



Indian Institute  
of Technology Patna  
भारतीय प्रौद्योगिकी संस्थान पटना

# INDIAN INSTITUTE OF TECHNOLOGY, PATNA



PG CERTIFICATION

## Cybersecurity and Ethical Hacking

Stay at the forefront of technology

6 Months | Online | Immersive Sessions | Get certified from an IIT

LEARN FROM THE BEST MINDS IN THE COUNTRY - GET THE IIT PATNA ADVANTAGE

Established in 2008, IIT Patna is the newest and fastest-growing premier institution in India.

IIT Patna operates ten departments - Computer Science & Engineering, Electrical Engineering, Mechanical Engineering, Chemical & Biochemical Engineering, Civil & Environmental Engineering, Materials Science & Engineering, Chemistry, Physics, Mathematics, and Humanities & Social Science departments.

The institute has developed modern facilities that are fully equipped with state-of-the-art facilities (equipment software and machines) that are routinely used to train and educate students.

The institution has published in high-quality and peer-reviewed national and international journals. The faculty members of IIT Patna have a wide range of academic and research experience. They have been trained in the top-ranked institutes within the country and abroad.

Overview of IIT Patna	
Ranked 2 <sup>nd</sup>	In Emerging Government Colleges in a Best College Ranking 2022 by India Today-MDRA
Ranked 9 <sup>th</sup>	For placement records
Ranked 10 <sup>th</sup>	Best Government Engineering College in the performance category overall
2500+ Alumni	Serving national and international institutions at leadership positions
100+	M.Tech Students
10+	Operating Departments
100+	Faculty Members





## PROGRAM OVERVIEW

A postgraduate certification program in Cybersecurity and Ethical Hacking is crucial in today's age due to the increasing frequency and sophistication of cyber threats. This certification program is designed to provide individuals with the necessary knowledge and skills to prevent cyber threats and conduct ethical hacking to improve security. According to Cybersecurity Ventures, cybercrime damages are expected to reach \$6 trillion annually by 2021, underscoring the critical need for skilled cybersecurity professionals. The shortage of such professionals is also a growing concern, with an estimated 3.5 million unfilled cybersecurity jobs globally reported in 2021. The curriculum is tailored to open up numerous career opportunities for aspirants in the growing cybersecurity industry.

## WHO CAN APPLY? - COURSE ELIGIBILITY

Graduate in any discipline from a recognized AICTE institute or UGC approved university with at least 50% marks or equivalent CGPA.

Should have a minimum 1 year of work experience.

## WHO IS THIS PROGRAM FOR?

- IT professionals interested in transitioning to the field of Cybersecurity and Ethical Hacking.
- Data scientists & security professionals who want to enhance their knowledge and skills in Cybersecurity and Ethical Hacking.
- Recent graduates or students looking to start a career in Cybersecurity and Ethical Hacking
- Network administrators or engineers looking to expand their skill set.
- System administrators or engineers interested in learning about Cybersecurity and Ethical Hacking.

