



**upGrad**

&



International  
Institute of Information  
Technology Bangalore

# PG Diploma in **Software Development Specialisation in Blockchain**

11 Months | Online with Offline Basecamp | Admission Close: 17<sup>th</sup> June 2019

**upGrad** is an online education platform to help individuals develop their professional potential in the most engaging learning environment. Based on industry trends, we have identified Blockchain as one of the fastest growing technologies with an exponential increase in demand for skilled professionals.

With our meticulously designed PG Diploma in Software Development Specialization in Blockchain, we promise to equip you with the perfect mix of conceptual knowledge and hands-on experience to help you kickstart a successful career in this industry.



**Ronnie Screwvala**

Co-founder & Chairman  
upGrad



**IIIT-B** is one of the leading institutes of higher education in the country which has outstanding world class faculty, with years of experience in the latest technologies.

We are excited to partner with upGrad to offer a one-of-its-kind, academically rigorous and industrially relevant PG Diploma in Software Development Specialization in Blockchain. Our strong placement and alumni network, along with the credibility of a PG Certification will provide you just the right push to accelerate your career in this field.



**Prof. S. Sadagopan**

Director  
IIIT Bangalore

# WHY BLOCKCHAIN

**290%**

increase in number of  
cryptocurrency and blockchain  
jobs posted from May to  
November 2017

~Indeed

**\$9.7 bn**

Total Blockchain  
spending by 2021 with a  
compound annual growth  
rate(CAGR) of 82%

~International Data Corporation

**40-60%**

increase in salaries  
of Blockchain skilled  
professionals compared  
to peers

~Randstad

“

*Disruptive technologies such as Blockchain and the Internet of Things  
will have a profound impact in the way we live and work. They will require  
rapid adaptation in our workplaces.*



**Narendra Modi**

Hon'ble Prime Minister of India

## WHOM IS THE PROGRAM FOR?

Whether you want to transition  
into a Blockchain Role or acquire the  
right skill-set to grow in your current  
role, this program is just right for you.

- Developers & Sr Developers
- IT/ITeS Project Leads & Managers
- Technical Leads
- Blockchain Start Up Professionals

# WHY BLOCKCHAIN WITH IIIT-B AND UPGRAD?



## PG DIPLOMA FROM IIIT-B

Earn a reputed Post Graduate Diploma without leaving your



## HANDS ON LEARNING OPPORTUNITIES

Receive industry certificates on completing industry projects and participate in action workshops



## RESUME FEEDBACK

Feedback on your resume and profile building to kickstart your career



## STRONG PEER-TO-PEER INTERACTION

State-of-the-art platform to connect with the entire network of accomplished peers



## 1:1 INDUSTRY MENTORSHIP

Receive 1:1 mentoring from Industry Experts to understand your career pathway



## DEDICATED STUDENT SUPPORT

Dedicated Student mentor along with teaching assistants for academic or other doubts.



## GET PERSONALIZED FEEDBACK

Grading and personalized feedback on your assignments



## ON-THE-GO LEARNING

Learning squeezed into smaller learning sessions; anytime - anywhere

# INSTITUTE FACULTY



**DR. T K SRIKANTH**  
Professor - Computing  
IIIT Bangalore



**PROF. K V DINESHA**  
Professor  
IIIT Bangalore



**PROF. TRICHA ANJALI**  
Associate Professor  
IIIT Bangalore



**PROF. MURALIDHARA**  
Associate Professor  
IIIT Bangalore



**PROF. MEENAKSHI**  
Associate Professor  
IIIT Bangalore



**PROF. SUJIT**  
Assistant Professor  
IIIT Bangalore



**PROF. THANGARAJU**  
Professor  
IIIT Bangalore



**PROF. R. CHANDRASHEKHAR**  
Dean (Academics)  
IIIT Bangalore



**PROF. JAYAPRAKASH  
LALCHANDANI**  
Assistant Professor  
IIIT Bangalore



**PROF ASHISH CHOUDHARY**  
Assistant Professor  
IIIT Bangalore

# INDUSTRY EXPERTS



**NITIN GAUR**  
Director  
IBM Blockchain Labs



**SUDIN BARAOKAR**  
Chief Mentor - Bankchain  
Blockchain Alliance



**PRASANNA LOHAR**  
Head Technology  
DCB Bank



**SEAN HAN**  
Author  
Blockchain Demo



**ROHAN KAPADIA**  
Software Developer  
Swiggy and ex-Amazon



**VARUN SEHGAL**  
Director | Program Management  
Zomato



**CHENG-HAN LEE**  
Program Manager  
ex-Microsoft



**SUNIL SHARMA**  
Co-founder  
SquadX



**KARTIK MANDAVILLE**  
Founder & CEO  
SpringRole



**SANACHIT MEHRA**  
CEO  
Cateina Technologies

# PROGRAM CURRICULUM

## PRE-COURSE

*(Duration : 3 weeks)*

We have built this pre-course for people who don't have prior programming/ coding experience. In 3 weeks, you will be given a strong foundation in order to prepare for the intensive learning experience of the program. We strongly encourage learners to take this up if they don't have a background in computer science

### Topics Covered:

- Computational Thinking
- Programming foundations in Java (loops, functions and variables)

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## FOUNDATIONS OF SOFTWARE DEVELOPMENT

*(Duration : 12 weeks)*

Professional full-stack developers use these practical concepts every-day to write high-quality code. Mastery of these concepts will help you crack job-interviews at tech companies and make you stand-out among other developers. Not only that, you will stay forever in demand, as you can easily pick up new languages, libraries and frameworks.

