

About the Course

The short-term course "STC ABHEDYA 2026: Applied Basics of Hardware Engineering, Design & Yield Assurance" offers an intensive five-day deep dive into the fundamentals, and practical applications of modern semiconductor hardware engineering. As microelectronics scale down to advanced nanometer technology nodes, globalized supply chains and complex integrated circuit (IC) architectures have heightened vulnerabilities to hardware trojans, side-channel attacks, IP theft, and physical tampering. In this evolving landscape, traditional design paradigms are no longer sufficient; mastering hardware security primitives, resilient physical design and silicon yield assurance has become a critical necessity for delivering secure and trustworthy hardware solutions.

Course Content

This course is intended to cover the following topics:

- Introduction to Hardware Security, Threat Modeling, and Supply Chain Vulnerabilities.
- Hardware Trojan Detection, Insertion Mechanics, and Countermeasure Design.
- Side-Channel Analysis (SCA): Power, Timing, and Electromagnetic Attack Mitigation.
- Fault Injection Attacks (Clock/Voltage Glitching, Laser) and Fault-Resilient Circuits.
- Hardware Root of Trust (RoT), Secure Boot, and Cryptographic Accelerators.
- IP Protection & Anti-Piracy: Logic Obfuscation, IC Camouflaging, and Split Manufacturing.
- Physical Tamper Resistance, Active/Passive Shielding, and Reverse Engineering Mitigation.
- Hardware Vulnerability Assessment: Security Property Checking and Formal Verification.

About NIT-Rourkela



The National Institute of Technology, Rourkela (NITR), formerly the Regional Engineering College, is a premier public institution dedicated to higher learning in engineering, science, and technology. Located in the industrial "Steel City" of Rourkela, Odisha, it is one of India's 31 National Institutes of Technology and is officially recognized as an Institute of National Importance. Affirming its status as a top-tier university, NIT Rourkela secured the 13th rank among Indian engineering institutions in the NIRF Rankings 2025, cementing its reputation for academic and research excellence in the nation.

Patron

Prof. K.Umamaheshwar Rao
Director of NIT Rourkela

Chairman

Prof. Pankaj Kumar Sa
HoD, Dept. of CSE, NIT Rourkela

Course Coordinator

Prof. Shyamapada Mukherjee
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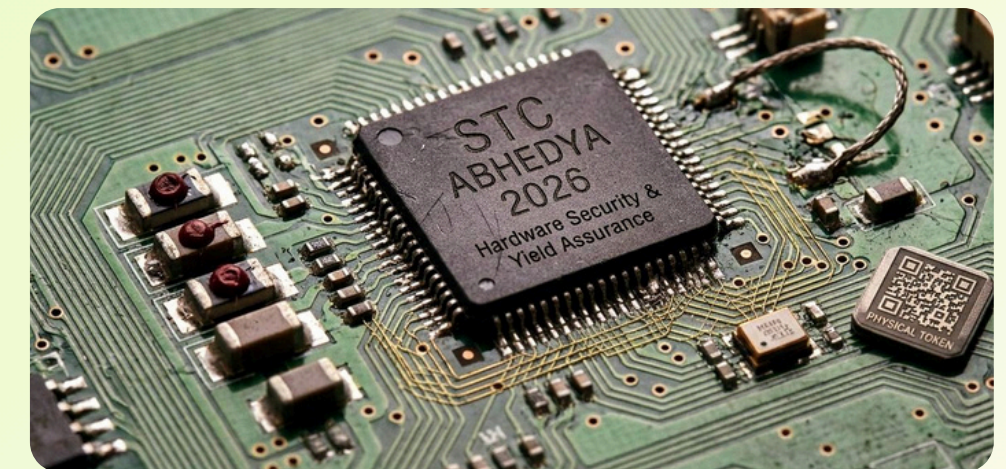
इलेक्ट्रॉनिक्स एवं सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY

One-Week Short-Term Course
(Online)

On

ABHEDYA 2026

Applied Basics of Hardware Engineering, Design & Yield Assurance



Nov 23rd 2026 to Nov 27th 2026

Organized by:

Department of Computer Science and Engineering
National Institute of Technology Rourkela

www.nitrkl.ac.in

About Department of Computer Science & Engineering



The Department of Computer Science & Engineering, NIT Rourkela was established in 1982. Since its inception, the Department is under dynamic progress and is able to establish the reputation for imparting quality education both at undergraduate and graduate programs. The department also offers Ph.D. for regular as well as sponsored candidates. The department has well-equipped modern laboratories such as Software Engineering, Distributed Object Systems, Information Security & Data Communication, Image Processing & Cluster Computing and Advanced Database Engineering Labs for pursuing research keeping in view of the technological advancement.

Targeted Participant

The course is highly relevant for UG, PG, and Ph.D. students interested in Hardware Security. Participants from Computer Science, Electronics, Electrical Engineering, and related fields will benefit greatly. It is also valuable for academicians and industry professionals seeking to deepen their understanding of emerging trends and challenges in hardware security.

Note : 60 seats available on First Come First Serve Basis

Important Dates

Last date of Registration	5th November 2026
Course Schedule	23rd - 27th November 2026

About Location

National Institute of Technology Rourkela (NIT Rourkela) is located in the Sundargarh district of northwestern Odisha. The institute is conveniently positioned just 7 kilometers from the Rourkela Railway Station (ROU), with direct express train connectivity to key metropolitan hubs including Kolkata, Chennai, Mumbai, and Bhubaneswar. In addition to robust rail links, the campus is well-connected by road via National Highway 143 and enjoys convenient air accessibility through the nearby local Rourkela Airport as well as regional commercial airports in Jharsuguda and Ranchi.

Registration details

- The students of NIT Rourkela are exempted from the payment of the registration fee. (Max Seat 10)
- **Registration fee:**
 - 1.Non-NIT Rourkela Students / Staff : INR 500 + 90 GST
 - 2.Academician : INR 500 + 90 GST
 - 3.Industry Personal : INR 5000 + 900 GST

To complete online registration, the participants need to fill out the following google form & ISEA Portal:

<https://forms.gle/dEjFaQGRdn4nX1xA8>

https://faas.isea.app/formview/STC_ABHEDYA_2026



Payment Details

Account Name	CONTINUING EDUCATION NIT ROURKELA
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Student Coordinator

Mrs. Ananya Jyoti Mahanta
Ms. Sonali Beura
Ms. Arpita Gupta