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E&ICT

IIT Guwahati

jaro education

Advanced Professional Certification Programme in

Cybersecurity and Ethical Hacking

Live Online

**Programme fully taught by
top IIT faculty and industry experts**

Growth Opportunities in Dynamic Cybersecurity & Ethical Hacking Industry

Red Team

▸ Vulnerability assessor: $80,096
▸ Security auditor: $83,015
▸ Ethical hacker: $98, 177
▸ Penetration tester: $102,274

Blue Team

▸ Cybersecurity analyst: $80,003
▸ Incident responder: $88,818
▸ Threat intelligence analyst: $90,257
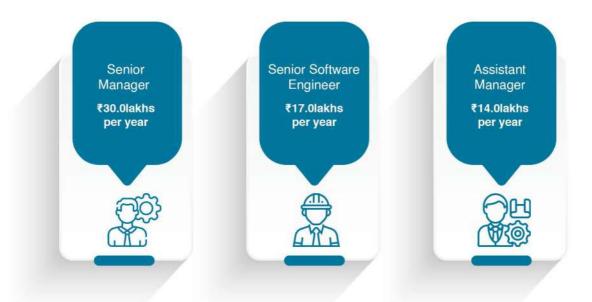▸ Information security specialist: $96,942
▸ Security engineer: $111,630
▸ Security architect: $153,160

Glassdoor*

Highest paying jobs in Ethical Hacking

Senior Manager

₹30.0lakhs per year

Senior Software Engineer

₹17.0lakhs per year

Assistant Manager

₹14.0lakhs per year

*6figr

Highest paying jobs in Cybersecurity

Head in Cybersecurity

₹42.0lakhs per year

Principal Security Analyst

₹42.0lakhs per year

Chief Information Officer

₹40.0lakhs per year

General Manager

₹38.0lakhs per year

Associate Director

₹37.0lakhs per year

*6figr

Programme Overview

Cyber heists and crimes are lurking just below the surface — in political and economy segment post-pandemic the cyber landscape, cyber risks are pervasive. Lack of innovation has become a watershed for the economy at scale. Be adaptive drivers of future cybersecurity risks and hacking. Drive excellence by striking a balance of power in cyber and an integration of cyber security into technology. Upskill and transform into well-suited and skilled Cyber Security Experts by learning to prevent organisations' cybersecurity mesh by developing security architecture with India's top IIT. Unlock fundamental concepts in cybersecurity, ethical hacking, and their applications to reimagine organisational goals. Explore IIT's cutting-edge curriculum, which includes a mix of theory, capstone project, case-based learning, and much more. You will also have the opportunity to work on a capstone project and demystify blue and red team work profiles. Join IIT Guwahati's revolutionary Advanced Professional Certification Programme in Cybersecurity and Ethical hacking to help you establish a benchmark in your cybersecurity career.

> With 9.51% CAGR, Global Cyber Security Market Size to Reach
> **USD 478.68 Billion by 2030**

*Global NewsWire

"We are glad to be collaborating with Jaro Education. With the rich pool of experts provided by E&ICT Academy IIT Guwahati and Jaro Education we are confident to aid the students / working Professionals industry to upgrade their skill sets in this ever-changing technological world."

- Dr. Gaurav Trivedi
Associate Professor
IIT Guwahati

Learn Live from Top IIT Faculty and Industry Experts

Dr. Ferdous Ahmed Barbhuiya

> Associate Professor, Dept of CSE
> Associate Dean (Administration),
  Indian Institute of Information Technology
  Guwahati

With over 20 years of combined experience in industry, research, and academia, he is now translating his experience into broader avenues of academics and research. Dr. Barbhuiya received his PhD and MTech degrees from Indian Institute of Technology (IIT) Guwahati and BE degree from Jorhat Engineering College under Dibrugarh University, in Computer Science and Engineering. He has published more than 80 research papers in International Journals and Conferences of excellence.

Anand Handa

> Project Executive Officer - C3iHub, IITK

Anand Handa is a senior research engineer and a post-doctoral fellow at C3i center, IIT Kanpur. C3i Center is an interdisciplinary center for cybersecurity and cyber defense of critical infrastructure and one of its kind in India. His role at C3i involves working on projects involving malware analysis and Intrusion Detection Systems (IDS) as significant components. He has published his work at various international conferences and journals of repute and edited books on cybersecurity. He is an active member of different cybersecurity working groups at the Bureau of Indian Standards (BIS) and IET, India.

*The above list of faculties is indicative and partial and is subject to change or update as per E&ICT, IIT Guwahati's discretion.

Learning Outcomes

Design, develop, execute and evaluate secure software for society development.

