

Bachelor in

# Electronics and Cyber-Physical Systems Engineering

2022/23



## At a glance

Bachelor class: L-8  
ECTS credits: 180  
Duration of the course: 3 years  
Courses will be taught in English,  
Italian and German  
Places available: 25 EU + 5 Non-EU  
Campus: Bozen-Bolzano  
Tuition fees: ca. € 1350 per year



The aim of this programme is to train developers and integrators of both hardware and software, who based on a strong formal background in mathematics, physics, and statistics, and computer science, combine the areas of electronic, automation and computer engineering to design, build and validate electronic, embedded and automation components and systems for a variety of application fields, with particular emphasis on ICT and Industry 4.0.

## Structure

The first half of the programme comprises formal basics in mathematics, physics, statistics, and computer science with the main courses being mathematical analysis, physics, programming, and statistics, as well as introductory lectures in electronic, automation, and computer engineering. More practice-oriented courses, which are necessary to understand how to build and validate electronic and cyber-physical systems, are taught in the second half of the programme, such as electronic systems, robot control, computer architecture, as well as artificial intelligence and machine learning.

# Study Plan

## 1st Year

- 9 CP Mathematical Analysis I
- 9 CP Mathematical Analysis II
- 9 CP Linear Algebra
- 6 CP Physics I
- 9 CP Physics II
- 12 CP Fundamentals of Programming
  - 6 CP Fundamentals of Programming I
  - 6 CP Fundamentals of Programming II
- 6 CP Basics of Electronics

## 2nd Year

- 6 CP Algorithms and Programming
- 12 CP Operating Systems and Networks
  - 6 CP Operating and Real-time Systems
  - 6 CP Networks of Electronic Devices
- 9 CP Electronic Devices
- 6 CP Electronic Circuit Design
- 6 CP Fundamentals of Systems and Control
- 9 CP Modern Control
- 9 CP Fundamentals of Statistics
- 3 CP Specialised Language (German, Italian or English)

## 3rd Year

- 6 CP Electronic Systems
- 6 CP Robot Control
- 6 CP Computer Architecture
- 9 CP Artificial Intelligence and Machine Learning
- 6 CP Economics and Management
- 18 CP Free Choice
- 6 CP Internship
- 3 CP Thesis

## Exchange Programmes and Internships

The faculty offers exchange programmes with universities all over the world and unibz is part

of a large network of collaborations with employers in Italy and abroad where you can undertake your mandatory internship (150 hours).

## Career Opportunities

Graduates can find employment in companies producing hardware and/or software, in the public or private sector, where electronic, embedded and automation components and systems are used in domain-specific applications. The spectrum of employment opportunities is extremely broad and ranges from the design and control of electronic components, circuits, systems, and machines to the analysis of complex technical systems and their modelling and simulation, as well as to the development of methods and software for measurement, control, and regulation tasks.



## Bachelor in Electronics and Cyber-Physical Systems Engineering

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### Application and Admission

You can find all you need to know in order to apply and gain admission to this study programme by browsing through the information below.

Subject to accreditation of the Ministry.

### Deadlines and important dates

#### Early Bird Application

Application: 01/03 - 28/04/2022 (by noon local time)

Language exams: 17 - 18/03/2022 (no places left) and 13 - 14 and 19 - 21/04/2022 (registrations 24/03 - 05/04/2022)

Admission Exam: 06/05/2022 - 15:00

Admission procedure and publication of ranking lists: by 17/05/2022

Payment of the 1st instalment of the tuition fees: by 27/05/2022 (by noon local time)

Enrolment: 13/07 - 25/07/2022 (by noon local time)

#### Late Application (only for EU citizens)

Application: 19/05 - 07/07/2022 (by noon local time)

Language exams: 27/06 - 02/07/2022 (registrations 19/05 - 20/06/2022)

Admission Exam: 18/07/2022 - 10:30

Admission procedure and publication of ranking lists: by 27/07/2022

Payment of the 1st instalment of the tuition fees: by 04/08/2022 (by noon local time)

