



**COURSE
DURATION**

2 MONTHS

**TEACHING
HOURS**

40+ HOURS

**LAB
HOURS**

40+ HOURS

BLOCKCHAIN, CRYPTO CURRENCY AND E-GOVERNANCE

Career Pathway Skilling Program for Engineering Students

In Collaboration with



**FOUNDATION FOR INNOVATION
AND TECHNOLOGY TRANSFER**

भारतीय प्रौद्योगिकी संस्थान दिल्ली
Indian Institute of Technology Delhi

The Future is Blockchain



The blockchain technology is said to boost the global economy by \$1.76 Tn, contributing about 1.4% of global GDP and creating 40 Mn jobs by 2030. While China stands to gain the highest potential net benefit at \$440.4 Bn, followed by the US at \$407.2 Bn, India is estimated to benefit by more than \$62.2 Bn in the same period.

NASSCOM has estimated that over 800,000 jobs will be created by the year 2030 in the Indian CryptoTech industry in terms of direct employment

NASSCOM[®]



MeitY will work with various government organizations and other stakeholders in implementing this strategy and realizing the various advantages of blockchain technology in terms of enhanced security, trust, and its ability to ensure tamper-evident transactions.

MORGAN STANLEY has estimated that the size of Metaverse has the potential to increase to USD 8.3 Tn in terms of Total Consumer Expenditure in the US alone.

Morgan Stanley



About Collaboration

IIT Delhi – FITT

Foundation for Innovation and Technology Transfer (FITT) at IIT Delhi has been the vanguard of knowledge transfer activities from academia since its inception in 1992. This techno-commercial organization from academia is counted amongst the successful such organizations. FITT provides superior program management services and is steadily increasing its operational landscape. The varied roles of FITT can be seen in enabling innovations and technopreneurship, business partnerships, technology development, consultancy, collaborative R&D, technology commercialization, development programs, corporate memberships etc. These roles are necessitated by the key agenda of the Foundation to showcase the Institute's "intellectual ware" to industry, and thereby unlock its knowledge base and inculcate industrial relevance in teaching and research at IIT Delhi.

IIT Delhi is India's eminent academic and research institution. It co-develops a range of training programs from College level to working professionals and also on emerging areas like Blockchain, AI/ML, IoT, AR/VR & Cybersecurity. The CoE in IIT Delhi has been set up to conduct deep research and product development in these areas, particularly for critical infrastructures like Waterways, Smart Cities, Railways and Energy.



About Course

Blockchain Builder Course

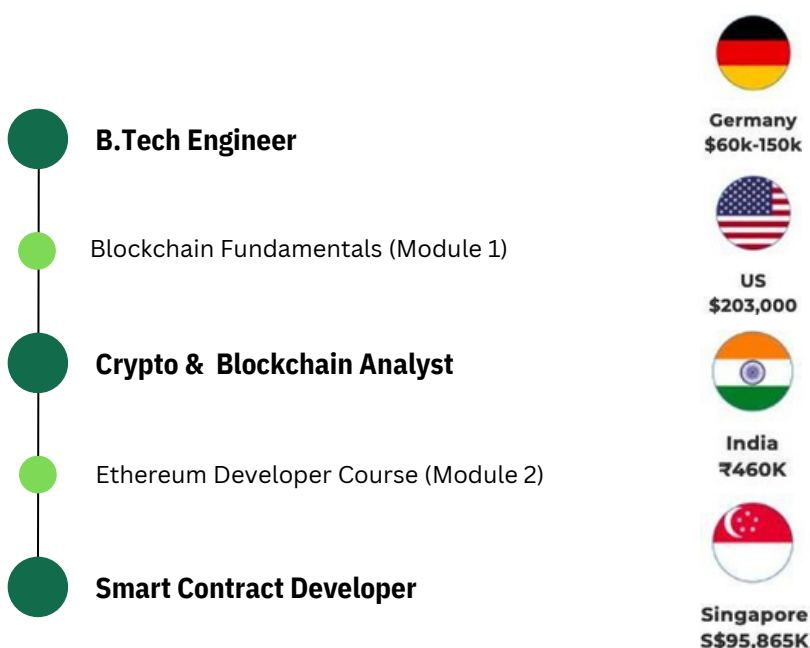
This course introduces one of the most disruptive and in-demand Technology to the students – Blockchain Technology. It helps the students conceptualize the fundamentals of the Technology and its wide scope in the areas of both Private and Public Sector. It also helps the students scale the progress of the Technology and how it is used in creating innovative business solutions in the present day. Thereafter, this course goes on to help the students begin building with Blockchain using a public blockchain system – the Ethereum.