Design and implement risk analysis, security policies, and damage assessment.

An ability to apply security principles and practices to the environment, hardware, software, and human aspects of a system.

Become skilled to work as a Cyber Security Expert, Cyber Security Engineer, or Cyber security. Analyst, Application Security Engineer and even a Network Security Engineer.

To protect data and respond to threats that occur over the Internet. To Detects & fix security issues in networks and computer systems to secure an IT infrastructure.

Propose solutions, including development, modification and execution of incident response plans.

Programme Highlights

Highly recognised Certificate of Completion from E&ICT, IIT Guwahati

Live classes by highly experienced faculty members from IITs and industry experts

Flexibility in learning: online classes on weekends or after business hours

3 days of intensive Campus Immersion modules

Peer-to-peer learning and industry expert Mentorship

Pedagogy includes – Case Methodology, Hands-on training, Assignment, Capstone Project

Practical learning approach
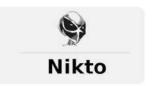
Tools that professionals will gain exposure to

WIRESHARK

Kali Linux

splunk>

SQL

Tor

Malwarebytes

aws

Aircrack-ng

MALTEGO

BURPSUITE

Metasploit

Nikto

Note: The above list is indicative

Programme Content

1: Introduction to Python, Linux & IDEs

❖ Python Environment Setup and Essentials

❖ Python Language Basic Constructs

❖ Introduction to Linux and File Management

2: Cyber Security Foundation

❖ What is Cyber Security

❖ Overview

❖ Need and Importance

❖ Different Verticals

3: Understanding & Working with Kali Linux 2021.1

❖ Introduction to Kali Linux

❖ Services in Kali (HTTP, SSH)

❖ Wget, curl, grep, awk, tail, head, watch, find, locate

❖ Piping and Redirection

❖ Python and Bash Scripting

❖ Netcat, Socat, Powercat, Powershell, Wireshark, tcpdump

❖ Note taking

4: Securing Network

❖ Security Controls

❖ Networking Concepts

❖ Traffic Analysis

❖ Packet Analyzers

❖ Sniffers

❖ Firewalls

❖ SIEM

❖ VLAN

❖ VPN

- ❖ Incident Detection with Security Information and Event Management (SIEM)
- ❖ Understand the Basic Concepts of Security
- ❖ Information and Event Management (SIEM)
- ❖ Discuss the Different SIEM Solutions
- ❖ Understand the SIEM Deployment
- ❖ Learn Different Use Case Examples for Application
- ❖ Level Incident Detection
- ❖ Learn Different Use Case Examples for Insider Incident Detection
- ❖ Learn Different Use Case Examples for Network Level Incident
- ❖ Detection
- ❖ Learn Different Use Case Examples for Host Level Incident Detection
- ❖ Learn Different Use Case Examples for Compliance
- ❖ Understand the Concept of Handling Alert Triaging and Analysis

5: Fundamentals & Implementation of Security Operations and Management

- ❖ Understand the SOC Fundamentals
- ❖ Discuss the Components of SOC: People, Processes and Technology
- ❖ Understand the Implementation of SOC

6: Authentication, Identity and Access Management

- ❖ Logical/Physical Access to Assets Management
- ❖ Authentication and Identification Management
- ❖ Integrating Identity as a Third-Party Service
- ❖ Mechanism of Authorization
- ❖ Provisioning Life Cycle's Identity and Access

7: Web Application Security

- ❖ OWASP Tools and Methodologies
- ❖ Insecure Deserialization
- ❖ Clickjacking
- ❖ Black Box Testing
- ❖ White Box Testing
- ❖ Fuzzing
- ❖ Cryptograph
- ❖ Symmetric/Asymmetric Cryptography
- ❖ Hashing
- ❖ Digital Signatures
- ❖ API Security
- ❖ Patch Management

8: Ransomware & Malware Analysis

- ❖ Types
- ❖ Ransomware
- ❖ Detection
- ❖ Analysis

9: Introduction to Ethical Hacking

- ❖ Introduction
- ❖ Footprinting and Reconnaissance
- ❖ Scanning Networks
- ❖ Enumeration
- ❖ Vulnerability Analysis
- ❖ System Hacking
- ❖ Sniffing
- ❖ Social Engineering

- ❖ Denial-of-Service
- ❖ Session Hijacking
- ❖ Evading IDS
- ❖ Firewalls and Honeypots
- ❖ Hacking Web Servers
- ❖ SQL Injection
- ❖ Hacking – Wireless Networks
- ❖ Mobile Platforms
- ❖ IoT

