

**upGrad**

**P** PURDUE  
UNIVERSITY

# Blockchain Certificate Program



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# Program Overview

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Kickstart your career in blockchain by earning a certificate in Blockchain with upGrad in collaboration with Purdue University.

In 8 months, you'll learn the basics of blockchain technology and how to build decentralized applications on public and private networks from the ground up.

## Program Start Date

Please refer the website

## Duration | Format

8 Months | Online

## Program Fees

Please refer to the website for Program fee

## Minimum Eligibility Criteria

- High school diploma or equivalent grade required, Bachelor's degree completion preferred
- Basic intuitive understanding of any high-level programming language (C++/Java/JavaScript/Python), as well as the basics of data structures and algorithms (linear data structures such as arrays, linked lists, etc. and knowledge of algorithms - sorting and searching).

## Admission Process

### Step 1:

Complete the application form.

### Step 2:

Take the entry test.

The entrance test will assess your problem solving and basic programming skills including variables, functions and booleans.

### Step 3:

Qualified learners receive an offer letter and pays block amount to reserve a seat in the program.

# Program Highlights

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## International Exposure

State-of-the-art pedagogy that will enable you to get a unique global perspective.



## Eight Months of Learning

Learn essential skills for a successful career acceleration in the software development field with a comprehensive eight month program ensuring quicker learning and career outcomes.



## Practical Learning Experience

Learn the latest skills through industry projects, capstone projects and live sessions from renowned subject experts approved by Purdue.



## Competitive Advantage

Gain an edge over your peers through a trusted, century-old brand, cutting-edge American pedagogy with an application based capstone project and best-in-class curriculum approved by Purdue.

# Why Purdue University?

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Ranked  
**#9**

Purdue University ranked as **#9** public university in the U.S. (Source: The Wall Street Journal/Times Higher Education, 2021)

Purdue University ranked as **#8** for the most employable graduates in the U.S. among public universities (Source: Times Higher Education, November 2019)

Ranked  
**#8**

Ranked  
**#7**

Purdue University ranked as **#7** best value school in the U.S. (Source: The Wall Street Journal/Times Higher Education, 2020)

Purdue University ranked as **#3** nationally, behind only Stanford and MIT, in producing new companies based on university-created innovations (Source: The Wall Street Journal, 2019)

Ranked  
**#3**

Ranked  
**#6**

Purdue University ranked as **#6** in having the most number of alumni serving as Fortune 500 CEOs (Source: Kittleman, October 2018)

# Learning Experience

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## Flexible online learning

A blend of recorded video lectures and interactive mentored learning.



## Learn from world-renowned experts

Curriculum designed by upGrad in collaboration with Purdue faculty.



## Projects

10+ projects, including capstone projects.



## Weekly effort required

About 10-15 hours per week to suit your working schedule.



## Course duration of 8 months

Carefully designed course to help you gain the most in an optimized time frame.

# upGrad Career Support

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**Access to Job Opportunities Portal**

**Employability Tests**



**Personalized Industry Mentorship**

**Resume Review**

Obtain personalized feedback on your resume, as well as access to the Hiration tool and the Careers portal



**Ongoing Career Support**

Access to mentorship calls is available after you complete the program

# Program Curriculum

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Module Name	Sessions	3 Weeks
JavaScript	<ul style="list-style-type: none"><li>• Variables and Datatypes</li><li>• Conditionals and Loops</li><li>• Arrays, Objects and Functions</li><li>• Intermediate JavaScript Concepts</li><li>• ES6 - Introduction to Next-Gen JavaScript</li><li>• Advanced JavaScript Concepts</li></ul>	

Module Name	Sessions	1 Week
Fundamentals of Node.js	<ul style="list-style-type: none"><li>• Introduction &amp; Installation of Node.js</li><li>• Core Concepts of Node.js</li><li>• Modules &amp; Packages</li></ul>	

Module Name	Sessions	1 Week
Blockchain Basics	<ul style="list-style-type: none"><li>• Basic Idea of Blockchain</li><li>• Bitcoin Blockchain Network</li></ul>	

Module Name	Sessions	1 Week
Blockchain Features	<ul style="list-style-type: none"><li>• Blockchain Types, Immutability &amp; Other Features</li><li>• Smart Contracts and Blockchain Architecture</li></ul>	



<b>Module Name</b>	<b>Sessions</b>	<b>1 Week</b>
Ethereum Fundamentals	<ul style="list-style-type: none"> <li>• Ethereum Architecture</li> <li>• Consensus and Forking</li> <li>• Transaction Flow and Challenges in Ethereum</li> <li>• Graded Questions and Additional Topics</li> </ul>	

<b>Module Name</b>	<b>Sessions</b>	<b>2 Weeks</b>
Smart Contract Development on Ethereum	<ul style="list-style-type: none"> <li>• Module Map</li> <li>• Writing Smart Contracts in Solidity</li> <li>• Setting Up a Private Ethereum Blockchain</li> <li>• Deploying Smart Contracts on a Blockchain</li> <li>• Tokens in Ethereum</li> <li>• Troubleshooting in Solidity</li> <li>• Graded Questions</li> <li>• Ganache</li> </ul>	

<b>Module Name</b>	<b>Sessions</b>	<b>1 Week</b>
Application Development on Ethereum	<ul style="list-style-type: none"> <li>• Module Map</li> <li>• Accessing Smart Contracts From the Front End</li> <li>• Practice Problems</li> <li>• Graded Questions</li> </ul>	