Ethereum is the most popular blockchain among blockchain developers and cryptocurrency communities. Through this Program, the learner would be deeply entrenched in Ethereum concepts. Ethereum is like a virtual computation environment for decentralized data processing. It is also termed the Ethereum Virtual Machine or EVM. The course focuses on imparting a complete understanding of the various components of the EVM, its working principles, the requirements for the various smart contracts to act in a purposeful manner, the formation of decentralized applications, decentralized autonomous organizations, non-fungible tokens, utility tokens, soul bound tokens, etc. on the Ethereum platform.

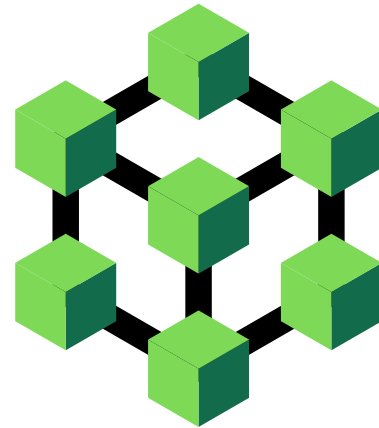
Blockchain's Employment & Salary Trends

Blockchain developers are now the most sought after professionals in the programming world. The fluidity of this new technology allows developers to transfer their skills and experience across multiple industries. Only on **Glassdoor**, the worldwide yearly growth in blockchain job postings was around 300% in 2021. As a result, the demand for blockchain developers constantly increases as more businesses adopt this technology and move from proof of concept to production – this growing need for more specialists and competition for the best talent fuels salary growth.

In 2021, the US-national salary average for blockchain developers was \$175,000, compared to the \$77,000 average for software developers.

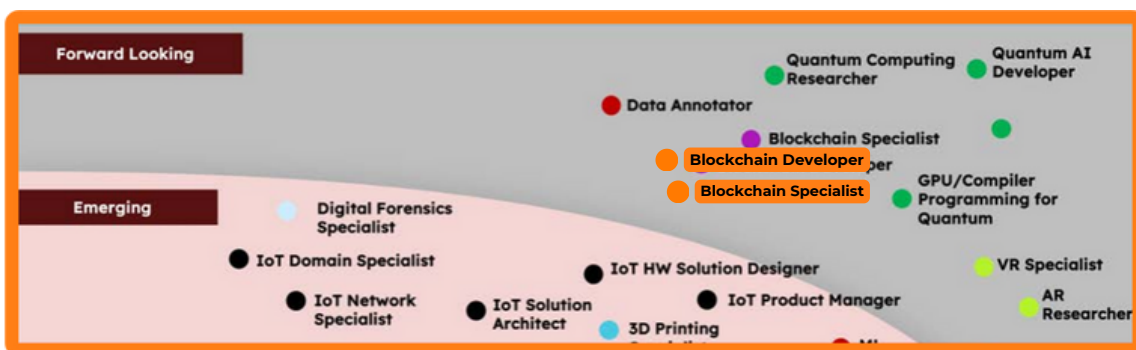


WHY BLOCKCHAIN?



The disruptive technology of **Blockchain** has joined the list of fast-growing emerging technologies which is changing the way businesses will record and store data.

The benefits of data immutability, cost efficiencies, transparency, and the use of 'Cryptography' for security, verification, and validation of data are leading to several use cases. Blockchain has also fuelled the rapid development of exciting applications by way of NFTs, Metaverse, and Web3. Given the rapid pace of advancement being witnessed in innovations of Blockchain technology and its applications, an ever-growing requirement for a skilled workforce is being witnessed.



Job Roles 2024 - NASSCOM

The list of organizations taking advantage of blockchain's potential continues to grow. Some hire in-house blockchain developers, and some outsource their projects to the top blockchain development companies.

So, it's no surprise that this technology is poised to enhance more than 40 million jobs globally by 2030, according to PwC's "Time for Trust" report.