## COURSE STRUCTURE

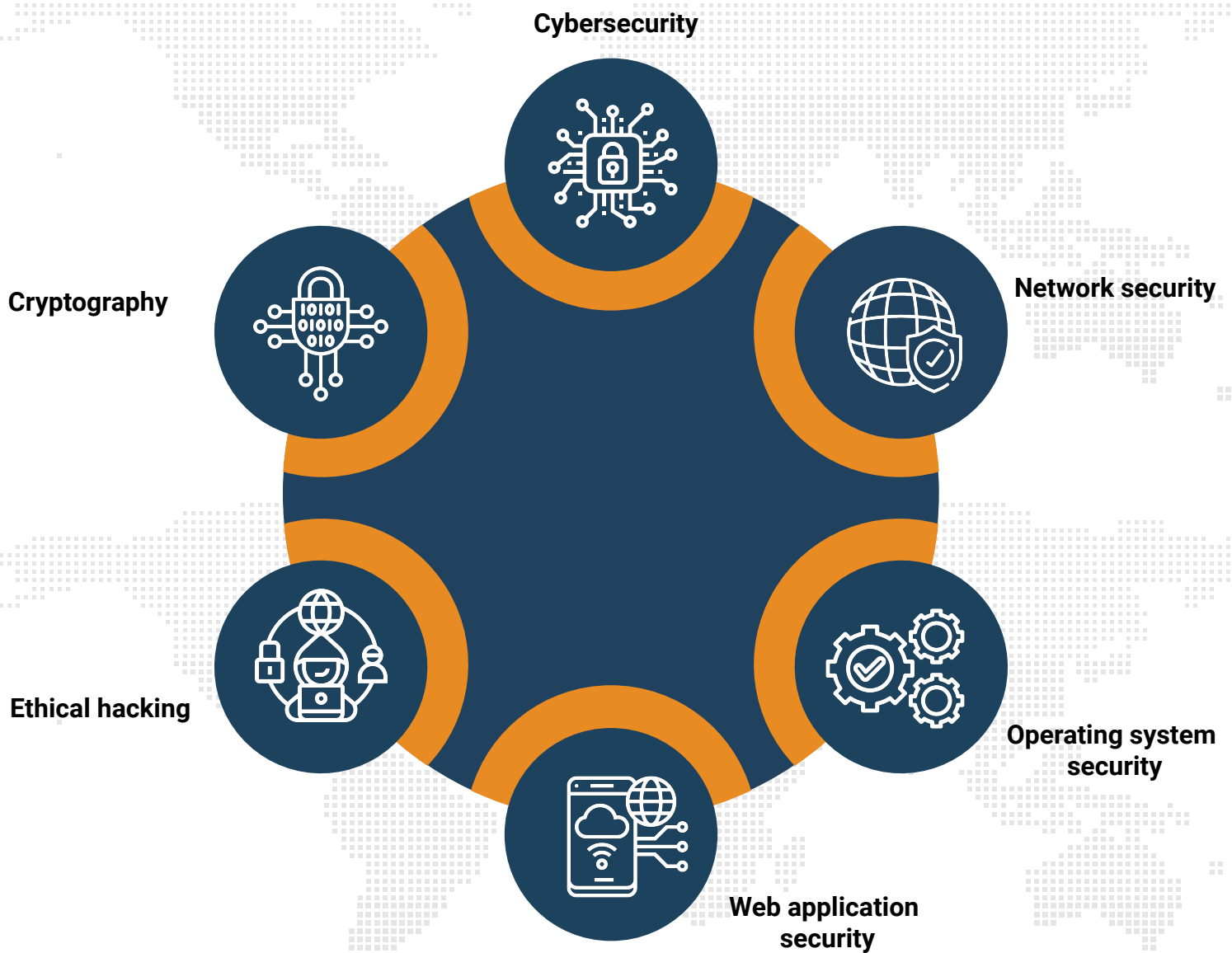
Program Duration – 6-7 months | Model of delivery - Virtual instructor-led training (VILT)

Components	Learning Effort (Hours)
LIVE Lectures	40
Self Learning Materials	19
Quiz	6
Capstone Project	7
Total	72

Note: The list mentioned above is indicative and is subject to change at the discretion of IIT Patna.



## PROFFICIENCY GAINED THROUGH THE PROGRAM







## PROGRAM OBJECTIVES

### UNDERSTAND

Fundamentals of cybersecurity, including common threats, vulnerabilities, and attacks.

### DEVELOP

Proficiency in network security technologies and tools, including firewalls, intrusion detection/prevention systems, and wireless network security.

### LEARN

Best practices for securing operating systems, including access controls, authentication, malware detection/prevention, and software updates.

### KNOW

Processes of securing web applications, including identifying common vulnerabilities and using web application firewalls.

### GAIN

Hands-on experience in ethical hacking, including reconnaissance and footprinting, vulnerability assessment, penetration testing, and reporting.

### STUDY

Principles of cryptography, including cryptographic algorithms and protocols, public key infrastructure (PKI), and key management.