Enrolment: 27/07 - 04/08/2022 (by noon local time)

#### Super Late Application (only for EU citizens)

Application: 21/09 - 30/09/2022 (by noon local time)

Language certificate check: 04/10

Admission Exam: 07/10/2022 - 15:00

Admission procedure and publication of ranking lists: by 13/10/2022

Payment of the 1st instalment of the tuition fees: by 20/10/2022 (by noon local time)

Enrolment: by 20/10/2022 (by noon local time)

#### Preparatory courses and Freshers Days

Mathematics pre-course: 22/08 - 02/09/2022

Intensive language courses: 05 - 23/09/2022 (Monday to Friday, 8 h/day)

Freshers Days: 26 - 27/09/2022

## 1st semester

Classes: 26/09 - 23/12/2022

Exams (extraordinary session): 15 - 23/12/2022

Holidays: 24/12/2022 - 08/01/2023

Classes: 09/01 - 21/01/2023

Exams: 23/01 - 18/02/2023

## 2nd semester

Classes: 27/02 - 06/04/2023

Holidays: 07/04 - 10/04/2023

Classes: 11/04 - 10/06/2023

Exams (extraordinary session): 17 - 27/05/2023

Exams: 12/06 - 08/07/2023

## Autumn session

Exams: 28/08 - 30/09/2023

## Available places

EU citizens and citizens given parity of treatment

Early Bird Application: 15

Late Application: 10

Non-EU citizens (living abroad)

Early Bird Application: 5

The programme will only be offered if a minimum of 15 newly enrolled students is reached.

## Entry requirements

To gain admission to the programme you need one of the following qualifications:

- a secondary school leaving certificate (Italian system)
- equivalent qualification obtained abroad.

Foreign school leaving certificates are considered equivalent if obtained after 12 years of education. In this case, you furthermore must have attended at least the last two years in the foreign school system (e.g. Irish Leaving Certificate: it is not enough to attend one year and obtain the foreign certificate).

The Italian Ministry of Education, University and Research has set specific admission requirements for holders of certain certificates (e.g. American high school diplomas, British and Greek certificates). For more information: [apply@unibz.it](mailto:apply@unibz.it) (Advisory Service).

To be admitted, you must fulfil the language requirements indicated in the section "Language requirements".

According to national regulations, simultaneous enrolment in a maximum of 2 programmes is possible (however, the two programmes must not belong to the same class, e.g., L-18/L-18).

## Language requirements

The official teaching languages are German, Italian and English. Therefore, the following language requirements apply, otherwise you will be excluded from the admission procedure:

### Entry level (to gain admission)

1st language: B2

2nd language: B2 (If there are any places available, admission is also possible with B1)

3rd language: no level required

A B1 level in the third language is the minimum requirement for taking curricular examinations in that specific language.

### Exit level (to graduate)

1st language: C1

2nd language: B2

3rd language: B2

The levels of the Common European Framework of Reference apply.

Your first language is the language in which you have the highest level of proficiency (B2 or C1). Your third language is instead the language in which you are weaker (or in which you are an absolute beginner).

You can demonstrate your language proficiency in the application portal (in the section “upload language certificates” and/or “enrol for language exams”) after you have created an application in the section “create/manage applications”. The certification is mandatory for the first and second language, for the third language it is recommended (from B1 onwards).

- In case your final certificate has been awarded by an **Italian** public institution, you need to submit a self-declaration.
- In case your final certificate has been awarded by a **foreign** public institution, you need to upload diploma scanned copy of the original.

### You can demonstrate language proficiency through:

1. **the main teaching language in your final high school year** if German, Italian or English (recognised as C1) (Ladin upper secondary schools: recognised as B2 in German and Italian).
2. **a bachelor or master degree** in Italian, German or English (recognised as C1). unibz graduates must upload the language certificates obtained and/or declare that they have passed language exams at the unibz Language Centre (B2, B2+ or C1)
3. **a recognised language certificate** (see the list of recognised certificates: <https://www.unibz.it/en/services/language-centre/study-in-three-languages/>) If you cannot upload the certificates, you can send them by e-mail as PDF files or deliver them in person to the Language Centre by the application deadline (see “Deadlines” section).
4. **language exams organised by the unibz Language Centre**. You can register for these exams online through the application portal (in the section “enrol for language exams”)



after you have filled out your application in the section “create/manage applications”. The registration periods are indicated in the “Deadlines” section. If you start your application outside a language exams registration period, you must return to the portal during one of the periods indicated above in order to register for an exam.