Applications Of Blockchain



Digital IDs



Bitcoin



Real estate



Voting



Payment and Transfers



Health Care

Internet of Things



Online music



Banking



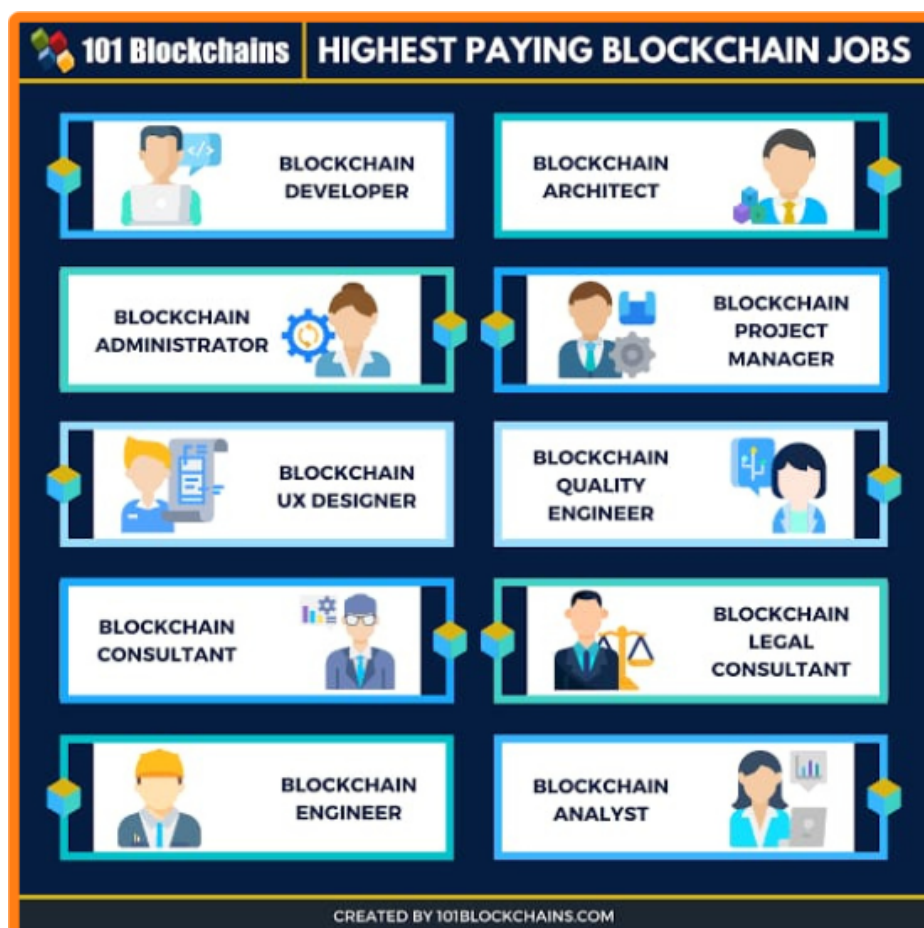
Law Enforcement











WHY IS THE DEMAND FOR BLOCKCHAIN DEVELOPERS GROWING?



Blockchain developers are currently in high demand in the Indian labor market in 2023. As a result, it is accurate to say that it is one of the most dependable and rapidly developing skills. In actuality, a blockchain developer receives compensation that is 50% to 100% higher than that of a regular developer. In the next ten or so years, this technology, which underpins modern cryptocurrencies and banking applications, has enormous room for development.

