

SALONE DELL'ORIENTAMENTO 2026

CORSO DI LAUREA MAGISTRALE

COMMUNICATIONS ENGINEERING



**Politecnico
di Torino**

**SCOPRI TUTTI I
CORSI DI STUDIO
A.A. 2026/27
www.polito.it**



Communications Engineering (CE)



Salone orientamento

27/03/2026

Introduction

Name

Paolo Giaccone

Role

Coordinator of the
M.Sc. in Communications Engineering

Department

DET - Department of Electronics and Telecommunications

Email

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This presentation @



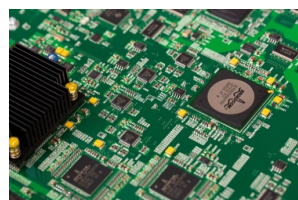
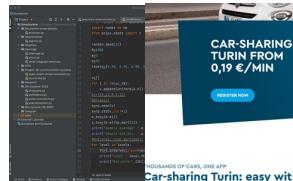
The role of communications competences

ICT

Information and
Communications
Technologies



CE in ICT-related MSc degrees @ POLITO



COMPUTER
ENGINEERING

ICT ENGINEERING FOR
SMART SOCIETIES

COMMUNICATIONS
ENGINEERING

ELECTRONICS
ENGINEERING

Main covered topics



Optical communications



Mobile and cellular applications



Satellite communications



Data centers



Aerospace communications



Telecommunication and computer networks

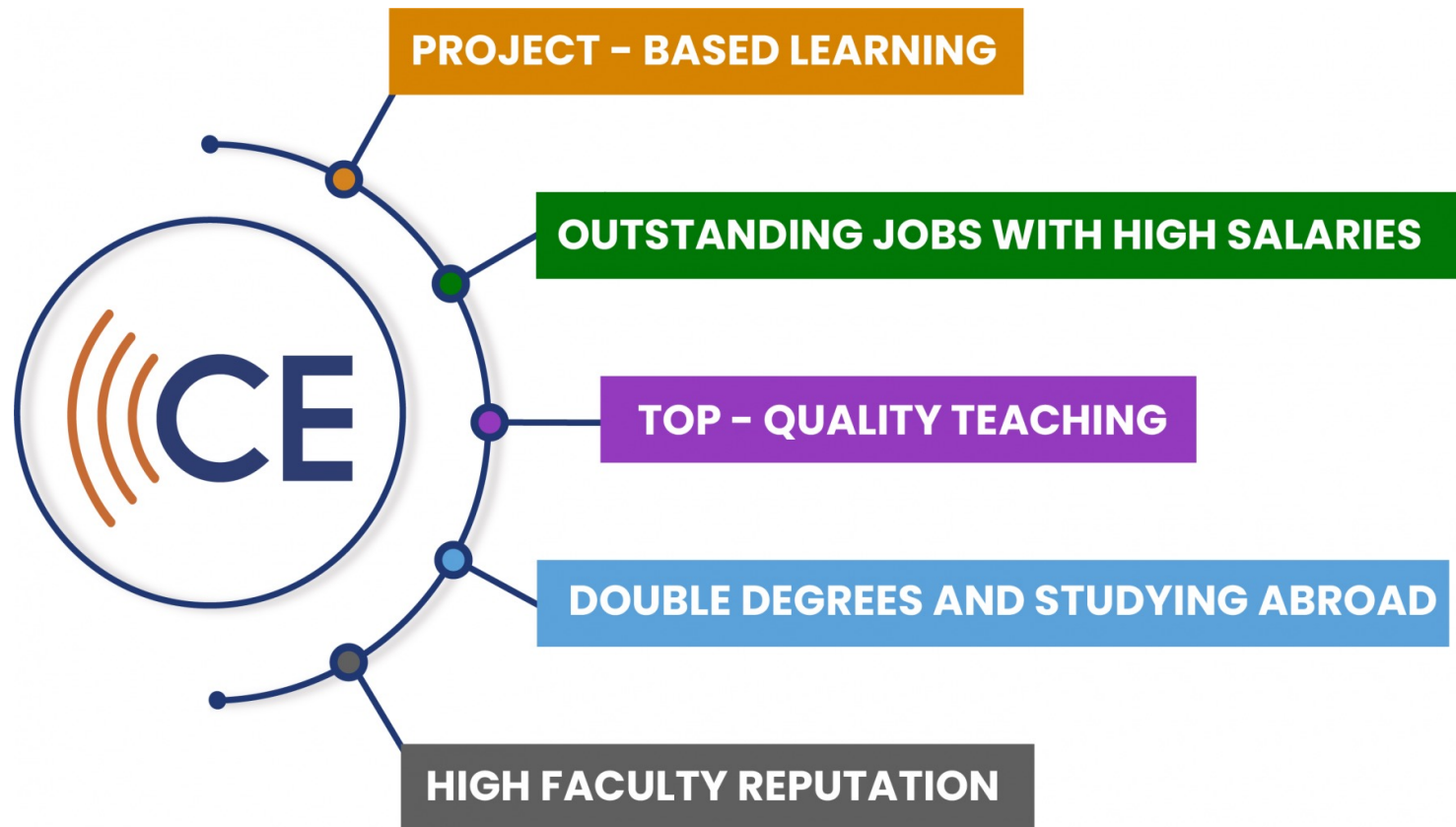


Multimedia processing
Machine learning



Quantum communications

Five good reasons to choose CE @ POLITO



Project-based learning

- active learning
- team-based skills, creativity
- **students' responsibility:** recover the missing competences, define the problem, design and showcase the solution, present the project, project management, organize the team work, etc
- **professors' responsibility:** provide the required technical background, supervise the team activities
- 2 full courses of projects (18 ECTS)

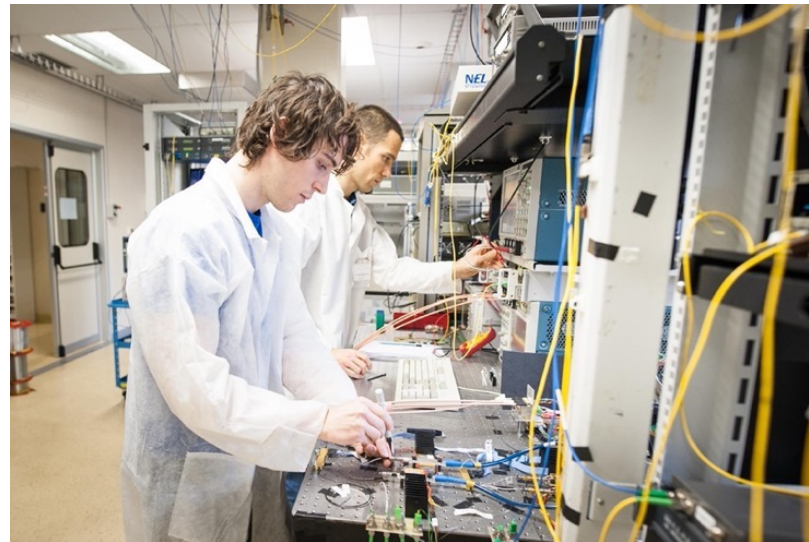


example of past projects



Experimental activities and labs

- learning-by-doing
- advanced telecommunication equipment, simulators, digital twins
- about half of the CE hours devoted to projects, labs, practical training



First year

| FIRST YEAR | | |
|------------|--|---|
| ECTS | First semester | |
| 6 | Communication systems | ■ |
| 6 | Computer network design and control | ■ |
