IIT Roorkee

IMARTICUS LEARNING

Advanced Certification Program in

Cyber Security

Build a successful career in cyber security with an IIT Roorkee Program

6 MONTHS

About The
Advanced Certification Program in Cyber Security

The Advanced Certification Program in Cyber Security has been designed in collaboration with CEC, IIT Roorkee and industry leaders to provide the best learning outcome to aspiring cyber security professionals. This 6-month online program will provide a thorough understanding of cyber security technologies and tools. With rigorous lab sessions on real-world problems throughout the course, you will explore the world of ethical hacking, cloud security, application security and network security.

The program is designed in such a way that it helps aspirants prepare for multiple security certification exams like EC-Council Certified Ethical Hacker, CompTIA Security+, and more. This program helps you prepare for cyber security roles like Cyber Security Analyst, Information Security Analyst, Ethical Hacker, Cloud Security Analyst and Application Security Analyst roles.

The cyber security workforce shortage persists into 2022, while the security risks faced by companies today continue to grow. With 56% of organizations reporting a shortage of cyber security staff, organizations must prioritise growing their cyber security workforce to secure the fast-expanding digital world they face today.

Program **Highlights**

Certification By CEC, IIT Roorkee

Master cyber security skills with an industry-focused curriculum designed by CEC, IIT Roorkee and leaders from the industry. Enhance your profile with a global certification endorsed by CEC, IIT Roorkee and build a strong career in cyber security.

Learn From IIT Faculty

Learn from one of the best faculty in India through live online sessions and discussions. The sessions from the IIT faculty will help you build cyber security concepts, and industry experts will provide hands-on learning for security processes, tools, software and techniques.

Campus Immersion At IIT Roorkee

Get an opportunity to participate in a 3-day campus immersion module and visit the IIT Roorkee campus. Interact with your peers and learn from the IIT faculty during the campus immersion. Terms and conditions apply.

Learn Job-Relevant Skills

Industry experts teach you job-relevant skills through rigorous in-class exercises and real-world security projects. Learn the latest tools and technologies to build a strong career in cyber security. Participate in a Capture the Flags competition to test your skills.

Covers Multiple Security Certification Syllabus

The program is designed in such a way that it helps aspirants prepare for multiple security certification exams like EC-Council Certified Ethical Hacker, CompTIA Security+ and many more. These certifications will enhance your profile and help you secure your dream job.

Program **Objectives**

01

Through this program, we aim to develop professionals who can identify vulnerabilities in the security infrastructure of their organization. The learners will be able to prevent their organizations from cyber attacks and help build a secured infrastructure.

02

Enable learners to master ethical hacking, network security, and application security skills through interactive learning with IIT faculty and industry experts. The learners will work on multiple hands-on exercises and industry-focused projects to understand the application of cyber security tools and technologies.

03

The campus immersion at IIT Roorkee will provide an opportunity to interact with peers from different organizations and backgrounds. It is an excellent platform for professional networking. The learners will also attend live sessions with the IIT faculty and teaching assistants.

Program **Curriculum**

Module 1: Networking Fundamentals

- ▶ Networking Topology and Types of Networks
- ▶ TCP/IP Models and OSI Layers
- ▶ Routing and Switching
- ▶ ACL
- ▶ Static Routing
- ▶ Dynamic Routing
- ▶ VLAN

Module 2: Operating System and Security

- ▶ Virtualisation
- ▶ Operating Systems and OS Process and Resource Management
- ▶ Windows Basics
- ▶ Linux Basics

Module 3: Information Security

- ▶ Basic of Internet and Web Applications
- ▶ HTTP Protocol, HTTPS - TLS/SSL
- ▶ Cookies
- ▶ Sessions
- ▶ Tokens
- ▶ Cryptography Basics
- ▶ Public Key Infrastructure (PKI)
- ▶ Email Encryption
- ▶ Disk Encryption
- ▶ Cryptanalysis
- ▶ Tracking and Privacy
- ▶ Laws and Compliance

