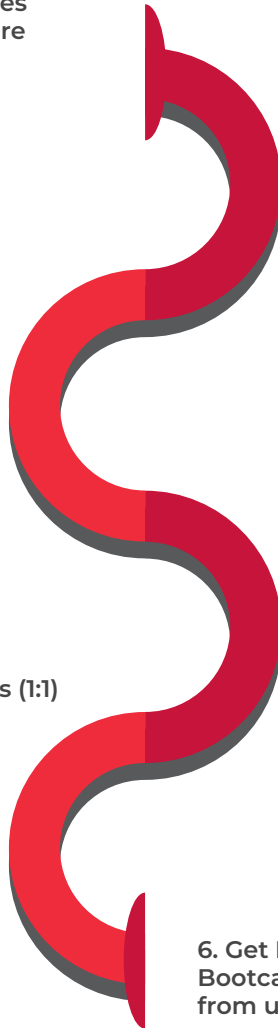
2. Personalized content basis your level of knowledge

3. Career Mentorship Sessions (1:1) with Industry Experts

4. Exhaustive list of Interview Questions curated from Top Companies such as Amazon, Google & Microsoft

5. Relevant for preliminary rounds of interview in Tech Companies

6. Get Data Structures & Algorithm Bootcamp Completion Certificate from upGrad



Program Syllabus

Course Name	Duration	Module Name	Description
Fundamentals of Programming	1 month	Basics of Java	Learn the foundational elements of Java programming, including syntax, data types, and control structures.
		Java: An Object-Oriented Language	Explore Java's powerful object-oriented paradigm, mastering classes, objects, inheritance, and polymorphism.
		Advanced Java Concepts	Dive deeper into Java with topics like multithreading, file handling, exceptions, lambda expressions and more.
		Object Oriented Design	Learn about software design, UML diagrams, testing and version control concepts.
		Java Project Submission	Apply the concepts learnt so far on a project

Course Name	Duration	Module Name	Description
Data Structures and Algorithms	3 months	Algorithms Analysis and Bit Manipulation	Understand algorithm efficiency and learn techniques for bit manipulation.
		Arrays and Linked Lists	Master data structures like arrays and linked lists, and gain proficiency in operations and manipulation.
		Stacks and Queues	Explore essential data structures - stacks and queues - and their applications in algorithmic problem-solving.
		Searching and Sorting	Learn various searching and sorting algorithms and analyze their time complexity.
		Sets and Dictionaries	Delve into the world of sets and dictionaries, essential data structures for efficient data handling.
		Greedy Algorithms	Understand the Greedy algorithmic paradigm and apply it to solve optimization problems.
		Dynamic Programming	Master the art of dynamic programming for solving complex problems by breaking them down into simpler subproblems.
		Graph and Graph Algorithms	Explore graphs, their representations, and algorithms like DFS and BFS for traversal and pathfinding.
		Mandatory Assignment	Solve interview based questions on DSA

Course Name	Duration	Module Name	Description
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Front end Development	2.5 months	HTML, CSS and Bootstrap	Learn the fundamental building blocks of web development - HTML and CSS, and enhance your skills with Bootstrap for responsive design.
		Fundamentals of Node JS and JavaScript	Gain proficiency in Node.js for server-side JavaScript development and understand core JavaScript concepts.
		Advanced JavaScript Concepts	Deepen your understanding of JavaScript with topics like ES6, closures, promises, async/await, and modules.
		Frontend Development with React JS	Dive into building dynamic and interactive user interfaces with the powerful React JS library.
		Course Project (upGrad Eshop)	Implement a simple e-commerce website on React JS