| 12 | Signal, image and video processing and learning | ■ |
| 8 | Machine learning for networking | ■ |
| ECTS | Second semester | |
| 9 | Project: Software-defined communication systems | |
| 6 | Optical fiber communications | ■ |
| 6 | Information and communication theory | ■ |
| 6 | Wireless access electromagnetics | |
| 6 | Introduction to space systems (only AER) | ■ |

← common background

Main focus

- computer networks
- transmission/physical layer
- aerospace

← project 1

Second year

| SECOND YEAR | |
|-----------------------------|--|
| ECTS First semester | |
| 9 | Project: Applied communication systems and IoT / 1 |
| 6 | Open optical networks ■ |
| | Internet Performance and Troubleshooting Lab ■ |
| 6 | Signal Processing and Optical Transmission Lab ■ |
| | Signal Processing and Wireless Transmission Lab ■ |
| | Applied Information Security and Cryptography ■ |
| 6 | 5G and next-generation mobile computing ■ |
| | Orbital Robotics and Distributed Space Systems ■ |
| 8 | Advanced wireless communications and coding ■ |
| | Satellite navigation systems ■ ■ |
| ECTS Second semester | |
| - | Project: Applied communication systems and IoT / 2 |
| 6 | Operational research OR ■ |
| | Cloud computing and data center design lab ■ |
| 20 | Thesis (24 ECTS including the projects) |

← project 2

← lab intensive

Main focus

- computer networks
- transmission/physical layer
- aerospace

← can be integrated in an internship / company thesis

Detailed list of covered topics

<https://www.polito.it/en/education/master-s-degree-programmes/communications-engineering/explore-the-program>

Explore CE courses

Year 1 – Semester 1

Communication and network systems [Computer network design and control]

- Network planning and management
- Routing and QoS-routing
- Cloud computing and virtualization
- Software defined networking
- Network slicing
- Traffic control algorithms and QoS support
- Congestion control
- Data distribution systems

Communication and network systems [Communication systems]