### ABSORB

Information about legal and ethical issues related to cybersecurity, including cybersecurity regulations and standards, cybercrime, privacy, and incident response and disaster recovery.

### APPLY

Knowledge and skills acquired throughout the program to complete a capstone project, developing a cybersecurity solution to a real-world problem

## THE LEARNING CURRICULUM

Sr. No.	Module	Sub Topics	Hours
1	Introduction to Cybersecurity	<ul style="list-style-type: none"> <li>• Overview of cybersecurity</li> <li>• Common threats and attacks</li> <li>• Importance of cybersecurity in modern society</li> <li>• Basic cybersecurity principles and practices</li> </ul>	6
2	Network Security	<ul style="list-style-type: none"> <li>• Introduction to networks and network security</li> <li>• Network security technologies and tools</li> <li>• Firewalls and intrusion detection/prevention systems</li> <li>• Network security protocols and standards</li> <li>• Wireless network security</li> </ul>	16
3	Operating System Security	<ul style="list-style-type: none"> <li>• Common operating system vulnerabilities and attacks</li> <li>• Securing operating systems</li> <li>• Access controls and authentication</li> <li>• Malware detection and prevention</li> <li>• Patch management and software updates</li> </ul>	10
4	Web Application Security	<ul style="list-style-type: none"> <li>• Introduction to web application security</li> <li>• Common web application vulnerabilities and attacks</li> <li>• Securing web applications</li> <li>• Web application firewalls</li> <li>• Secure coding practices</li> </ul>	7
5	Ethical Hacking	<ul style="list-style-type: none"> <li>• Introduction to ethical hacking</li> <li>• Reconnaissance and footprinting</li> <li>• Scanning and enumeration</li> <li>• Vulnerability assessment and penetration testing</li> <li>• Exploitation and post-exploitation techniques</li> <li>• Reporting and remediation</li> </ul>	8
6	Cryptography	<ul style="list-style-type: none"> <li>• Introduction to cryptography</li> <li>• Cryptographic algorithms and protocols</li> <li>• Public key infrastructure (PKI)</li> <li>• Cryptographic key management</li> <li>• Cryptography and blockchain technology</li> </ul>	10
7	Legal and ethical issues in Cybersecurity	<ul style="list-style-type: none"> <li>• Legal and regulatory frameworks for cybersecurity</li> <li>• Cybercrime and computer fraud</li> <li>• Ethics in cybersecurity</li> <li>• Cybersecurity and privacy</li> <li>• Incident response and disaster recovery</li> </ul>	8
8	Capstone	<ul style="list-style-type: none"> <li>• Apply knowledge and skills acquired throughout the program to complete a cybersecurity project</li> <li>• Work in teams or individually to develop a cybersecurity solution to a real-world problem</li> <li>• Present the project to the class and receive feedback from peers and instructors</li> </ul>	7

## Assessment & Assignments

- Module-level Assessments & Assignment: MCQ-based and Problem-based/Code-based Assessment

## Final Evaluation

The final assessment will comprise Multiple Choice Questions.

- Final Assessment Multiple Choice Questions.

Upon clearing a cut-off of 50% in total, the student will be awarded the certification.