### Topics Covered:

- Object Oriented Programming (OOP) - Classes, Objects, Inheritance, Polymorphism, Abstraction and Encapsulation
- Algorithms - Recursion, Big-O, Divide and Conquer and Dynamic Programming
- Data Structures - Arrays, Linked Lists, Stacks & Queues, Trees & Binary Search Trees,
- Heaps, Hash Tables, Graphs

### Tools & Languages Used:



# BACKEND DEVELOPMENT AND AGILE ENGINEERING

*(Duration - 12 weeks)*

Build complex server-side applications, and write advanced backend logic. Write your own SQL queries, learn how to use the popular PostgreSQL database, and master how to integrate databases into your backend applications

Go beyond programming to master software engineering skills like refactoring, test-driven development to be an all-round developer. Learn Agile Methodology - the cornerstone for software development in the digital age.

## Topics Covered:

- MVC Architecture using Spring
- Agile Methodology
- Version control with Git
- Databases and ORM using PostgreSQL and Hibernate
- Refactoring and Test-Driven Development
- Building an API Backend

## Tools & Languages Used:



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# FUNDAMENTALS OF FRONTEND DEVELOPMENT

*(Duration - 3 weeks)*

User expectations have sky-rocketed in recent years, and developers are increasingly expected to create sophisticated front-end user interfaces for their software applications. Learn the basics of front end development through this module.

## Topics Covered:

- Front-end development with HTML5, CSS, and JavaScript
- Responsive webpages using Bootstrap
- DOM Manipulation using JavaScript
- XHR HTTP Requests and AJAX
- Storing data using SessionStorage

## Tools & Languages Used:





# FUNDAMENTALS OF BLOCKCHAIN AND SMART CONTRACTS

*(Duration - 6 weeks)*

Demand for Blockchain developers has sky rocketed recently and there is a need for professionals who understand the core basics of blockchain. Learn the fundamental concepts behind building a blockchain, it's features & then code your own Blockchain!

## Topics Covered:

- Introduction to Blockchain
- Features of Blockchain
- Cryptography in Blockchain
- Types of Blockchain
- System Architecture
- Build your own Blockchain using JavaScript

## Tools & Languages Used:



# HYPERLEDGER

*(Duration - 6 weeks)*

Hyperledger, the most popular public blockchain, is widely used to build blockchain solutions for use cases across industries. Learn how Hyperledger functions, build and deploy fabric network and chaincode.

## INTRODUCTION TO HYPERLEDGER

*(Duration - 1 week)*

## Topics Covered:

- What is Hyperledger
- Distributed Ledger Technology and its Challenges
- What is Fabric
- Components of Fabric
- Architecture
- Transaction Flow

# FUNDAMENTALS OF ETHEREUM AND SMART CONTRACTS

*(Duration - 2 weeks)*

## Topics Covered:

- Fundamentals of Ethereum
- Creating Smart contracts

## Tools & Languages Used:



# FABRIC UNDER THE HOOD

(Duration - 3 weeks)

## Topics Covered:

- Building the Hyperledger Fabric Network
- Writing the Chaincode
- Performing Transactions

# HYPERLEDGER COMPOSER

(Duration - 2 weeks)

## Topics Covered:

- Introduction to Hyperledger Composer
- Understanding Hyperledger Composer(Model , Transaction Processor , Access Control , Query)
- Hyperledger Composer Playground Experience
- Developing Application using Composer Playground

## Tools & Languages Used:



# CAPSTONE PROJECT

After months of lectures and hands-on practice on latest tools, it is time for the capstone project! You will work on a project mentored by industry experts through 1-on-1 discussions and feedback sessions. The projects have been decided to ensure that you get to apply all the lessons you have covered during the 11 month program

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

## Industry Projects:



## Action Workshops:



## Industry Experts:



## Ecosystem Partners:



# UPGRAD BASECAMP: OFFLINE MEET-UPS & LEARNING

## upGrad Basecamp

Basecamps are an online meet up held across major cities in India to provide a networking and idea exchange platform.

### WHAT'S IN IT FOR OUR LEARNERS?



Networking with  
Faculty and  
Student Mentors



Career  
Building  
Sessions



Engaging and  
Live Group  
Projects



Fun and  
Exciting  
Activities



Peer  
Interaction



Career  
Networking



## upGrad Action Workshop

- Understand how to build blockchain solutions from leading Start ups
- Discuss challenges faced in the process
- Build the assignment solution presented in the workshop

# PROGRAM DETAILS

## PROGRAM STARTS

30<sup>th</sup> June, 2019

## DURATION

11 Months

## PROGRAM FEES

₹ 2,25,000/- (inclusive of taxes)

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## 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 certification, 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:

[blockchain@upgrad.com](mailto:blockchain@upgrad.com) / [admissions-pgpsd@iiitb.ac.in](mailto:admissions-pgpsd@iiitb.ac.in)

**APPLY NOW**