



Dipartimento di Ingegneria e Scienza dell'Informazione
Università degli Studi di Trento
Via Sommarive 9, 38123 Trento Italia
Web: <http://www.disi.unitn.it>

Degree in
**Computer, Communication
and Electronic Engineering
(ICE)**

Professor in charge of the degree program
Prof. Paolo Casari

September 11, 2025



Degree programs (3 + 2)

- Bachelor's degrees (180 CFU, 3 years)
 - **Ing. Informatica, delle Comunicazioni ed Elettronica (ita/engl)**
 - **Informatica (CS, ita/engl)**
- Master's degree (120 CFU, 2 years, in English)
 - **Information Engineering**
 - **Computer Science**
 - **Artificial Intelligence Systems**
 - Human-Computer Interaction
 - Quantitative and Computational Biology
 - Data Science
- Doctorate program (3 years, in English)



Objectives of the ICE program

- Train professional figures who have:
- General skills in the area of information engineering
- Specific skills in the telecommunications, electronics and computer engineering fields

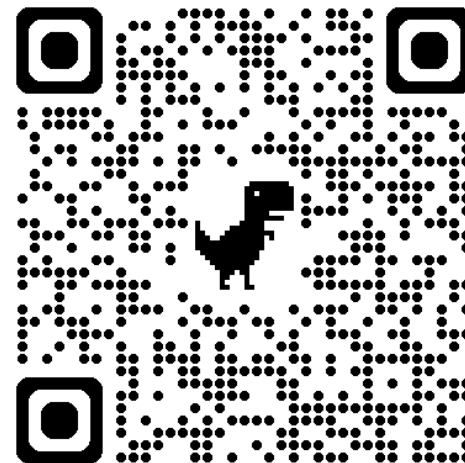
These professional figures meet the job market demand which often does not require a specialization limited to a single sector, but rather a non-superficial understanding of the systems, the methodologies and the technologies of the entire area of information engineering, in addition to the ability to appreciate the relations across the various disciplines, and to professionally deal with inter-disciplinary problems



The web site of the ICE degree

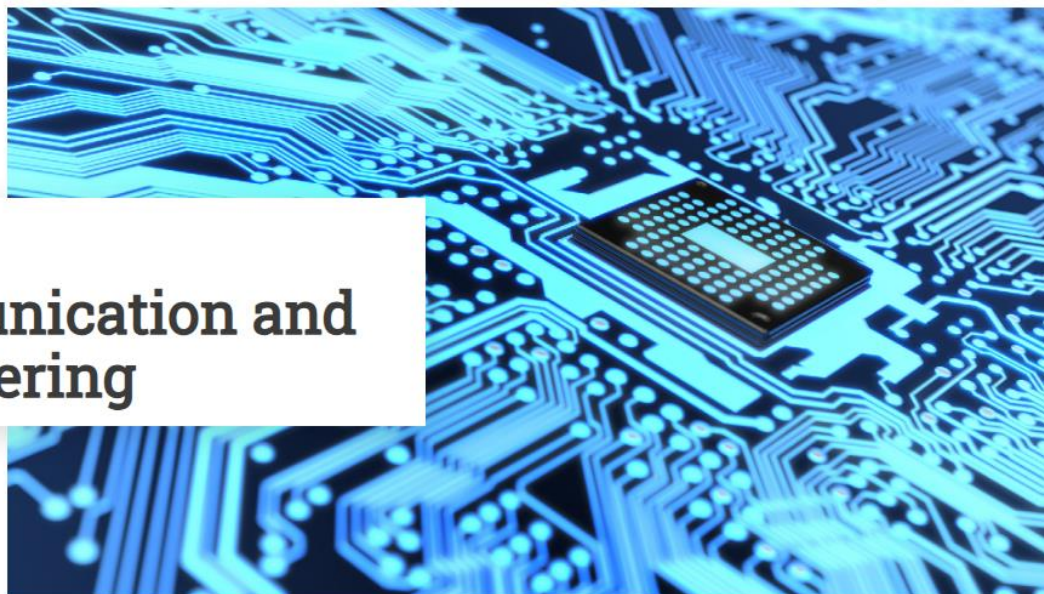
LINK TO THE PROGRAM WEB SITE

<https://corsi.unitn.it/en/computer-communication-and-electronic-engineering>



BACHELOR'S DEGREE IN

Computer, Communication and Electronic Engineering



This course provides you with a multidisciplinary education combining three core areas: Computer Engineering, Information and Communications Engineering and Electronics Engineering.