10: Cloud & Network Security

- ❖ Infrastructure Security: Network level security, Host level security
- ❖ Application-level security
- ❖ Data security and Storage: Data privacy and security Issues, Jurisdictional issues raised by Data location
- ❖ Access Control
- ❖ Trust, Reputation, Risk
- ❖ Authentication in cloud computing, Client access in cloud, Cloud contracting Model, Commercial and business considerations

11: Software Development Security

- ❖ Security Controls for The Development Environment
- ❖ Life Cycle Security
- ❖ Impact of Acquired Software Security
- ❖ Effectiveness of Software Security

Capstone Project

In this module, you will learn how to prevent a web application from being hacked as well as what key points to be considered for making a web application secure. This capstone project will give you exposure to both the blue team and red team work profile and help you gain exposure on both sides.
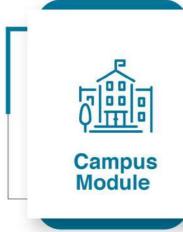
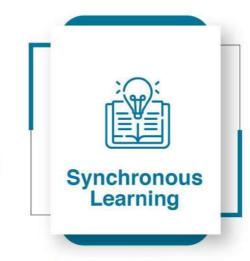*The above given is an indicative list of modules and is subject to change as per E&ICT, IIT Guwahati's discretion.

Pedagogy

Online Live Sessions

Real-time Case Study

Capstone Project

Campus Module

Synchronous Learning

Admission Criteria

Eligibility & Selection

• Graduates (10+2+3 or equivalent) in any discipline recognised by UGC/AICTE with minimum 50% aggregate marks at either UG/PG level.

• Minimum 2 years of work experience is desirable.

Evaluation Methodology

• Student's performance will be evaluated on a continuous basis through quizzes, assignments, tests, online examinations, etc. Further, participants must achieve the minimum marks/grades set by IIT Guwahati.

Programme Certification

Certificate ID: **OACP/2021-22/002/** *Insert ID here*

IIT Guwahati

Electronics & ICT Academy

Supported by Ministry of Electronics and Information Technology (MeitY), Govt. of India

Indian Institute of Technology, Guwahati

CERTIFICATE OF COMPLETION

This is to certify that Mr./Ms.

Name of Participant

has successfully completed the online

"*Advanced Professional Certification Programme in Cyber Security & Ethical Hacking*"

organized by Electronics & ICT Academy Indian Institute of Technology, Guwahati
held from *Start Date* to *End Date*

Dr. Gaurav Trivedi
Principal Investigator
Electronics & ICT Academy
Indian Institute of Technology, Guwahati

This is an online certification programme conducted jointly by E&ICT Academy, IIT Guwahati and Jaro Education

Programme Details

• **Duration:** 10- 12 Months*

*The programme duration is tentative and is subjected to change as per E&ICT, IIT Guwahati's discretion.

• **Lecture Timeline:** Sunday, 2.00 PM to 5.00 PM

Programme Structure

Fee Structure	Amount (in INR)
Application Fee	2,000/- + GST
Total Programme Fee	1,80,000/- + GST

Instalment Pattern	Amount (in INR)
Initial Payment	80,000 + GST
1st Instalment	50,000 + GST
2nd Instalment	50,000 + GST

Easy EMI options available

IIT Guwahati at a Glance

7th Rank
NIRF 2022

41st Rank
globally in the
'Research Citations per Faculty'

395th Rank
Overall in the
QS World University
Rankings 2022

Indian Institute of Technology Guwahati is the sixth member of the IIT fraternity. The academic programme of IIT Guwahati commenced in 1995. The Institute has eleven departments, five interdisciplinary academic centres and four schools covering all the major engineering, science and humanities disciplines, offering BTech, BDes, MA, MDes, MTech, MSc and PhD programmes. This IIT fraternity is ranked among the top 100 world universities—under 50 years of age—by the London-based Times Higher Education in 2014. It continues to maintain its superior position even today in various international rankings.

About E&ICT Academy

IIT Guwahati's E&ICT Academy (An initiative of the Ministry of Electronics & Information Technology, Government of India) aims to provide specialised training to the faculties of Engineering, Arts, Commerce & Science colleges, Polytechnics, etc. by developing state-of-the-art facilities. Academy has planned short term training programmes on fundamental and advanced topics in IT, Electronics & Communication, Product Design, Manufacturing with hands-on training and project work using latest software tools and systems.

Furthermore, the Academy will provide specialised/customised training programmes as well as research promotion workshops for the corporate sector and educational institutions. The Electronics and ICT Academy is intended to serve as a central hub for training, consulting, and entrepreneurship programmes.