## PG CERTIFICATION PROGRAM SAMPLE CERTIFICATE

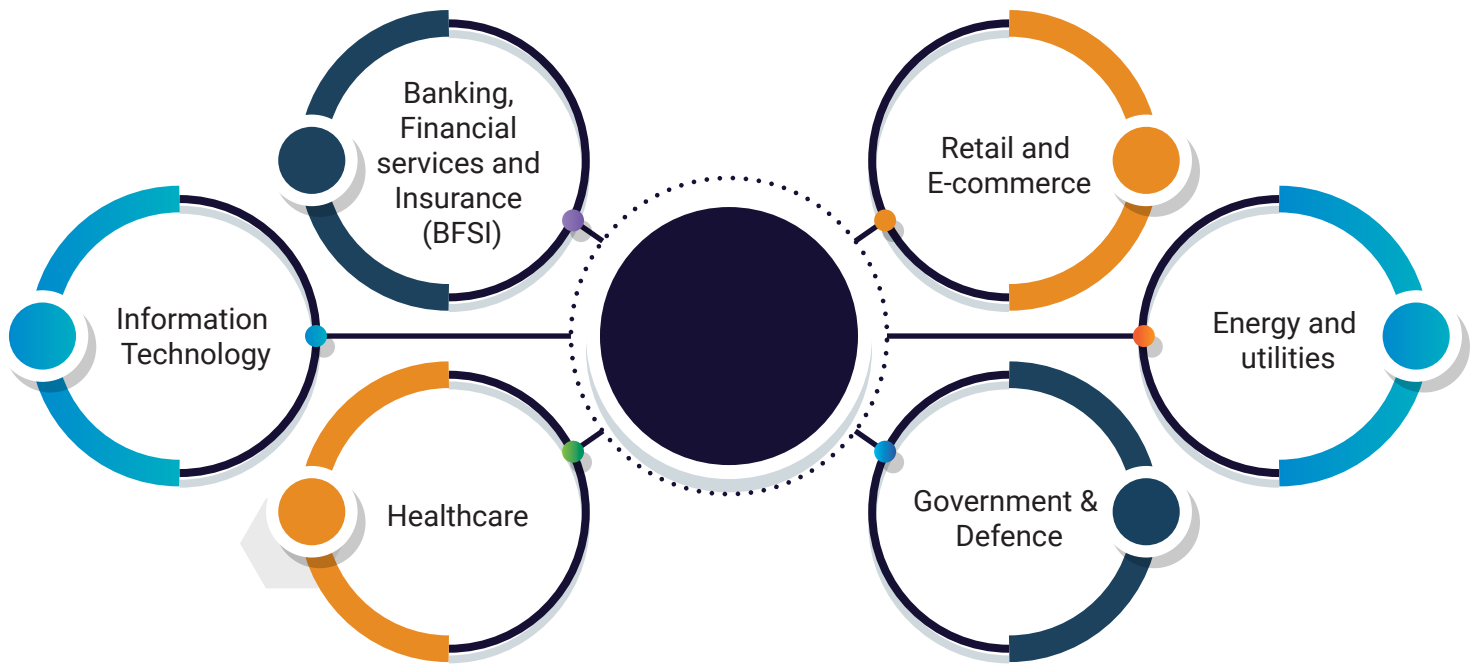


IIT Patna campus immersion and executive alumni status is an optional add-on.

## AN EYE ON THE FUTURE

- According to Cybersecurity Ventures, there will be an estimated 3.5 million unfilled cybersecurity jobs globally from 2021, up from 1 million job openings in 2014.
- The same report estimates that cybercrime damages will reach \$6 trillion annually from 2021, up from \$3 trillion in 2015.
- The global cybersecurity market is projected to grow from \$173.57 billion in 2020 to \$270.36 billion by 2026, at a CAGR of 7.5% during the forecast period, according to MarketsandMarkets.
- In India, the demand for cybersecurity professionals is expected to grow by 12 times in the next 10 years, according to a report by NASSCOM and PwC.