Create AI-Powered Low-Code Frontend		Create AI-Powered Low-Code Frontend	<p>Understand the basics of Prompt engineering and how to give exhaustive prompts</p> <p>Learn how to easily do code generation, code translation, reviews, and framework conversion changes using genAI and basic prompting for frontend using simple tools like Chatgpt, Github Copilot, Phind AI, Bloop AI, Tabnine and more.</p>
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Course Name	Duration	Module Name	Description
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			<p>Learn how to seamlessly shuffle between tech stacks by using some tools in GenAI for better code understanding, code reviews, and more.</p> <p>Utilizing AI for personalized UI and UX design using tools like Uizard, Locofy AI and more.</p>
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Backend Development	1 month	Introduction to Express JS	Explore the basics of Express.js to build robust and scalable backend applications.
		MongooseDB and Database Integration	Learn to work with MongoDB, a NoSQL database, and integrate it seamlessly into your applications.
		Building RESTful APIs	Design and develop RESTful APIs to enable smooth communication between the frontend and backend.
		Authentication and Error Handling	Implement secure user authentication and handle errors effectively to ensure a seamless user experience. Learn basic testing of backend services.
		Course Project	Implement a simple backend on Express JS

Course Name	Duration	Module Name	Description
Create AI-Enabled Low-Code Backend		Create AI-Enabled Low-Code Backend	<p>Learn how to easily do code generation, code translation, reviews, and framework conversion changes using genAI and basic prompting for creating backend services.</p> <p>Learn how GenAI can analyze code to predict and detect potential errors before they occur.</p> <p>Implementing AI-driven security measures for enhanced protection of the backend services.</p>
Become 10x AI-powered Developer	1 month	Become 10x AI-powered Developer	<p>GenAI-powered static code analysis. Learn how to improve the process of testing and integration using GenAI.</p> <p>Learn how to design seamless applications and optimize them using GenAI.</p> <p>Learn how to use GenAI tools to increase productivity as a developer using various GenAI tools.</p>

Course Name	Duration	Module Name	Description
Advanced Software Design Concepts		Distributed Systems and Design Patterns	Understand the principles of distributed systems and apply design patterns to build scalable and resilient applications.
		System Design	Learn the art of designing complex systems, focusing on scalability, reliability, and performance.
		Course Project	Architect and implement a web application based on the system design concepts learnt so far
Capstone Project	1 month	Capstone Project	In the Capstone Project, students apply their knowledge and skills to develop a comprehensive full-stack application.

Industry Projects

Full Stack Development



Culinary Compass

Dive into the world of Culinary Compass, an intuitive application designed to effortlessly discover nearby restaurants. Seamlessly explore restaurant details, including operating hours and menu highlights. This project serves as a playground for mastering software engineering fundamentals, showcasing expertise in UML, proficiency in JUnit and Mockito testing, adeptness in Object-Oriented programming, and a commitment to the Test Driven Development methodology. Embark on a journey of culinary exploration with Culinary Compass!



AutoMarket Hub

AutoMarket Hub, your gateway to a dynamic platform for buying and reselling cars. This vibrant website, designed under the banner of True Value Seller, not only features enticing promotions but also boasts an interactive 'Contact Us' section. Clicking the button leads users to a dedicated page showcasing the company's contact details. In the realm of web development, this project offers a hands-on opportunity to apply HTML and CSS skills while harnessing the efficiency of Bootstrap to craft visually stunning web pages.

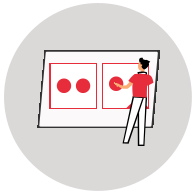


PhoneSphere Explorer

Embark on a journey with PhoneSphere Explorer, a user-friendly frontend application designed for authorized users to seamlessly add and explore diverse mobile phones and their details. This dynamic website enables users to search for mobile phones based on criteria such as name, price, and brand. Understand the intricacies of the Document Object Model (DOM) as you shape and manipulate the website's structure. This project serves as a canvas for honing your skills in DOM manipulation, creating a responsive website that dynamically responds to user interactions, bringing the world of phones to your fingertips with PhoneSphere Explorer!