IN SHORT

TYPE OF DEGREE: Bachelor's Degree



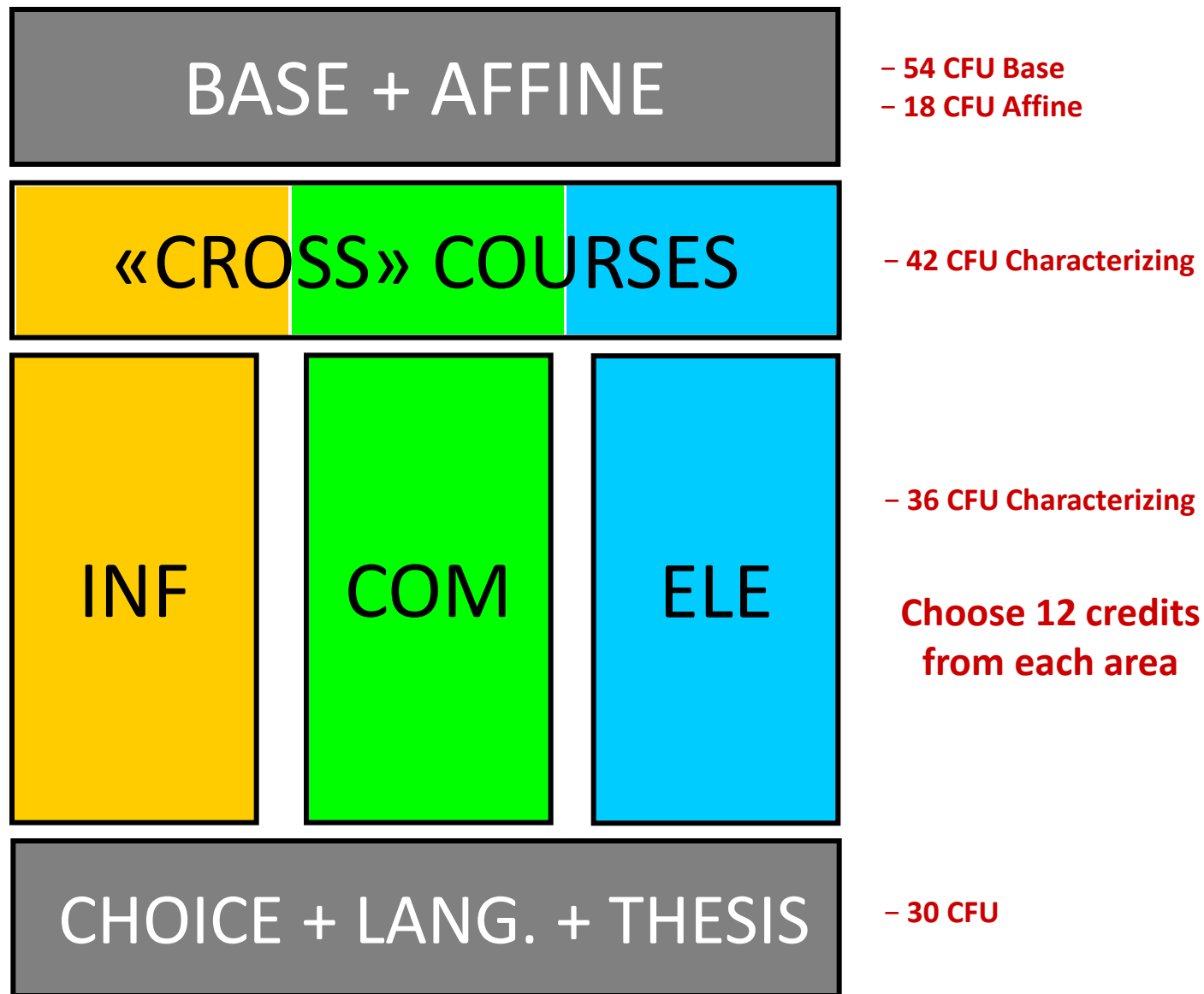
Credits system (CFU – ECTS)