Information regarding the structure of the language proficiency exams, their duration, their administration, and typical processing time for the publication of the results can be found on the following webpage: <https://www.unibz.it/en/services/language-centre/language-exams/>.

### **Secondary schools in a foreign country/Bi- or multilingual schools**

If the foreign language proficiency levels (for German, Italian, or English) are explicitly indicated on the diploma of graduation according to the Common European Framework of Reference (i.e., B1, B2 or C1), and if all four language abilities (reading, listening, speaking, writing) have been assessed, then the indicated levels will be accepted as a proof of proficiency for the second and/or third language.

Please upload your school-leaving certificate to the application portal in the section “upload language certificates” under the respective language. The Language Centre will decide on its recognition.

### **Third language/Intensive language courses in September**

If you have already acquired a language certificate in the third teaching language, please upload it to the portal. If you are not able to certify your language competence in the third language and you are admitted to unibz, you will have to take a placement test. You will receive further information about the test by e-mail. Based on the result of the placement test, you will be assigned to a certain learning path so that you will be able to reach level B2 as soon as possible.

If you are an absolute beginner in the third language, or if you have a level below B2, you may attend a three-week intensive language course during the pre-semester session in September in order to start the learning path.

The dates of the extensive courses are indicated in the “Deadlines” section. Beginner courses (A1) will be offered exclusively during the pre-semester intensive course session in September will no longer be offered during the academic year. Therefore, absolute beginners should start their learning path for the third language by attending the intensive courses in September.

There will be extensive courses (4 hours per week) during the semesters and intensive courses (8 hours per week) during the time between semesters.

The language courses offered by the Language Centre are **free of charge** and aim to help the students reach the following target levels in the third language:

- B1 level by the end of the 1st year;
- B2 level by the end of the 2nd year.

## **Online application**

Your application must be submitted online through the Application Portal. The deadlines are indicated in the “Deadlines” section.

- You need to create an account and upload a valid ID card or passport (front/back). Please note: if your document is invalid, incomplete or unreadable, you will be excluded from the admission procedure;
- Fill in the online form and upload the attachments listed under “Admission procedure”;
- If you gained your qualification abroad, you must also upload the diploma of your qualification: if you are not yet in possession of the diploma, you’ll need to upload it upon enrolment;
- Complete and submit the online application by the deadline. Once the application has been sent, it cannot be modified. Filled-in forms which have not been sent correctly will not be taken into consideration.

**Please note:** Mendacious declarations will be criminally prosecuted and will result in the automatic exclusion from the ranking list.

### EU-Citizens and equivalent

You might apply for more than one study programme. If you are excluded in the first session, you might apply again in the second one.

#### Considered as equivalent are:

1. Citizens from Norway, Iceland, Liechtenstein, Switzerland, San Marino and the Vatican City State;
2. Non-EU citizens with a valid permit to stay in Italy (see article 39, paragraph 5 of decree no. 286 of 25.07.1998: “**permesso di soggiorno**” (residence permit) for work, family reasons, political or humanitarian asylum, religious reasons). In this case, you apply directly to the University as described above and must submit a copy of your valid permit to stay. A permit to stay for study reasons or a visa for tourism is **not** sufficient. If the permit has expired, you must attach a renewal request.

**Please note** that if you do not upload the permit in the application portal, you will be automatically considered a non-EU citizen living abroad and therefore subject to the admission procedure through the Italian authorities in your country of origin.

### Non-EU-Citizens (living outside of Italy)

Only one application period is offered. After the deadline it is not possible to apply anymore. Application fee: € 30. The fee is a administration fee and is non-refundable.

