

UNIVERSITY OF TRIESTE
ACADEMIC AND TEACHING REGULATIONS
for students enrolled in the academic year 2019/2020

Bachelor's degree in Electronic and Computer Engineering L-8

Art. 1 Objective

1. The following regulations lay down the contents of the related educational system, under art. 12, subsection 1 of the Ministerial Decree n. 270/2004 on “Regulations regarding educational systems’ autonomy in universities”.
2. The educational system and the organization of the bachelor’s degree are hereby defined in accordance with freedom of teaching and with the rights and obligation of teachers and students.

Art. 2 Contents of the Academic Regulations

1. The Academic and Teaching Regulations define the implementation of the educational system and its organisational aspects.
2. In accordance with art. 4, subsection 2 of the University’s of Trieste Academic Regulations, the present Academic and Teaching Regulations lay down:
 - a) the list of classes (and their academic sector) divided by year of the course, their partition into modules and other educational activities;
 - b) the way in which laboratory activities, practical activities and traineeships shall be conducted;
 - c) the specific educational objects, the ECTS and any prerequisites for classes and other educational activities, all divided by year of the course, and the minimum requirements to apply to the following year;
 - d) the curricula available to students and, where necessary, how to present the individual curriculum;
 - e) any indications on compulsory attendance and/or any alternative learning plan for student worker and/or disabled people;
 - f) the admission requirements and admission test and any additional rules on preparatory and integrative activities aimed at fulfilling a conditional pass;
 - g) the type and procedure for the final examination and graduation;
 - h) the procedure for verification of knowledge of the foreign language and the meeting of university’s requirements.

Art.3 Structure and organisation of the degree

The following documents and regulations set the organisation and managing of the degree course:

- University’s Academic Regulations;
- educational system;
- course and educational activities listing;
- annual curriculum.

Art. 4 Educational system

1. The educational system sets the structure and organisation of the degree course, in accordance with the rules such degree courses are bound to abide by. In particular, it contains:
 - a) the denomination and its degree class;
 - b) the educational objectives of the degree course in accordance with the European qualification framework;
 - c) the degree’s job opportunities in relation to the activities listed by ISTAT;
 - d) the general layout of educational activities in accordance with the degree class;
 - e) the ECTS of all educational activities;

- f) the requirements to access the degree course and the procedures for the verification of knowledge at the beginning of the course;
 - g) all features of the final examination and graduation;
2. The educational system can be also found in the degree's SUA statement.

Art. 5 Course and educational activities listing

1. The course and educational activities listing lays down:
- a) the list of classes taught and their academic fields and related educational activities;
 - b) the modules into which the classes may be divided and their academic fields;
 - c) the ECTS of each class and educational activity;
 - d) any progression between classes;
2. The course and educational activities listing can be found in the degree's SUA statement.

Art. 6 Annual curriculum.

The curriculum is updated annually and can be found in the annex A and in the ESSE3 statement.

Art. 7 Admission

In order to be admitted students must have a high-school degree, Italian or foreign.

To enrol to the first-year students must take a self-evaluation test to assess their skills and preparation.

To this purpose, the University holds some test sessions before the semester's start. If the result is below the prerequisite threshold, the student can repeat the test.

If the aforementioned test is failed, the students will have to pass either the Mathematical Analysis I exam or the Geometry exam within the first year in order to enrol to the second year.

Before the semester's start, preparatory courses on mathematics and informatics are offered. Their attendance is suggested to everyone, but in particular to those who failed the aforementioned self-evaluation test.

Art. 8 Degree achievement

1. In order to graduate students will have to have earned 180 ECTS.
2. Given that each course year conventionally equals to 60 ECTS, the duration of the course is three years.
3. The degree can be attained in less than three years if the student has earned all 180 ECTS included in their curriculum.

Art. 9 Structure of the degree course

1. The Degree Course entails the following types of educational activities:
- a) core educational activities;
 - b) connotative educational activities;
 - c) educational activities related to the connotative ones, regarding surrounding cultures and interdisciplinary education;
 - d) activities to be chosen by the student;
 - e) educational activities related to the final examination;
 - f) educational activities to improve linguistic knowledge, any traineeships, computer skills, telematic and relational skills and all skills useful for the job market.
2. The number of ECTS assigned to each of the listed activities is laid down in annex A.