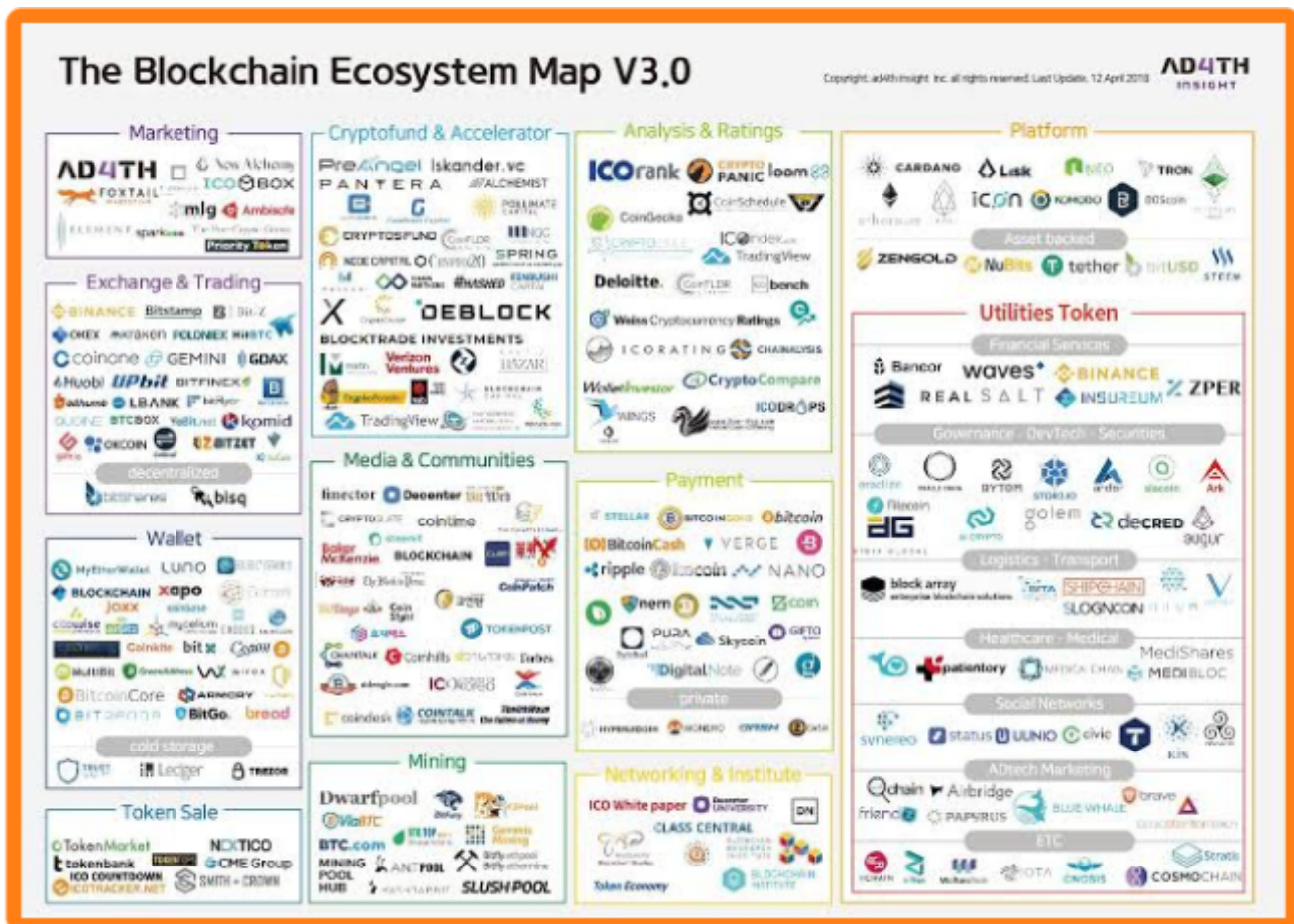
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101 Blockchains		HIGHEST PAYING BLOCKCHAIN JOBS	
	BLOCKCHAIN DEVELOPER		BLOCKCHAIN ARCHITECT
	BLOCKCHAIN ADMINISTRATOR		BLOCKCHAIN PROJECT MANAGER
	BLOCKCHAIN UX DESIGNER		BLOCKCHAIN QUALITY ENGINEER
	BLOCKCHAIN CONSULTANT		BLOCKCHAIN LEGAL CONSULTANT
	BLOCKCHAIN ENGINEER		BLOCKCHAIN ANALYST

CREATED BY 101BLOCKCHAINS.COM

BLOCKCHAIN ECOSYSTEM



Blockchain isn't just for coders, builders, and programmers anymore – it's a whole new world of opportunities.

If you're a seasoned marketer, salesperson, or designer, there are many options for you to grow your career with blockchain.

About Course

Content and Curriculum

The courses are designed to be job-oriented for suitably skilling the participants for the role of Smart Contract Developers over the Ethereum platform. Hence, the course will be practical heavy and will familiarize the participants to the development environment providing an end-to-end developer skilling. The course will be made more contextual by following up with Capstone projects designed after the latest protocol and application development

The details of the course content and curriculum are provided below:

Part 1: Fundamentals of Blockchain Technology

Course Objective

- To provide a broad overview of the Blockchain Technology and its essential concepts.
- To provide a working concept of the various technologies used in the blockchain technology.
- To provide an overview of the smart contracts and the various applications of the technology in different fields.
- To provide a snapshot of the advancements and most recent applications of the Technology.

Learning Outcomes

Post participation in the course, the skilled participant

- Should be able to explain blockchain technology and decentralized consensus systems
- Should be able to understand cryptographic security and immutability in public ledgers
- Should be able to apply the learnings and analyse operational efficiency interventions using the technology
- Should be able to explain the various blockchains - layer 1, layer 2/ public, private, hybrid/ centralized, decentralized etc.
- Should be able to explain the functions of oracles, legos and bridges and other such utilities in the ecosystem
- Should have an operational understanding of Decentralized systems as in Dapps, DAOs, DeFi etc.

