Indian Institute of Technology Patna
(IIT Patna)

M.Tech Blockchain Technology & Big Data

Type Pg Program	Mode Online
Duration 2 Years	Total fees ₹ 447,000

UNIVERSITY

Indian Institute of Technology Patna (IIT Patna)

Established in 2008, the Indian Institute of Technology Patna is an Institute of National Importance recognised for excellence in engineering, technology, management and interdisciplinary research. Located in Bihta, Bihar, the institute combines rigorous academics with advanced research facilities, innovation centres and strong industry engagement. Its learning ecosystem encourages analytical thinking, practical problem-solving, entrepreneurship and the development of solutions capable of creating meaningful economic and societal impact.

PROGRAM

M.Tech Blockchain Technology & Big Data

Highlights

- Earn an M.Tech degree from IIT Patna through a flexible online learning format designed for working professionals.
- Build expertise across blockchain architecture, cryptography, smart contracts, big data analytics and artificial intelligence.
- Gain practical exposure to tools such as Solidity, Remix, Hardhat, Truffle, BigQuery, Python and R.
- Personalise the learning journey through electives in blockchain, cybersecurity, cloud, machine learning and data engineering.
- Apply learning through two major projects and an optional five-day campus immersion at IIT Patna.

Learning outcomes

- Design and deploy decentralised databases and blockchain applications while addressing scalability and security challenges.
- Apply cryptographic techniques and consensus mechanisms to build secure and reliable blockchain systems.
- Develop and evaluate smart contracts, distributed applications and blockchain-based digital solutions.
- Use Python, R and big data tools to analyse complex datasets and support blockchain engineering.
- Integrate blockchain, artificial intelligence and big data technologies to solve real-world industry challenges.

Eligibility Criteria

The candidates should have a minimum one year of working experience or should be currently employed.

An aspiring student should have a B.Tech/BE/MSc (Com Sc/IT or in related areas)/MCA/ ME/M.Tech or any equivalent degree.

At least a 60% scored in the final marks of the eligible degree program or a minimum CGPA or CPI of 6.5 on the scale of 0-10 with corresponding proportional requirements when the scales are other than 0-10 (for example, 5.2 on a scale of 0-8).

In case of MCA /MSC passed with UG, the percentage score of MCA/MSC would be considered. In case of a BE/BTech Engineering degree passed without PG specialization, the percentage score of the undergraduate degree would be considered. In case of an engineering graduate degree pass out with a post-graduation in the Engineering field of study, either of the UG or PG score qualification can be considered.

a. In case of the candidate belonging to scheduled caste (SC)/ Scheduled Tribe (ST)/ Persons with Disability (PwD) category, this is relaxed to 55% or equivalent CGPA/ CPI.

b. Marks will be relaxed by 2.5% or 0.5 CGPA or CPI against each additional year of experience.

Curriculum Overview

Semester I (5 subjects)

- Design and Analysis of Algorithms
- Foundations of Computer Systems
- Probability and Statistics
- Technical Writing and Soft Skills
- E1-S1 (Elective 1)

Curriculum Overview (continued)

Semester II (5 subjects)

- Artificial Intelligence
- Numerical Linear Algebra and Optimization Techniques
- E2-S2 (Elective 2)
- E3-S2 (Elective 3)
- E4-S2 (Elective 4)

Semester III (3 subjects)

- E5-S3 (Elective 5)
- E6-S3 (Elective 6)
- Project I

Semester IV (2 subjects)

- E7-S4 (Elective 7)
- Project II

Elective 1 (Semester I) (6 subjects)

- Blockchain Fundamentals
- Big Data Fundamentals and Ecosystem
- Cryptoeconomics
- Web Development for Blockchain Applications
- Blockchain Components and Architecture
- Data Engineering

Curriculum Overview (continued)

Elective 2 (Semester II) (5 subjects)

- Distributed Ledger Technologies
- Advanced Cryptography
- Big Data Storage and NoSQL Databases
- Database System and Design
- Deep Learning

Elective 3 (Semester II) (5 subjects)

- Blockchain Scalability Challenges
- Smart Contracts and DApps Development
- Big Data Processing Frameworks
- Data Virtualization and Dashboards
- Predictive Analytics

Elective 4 (Semester III) (5 subjects)

- Data Analytics for Blockchain
- Tokenomics and NFT Design
- Big Data Analytics and Visualization
- Cryptocurrency and Cyber Security
- Big-Data Framework

Elective 5 (Semester III) (5 subjects)

- Blockchain Governance Models
- Machine Learning for Big Data
- Advanced Smart Contracts Techniques
- Modern Cryptography
- Blockchain Technologies: Platforms and Applications

Curriculum Overview (continued)

Elective 6 (Semester IV) (6 subjects)

- Quantum-Resistant Cryptography for Blockchain
- Smart Contracts and Solidity Programming
- Cross-Chain Technologies
- Blockchain Policy – Legal
- Big Data in Cloud Computing
- Social and Economic Impact

Elective 7 (Semester IV) (5 subjects)

- Blockchain Regulatory and Legal Issues
- Security and Privacy for Big Data
- Blockchain for Digital Identity
- Data Mining and Knowledge Discovery
- Big Data Project Development and Deployment

Fee Structure

Fee heads	Year 1	Year 2	Total
Application Fee	₹ 5,000	—	**₹ 5,000**
Exam Fee	₹ 11,000	₹ 11,000	**₹ 22,000**
Admission Fee	₹ 210,000	₹ 210,000	**₹ 420,000**
Total	**₹ 226,000**	**₹ 221,000**	**₹ 447,000**