Art. 10 Laboratory, hands-on and traineeships activities.

Such activities are promoted and coordinated by the professor teaching the class they refer to.

Art. 11 Educational activities preparing for the final examination;

In accordance with its objectives and ECTS, the final examination is structured as follows:

1. The student at the end of the three-year curriculum will choose a professor (Tutoring Professor) who will guide the student preparing the final examination.
2. The professor will select a limited number of articles, book chapters or other reading materials possibly written in an EU language and helps the student to understand, clarify and organise the material mentioned in point 3 for the final examination.
3. The student will integrate the material on their own initiative and add articles, use softwares or carry out practical activities in laboratories.
4. The student will write a report of the activities performed and a presentation for the pre-graduation Committee. Both the report and the presentation can be written in one of the official EU languages as agreed with the Tutoring Professor. If the student will choose a language other than Italian, in accordance with the law in force the student will have to write a summary in Italian
5. The time spent on the final examination should not be longer than 2 months in order to allow students to start their master's degree as quickly as possible. It will however be possible, shall the student want to and find it useful for their training, to spend more time on the final examination than what determined by the number of ECTS assigned to it.
6. The pre-graduation Committee consists of the Tutoring Professor and – normally - other four Professors (either with permanent position in the University or contract professors) teaching in the degree course attended by the graduating student. The Committee must be formed by at least 3 members.
7. The pre-graduation Committee evaluates the presentation and grades it with a maximum of 30 points. The score will than added to the weighted average of all marks obtained during the degree course according to the following chart:

Grade out of 30	Final mark
18-22	+1
23-25	+2
26-28	+3
29-30	+4
8. One point may be added to the final mark if the students will have obtained at least three “30 cum laude” during the degree course, regardless of the grade assigned by the pre-graduation Committee.
Two additional points may also be added if the student graduates within 3 years (within the extraordinary session); one additional point may be added in case the student graduates within the fourth year (the additional points will be awarded automatically by the teaching secretary).
9. The presentation shall last no more than 15 minutes to evaluate the student's ability to synthesize.

Art. 12 Exam progression

1. In order to guarantee an appropriate teaching and learning environment, the progression between exams must be respected in accordance with the University's Academic Regulations.
2. The list of exams progression can be found in annex B.

Art. 13 Specific curricula

1. Within the degree course the classes and educational activities can be combined to offer specific curricula and to fulfil different cultural or professional needs.

Art. 14 Presenting an individual curriculum

The student may suggest each year a curriculum with a minimum of 48 ECTS and a maximum of 84 ECTS per year, including the ECTS of previous exams still not passed by the student. The number of ECTS for classes still not attended must be below 60.

The Degree Course Council (*Consiglio di Corso di Studi*) may allow the students to replace their exams with other exams from the same University or from other degree courses and foreign Universities, weather they are Bachelor Degrees or Master's Degrees, based on the coherence with the degree course's objectives and the number of ECTS.

Art. 15 Exams

1. *Criteria for the arrangement of exams committees.*

The exams Committees consists of two members: the professor of the course in question and another professor or researcher or substitute professor. Substitute professor must be subject experts. Subject experts are appointed by the Department Council.

If the course is the sum of two or more modules with different professors, they all must be part of the exam Committee.

2. *Verification of knowledge for degree courses and other educational activities.*

The verification of knowledge can take place with ongoing assessment tests or a final test held after the end of the classes or other educational activities.

3. *Results registration for exams made up by several tests.*

The registration is made only when a final grade is available.

4. *Retaking exams within the same course year.*

Students can retake exams in any date available in the exam calendar, provided they have attended the course.

Art. 16 Mandatory attendance

Attendance is mandatory and may be verified as the Professor sees fit. The Professor may also establish different attendance rules for student workers or other students.

Art. 17 English language test (field E)

In order to graduate, students must prove their knowledge of the English language is at least a B2 level. Testing can be performed through an examination or by supplying a proper certification.