Once the ranking list has been published, if you have gained admission, secure it by paying the first instalment and then start your visa application on the University portal. The application on University is mandatory, otherwise you will not be allowed to enrol. On University you can apply for one study programme only.

At the beginning of September, you must also sit a separate Italian language test before you can enrol.

## Admission procedure

The admission procedure is based on the following criteria:

1. **Admission Exam** (max. 60 points):

A multiple choice test will give information about the prior knowledge of the applicants in the field of logic, mathematics and science subjects.

The admission test will take place online on following dates:

- for the early bird application: **Friday, 06/05/2022 - 15:00**
- for the late application: **Monday, 18/07/2022 - 10:30**
- for the super late application: **Friday, 07/10/2022 - 15:00**

The result of the admission test in one of these dates remains valid for the admission procedure of the a.y. 2022/23.

## 2. Evaluation of the High School curriculum (max. 40 points):

this will be based on the marks of the third-last year and penultimate year of secondary school. The marks for behaviour, religion and physical education are not taken into consideration.

Here you can find an example of the admission exam and also the topics suggestions.

### In the application portal, you shall:

- Insert, using self-declaration, your grades for the subjects of your third-last and penultimate secondary school year. **Please note:** mendacious declarations will be sanctioned by criminal law and will result in your automatic exclusion. Final marks of your third-last year and penultimate year of secondary school\* must be self-declared in the online application form.

**In the event of self-declared years being concluded abroad, a copy of the relevant school report cards must be uploaded in the portal.**

- Upload the official translation of your school report cards into Italian, German or English if needed;

(\*] If you omit to indicate the final grades of the third-last and penultimate year of secondary school, the Admission Committee will assign you a final grade equal to the passing grade of the school year you have not provided a certificate for.

(\*] If you have attended a school whose system differs substantially from the Italian system and you do not have the reports with the final grades of the third-last and/or penultimate year of study of your secondary school, the Admission Committee reserves the right to evaluate the possible final reports of the secondary school that refer to years different from the penultimate or third-last.

The dual study programmes are offered under condition of minimum 10 enrolled students. If this minimum number of students is not reached, the enrolled students can request the refund of the registration fee or they have the possibility to switch to the full-time programmes.

### Ranking lists

The Admission Committee will only evaluate the documents uploaded in the portal by the application deadline. The ranking lists with the admitted students will be published here: <https://www.unibz.it/en/applicants/ranking-lists/> and are only valid for the respective academic year.

### Additional learning obligations

If on the day of the exam the Admission Committee evaluates your prior knowledge as

inadequate, you may be assigned additional learning obligations to be achieved by the end of the first academic year.

In order to get prepared for the additional learning obligations test, preparatory courses are offered in the weeks before the beginning of the first semester. In particular, the courses are taught as intensive courses in which the basic concepts of mathematics, physics, biology and chemistry are dealt with. The additional educational debt is absolved by passing a special examination. Specific dates will be scheduled to take the exams during the first year.

The OFA-exam must be passed within the first academic year of study and is an essential prerequisite for taking the curricular exams of the years following the first. If you have not passed the OFA exam in one of the sessions planned, you will be not able to enrol in the second year of study; consequently, you will be enrolled in the first year again.

## Secure your admission and enrolment

If you have been admitted to more than one study programme, you can secure your admission for a maximum of 2 programmes by paying the designated rate twice. By confirming your place, you renounce admission to the other programmes.

### 1. Choose the study programme and pay the fees (to secure your admission) in the application portal.

The deadlines are indicated in the “Deadlines” section.

If you do not meet this deadline, you will automatically be excluded and the next applicant in the ranking list will be admitted.

For EU citizens and citizens given parity of treatment only: any remaining places of the early bird application, will be offered in the late application.

**Please note** that you do not gain full student status by only paying the tuition fees. This status will only be acquired upon enrolment. If you have secured your admission, there will be no refund of the tuition fees unless you do not pass your secondary school final exam or, in the event of non-EU applicants living abroad, you do not receive the documents necessary for enrolment from the Italian authorities in your country.