A measure of the amount of learning and the volume of work adopted in the European Union

- 1 CFU = 25 hours of “work”
 - 1 CFU at DISI = 8 hours lectures + 17 individual work
 - 6 CFU = 150 hours (48+102)
- Grade point average is weighted by the credits of each course



ICE – Structure of the program





ICE – Structure by year

Year 1 – 60 CFU

60 CFU – Mandatory courses

– 48 CFU Base
– 12 CFU Affine

Year 2 – 60 CFU

12 CFU – Mandatory courses
42 CFU – Mandatory cross
6 CFU – Area choices

– 6 CFU Base
– 6 CFU Affine
– 48 CFU Characterizing

Year 3 - 60 CFU

6 CFU – Mandatory courses
24 CFU – Area choices

– 6 CFU Affine
– 24 CFU Characterizing

12 CFU – Free choice

3 CFU – English
9 CFU – Internship
6 CFU – Final exam

180 CFU





ICE – Structure by year

Year 1 – 60 CFU

60 CFU – Mandatory courses

– 48 CFU Base
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Year 2 – 60 CFU

12 CFU – Mandatory courses
42 CFU – Mandatory cross
6 CFU – Area choices

– 6 CFU Base
– 6 CFU Affine
– 48 CFU Characterizing

Year 3 - 60 CFU

6 CFU – Mandatory courses
24 CFU – Area choices

– 6 CFU Affine
– 24 CFU Characterizing

12 CFU – Free choice

Complete list of courses available online

LINK TO PROGRAM GUIDE AND PROGRAM REGULATIONS

<https://corsi.unitn.it/en/computer-communication-and-electronic-engineering/study/program-guide-and-documents>

180 CFU





ICE – Program Guide

Year 1 – 60 CFU

60 CFU – Mandatory courses

Course title	CFU	Semester	Type	SSD
Calculus 1	12	1	Base	MATH-03/A
Geometry and Linear Algebra	6	1	Base	MATH-02/B
Computer Programming 1	12	1	Base	IINF-05/A
Calculus 2	6	2	Base	MATH-03/A
Probability	6	2	Affine	MATH-03/B
Physics	12	2	Base	PHYS-01/A
Computer Programming 2	6	2	Affine	INFO-01/A



ICE – Program Guide

Year 2 – 60 CFU

12 CFU – Mandatory courses

Course title	CFU	Semester	Type	SSD
Physics 2	6	1	Base	PHYS-01/A
Business Organization and Management	6	2	Affine	ECON-08/A

36 CFU – Mandatory cross courses

❖ Two modules for each course (except Databases):

Computer architectures and programming (Module 1: Introduction to machine learning)	12	1	Caratt.	IINF-05/A
Computer architectures and programming (Module 2: Computer architectures)		2	Caratt.	IINF-05/A
Databases (3 rd year)	6	1	Caratt.	IINF-05/A
Fundamentals of communications (Module 1: Signal processing)	12	1	Caratt.	IINF-03/A
Fundamentals of communications (Module 2: Networking)		1	Caratt.	IINF-03/A
Fundamentals of electronics (Module 1: Logic networks)	12	1	Caratt.	IINF-01/A
Fundamentals of electronics (Module 2: Analog electronics)		2	Caratt.	IINF-01/A