1) *Knowledge and skill level required for EU language other than Italian (English)*

With reference to the level established by the ALTE (Association of Language Testers in Europe), students must attain the following knowledge level of the EU language other than Italian:

- ALTE Level Three - Independent User

This level corresponds to the following number of ECTS:

- level three: 3 ECTS

Regarding the English knowledge required for bachelor's degree course, the FIRST certificate issued by the British School corresponds to 3 ECTS.

2) *Approved certificates*

All certificates issued by one of the institutions listed in annex G can be submitted to the Department's Academic Office to obtain the corresponding ECTS.

The language test performed by CLA for ERASMUS+ student can also be used for the language assessment.

Art. 17bis Other foreign languages.

Students who have a language certificate issued by the CLA for a different foreign language can register 3 supernumerary ECTS.

Art. 18 Registering ECTS for traineeship activities (field F).

For any traineeship activity see annex C.

Art. 19 Criteria for registering ECTS for activities and skills obtained prior to the enrollment to the Bachelor's Degree.

The Degree Course Council can allow the students to register ECTS for activities performed or skills obtained prior to the enrolment to the Bachelor Degree course, if such activities are deemed coherent with the educational activities, the objectives of the degree course and the number of hours, as specified in annex D.

The Degree Course Council may also register ECTS for students transferring from a different degree course and/or from other universities, evaluating each individual situation and assessing the students' skills through a meeting or tests, where necessary. The Degree Course Council will substantiate any choice of not registering ECTS. Students transferring from the same degree class will be able to register a minimum of 60 ECTS.

Art. 20 Regular verification of registered ECTS to assess the presence of up-to-date knowledge, and auxiliary tests on individual classes in case the cultural and professional content is considered outdated

The ECTS earned during the Bachelor's Degree are valid for 9 years. After 9 years, the ECTS will have to be substantiated by the Degree Course Council, which will confirm their educational content is not outdated.

If the Degree Course Council finds some or all of the contents outdated, it will establish auxiliary tests and their contents.

Once the student has passed the auxiliary tests, the Degree Course Council can officially register the ECTS. If the tests include a grade, the new official grade may be registered instead of the previously obtained one, upon a proposal from the exam Committee.

Art. 21 Minimum number of ECTS to be earned by the student in a certain amount of time.

The Degree Course Council, through a deliberation, may allow students with a particularly high performance referred to the previous year to register in their curriculum a number of ECTS for educational activities they haven't attended yet of more than 60 ECTS, with a maximum of 84 ECTS. When laying down their curriculum, students will have to insert first the classes and educational activities which, in the official degree's curriculum, are presented as immediately subsequent to the ones already registered, except where otherwise specified by the Degree Course Council upon the students' request.

In order to enrol to the second year, students will have to have obtained a minimum of 30 ECTS of classes of the first-year curriculum. In order to enrol to the third year, students will have to have obtained a minimum of 78 ECTS. Students who haven't obtained 30 ECTS to enrol to the second year may ask for a maximum of 24 ECTS to be registered upfront and must enrol to the second year as a "repeating-year" student. Likewise, students who haven't obtained 78 ECTS to enrol to the third year may ask for a maximum of 24 ECTS to be registered upfront and must enrol to the third year as a "repeating-year" student. The request can be made until 15th march.

All students can enrol to the following year and obtain the missing ECTS within February's exam session.

Art. 22 Nature of this Regulation

This Regulation is defined as a Degree Course Regulation under article 12 of the Ministerial Decree 270/2004.

Annex

Ann. A: Curriculum.

Ann. B: Exam progression

Ann. C: Traineeship activities

Ann. D: Registering previously obtained skills or activities

Ann. G: List of linguistic certifications accepted by the CLA

DEGREE IN

ELECTRONIC AND COMPUTER ENGINEERING

DEGREE CLASS L-8

CURRICULUM

for students enrolling to the first year in the academic year 2019/2020

The degree in ELECTRONIC AND COMPUTER ENGINEERING has the following curricula:

- Computer applications
- Electronics
- Data and systems management
- Biomedical Engineering
- Telecommunication networks

All curricula can be found in the following pages.