### 2. Enrol online in the application portal.

The deadlines are indicated in the “Deadlines” section.

Enrolment is recommended as early as possible, so you have the possibility to upload incomplete documents before the deadline.

If you do not meet the enrolment deadline, you will be excluded and the next applicant in the ranking list will be admitted.

**If you have gained your secondary school qualification abroad, you must certify that at the universities in the country where you gained your qualification, you can access to a study programme similar to that chosen at unibz. Therefore you must upload (if not uploaded upon application):**

- secondary school diploma
- official translation of the secondary school diploma into Italian (translation is not

necessary if it has been issued in German or English)

- Statement of comparability of your secondary school diploma, issued by the Italian Information Centre on Academic Mobility and Equivalence (CIMEA), or Declaration of equivalent Value of your secondary school diploma, issued by the Italian consulate or embassy abroad, as an alternative to the Statement of comparability

The Statement of comparability or the Declaration of equivalent value are not necessary for qualifications gained in Austria or Germany, but unibz reserves the right to request them in case of doubt.

**Please note** that if you do not possess a valid admission qualification, you could be excluded with Rector's decree even after enrolment.

### **If you are a non-EU citizen living abroad:**

Once you are eligible for admission (check the ranking lists) and have also applied on University, the Italian Authorities in your own country will issue you the entry visa for studies/university. This will allow you to arrive in Italy to sit the Italian-language test (for bachelor programmes) and to enrol for the study programme that you have applied for.

The Italian-language test, which all students applying for bachelor programmes must sit, usually takes place at the beginning of September in Bozen-Bolzano. Students might also sit the oral exam online.

According to Italian law, within 8 working days of your arrival in Italy, you must have applied for the residence permit: as soon as you arrive, get in touch with the Advisory Service and you will be given the necessary information for starting the procedure.

Once you will obtain your residence permit (permesso di soggiorno), you have to hand it in at the Student Secretariat personally or via e-mail.

**Students intending to transfer from another Italian University to unibz** have to submit to the Student Secretariat - at the beginning of the academic year - a copy of the transfer application presented at the university of provenance.

## **Tuition fees**

Fees amount to **€ 1351.50**

- **1st instalment** (€ 751.50)\*: includes the provincial tax for the right to study of € 151.50 and a revenue stamp of € 16.
- **2nd instalment** (€ 600): must be paid by 31 March 2023.

Delayed payment of the second instalment will result in a fine being levied. If you have not paid the tuition fees, you will be unable to take exams and will not be able to transfer to other universities or other study programmes.

If you drop out of a programme, interrupt your studies or are excluded from studies, you are not entitled to reimbursement of the fees.

Exemption from the tuition fees (and the provincial tax) is granted to:

- Students with a disability recognized under article 3, paragraph 1, of Law No 104/1992, or

with a disability up to or exceeding 66%: the disability certificate, issued by the health authorities, must be handed in at the beginning of the academic year.

- Foreign students who have been granted a scholarship from the Italian government.

Students who benefit from a scholarship granted by the Autonomous Province of Bozen-Bolzano are entitled to receive a refund of the tuition fees.

## Recognition of credit points from previous studies

Credit points from previous university studies can only be recognised after enrolment if the exams taken at the university of provenance are equivalent in content to those offered at unibz. You can fill out the application after enrolment.

The Advisory Service provides support regarding your choice of study. In many cases a simple call or a short request is enough to get the relevant information (Tel. +39 0471 012100).

Photography: Ivo Corrà



## **Advisory Service**

Universitätsplatz 1 - piazza  
Università, 1  
Italy - 39100, Bozen-Bolzano  
Tel +39 0471 012100  
Fax +39 0471 012109  
[apply@unibz.it](mailto:apply@unibz.it)

## **Opening Hours**

Tuesdays: 10:00-12:00  
Thursdays: 14:00-16:00

Alternatively, you may call us  
throughout the week or book an  
online appointment