## HIRING SECTORS



## POTENTIAL JOB ROLES

### JOB ROLES

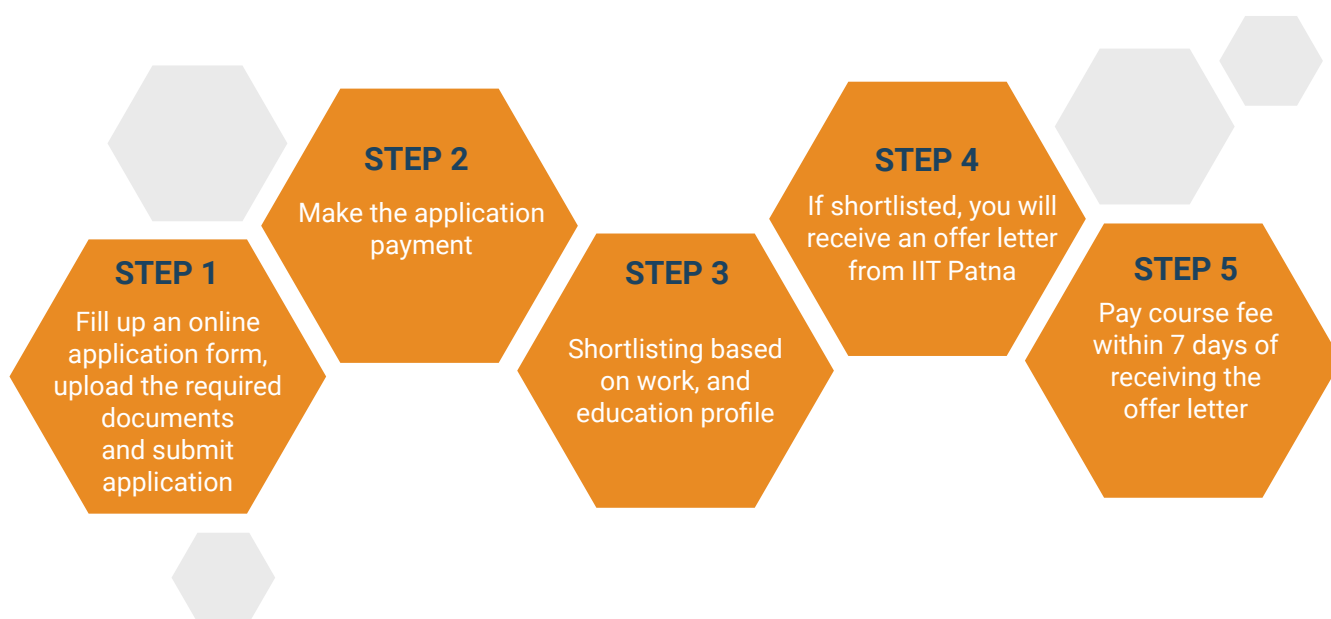
- Information Security Analyst
- Penetration Tester/Ethical Hacker
- Cybersecurity Consultant
- Security Architect
- Security Operations Centre (SOC) Analyst
- Chief Information Security Officer (CISO)
- Malware Analyst
- Incident Responder
- Forensic Analyst
- Security Engineer







## PROGRAM ADMISSION JOURNEY



**Note:** The application fee once paid is not refundable. IIT Patna reserves the right to conduct the admission process. By submitting the application, the students agree that any decision regarding Admissions from IIT Patna will be final and binding.



### Indian Fee

PG Certification in Cybersecurity and Ethical Hacking	1st EMI	2nd EMI
Application Fee (non refundable)	₹ 5,000	-
Fee	₹ 40,000	₹ 30,000
Optional Campus Immersion Fee (5 Days)	₹ 7,000	-
Optional Executive Alumni Status Fee	₹ 6,000	-
Total Fee : ₹ 70,000		

### International Fee

PG Certification in Cybersecurity and Ethical Hacking	1st EMI	2nd EMI
Application Fee (non refundable)	\$ 150	-
Fee	\$ 600	\$ 600
Optional Campus Immersion Fee (5 Days)	\$ 200	-
Optional Executive Alumni Status Fee	\$ 100	-
Total Fee : \$ 1000		



# PAYMENT DETAILS FOR STUDENTS

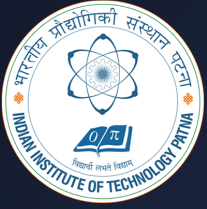
Application fee is non-refundable and exclusive of course fees. GST @18% applicable

All students are requested to strictly adhere to the payment schedule deadlines mentioned in the above table.

IIT Patna does not charge any processing fee or service charge from the students for online payment. However, online payment gateway charges, over and above course fees need to be borne by the students, as applicable.

In case of any refund related queries, kindly refer to our refund policies.






# Indian Institute of Technology Patna

भारतीय प्रौद्योगिकी संस्थान पटना

## Contact us

For application and any other information please  
get in touch with us

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 [iitpatna.admission@digiversity.com](mailto:iitpatna.admission@digiversity.com)