Module 4: Cloud Security

- ▶ Cloud Computing Concepts
- ▶ Cloud Building Blocks
- ▶ AWS Cloud Tour
- ▶ Cloud Architecture Security
- ▶ AWS Well Architected Framework
- ▶ AWS Well Architected Framework: Security Pillar
- ▶ Cloud Data Security
- ▶ Entry Points on AWS to Maintain Security
- ▶ Cloud Application Security
- ▶ Cloud Computing Security Issues
- ▶ Zero Trust Security Architecture

Program **Curriculum**

Module 5: Ethical Hacking

- ▶ Ethical Hacking Introduction
- ▶ Cyber Kill Chain
- ▶ Information Gathering and Scanning
- ▶ Footprinting through Web Services
- ▶ Footprinting through Social Networking Sites
- ▶ OS Discovery (Banner Grabbing/OS
- ▶ Fingerprinting)
- ▶ Scanning Beyond IDS and Firewall
- ▶ Vulnerability Analysis
- ▶ Weaponisation
- ▶ Delivery

- ▶ Website Footprinting
- ▶ Email Footprinting
- ▶ Whois Footprinting
- ▶ Host Discovery
- ▶ Port and Service Discovery
- ▶ Sniffing and Spoofing
- ▶ Network and System Exploitation
- ▶ Command and Control
- ▶ Privilege Escalation
- ▶ Post Exploitation
- ▶ Steganography

Module 6: Application Security

- ▶ Application Penetration Testing
- ▶ Authentication Testing
- ▶ Authorisation Testing
- ▶ Client-side Attacks

- ▶ Server-side Attacks
- ▶ Network Penetration Testing
- ▶ Mobile Application Penetration Testing

Module 7: Social Engineering

- ▶ Social Engineering Concepts
- ▶ Social Engineering Techniques
- ▶ Phishing Attacks

- ▶ Insider Threats
- ▶ Impersonation on Social Networking Sites
- ▶ Identity Theft

Program **Curriculum**

Module 8: Web Application Security

- Broken Access Control
- Cryptographic Failures
- SQL, OS, XSS and CMD Injections
- Insecure Application Design
- Security Misconfiguration
- File Path Traversal
- Testing for Vulnerable and Outdated
- Components
- XML External Entity Injection
- Identification and Authentication Failures
- Server-Side Request Forgery (SSRF)

Module 9: Hacking Wireless Network

- Wireless Concepts
- Wireless Encryption
- Wireless Threats
- Wireless Hacking Methodology
- Wireless Hacking Tools
- Bluetooth Hacking
- Wireless Security Tools

Module 10: Data Forensics & Incident Response

- Data Forensics
- Incident Handling Process
- Computer Forensics Investigation Process
- Hard Disks and File Systems
- Operating System Forensics
- Anti-Forensics Techniques
- Eradication and Recovery
- Exam Refresher
- EXAM 2

Capstone Project & Career Services (by Imarticus)

- Capstone Project
- Resume-building
- Mock Interviews
- Career Mentoring

Tools

KALI LINUX

WIRESHARK

metasploit®

Nikto

Cynet

BURPSUITE
ENTERPRISE EDITION

webroot® Spy Sweeper™

OWASP
Zed Attack Proxy

SNORT®

Projects

Some of the indicative hands-on projects are as follows:

1 Network mapping for office infrastructure

2 Cryptanalysis and breaking passwords and hash

3 Securing web application on Cloud

4 Hacking wireless networks

5 Hacking into a web application and fixing vulnerability

Program **Pedagogy**

This 6-month program is uniquely designed by IIT faculty and industry leaders to help you learn exactly what the cyber security job market demands. The objective is to help you build a strong foundation in cyber security and prepares you for the job roles you aspire to. You will learn the concepts and tools during live online sessions with the IIT faculty. The industry expert will provide hands-on learning through exercises, live demonstrations and projects. You will learn the complete application of cyber security tools and technologies. You will be assessed during the program, and there will also be a graded capstone project at the end of the course.

ADVANCED CERTIFICATION PROGRAM IN CYBER SECURITY

- 6 months of online learning
- IIT faculty and Assistant Teacher support
- Faculty and student discussions
- 10 hours of focused effort per week
- Rigorous Project Work
- Doubt Resolution on LMS
- Home Assignments

Program **Faculty**

Dr Sateesh Kumar Peddoju
Associate Professor
IIT Roorkee

Dr Sateesh Kumar works as an Associate Professor in the Computer Science and Engineering Department at IIT Roorkee. He is an expert in cyber security with work areaiis in cloud computing, network security, behavioural analysis, anomaly detection, DDoS detection, etc. He has co-authored "Cloud Computing Systems and Applications in Healthcare," in IGI Publisher, 2017 and "Security and Storage Issues in the Cloud Environment," Springer Nature, 2018.