Courses are classified as follows depending on the type of activity (TAF):

A= core educational activities

B= connotative educational activities

C= coherent and supplementary educational activities

D= activities to be chosen by the student

E= final examination

F= other activities

Further information can be found on the course's website:

<https://corsi.units.it/in05/ingegneria-elettronica-informatica>



Curriculum "Computer applications"				
I year (54 ECTS)				
<i>Course</i>	<i>Module</i>	<i>Sector</i>	<i>TAF</i>	<i>ECTS</i>
Fundamentals of computer science		ING-INF/05	B	12
Mathematical analysis I		MAT/05	A	9
Geometry		MAT/03	A	9
Foreign language		/	E	3
Algorithms and data structures		INF/01	A	6
Physics 1		FIS/01	A	9
Probability and statistics		MAT/06	C	6
II year (63 ECTS)				
<i>Course</i>	<i>Module</i>	<i>Sector</i>	<i>TAF</i>	<i>ECTS</i>
Mathematical analysis II		MAT/05	A	9
Physics 2		FIS/01	A	9
Fundamentals of automatic control		ING-INF/04	B	9
Mathematical methods for engineering		MAT/05	C	6
Circuit theory		ING-IND/31	C	9
Signal theory		ING-INF/03	B	9
Logical networks		ING-INF/01	B	6
Operations research		MAT/09	C	6
III year (63 ECTS)				
<i>Course</i>	<i>Module</i>	<i>Sector</i>	<i>TAF</i>	<i>ECTS</i>
Electronics		ING-INF/01	B	9
Computer networks		ING-INF/05	B	6
Traineeship		/	F	6
Final test		/	E	3
Activities to be chosen by the student		/	D	18
Operating systems		ING-INF/05	C	6
Database		ING-INF/05	B	9
Telecommunication networks		ING-INF/03	C	6

In the curriculum optional exams may be added (TAF D); other curricula's exams are recommended together with the following ones (note: courses with a double asterisk may not be activated; please verify so when you choose your optional exams):

OPTIONAL EXAMS				
<i>Course</i>	<i>Module</i>	<i>Sector</i>	<i>TAF</i>	<i>ECTS</i>
Numerical analysis		MAT/08		6
Economics applied to engineering **		ING-IND/35		6



Curriculum "ELECTRONICS"				
I year (54 ECTS)				
Course	Module	Sector	TAF	ECTS
Fundamentals of computer science		ING-INF/05	B	12
Mathematical analysis I		MAT/05	A	9
Geometry		MAT/03	A	9
Foreign language		/	E	3
Algorithms and data structures		INF/01	A	6
Physics 1		FIS/01	A	9
Probability and statistics		MAT/06	C	6
II year (63 ECTS)				
Course	Module	Sector	TAF	ECTS
Mathematical analysis II		MAT/05	A	9
Physics 2		FIS/01	A	9
Fundamentals of automatic control		ING-INF/04	B	9
Mathematical methods for engineering		MAT/05	C	6
Circuit theory		ING-IND/31	C	9
Signal theory		ING-INF/03	B	9
Logical networks		ING-INF/01	B	6
Activities to be chosen by the student		/	D	6
III year (63 ECTS)				
Course	Module	Sector	TAF	ECTS
Electronics		ING-INF/01	B	9
Computer networks		ING-INF/05	B	6
Traineeship		/	F	6
Final test		/	E	3
Electromagnetic fields		ING-INF/02	B	9
Activities to be chosen by the student		/	D	12
Electronic measurements		ING-INF/07	C	6
Telecommunication networks		ING-INF/03	C	6
Biomedical instrumentation		ING-INF/06	C	6

In the curriculum optional exams may be added (TAF D); other curricula's exams are recommended together with the following ones (note: courses with a double asterisk may not be activated; please verify so when you choose your optional exams):

OPTIONAL EXAMS				
Course	Module	Sector	TAF	ECTS
Numerical analysis		MAT/08		6
Economics applied to engineering **		ING-IND/35		6