Industry Projects

Full Stack Development



Hotel Room Booking

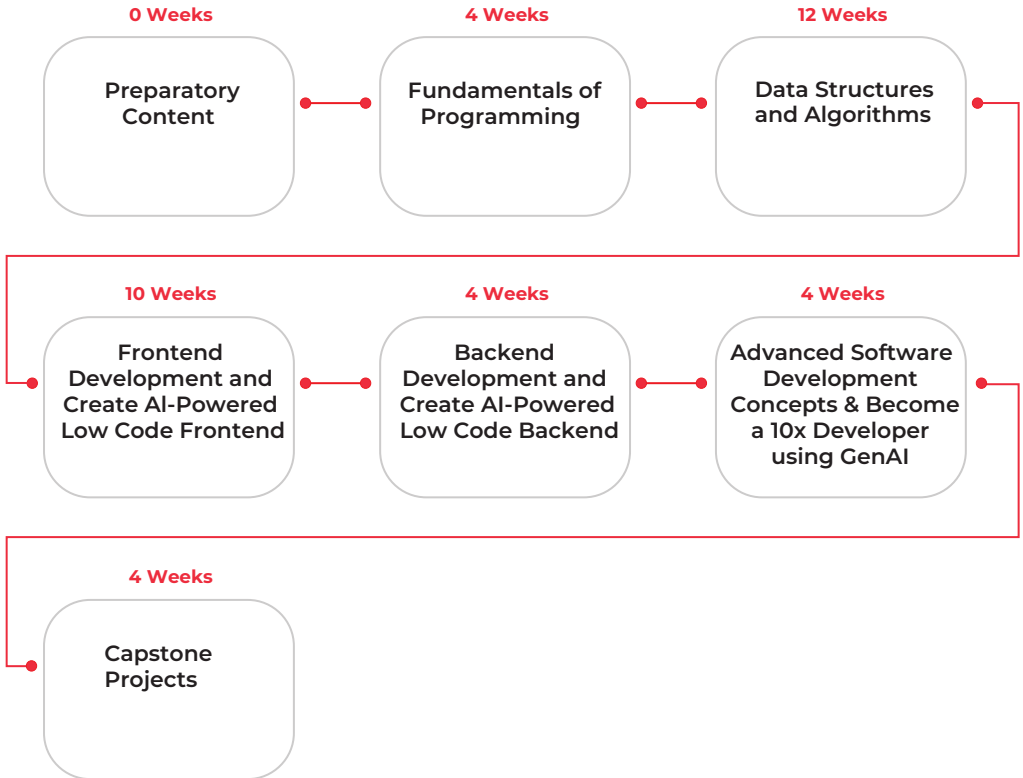
This is a simple practice project that enables the learners to create an application for booking hotel rooms from the website. This project covers various frontend features such as HTML, CSS, Bootstrap, JavaScript and AJAX. The aim of the project is to create a simple website and understand how to beautify it.



Game Library

Build a small web application on React as a practice project to host 5 different games. This project will aim to cover basic concepts of React.js by including features like components, hooks, props, context and more. This project is aimed at developing the front end of a real-world application like a game app store in React and leveraging different features to make the development process efficient.

Our Unique Learning Path



Full Stack Development Specialisation

Who is this for?

- **Highly driven and ambitious freshers who want to start their career in the field of**
software development as backend developers, frontend developers or full stack developers.
- **Professional working in quality analyst and testing profiles who wish to make a shift**
into development roles.
- **Professionals who are working in industries like IT/ITES, Consulting and many more**
at senior levels and who need core development skills and cross-functional knowledge to elevate to CTO Role.
- **People who are working in non-technical roles and who want to kick-start their**
career in software development as a Full Stack Developer.
- **Professionals who want to get into a MERN stack developer profile.**
- **Anyone who wants to keep up with the GenAI trend and stay more relevant in the**
industry.

Program Details & Admission Process

PROGRAM DURATION & FORMAT

9.5 months | Online

PROGRAM START DATES

Please refer to the website for program start dates.

PROGRAM FEE

Please refer to website

ELIGIBILITY

For Full Stack Development - Bachelor's Degree or final year students with 50% or equivalent marks. Prior coding knowledge is preferred; learn it during the course even if you don't have it.

ADMISSION PROCESS

01

Fill the Application Form

Apply by filling a simple application form

02

Get shortlisted

Candidates will be shortlisted based on application submitted

03

Pay and Start Learning

An offer letter will be rolled out to the selected few candidates. Secure your seat by paying the admission fee

FOR FURTHER DETAILS, CONTACT

✉ admissions@upgrad.com

☎ 1800 210 2020

We are available 24*7

Disclaimer: Program fee and payment options are subject to change. Please refer to the website for updated details or speak to our admission counsellor.