Shubham Gautam
Cyber Security Consultant

Mr Shubham Gautam has extensive experience in the field of cyber security. His areas of specialisation include ethical hacking, penetration testing, cyber security management, network security, and web application security. He has trained more than 10,000 cyber security professionals and is a mentor for many cyber security startups. He has been a visiting faculty alongside various faculty from CBI and India's top cyber lawyers. He is also a part of the faculty development program by Skill India, Govt. of India and a steering committee member for the National Information Security Council (NISC).

Certificate

Upon successfully completing this program, you'll earn an Advanced Certification Program in Cyber Security co-branded by CEC, IIT Roorkee. This advanced certification in cyber security will add considerable value to your professional credentials.

Fee Structure

Programme Fee
₹ 140,000 + GST
Registration Fee: ₹ 25,000 + GST

EMI Scheme:

6 months (zero cost EMI) = ₹ 22,617

9 months = ₹ 15,530

12 months = ₹ 11,987

Instalment 1 (Day 0)	Instalment 2 (Day 30)	Instalment 3 (Day 60)
₹ 38,333 + GST	₹ 38,333 + GST	₹ 38,333 + GST

ABOUT Our
Knowledge Partner And Curriculum Creators

CEC, IIT Roorkee

Continuing Education Center IIT Roorkee was established in 1955 to promote knowledge up-gradation by organizing refresher/specialist courses for executives, working professionals and aspiring individuals. In addition to the knowledge up-gradation of experienced professionals, CEC IIT Roorkee courses also offer a launchpad to young technology professionals and students in the domains that are most sought after by the industry. Apart from the technical expertise available in the Departments and Centres of the Institute, experts from industries and R&D organizations are also invited to deliver talks/lectures. Continuing Education Centre (CEC) conducts sponsored and open participation programs in various disciplines of engineering, science, technology and management for learners both nationally and globally. Through these courses, CEC also provides the opportunity to visit and study at IIT Roorkee for a short duration.

IIT Roorkee

IIT Roorkee, Indian Institute of Technology - Roorkee is amongst the foremost institutes of national importance in higher technological education engineering, basic and applied research. Since its establishment, the institute has played a vital role in providing the technical manpower and know-how to the country, in pursuit of research. The institute ranks amongst the best technological institutions in the world and has contributed to all sectors of technological development. It is considered a trend-setter in the fields of education, scientific research, technology, and engineering. With more than 170 years of existence, the institute celebrated its sesquicentennial in October, 1996. It was converted to an IIT on September 21, 2001 by an Ordinance issued by the Government of India declaring it as the nation's seventh Indian Institute of Technology and an institution of national importance.

IIT Roorkee

About
Imarticus Learning

Imarticus Learning is a technology-driven educational institute that has immense expertise in transforming careers across industries such as financial services, marketing, analytics, AI, business analysis and core technology.

Imarticus is the only institute in the country that uses dynamic technologies and training methods to impart knowledge and a state-of-the-art Learning Management System to seamlessly integrate online and live learning.

We've delivered over **45,000 successful career transitions** and helped **500+ renowned organizations** across the finance and analytics industries to meet their human capital requirement and develop highly-skilled individuals that strengthen their workforce.

