UpGrad & iiit-b

PG DIPLOMA IN
SOFTWARE ENGINEERING

11 MONTHS | ONLINE | PROGRAM STARTS: DEC 2017

UpGrad

UpGrad is an online education platform that enables individuals to develop their professional potential in the most engaging learning environment. Online education is a fundamental disruption to the traditional model and will be having a far-reaching impact. At UpGrad, we work towards transforming this online education wave into a tsunami! We take a full-stack approach, by leveraging content, technology, marketing and services, to offer quality education at scale in partnership with corporates and academia. This translates into rigorous industry relevant programs for individuals looking for a professional upgrade.

In last 10 years, digital technology has had a profound impact on billions of lives and thousands of businesses in India and abroad. The pace of growth is only expected to increase further, as the $150 billion Indian IT industry is set to double its revenue in the next 10 years. This growth will be driven by new age digital products and services, which will create millions of new software engineering jobs. To address this industry need, we have designed a joint Post-Graduate Diploma program in Software Engineering, with IIIT-B.

The program will prepare our learners to excel in this rapidly evolving technology landscape, by strengthening their core concepts in computer science and providing exposure to the latest software engineering tools and practices. Post this program, you will develop into a well-rounded Software Engineer, ready to develop software products and solutions.

Ronnie Screwvala

Co-Founder
UpGrad

As an independent institution and a deemed university, IIIT-B collaborates with the IT industry, leading academic institutions abroad, eminent scientists and industry leaders to offer students the best possible education. Our outstanding faculty, curriculum and pedagogy ensures that our graduate programs are ranked among the best in the country. Our students have been well received by industry, and have been placed with some of the leading companies in the IT industry.

We have partnered with UpGrad to offer a rigorous, Post-Graduate Diploma Program in Software Engineering – a unique and exciting combination of core computer science concepts, software engineering principles and industry-led hands-on application development experience. In this program, IIIT-B's experienced faculty will teach the core concepts of computer science along with important software engineering principles. Additionally, students 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 role of a software engineer is changing rapidly and the future belongs to engineers who can think end-to-end about software development and operate like a full-stack software engineer.

We invite you to take this opportunity and join us and make use of the excellent pedagogy and industry collaborations. You will truly be getting the best of both worlds, which will help you towards achieving a successful career as a Software Engineer.

Prof. S. Sadagopan

Director
IIIT Bangalore

WHY SOFTWARE ENGINEERING?

IT & TECH
Industry
IN INDIA
to be worth US$
350 BN
in 2025

A software engineer sitting in his hostel room created a software that is used by more than a billion people today. Another software engineer created a website that built a website which today sells items worth more than GDP of few countries! These present day internet giants known as Facebook and Amazon, started off as the work of a single software engineer!

The IT and Tech industry has had an exponential growth in the last 25 years to grow to be a $150 billion industry today, accounting for more than 7% in the country's GDP. A large chunk of that growth has happened in the last 10 years with the industry size increasing three times because of the massive IT services sector. Estimates from the industry and the government have slated the IT sector to grow to $350 billion by 2025.

This growth will be driven by the push towards digital products, which would need skilled developers leading the charge. This is reflected in the current hiring trends, as companies prefer having full-stack developers, who can take ownership of projects and create products end-to-end. As per the recent National Software policy released by the government, the Indian software market will create employment opportunity for 3.5 million professionals by 2025. This would need up-skilling by re-addressing the basics of programming, formal training and hands-on experience on technologies to bring about a shift in mindset of the software engineers to a "Digital" one. This "Digital revolution" promises to be a great journey for software engineers in the coming years with accelerated career growth and stable long term prospects. Are you ready to join in?

WHY SOFTWARE ENGINEERING
WITH UPGRAD & IIIT-B?

PG DIPLOMA FROM IIIT-B

Earn a reputed Post Graduate Diploma without leaving your job

LEARN FROM THE BEST

Learn software engineering principles from leading IIIT-B faculty and applications from industry leaders

CAREER SUPPORT

Access to career coaching services like 1-on-1 counselling sessions & personalised interview and CV preparation

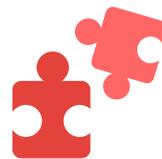### HANDS ON EXPERIENCE

Build a portfolio of industry-relevant projects to showcase your programming skills to potential recruiters

ON-THE-GO LEARNING

Lessons condensed into easy-to-consume 30 mins sessions which you can access anywhere - anytime

STUDENT SUPPORT

Round the clock academic & non-academic support along with unparalleled peer-to-peer learning

WHO IS THIS PROGRAM FOR?

