



Fakultät für Ingenieurwesen
Facoltà di Ingegneria
Faculty of Engineering

Master in Software Engineering

2024/25



At a glance

Master class: LM-18
ECTS credits: 120
Duration of the course: 2 years
Courses will be taught in English
Places available: 30 + 20 non-EU
Campus: Bozen-Bolzano
Tuition fees: ca. € 1350 per year

Course description

The physical world and the virtual world (cyberspace) are converging into new generations of systems like the **Cyber-Physical Systems**. Such systems monitor physical environments, communicate and cooperate with each other and with human beings in real-time, and make decentralized intelligent decisions. They are highly dependent on components whose functionality is controlled by software.

With the revolution of **Industry 4.0**, manufactural production also begins to depend on these systems more and more. At the same time, companies and organizations still need IT to automatize their business processes and release human beings from the burden of repetitive and tedious operations.

Business software provides such support but requires a great knowledge of the operational environment in which it runs as it is developed to meet the needs of a specific business. Thus, designing and building software for such systems is an art that also requires skills in context analysis and customization.

Overall, there is an increasing need for a new generation of systems and software technologies that ensures robust, safe, secure, uninterrupted, and real-time operations - particularly in situations where human life or business is exposed to risk if software fails.

In this Master, you will learn how to conceive, design, implement, customize, and maintain these systems by applying software engineering principles to the industry practice and develop and test your prototypes. Courses are designed to provide you with **advanced software engineering knowledge** and practice of **software and systems development** complemented by competences in lean management and entrepreneurship.

The internship program will drive you through a unique experience and can prepare you for your thesis work. The internship can be performed in companies or in collaboration with international research centers associated with the program. The learning experience you get with this Master will give you a solid base for your future as a software and systems-engineer

Online Info Evenings

We offer online information sessions in the coming months during which the master programme will be presented and where interested students can address their questions to professors and students. The Info Sessions take place on the following days:

- Thursday 14 March 2024, 18:00 (CET): register here

Structure of the course

- Foundations: these subjects provide the foundational knowledge of software engineering. They aim to homogenize the knowledge of students from different previous educational backgrounds and prepare them for studying advanced and specialization topics.
- Advanced topics: these subjects aim to develop the skills of students which complement the foundations, and are useful in the training of the professional figure of software engineers.
- Specialization topics: these subjects intend to provide students with knowledge specific to an application type or business domain, and prepare them for their thesis work.

Study Plan

1st Year - 1st Semester

- 12 CP Software Design and Implementation
 - 6 CP Requirements Engineering
 - 6 CP Advanced Software Design Techniques
- 6 CP Contemporary Software Development
- 6 CP Agile Software Development
- 6 CP Alternatives from Catalogue

Catalogue for the 1st Semester

- 6 CP Software Maintenance and Evolution
- 6 CP Extended Reality: Augmented, Virtual and Mixed Reality
- 6 CP Software Quality and Metrics
- 6 CP Parallel Computing

1st Year - 2nd Semester

- 6 CP Human Computer Interaction
- 12 CP Verification and Reliability
- 6 CP Software and Systems Security
- 6 CP Seminar in Software Engineering Advances
- 6 CP Cloud Computing and Distributed Systems

2nd Year - 3rd Semester

- 6 CP Research Methods and Technology Transfer
- 12 CP Free Choice Courses
- 6 CP Internship

Catalogue for the 3rd Semester

- 6 CP Embedded Systems Design and Implementation
- 6 CP Information Retrieval
- 6 CP Programming for Data Science
- 6 CP Mobile Robotics
- 6 CP Programmable Logic Controllers
- 6 CP Data Visualization and Exploration
- 6 CP Entrepreneurial Software Engineering
- 6 CP Design and Development of Business Software

6 CP Microcontroller Programming

2nd Year - 4th Semester

6 CP Alternatives from Catalogue

30 CP Thesis

Exchange programmes and internships

Currently we offer exchange programmes with partner universities all over the world and we are part of a large network of collaboration with employers in Italy and abroad where you can undertake an **optional internship** with a maximum of 300 hours.

