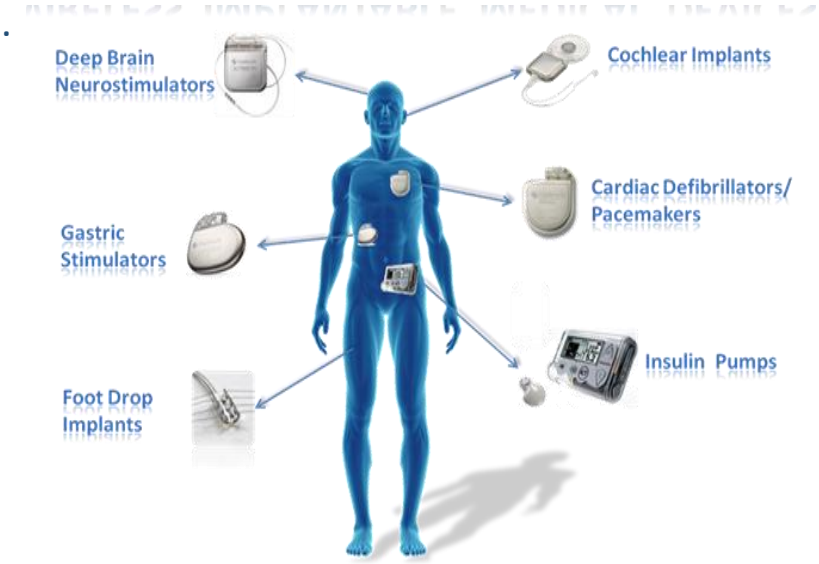
Course Relevance

This course is highly relevant in the context of the rapidly expanding Internet of Things (IoT) ecosystem, where resource-constrained devices are increasingly exposed to security threats. By focusing on lightweight cryptographic techniques, the course bridges the gap between theoretical cryptography and practical IoT security requirements. It equips participants with foundational awareness of secure design principles, efficient cryptographic primitives, and real-world attack considerations, enabling them to understand how security can be effectively implemented without compromising performance, power, or cost. The course is particularly valuable for students, researchers, and practitioners working in embedded systems, cybersecurity, and IoT application development.

Course Objectives

- **Create cybersecurity awareness tailored to IoT applications**
- **Introduce lightweight cryptography concepts**
- **Explain the role of S-Boxes in cryptographic security**
- **Encourage responsible and secure technology development**

Email contact: isllabnitr@gmail.com



ANRF sponsored STC on Enhancing Cybersecurity Awareness through Lightweight Cryptographic Techniques for IoT Applications (Online mode)

30th Jan-3rd Feb. 2026

Co-ordinator:

Dr. MANISH OKADE
Associate Professor, ECE Dept.

ABOUT NIT ROURKELA

National Institute of Technology (NIT), Rourkela was founded as Regional Engineering College, Rourkela in 1961. It is a prestigious Institute with a reputation for excellence at both undergraduate and postgraduate levels, fostering the spirit of national integration among the students, a close interaction with industry and a strong emphasis on research, both basic and applied. Its been consistently ranked within TOP 20 engineering institutes for 10 consecutive years as per MoE's NIRF, Govt. of India.

The city of Rourkela is a bustling industrial town, cosmopolitan by nature and is well connected to all parts of the country by road and rail. It is en-route Howrah-Mumbai main line of South-Eastern Railway. Nesting amidst greenery on all sides, NIT campus is approximately 7km from Rourkela railway station. The nearest airports are Jharsguda, Ranchi, Kolkata and Bhubaneswar.

Registration Details

- **There is no registration fee.**
- **This course is being conducted under the Scientific Social Responsibility (SSR) initiative under ANRF, Govt of India.**

ABOUT Electronics & Communication Engg. Department

The Department of Electronics and Communication Engineering at the National Institute of Technology Rourkela is a leading academic unit engaged in high-quality education and research across core and emerging areas of electronics and communication. The department emphasizes strong theoretical foundations, advanced research, and technological innovation to address contemporary engineering challenges.

Module Details

(1) Introduction to Cybersecurity and IoT Threat Landscape
(2) Fundamentals of Cryptography for Resource-Constrained Devices
(3) Lightweight Cryptographic Primitives
(4) Substitution–Permutation Networks (SPN) and S-Box Design
(5) Case Studies and Practical Insights

Interested participants can register via the link.

https://forms.gle/V3aqGhdeJFJkfeCEA

Online Expert sessions will be conducted in the evening hours.

Participants who attend all sessions will be issued e-certificates.

Website: www.nitrkl.ac.in **Registration link** https://forms.gle/V3aqGhdeJFJkfeCEA