Whether you are looking to transition to a software engineer role from a non-programming background or an existing software engineer aspiring to grow your skill-set and become a full-stack developer, this program has been specifically designed to cater to your needs

JUNIOR IT & TECHNOLOGY PROFESSIONALS

Learn the fundamentals of programming from world-class faculty, get hands-on experience in latest technologies and access to career services to develop your digital skills & boost your career as a full-stack developer

EXPERIENCED IT & TECHNOLOGY PROFESSIONALS

The program helps you work across tech stacks to build full-stack expertise. Learn with industry experts, build your project portfolio and receive personalised CV & interview prep to help you get your dream job

FRESH GRADUATES AND CURRENT STUDENTS

Post the program you can enter the industry as a software expert proficient in digital skills helping you get better career growth opportunities. The prestigious IIIT-B PG Diploma will boost your profile and set up a great career path ahead

DIGITAL TECHNOLOGY ENTHUSIASTS

Kickstart your career in tech industry with a reputed PG diploma from IIIT-B. The team of IIIT-B's leading faculty, UpGrad's panel of industry experts and Career services team will help you equip with the requisite skills needed to succeed in the field

EXPERIENCED
FACULTY

Dr. T K SRIKANTH
Professor & Faculty in-charge (Computing), IIIT Bangalore

28+ years experience in software industry and research
Ph.D. (Computer Science) - Cornell University

PROF. K V DINESHA
Professor, IIIT Bangalore

20+ years experience in software industry and research
Ph.D. (Physics) - IIT Bombay

PROF. TRICHA ANJALI
Associate Professor, IIIT Bangalore

17+ years experience in software industry and research
Ph.D. (Computer Science) - Georgia Institute of Technology

PROF. V N MURALIDHARA
Associate Professor, IIIT Bangalore

15+ years experience in software industry and research
Ph.D. (Computer Science) - IIT Delhi

PROF. M D'SOUZA
Associate Professor, IIIT Bangalore

7+ years experience in software industry and research
Ph.D. (Computer Science) - Institute of Mathematical Science

PROF. S K CHAKRABARTI
Assistant Professor, IIIT Bangalore

8+ years experience in software industry and research
Ph.D. (Computer Science) - Indian Institute of Science

PROGRAM
CURRICULUM

COURSE 0:
PRE-REQUISITE - INTRODUCTION TO PROGRAMMING
(Duration : 3 weeks)

Worried that your lack of programming experience will make it difficult for you to succeed in this program? Then fear not! This course will introduce learners with no/little programming background to fundamental programming concepts. The course will help provide you a solid base for the upcoming rigors of the course

Topics Covered:

- Fundamentals of computational thinking

- Introduction to variables

- Basics of programming in Java (Loops and Control statements)

- Introduction to functions

Tools & Languages Used:

COURSE 1 - OBJECT ORIENTED PROGRAMMING
(Duration : 3 weeks)

The course will introduce you to concepts of object oriented programming, one the most popular techniques used across IT and tech industry

Topics Covered:

- Introduction to object oriented programming

- Fundamentals of using classes

- Learning inheritance and polymorphism

Course Outcomes:

You will be able to plan, build and write maintainable computer programs using object oriented programming concepts such as classes, objects, inheritance, and polymorphism

Tools & Languages Used:

Note: IIIT-B and UpGrad reserve the right to edit/alter the curriculum at a later date based on academic requirement and industry feedback

COURSE 2 - ALGORITHMS
(Duration - 4 weeks)

The course will help you learn and apply various algorithmic techniques in their programs. This shall help you design and optimise proper logic for the functioning for your programs

Topics Covered:

- Analysis of algorithm complexity
- Divide & conquer algorithm
- Greedy algorithm
- Dynamic programming

Course Outcomes:

You will be able to formally analyze the performance of their computer programs and improve the performance of the computer programs using algorithms

Tools & Languages Used:

 Java

COURSE 3 - DATA STRUCTURES
(Duration - 5 weeks)

The course will help you understand and implement the various data structures. This will also help you understand which data structures should be used for different scenarios which will help improve the performance of programs

Topics Covered:

- Arrays & Linked lists
- Stacks & Queues
- Trees & Binary search trees
- Heaps
- Hash Tables
- Graphs and Graph algorithms

Course Outcomes:

You will be able to select the correct data structure for the right programming scenario helping them write better programs, both in terms of space and time complexity

Tools & Languages Used:

 Java

COURSE 4 - SOFTWARE ENGINEERING FRAMEWORKS AND SERVER SIDE DEPLOYMENT

(Duration - 5 weeks)

The course will help you know about the software lifecycle, frameworks and program deployment that will help them contribute to existing software projects and developer teams

Topics Covered:

- Version control with Git
- Software engineering practices
- Agile software development
- Test driven development
- Model-View-Controller (MVC) architecture
- Databases and ORMs
- Introduction to React JS framework

Course Outcomes:

You will be able to create well structured programs and also work across large projects with teams of software engineers.