<b>Module Name</b>	<b>Sessions</b>	<b>1 Week</b>
Assignment/Project (dApp for Bank KYC System)	<ul style="list-style-type: none"> <li>• Graded Assignment</li> <li>• Graded Assignment Solution</li> </ul>	

Module Name	Sessions	1 Week
Hyperledger Fundamentals	<ul style="list-style-type: none"> <li>• Introduction to the Course</li> <li>• Fundamentals of Hyperledger</li> <li>• Hyperledger Fabric: Architecture</li> <li>• Highlights of Hyperledger Fabric</li> <li>• Graded Questions</li> </ul>	

Module Name	Sessions	1 Week
Fabric Network Setup	<ul style="list-style-type: none"> <li>• Problem Statement and the Pre-Setup Phase</li> <li>• Docker and Fabric Network Setup</li> </ul>	

Module Name	Sessions	2 Weeks
Chaincode Development	<ul style="list-style-type: none"> <li>• Introduction to Chaincode</li> <li>• Chaincode Deployment- Development Mode</li> <li>• Certnet Smart Contract: Complete Solution</li> <li>• Network Automation</li> <li>• Graded Questions- Chaincode Development</li> <li>• Advance Chaincode Development</li> </ul>	

Module Name	Sessions	1 Week
Application Development on Hyperledger Fabric	<ul style="list-style-type: none"> <li>• Fabric SDK for Node.js</li> <li>• Common Connection Profile</li> <li>• Node Applications</li> <li>• Graded Question - Application Development</li> <li>• Node Server &amp; UI</li> <li>• Practice Problems</li> <li>• Graded Questions</li> </ul>	

<b>Module Name</b>	<b>Session</b>	<b>2 Weeks</b>
Assignment/Project (Property Regist. System)	<ul style="list-style-type: none"> <li>• Problem Statement</li> </ul>	

<b>Module Name</b>	<b>Sessions</b>	<b>2 Weeks</b>
Architecting a DeFi Application	<ul style="list-style-type: none"> <li>• Assessments</li> <li>• Interview Questions &amp; Lecture Notes</li> <li>• Project Documents</li> </ul>	

<b>Module Name</b>	<b>Sessions</b>	<b>3 Weeks</b>
UPSTAC App Architecting and Deployment	<ul style="list-style-type: none"> <li>• Practice Problems</li> <li>• Lecture Notes</li> <li>• Interview Questions</li> </ul>	

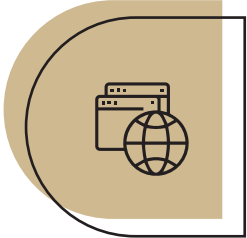
<b>Module Name</b>	<b>Sessions</b>	<b>1 Week</b>
Other Blockchain Frameworks and their use cases	<ul style="list-style-type: none"> <li>• Practice Problems</li> <li>• Lecture Notes</li> <li>• Interview Questions</li> </ul>	

<b>Module Name</b>	<b>Sessions</b>	<b>1 Week</b>
Assignment/Project (Vehicle Collateralized Loans)	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Assignment</li> </ul>	

<b>Module Name</b>	<b>Sessions</b>	<b>4 Weeks</b>
Capstone Project (Drug Counterfeiting Problem)	<ul style="list-style-type: none"> <li>• Blockchain for Detecting Counterfeit Drugs</li> <li>• Problem Statement</li> <li>• Solution Code</li> </ul>	

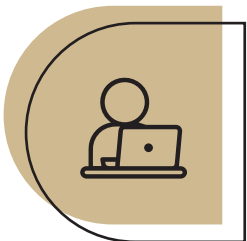
# Industry and Capstone Projects

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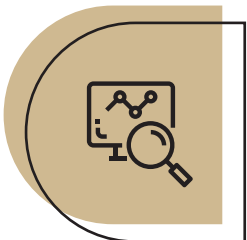
## Bank KYC

- Build a distributed KYC platform for banks on Ethereum network.



## Property Registration System

- Create the smart contract for a case study on 'Property Registration System' using HyperLedger Fabric.



## Pharma Supply Chain

- Build a blockchain solution for pharmaceutical supply chain management to tackle the issue of drug counterfeiting.

# About Purdue University

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Purdue University is a top public research institution developing practical solutions to today's toughest challenges. Ranked in each of the last four years as one of the 10 Most Innovative Universities in the United States by U.S. News & World Report, Purdue delivers world-changing research and out-of-this-world discoveries.

Focused on hands-on and online, real-world learning, Purdue offers transformative education to all. Committed to affordability and accessibility, Purdue has frozen tuition and most fees at 2012-13 levels, enabling more students than ever to graduate debt-free.

See how Purdue has always been persistent in the pursuit of the next giant leap at <https://purdue.edu/>.



# About upGrad

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upGrad has delivered over **20 million hours of learning**, offering programs in collaboration with major global universities, including the University of Maryland, University of Arizona, Emory University, Duke CE (Corporate Education), Deakin Business School, Michigan State University, Caltech, and Liverpool John Moores University. In over six years of our existence, we have successfully impacted **more than 2 million learners from over 85 countries** across the world.

upGrad was founded to help working professionals in their endeavor to learn, grow, and move up in their careers by enhancing their expertise in an engaging learning environment. As the ability to partake in the academic rigors of business education becomes limited due to the demands of work and life, professionals often find themselves in a position of having to treat their continuing education as a burden that comes in the way of their professional performance. Through our association with Purdue and other globally recognized Universities, we endeavor to facilitate continuing education for senior professionals without impeding their career journeys.

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## For queries, upGrad Admissions Counselor:

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