Curriculum "Data and systems management"				
I year (54 ECTS)				
Course	Module	Sector	TAF	ECTS
Fundamentals of computer science		ING-INF/05	B	12
Mathematical analysis I		MAT/05	A	9
Geometry		MAT/03	A	9
Foreign language		/	E	3
Algorithms and data structures		INF/01	A	6
Physics 1		FIS/01	A	9
Probability and statistics		MAT/06	C	6
II year (63 ECTS)				
Course	Module	Sector	TAF	ECTS
Mathematical analysis II		MAT/05	A	9
Physics 2		FIS/01	A	9
Fundamentals of automatic control		ING-INF/04	B	9
Mathematical methods for engineering		MAT/05	C	6
Circuit theory		ING-IND/31	C	9
Signal theory		ING-INF/03	B	9
Logical networks		ING-INF/01	B	6
Operations research		MAT/09	C	6
III year (63 ECTS)				
Course	Module	Sector	TAF	ECTS
Electronics		ING-INF/01	B	9
Computer networks		ING-INF/05	B	6
Traineeship		/	F	6
Final test		/	E	3
Activities to be chosen by the student		/	D	18
Database		ING-INF/05	B	9
Logistics		MAT/09	C	6
Telecommunication networks		ING-INF/03	C	6

In the curriculum optional exams may be added (TAF D); other curricula's exams are recommended together with the following ones (note: courses with a double asterisk may not be activated; please verify so when you choose your optional exams):

OPTIONAL EXAMS				
Course	Module	Sector	TAF	ECTS
Numerical analysis		MAT/08		6
Economics applied to engineering **		ING-IND/35		6



Curriculum "Biomedical Engineering"				
I year (54 ECTS)				
Course	Module	Sector	TAF	ECTS
Fundamentals of computer science		ING-INF/05	B	12
Mathematical analysis I		MAT/05	A	9
Geometry		MAT/03	A	9
Foreign language		/	E	3
Algorithms and data structures		INF/01	A	6
Physics 1		FIS/01	A	9
Probability and statistics		MAT/06	C	6
II year (63 ECTS)				
Course	Module	Sector	TAF	ECTS
Mathematical analysis II		MAT/05	A	9
Physics 2		FIS/01	A	9
Fundamentals of automatic control		ING-INF/04	B	9
Mathematical methods for engineering		MAT/05	C	6
Circuit theory		ING-IND/31	C	9
Signal theory		ING-INF/03	B	9
Chemistry	A	CHIM/07	C	6
Operations research		MAT/09	C	6
III year (63 ECTS)				
Course	Module	Sector	TAF	ECTS
Electronics		ING-INF/01	B	9
Computer networks		ING-INF/05	B	6
Traineeship		/	F	6
Final test		/	E	3
Activities to be chosen by the student		/	D	18
Database		ING-INF/05	B	9
Electronic measurements		ING-INF/07	B	6
Biomedical instrumentation		ING-INF/06	C	6

In the curriculum optional exams may be added (TAF D); other curricula's exams are recommended together with the following ones (note: courses with an asterisk are required to enroll to the master's degree in Clinical Engineering at our University. Note2: courses with a double asterisk may not be activated; please verify so when you choose your optional exams):

OPTIONAL EXAMS				
Course	Module	Sector	TAF	ECTS
Biology and physiology *		BIO/09		6
Economics applied to engineering **		ING-IND/35		6
Logical networks		ING-INF/01		6
Biomaterials, artificial organs and prostheses *		ING-IND/34		6