ICE – Program Guide

Year 2 – 60 CFU

6 CFU – Area choices

Year 3 - 60 CFU

30 CFU – Area choices

36 CFU

INF

COM

ELE

12 CFU

12 CFU

12 CFU

Choose 12 CFUs from each area



Computer Engineering Area

Course title	CFU	Semester	Type	SSD
Operating systems	12	2	Charact.	ING-INF/05
Software engineering	12	2	Charact.	ING-INF/05
Advanced programming	6	1	Charact.	ING-INF/05
Fundamentals of robotics	12	1	Charact.	ING-INF/05
Fundamentals of parallel programming	6	1	Charact.	ING-INF/05
Embedded software for the Internet of Things	6	1	Charact.	ING-INF/05



Communications Engineering Area

Course title	CFU	Semester	Type	SSD
Next generation networks	6	1	Charact.	IINF-03/A
Optimization models and algorithms	6	1	Charact.	IINF-03/A
High-frequency circuits for systems-on-chip	6	1	Charact.	IINF-03/A
Vision and recognition	6	1	Charact.	IINF-03/A
Remote sensing systems and image analysis	6	1	Charact.	IINF-03/A



Electronic Engineering Area

Course title	CFU	Semester	Type	SSD
Advanced logic design	6	2	Charact.	IINF-01/A
Basics of optoelectronics	6	1	Charact.	IINF-01/A
High-frequency circuits for systems-on-chip	6	1	Charact.	IINF-02/A
Introduction to parallel computing	6	1	Charact.	IINF-01/A
Introduction to embedded systems	6	1	Charact.	IINF-01/A
Laboratory of systems on chip	6	1	Charact.	IINF-01/A



ICE – Program Guide

Year 3 – 60 CFU

- The program is completed by:

12 CFU – Free choice

3 CFU – Foreign language **(Engl. C1 Level,
or Italian for foreign students)**

9 CFU – Internship

6 CFU – Final exam



Final exam

- Refer to the “Regolamento per la prova finale”, published on the Department web site

LINK REGULATIONS FOR THE FINAL EXAM

<https://www.disi.unitn.it/it/bachelor-student/degree-thesis>

The final exam consists in the public discussion in front of an appointed committee of an in-depth analysis work on a specific topic by the student or in the presentation of a written essay.



Final grade

- Refer to the “Regolamento per la prova finale”, published on the Department web site

LINK REGULATIONS FOR THE FINAL EXAM

<https://www.disi.unitn.it/it/bachelor-student/degree-thesis>

Factors that affect the final grade (expressed as $x/110$):

- **Grade point average** weighted by the credits (main factor)
- Grade of the **final exam**
- **Duration** of your studies (i.e., time to graduation)



Admission to following years

- Admission to the exams offered in the **years following the first** is allowed only after the acquisition of **at least 18 CFU** corresponding to courses in the disciplinary sectors **MATH-* and PHYS-01**
- The exams of the **second year** are allowed only to those students who have already satisfied the English language requirement, **level B2**
- The exams of the **third year** are allowed only to those students who have already satisfied the foreign language requirement, **level C1 – Technical English** or the **Italian for foreign students** requirement

Refer to the study program regulation

<https://corsi.unitn.it/en/computer-communication-and-electronic-engineering/study/program-guide-and-documents>



Safety courses

- To get access to the laboratories, it is **mandatory** to complete the following safety courses
 - Course on Health and Safety in the workplace – **General Training NEW EDITION**
 - Course on Health and Safety in the workplace – **Specific Risk Training (Low Risk)**
 - A few courses with laboratory require an additional level – **Specific Risk Training (Reinforced Low Risk)**

available on the web site <https://didatticaonline.unitn.it/ateneo/>



Going abroad

- Erasmus+ (one or two semesters in a foreign university)
- Double degree (EIT Digital)

<http://www.disi.unitn.it/it/mobility-opportunities>



Some advice

- **COME TO CLASS**
 - Lecture recordings may *support* but will *never substitute* presential learning
 - If you do not understand a lecture: Ask
- **Study** lecture material **continually**
- **Discuss** contents and doubts with your peers
- Prepare for exams: **do not come and «try»**
 - Can you explain key concept to another student/person?
 - Can you resolve/reproduce an exercise or lab experience?



Additional information

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