Career Opportunities

Typical job profiles are **Software and Information Systems Engineer**: Analysis, design, implementation, customization, overhaul, and maintenance of intelligent solutions with high reliability and performance for information systems, by fully exploiting inventions and software technologies for pragmatic application and rapid commercialization, in real time and on a large scale. Such information systems include: ICT, business, industrial automotive, automation and control, scientific and data processing, the management of complex infrastructures, cyber-physical systems;

On the website of **AlmaLaurea** you can check our outstanding statistical **data about the satisfaction of our graduates**, and their employability.



Master in Software 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 - 07/05/2024 (by noon local time)

Language exams (online): 18/03/2024 (registration: 01 - 10/03/2024) and 17 - 18 - 19 and 22 - 23/04/2024 (registration: 25/03 - 09/04/2024)

Publication of ranking lists: by 28/05/2024

Payment of the 1st instalment of the tuition fees: by 06/06/2024 (by noon local time)

Enrolment: from 12/07 - 15/10/2024 (by noon local time)

Late Application (only for EU citizens)

Application: 29/05 - 10/07/2024 (by noon local time)

Language exams (online): 24 - 29/06/2024 (registration: 29/05 - 16/06/2024)

Publication of ranking lists: by 30/07/2024

Payment of the 1st instalment of the tuition fees: by 06/08/2024 (by noon local time)

Enrolment: from publication of the ranking list until 15/10/2024 (by noon local time)

Additional Application Session (only for EU citizens)

The Faculty can open additional application sessions for single study programmes in September if there are available spaces. More information on additional sessions will be published in due course.

Preparatory courses and Freshers Days

Freshers Days: 30/09 - 01/10/2024

1st semester

Classes: 30/09 - 23/12/2024

Holidays: 24/12/2024 - 06/01/2025

Classes: 07/01 - 25/01/2025

Exams: 27/01 - 15/02/2025

2nd semester

Classes: 03/03 - 17/04/2025

Holidays: 18- 21/04/2025

Classes: 22/04 - 14/06/2025

Exams: 16/06 - 12/07/2025

Autumn session

Exams: 25/08 - 27/09/2025

Available places

EU citizens and citizens given parity of treatment

Early Bird Application: 20

Late Application: 10

Non-EU citizens (living abroad)

Early Bird Application: 20

The programme will only be offered if a minimum of 8 newly enrolled students is reached.

Entry requirements

In order to gain admission you need one of the following admission titles:

- a bachelor degree or an equivalent qualification according to the previous regulations obtained in Italy;
- an equivalent qualification obtained abroad.

The following curricular requirements obtained through bachelor degrees, master degrees, or single subject courses:

- at least 12 ECTS credits in computer science = scientific-disciplinary sectors INF/01 or ING-INF/05 in Italian universities;
- at least 6 ECTS credits in mathematics = scientific-disciplinary sectors MAT/01 or MAT/05 or MAT/08 in Italian universities;
- at least a further 12 ECTS credits in the above-mentioned areas

For candidates with a qualification obtained abroad the verification of the curricular requirements is based on the specific contents of the educational activities.

In addition to the entry requirements, you can strengthen your application by uploading a Curriculum Vitae that must include the following information:

- work experience in the field of Software Engineering, Computer Engineering or Applied Computer Science
- additional experience in the field of Software Engineering, Computer Engineering or Applied Computer Science such as:
 - awards
 - participation in software/IT projects
 - scientific publications

- professional certifications
- participation in organisation/facilitation in software/IT events (such as coding bootcamps or coding competitions)
- volunteering activities in open source communities, social-related software/IT initiatives).

These experiences must be documented with certificates, links to project websites, or links to event websites.

If you have not yet graduated at the time of application:

You can apply if you have acquired at least 120 credit points (ECTS). In this case you will be admitted conditionally. You will have to submit your diploma by the enrolment deadline.

If you graduate after the enrolment deadline:

You cannot enrol and you will lose your place, which will be offered to the subsequent applicant in the ranking list. In this case you should not pay the tuition fees to secure your admission. You will be able to submit a late enrolment request and, only if there still are available places, you can enrol by 13 December 2024.

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., LM-18/LM-18 and must differ for at least 2/3 of the course contents).

Language requirements

The official teaching language is English. Therefore, the following language requirements apply, otherwise you will be excluded from the admission procedure:

Entry level (to gain admission)

English: B2

The levels of the Common European Framework of Reference apply.

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”.