Curriculum "Telecommunication networks"				
I year (54 ECTS)				
<i>Course</i>	<i>Module</i>	<i>Sector</i>	<i>TAF</i>	<i>ECTS</i>
Fundamentals of computer science		ING-INF/05	B	12
Mathematical analysis I		MAT/05	A	9
Geometry		MAT/03	A	9
Foreign language		/	E	3
Algorithms and data structures		INF/01	A	6
Physics 1		FIS/01	A	9
Probability and statistics		MAT/06	C	6
II year (63 ECTS)				
<i>Course</i>	<i>Module</i>	<i>Sector</i>	<i>TAF</i>	<i>ECTS</i>
Mathematical analysis II		MAT/05	A	9
Physics 2		FIS/01	A	9
Fundamentals of automatic control		ING-INF/04	B	9
Mathematical methods for engineering		MAT/05	C	6
Circuit theory		ING-IND/31	C	9
Signal theory		ING-INF/03	B	9
Logical networks		ING-INF/01	B	6
Operations research		MAT/09	C	6
III year (63 ECTS)				
<i>Course</i>	<i>Module</i>	<i>Sector</i>	<i>TAF</i>	<i>ECTS</i>
Electronics		ING-INF/01	B	9
Computer networks		ING-INF/05	B	6
Traineeship		/	F	6
Final test		/	E	3
Electromagnetic fields		ING-INF/02	B	9
Activities to be chosen by the student		/	D	18
Electronic measurements		ING-INF/07	C	6
Telecommunication networks		ING-INF/03	C	6

In the curriculum optional exams may be added (TAF D); other curricula's exams are recommended together with the following ones (note: courses with a double asterisk may not be activated; please verify so when you choose your optional exams):

OPTIONAL EXAMS				
<i>Course</i>	<i>Module</i>	<i>Sector</i>	<i>TAF</i>	<i>ECTS</i>
Numerical analysis		MAT/08		6
Economics applied to engineering **		ING-IND/35		6

UNIVERSITY OF TRIESTE
ACADEMIC AND TEACHING REGULATIONS

Degree in ELECTRONIC AND COMPUTER ENGINEERING

Annex B - Exam progression

The correct exam progression will be monitored both by the Department's Teaching Secretariat and by professors before each exam. Specific cases (e.g. students previously enrolled in a different degree course) will be evaluated individually.

The following exam progressions are planned:

Course	Exam progression
Physics 2	Physics 1, Mathematical analysis I, Geometry
Mathematical analysis II	Mathematical analysis I, Geometry
Mathematical methods for engineering	Mathematical analysis I, Geometry, Mathematical analysis II
Signal theory	Mathematical analysis I, Geometry
Telecommunication networks	Probability and statistics
Fundamentals of automatic control	Mathematical analysis I, Geometry
Electronics	Circuit theory, Physics 2, Fundamentals of automatic control
Biomedical instrumentation	Physics 2
Logical networks	Fundamentals of computer science
Database	Fundamentals of computer science, Algorithms and data structures
Operating systems	Fundamentals of computer science, Algorithms and data structures, Probability and statistics
Computer networks	Fundamentals of computer science, Algorithms and data structures

UNIVERSITY OF TRIESTE
ACADEMIC AND TEACHING REGULATIONS

Degree in ELECTRONIC AND COMPUTER ENGINEERING

Annex C - Traineeship activities

Such activities are promoted and coordinated by the Degree Course Council (Consiglio di Corso di Studi).

Traineeship activities (TAF F), overseen by a tutor and properly documented, are evaluated by a committee made up by the tutor and another professor. The activity will amount to

- 3 ECTS with a minimum of 75 hours
- 6 ECTS with a minimum of 150 hours
- 9 ECTS with a minimum of 225 hours

Before starting a traineeship, the student must communicate it to the Department's Teaching Secretariat, which will provide the student with insurance and a proper agreement. The traineeship must be completed in time in order to register the grade in accordance with the Secretariat's deadlines.

UNIVERSITY OF TRIESTE
ACADEMIC AND TEACHING REGULATIONS

Degree in ELECTRONIC AND COMPUTER ENGINEERING

Annex D - Registering previously obtained skills or activities

Upon request to be submitted when enrolling and upon decision of the Department Council (Consiglio di Dipartimento), students may have some previously acquired professional competences and skills registered. Specifically:

- professional competences and skills can be recognised as TAF F up to 3 ECTS;
- IT competences and skills can be recognised as TAF F up to 3 ECTS;
- “Moduli Formativi” offered by the University of Trieste can be recognised as TAF D up to 6 ECTS;
- ECTS obtained through post-secondary activities organised and implemented by the University of Trieste can be recognised as TAF D, E or F up to 12 ECTS.

Unless otherwise laid down in specific agreements between the University or the Department and other institutions.