Part 2: Developing on a Public Blockchain (Ethereum)

Course Objective

- To initiate the students to the concepts and construct of Smart Contracts
- To provide a hands-on training of the Smart Contract Creation Language - Solidity
- To expose the students to the Development and Deployment environment of Smart Contracts
- To initiate the students to the process involved in a Dapp creation

Pre-requisites for Learners

- Certificate course of Fundamentals of Blockchain Technology
- Exposure to any high level coding language environment

Learning Outcomes

Post participation in the course, the skilled participant

- Should be able to write and deploy smart contracts using Solidity
- Sould be able to create a Dapp and deploy the same using Solidity, Truffle and Ganache



MODULES	TOPICS COVERED
Module 1 : Evolution of The Blockchain Technology	Introduction to Blockchain & DLT – 1
	Introduction to Blockchain & DLT – 2
Module 2: The First Protocol: Bitcoin Blockchain	Transaction: Creation, Verification & Validation
	Block Creation and Addition
	The Block Header & Mining
	Securing the Network – Incentive
	Consensus Model: POW
Module 3: Blockchain 2.0: Ethereum and Smart Contracts	Ethereum Blockchain: Genesis & Motivation
	Ethereum Structure: Differences from Bitcoin Structure
	Smart Contracts: Transactions Processing
	Operations: Turin Complete & Gas Fees
	Consensus Model & Incentive Model
Module 4: Beyond 2.0 - Dapps, DAOs, Layer2, Oracles	Types of Blockchain: Public, Private & Hybrid
	Layer 2 Solutions and Types
	Multichains, Interoperability Protocols
	Oracles, Legos, Bridges etc
	Dapps, DeFi and DAOs

Module 5 : Evolution of The Blockchain Technology	Blockchain for Business: Efficiency Improvement
	Utility Tokens, NFTs, SBTs : Tokenization and Application
	Metaverse, NFTs, Business Applications and Beyond, DeSoc

Part 2 : Developing on a Public Blockchain (Ethereum)

MODULES	TOPICS COVERED
Module 6 : Introduction to Smart Contracts	Smart Contracts: Definition and Need
	Features of Smart Contracts
	Lifecycle of a Smart Contract
	Introduction to Ethereum Higher level Language
Module 7 : Development Environment	Building a Simple Smart Contract with Solidity
	Solc-Compiler
	Ethereum Contract ABI
	Remix-IDE for Smart Contract Development

MODULES	TOPICS COVERED
Module 8 : Introduction to Solidity	Variables, Functions, Getters & Setters, Variables
	Constructors, Error handling, Arrays, Structs, Mappings in Solidity, Inheritance, Events, Memory Vs Storage
	Restrictions, Libraries, Abstract Contracts, Interfaces
	Program Practical
Module 9 : Truffle Framework & Ganache	Environment Setup for Truffle & Ganache
	Truffle Project Creation
	Truffle Compile, Migrate and Create Commands
Module 10: Decentralized App Creation	Smart Contract Creation
	Front End Creation
	Connecting Smart Contract with Front End Application
	Deploying Dapp
	Validation and Testing of Dapp
	Bringing Front End infused DApp to Production
	Dapp Projects

Enrollment Process

The FITT-IIT Delhi course is being provided to selected students free of cost by MPSSDEGB.

Eligibility: All students, all streams from 2nd year UG onwards of Madhya Pradesh. (Limited seats only)

Process: Please visit the website (<https://mp-iitd.in/>) and kindly fill out the below form, pay registration fees - Rs.1000/- and submit the form and receipt.

Please fill in the below form

Name.....

Institution Name.....

Student ID.....

Current Pursuing Course.....

Year.....

CGPA.....

Phone.....

E-Mail.....

Aadhar Number.....

Father's Name.....

Course Interested (Please Select One)

Iot Builder

Blockchain Builder

AR/VR (CV) Builder

Enrollment fees of Rs. 1,000 payable to MPSSDEGB. The fees would be refundable on successful completion of course

Enrollment Process

The FITT-IIT Delhi course is being provided to selected students free of cost by MPSSDEGB.

Eligibility: Past pass-outs of Madhya Pradesh UG and PG Students and existing working professionals of Madhya Pradesh. (Limited seats only)

Process: Please visit the website (<https://mp-iitd.in/>) and kindly fill out the below form, pay registration fees - Rs.1000/- and submit the form and receipt.

Please fill in the below form

Name.....

Graduation College Name.....

Employment Details.....

Year..... CGPA.....

Phone..... E-Mail.....

Aadhar Number.....

Father's Name.....

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Indian Institute of Technology Delhi



CERTIFICATE

OF COMPLETION

PROUDLY PRESENTED TO

Demo

Advanced Program in Blockchain Technologies

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SIGNATURE

SIGNATURE



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AND TECHNOLOGY TRANSFER
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