500+   **100K**

54%   **85%**
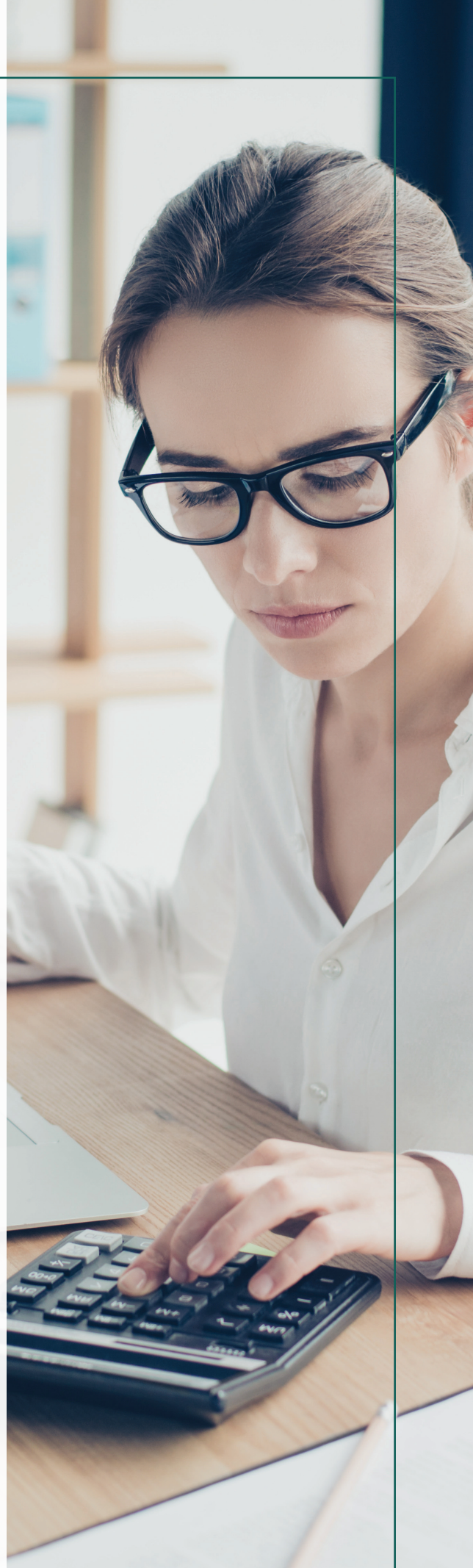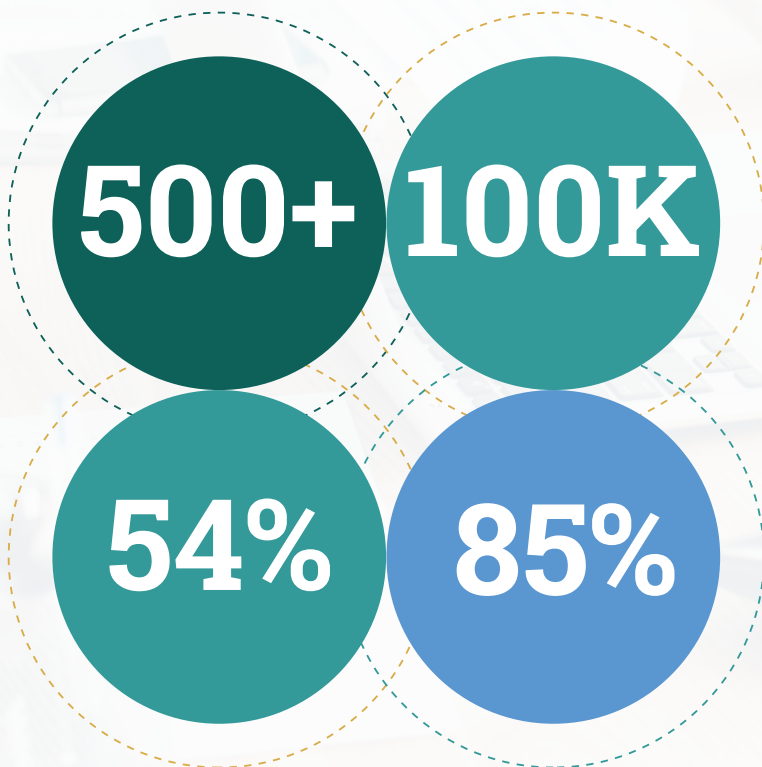
Application **Process**

Submit Application	Interview	Scholarship & Offer Letter	Admission
Tell us about your experience, academic qualifications and a bit more in a detailed form. Don't worry, we've kept it simple.	A telephonic interview with an industry expert or an admission test that will gauge your passion and eligibility for the program.	Apply for the scholarship (not mandatory). If selected, you will receive an offer letter to join the program if you are selected for the program.	Complete the admission and other formalities within 7 days of registration.

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L E A R N I N G

Connect With Us At:
+91-9513166751

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