Tools & Languages Used:

Java   spring   PostgreSQL

COURSE 5 - DISTRIBUTED AND SCALABLE SERVER ARCHITECTURE

(Duration - 5 weeks)

The course will teach about fundamentals of distributed programming and the best practices to building scalable APIs for your software. You will get first hand-experience of deploying their programs directly on the cloud

Topics Covered:

- UML and UML diagrams
- Software design patterns
- API backend
- Distributed system and scalable architecture
- Code review and debugging

Course Outcomes:

You will be able to build scalable API servers that can sustain the highest levels of concurrency and request rates

Tools & Languages Used:

Java   spring   PostgreSQL

Note: IIIT-B and UpGrad reserve the right to edit/alter the curriculum at a later date based on academic requirement and industry feedback

COURSE 6 - SOFTWARE DESIGN AND FRONTEND DEVELOPMENT
(Duration - 6 weeks)

The course will help you acquire software engineering skills needed to build a software project from scratch. The course will also cover the frontend development skills required to build interactive web applications

Topics Covered:

- Project management and planning
- Software requirements
- Use cases and scenarios
- Software architecture
- User experience design
- Frontend development

Course Outcomes:

You will be able to manage the end-to-end process of starting and developing a new software project - right from gathering the requirements to choosing the appropriate architecture to model the software on.

Tools & Languages Used:

COURSE 7 - ADVANCED FRONTEND DEVELOPMENT AND DEVOPS
(Duration - 5 weeks)

The course will cover advanced javascript topics, frontend tools and libraries that will allow you build modern web apps. You will learn about DevOps and how to automate software deployment correctly

Topics Covered:

- Advanced Javascript and tools
- React JS
- Advanced testing
- Intro to DevOps

Course Outcomes:

You will build upon their knowledge of frontend development and learn to use popular Javascript tools, Javascript ES6 and React JS to build modern web apps. Using DevOps, you will now be able to automate the deployment of their software projects

Tools & Languages Used:

Note: IIIT-B and UpGrad reserve the right to edit/alter the curriculum at a later date based on academic requirement and industry feedback

COURSE 8 - MOBILE APP DEVELOPMENT
(Duration - 5 weeks)

The course will help you build native mobile apps that run on both iOS and Android devices, using React Native library

Topics Covered:

- React Native library
- Hybrid app development

Course Outcomes:

You will be able to build a hybrid mobile app that is functional on both iOS & Android platforms

Tools & Languages Used: JavaScript React Native

COURSE 9 - CAPSTONE PROJECT
(Duration - 6 weeks)

After months of lectures and hands-on practice on latest tools, it is time to create a fully functional software product on your own!

You will work on an industry relevant project creating a ready-to-use software product with a robust backend and an engaging user interface. The projects have been decided to ensure that you get to apply all the lessons you have covered during the 11 month program

PROGRAM
DETAILS

PROGRAM STARTS
December 2017

DURATION
11 Months

PROGRAM FEES
Rs. 2,25,000/- (inclusive of taxes)

ELIGIBILITY

Having a minimum 3 year UG degree (e.g. BE, BTECH, BCA, BCOM, BA)

Final year college students enrolled in degree types mentioned above, are also eligible to apply. However, in order to successfully graduate from the program and receive a post-graduate diploma, they will have to provide proof of UG graduation (e.g. provisional degree)

Minimum 50% marks or 5/10 GPA (on a scale of 10) or 2/4 GPA (on a scale of 4) in undergraduate degree examination.

In case a student has lower than 50% marks in UG degree but has higher than 50% marks in a PG qualification (e.g. Postgraduate Diploma, Master's Degree etc.), he/she will also be eligible to apply

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ADMISSIONS PROCEDURE

Post application, we have an admission process (customised to your profile) to assess your eligibility

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FOR FURTHER DETAILS, CONTACT US AT:

software-engg@upgrad.com / admissions-pgdse@iiitb.ac.in

APPLY NOW