TELECOM nancy

Ingénieurs du numérique • Inspiring your digital future

INTERNET SYSTEMS AND SECURITY

INTERNET, SYSTÈMES CONNECTÉS ET SÉCURITÉ

UNIVERSITÉ DE LORRAINE

Lorraine INP

École affiliée IMT

TELECOM Nancy

INTERNET SYSTEMS AND SECURITY

TELECOM Nancy is the School of Engineering in Computer Science of the Lorraine INP Collegium at the University of Lorraine. Member of the Mines-Télécom Institute association, TELECOM Nancy is a public engineering school working at the very heart of IT and digital sciences.

Over a 3-year period, its goal is to train «**digital engineers**» and scientists: women and men involved in the future, developing both profession-specific expertise directed towards progress and opportunities, as well as an awareness to and knowledge of the business world.

Recruitment takes places as from BAC + 2, equivalent to 2 years of post A-Level study (main recruitment - enrolment into the 1st year) and BAC + 4, equivalent to a post-graduate degree (enrolment into the 2nd year).

A 3-YEAR ACADEMIC PROGRAM

- **3 semesters of general curriculum** including fundamental sciences, technology, economic, social and human sciences as well as foreign languages.
- **3 semesters in a specialized Major.**

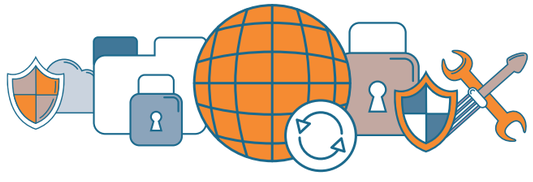
Each year is validated by an **internship** within a company.

Training conducted by world-class scientists and professors from major research laboratories (LORIA, INRIA, CRAN, IECL, CNRS, **High Security Laboratory**) and by many professionals working in Computer Science and its Application Domains.

The curriculum includes a general course on **cyber-security and best practices** followed by all the students of TELECOM Nancy.

5 MAJORS STARTING IN THE 2ND YEAR

- Big Data Engineering and Applications
- Enterprise Information Systems
- **INTERNET SYSTEMS AND SECURITY**
- Software for Embedded Systems
- Software Engineering



OUTLINE
INTERNET SYSTEMS AND SECURITY

Backbone of communications amongst objects, humans, companies, and administrations, the **Internet** is a great integration platform capable of efficiently interconnecting billions of entities, from RFID chips to data centers but also increases the exposure to security threats.

This **specialized major on cyber-security** aims at designing, maintaining and protecting elaborated services built over this integration platform.

Mastering the Internet and its services, composed of heterogeneous and constantly evolving connected systems, with strong performance and **security requirements**, is an essential skill for companies and organizations.

It constitutes a major leverage for their competitiveness and growth, through the design and maintenance of value-added services that are **protected** and **resilient** against a wide range of security attacks.

PROGRAM OBJECTIVES
INTERNET SYSTEMS AND SECURITY

To strenghten theoretical knowledge:
- Information theory and coding
- Cryptography and data protection
- Modeling and verification of protocols
- Scalability and performance of systems
- Security methodologies and regulations

To acquire advanced technological skills:
- Internet, network protocols and services
- Analysis of attacks, ethical hacking, and pentesting
- Protection and defences of networks and applications
- Mainframe, cloud computing, and internet-of-things
- Malwares, viruses and reverse engineering
- Monitoring, measurement, networks and service management
- Forensics and responses to incidents

To develop close ties with companies:
- Digital forensic training with Tracip
- Security management training with Excellium
- Practical use cases with the cyber-security platform and international leading experts from industry and services

CAREERS

- **Security Architect / Integrator / Designer**
- **Analyst / Consultant in Cyber-Security**
- **Chief Information Security Officer**
- **Research Engineer in Cyber-Security**
- **Security Auditor, Expert in Pentesting**
- **Expert in Digital Forensics**

EXAMPLES

- **As Cédric, become a security analyst in the Defence and Space division of a major European aerospace group.**
- **As Rita, join the cyber-security teams of the major world specialist of smart card manufacturing.**
- **As Maxime, be an expert in penetration testing for international banking and financial institutions.**

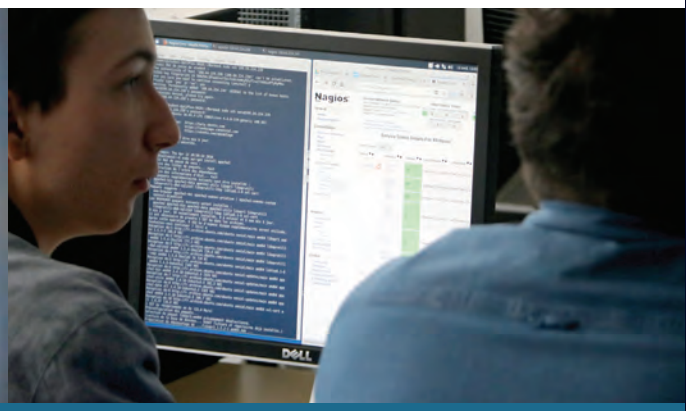
SPECIFIC INTERNET SYSTEMS AND SECURITY MAJOR COURSES IN 2ND AND 3RD YEAR AT TELECOM NANCY

2ND YEAR

- Information Theory and Coding
- Cryptography and Authentication
- Performance Evaluation
- Advanced Networks and Systems
- Physical Layer, Access Control and VLANs
- Bootcamp on Network Service Administration
- Cyber-Security Methods, Regulations and Organization
- Digital Forensics and Responses to Incidents

3RD YEAR

- Security of Networks and Applications
- Security Protocols and Verification
- Malwares and Reverse Engineering
- Advanced Cyber-Security
- Monitoring, Control and Internet
- Avanced Experimentation of Network Protocols
- Mainframe, Distributed Systems and Applications
- Mobile Applications and Internet-of-Things
- Cloud Computing: Opportunities and Risks
- Big Data for Cyber-Security



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