- Modern Communication Systems and their physical layer
- Wireless channel models (AWGN, multipath fading, Doppler)
- Multiplexing (TDM, FDM) and Multiple Access (TDMA, FDMA, CDMA, NOMA)
- Frame synchronization, Randomizers
- Introduction to error detection (CRC), error correction (block codes), and ARQ
- Digital modulations (PSK, QAM, APSK)
- OFDM modulation and its application
- Use cases and relative Link Budgets: space links and 5G

Signal, image and video processing and learning [Signal processing: methods & applications]

- Review of discrete-time signals and systems
- Introduction to non-stationary random processes
- Estimation theory
- Spectral estimation
- Time-frequency analysis
- The Kalman filter
- Detection theory

Signal, image and video processing and learning [Image and video processing]

- Introduction to image and video processing



Study abroad

- Two options
 - **courses plus thesis in the II year**
 - 10 months abroad (from September to June-July)
 - **double degree (PoliTO + foreign University)**
 - duration depends on the program
 - 2 semesters @ PoliTO
 - 2-4 semesters abroad



Double degrees

- EURECOM, Sophia-Antipolis (France)
- INSA, Lyon (France)
- Telecom PARISTECH, Paris (France)
- Institut Polytechnique de Paris - IP Paris (France)
- Universitat Politècnica de Catalunya - UPC, Barcelona (Spain)
- KTH Royal Institute of Technology in Stockholm (Sweden)
- University of Illinois, Chicago (USA) - TOP-UIC project

Job market

Job positions for communications engineers declared by HR

Table evaluated by <https://www.fondazione-restart.it/it/missioni/missione-5-attivita-di-istruzione-e-formazione/>

| Ruolo/figura professionale | Azienda proponente | Ruolo/figura professionale | Azienda proponente |
|---|-----------------------------------|---|---------------------------|
| Ingegnere delle Telecomunicazioni (generico) | Leonardo, UNIRC | Ingegnere di verifica/test/validazione | TIESSE, ITALTEL, Ericsson |
| Responsabile tecnico/a | CNIT | Responsabile del servizio clienti | TIM |
| Analista degli acquisti | TIESSE | Configuration Manager | Ericsson |
| (IPR) Legal | TIESSE | Specialista di AI e Machine Learning | UNIRC, OF, W3 |
| Ingegnere DevOps | ITALTEL, W3 | Specialisti di blockchain | OF |
| Ingegnere / Architetto / Specialista delle operazioni cloud | ITALTEL, UNIRC, OF, TIM, W3 | Ingegnere delle applicazioni in campo quantistico | OF |
| System Architect | Leonardo | Esperto di analisi predittiva | OF |
| Ingegnere / Architetto di rete | ITALTEL, UNIRC, OF, Vodafone, TIM | Specialista BIM | OF |
| Ingegnere di produzione / processo | TIESSE, W3 | Field Manager | OF |
| Responsabile / specialista marketing | TIESSE, TIM | (Key) Account / Sales Manager | UNIRC, TIM |
| Analista di rete | UNIRC, OF, W3 | Ingegnere / Specialista Information / Cyber Security | TIESSE, UNIRC, OF, TIM |
| Consulente/Specialista sistemi ICT | UNIRC | Specialista d'approvvigionamento | Vodafone |
| Responsabile Sviluppo Business | UNIRC | Specialista infrastrutturale | Vodafone, W3 |
| Ingegnere dell'affidabilità del sito (SRE, Site reliability engine) | UNIRC | Ingegnere / analista dei dati (analisi e visualizzazione) | TIESSE, OF, TIM, W3 |
| Manager / Responsabile di linea | ITALTEL, Ericsson | Specialista di banche dati | W3 |
| Project / Program Manager | Ericsson, TIM | Ingegneria & Amministrazione ambientale | W3 |
| Product Manager | TIESSE, UNIRC, Ericsson | Ingegnere informatico/ Supporto IT | UNIRC |
| System Engineer/Manager | Ericsson, W3 | Architetto di soluzioni IT | W3 |
| Architetto / Progettista Software | ITALTEL, UNIRC, Ericsson | Project Manager per la costruzione di sito | W3 |
| Architetto / Progettista Firmware | Ericsson | Ingegneria e amministrazione del posto di lavoro | W3 |
| Sviluppatore di software / applicazioni Web | TIESSE, ITALTEL, Leonardo, UNIRC | Requirement Engineer | TIM |
| Sviluppatore di App mobile | ITALTEL | Ingegnere Supporto Tecnico | Ericsson, TIM, W3, CNIT |
| Sviluppatore firmware | Leonardo | Database administrator | TIM |
| Progettista Hardware (PBA/PCB/FPGA/ASIC) | TIESSE, Leonardo, Ericsson | | |

Contacts and info

- email
 - Paolo Giaccone
 - referente.lm.ce@polito.it
- course website
 - hints to apply
 - FAQ
 - detailed list of contents for each course
- Telegram apply channel