- 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 English (recognised as C1)
Foreign qualifications: If the main teaching language is not clearly stated on your high school diploma, please also upload a letter/document issued by your high school stating the medium of instruction.
2. **a bachelor or master degree** in 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). **Foreign qualifications:** If the teaching language is not clearly stated on your University degree, please also upload a letter/document issued by your University stating the medium of instruction during your studies.

3. **a recognised language certificate** (see the list of recognised certificates) 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.

For information on studying in three languages also visit the following page.

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**. 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: € 50.

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.

Admission procedure

The admission procedure is based on the evaluation of your study career

Information on your study career:

- Please download the excel file and the PDF with the example of a filled in file from the application portal. Fill in both the worksheets in the excel file (tab "Admission title" and tab "Other university courses") and upload it in the portal as an excel file.
- If you graduated in Italy, you must self-declare the exams passed, otherwise you will be excluded.
If you graduated abroad, you must upload your academic transcript, otherwise you will be excluded.
- If you want to strengthen your application through a Curriculum Vitae, upload it as a PDF in the portal under "Curriculum vitae"
- To be admitted you must also certify adequate language skills in English (see section "Language requirements").

Please note: mendacious declarations will be sanctioned by criminal law and will result in your automatic exclusion.

The evaluation criteria are:

- the admission title is scored up to 10 points based on the grade average obtained at the time of application;
- the score awarded for the study curriculum is weighed on the basis of the "Webometrics Ranking of World Universities", proceeding as follows: 3 points for universities in position from 1 to 1000 in the ranking; 2 points for universities in position from 1001 to 2000; 1 point for universities in position from 2001 to 3000 in the ranking; 0 points for universities in position from 3001 onwards;
- Curricular requirements contribute to the formation the score in the following way:
ECTS in computer science = scientific-disciplinary sectors INF/01, INGINF/05 and/or mathematics = scientific-disciplinary sectors MAT/01, MAT/05 or MAT/08:

- 3 points for more than 120 ECTS
- 2 points for 81-120 ECTS
- 1 point for 41-80 ECTS
- 0 points for less than 40 ECTS
- the Curriculum Vitae is scored up to 4 points based on the relevance of the listed experiences.
- the certificate of English language proficiency (B2) does not give a score but is an admission prerequisite.

The maximum score achievable is 20 points. Candidates are admitted to the programme if they exceed the minimum threshold of 8 points.

Ranking lists

The Admission Committee will only evaluate the documents uploaded in the portal by the application deadline. The ranking lists will be published here and are only valid for the respective academic year.

Secure your study place 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.

Admission with reservation:

If you do not have the required academic qualification, you will be given a conditional offer for a study place and you must submit your qualification upon enrolment. If you achieve your qualification after the enrolment deadline, you cannot enrol, and you will lose your place which will be offered to the subsequent applicant in the ranking list. **Advice:** If you achieve your qualification after the enrolment deadline, you should not pay the tuition fees to confirm the study place. You will be able to submit a late enrolment request and, only if there are study places still available, you can enrol by 13 December 2024.

If you have gained your qualification abroad, you must upload:

- the diploma of your qualification
- the official translation of your diploma into Italian (not necessary if the diploma has been issued in German or English)
- the Diploma supplement, where it must be indicated: that you have achieved at least 180 credit points (ECTS) and that the qualification gives access to a master programme

In case the Diploma supplement is missing, you must upload the documents indicated below.

If you have gained your qualification abroad in one of the Countries that are signatory to the Lisbon Convention you must upload:

- the Statement of **Correspondence** of your qualification, to be downloaded from the ARDI - Automatic Recognition Database – Italy

If you have gained your qualification abroad in a country that is not a signatory to the Lisbon Convention, you must upload:

- the Statement of **Comparability** of your qualification, issued by the Italian Information Centre on Academic Mobility and Equivalence (CIMEA)
- the Statement of **Verification** of your qualification, issued by the Italian Information Centre on Academic Mobility and Equivalence (CIMEA)

unibz performs the necessary checks on your foreign qualification and in case of doubt reserves the right to request additional documents.

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

If you are a non-EU citizen living abroad:

If 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 enrol for the study programme that you have applied for, after passing the admission procedure.

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 must 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 **€ 1373**

- **1st instalment (€ 773)**: includes the provincial tax for the right to study of € 173 and a revenue stamp of € 16.
- **2nd instalment (€ 600)**: must be paid by March of the following year.

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).

Advisory Service

Opening Hours

Subject to change.
Latest update: 16.02.2024