Master's Degree in
Bioengineering for Personalized Medicine - B4PM

The future belongs to those who believe in the beauty of their dreams.
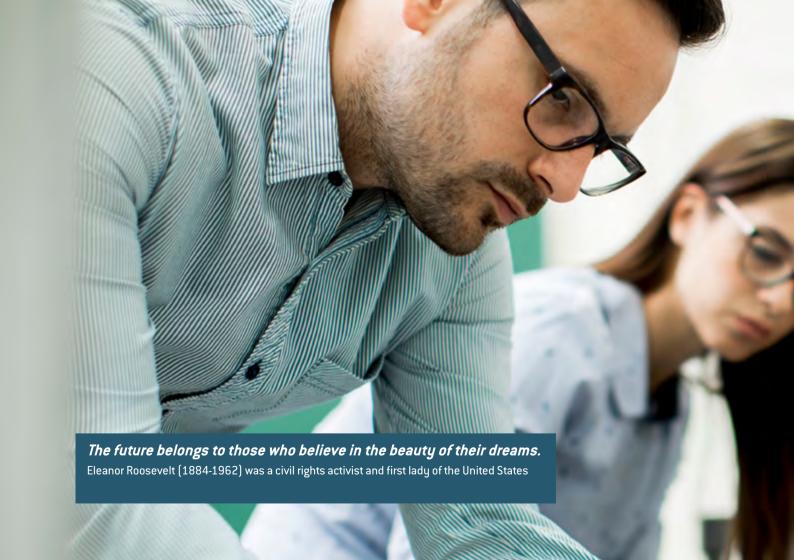Eleanor Roosevelt (1884-1962) was a civil rights activist and first lady of the United States
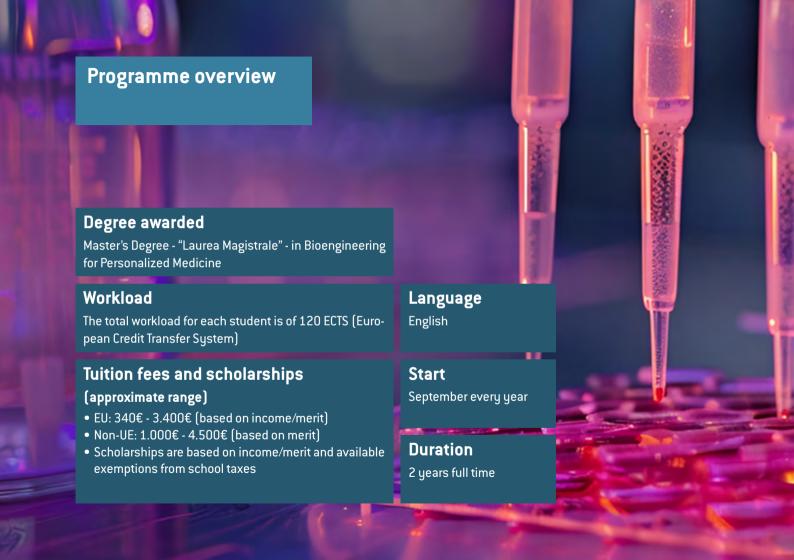
Master's Degree in Bioengineering for Personalized Medicine - B4PM

The Master's Degree in Bioengineering for Personalized Medicine (B4PM) is jointly offered by three Italian universities: the University of Trento, the University of Verona and the University of Modena-Reggio Emilia. The B4PM Master's degree aims to train engineers with deep knowledge and strong competence in the design, development, characterization, quality control and management **of medical devices, systems, and services for the promotion of personalized and precision medicine,** with a strong focus on **sustainability** principles. The courses offer multidisciplinary training, which integrates the topics of biomedical, industrial and information engineering with those of medicine and biology.

The academic organization of the degree is designed taking into consideration the interconnected trends of technology and medicine and provides advanced education aiming to convert technological development into added value for patients, professionals and society.

Graduates in Bioengineering for Personalized Medicine are **unique professionals, trained to play a key role in the process of innovation of methods and products for medicine**. Furthermore, graduates possess skills and competences highly sought after by production and service companies and by public or private healthcare systems.

Programme overview

Degree awarded

Master's Degree - "Laurea Magistrale" - in Bioengineering for Personalized Medicine

Workload

The total workload for each student is of 120 ECTS (European Credit Transfer System)

Language

English

Tuition fees and scholarships

(approximate range)
- EU: 340€ - 3.400€ (based on income/merit)
- Non-UE: 1.000€ - 4.500€ (based on merit)
- Scholarships are based on income/merit and available exemptions from school taxes

Start

September every year

Duration

2 years full time

Admission

Application deadlines
(check online for updates)
- February for non-EU citizens living outside Italy
- From June to November for EU citizens and non-EU citizen regularly resident in Italy

Requirements
- Bachelor's degree in Industrial or Information Engineering or equivalent qualification, with an average mark equal to or higher than 23/30.
- English language knowledge B2 level (according to the Common European Framework of Reference for Languages - CEFR)

Selection criteria
- Coherence between the candidate's previous studies and the educational aims of the Master's degree courses
- Academic curriculum of the candidate

How to apply
- Access and fill in the online application form
- Upload the requested documents
- Submit the online application by the deadline
- Check online for further information and updates: www.unitn.it/b4pm

Study plan

The first year of the Master's Degree is devoted to consolidating **basic engineering knowledge in the fields of mechanical engineering, materials science, information technology and electronic engineering**. This knowledge is integrated with additional competences in the fields of medicine, biology and biomedical engineering, as well as with elements of product innovation.

During the **second year**, students choose one of the following **two specialization curricula**:

- **Digital Healthcare:**
  focuses on the themes of telemedicine, robotics, data management and analysis, artificial intelligence and systems and processes modelling, which constitute the technology set necessary for the development of 4.0 healthcare and its evolution into a patient-centred paradigm.
- **Emerging and Sustainable Medical Technologies:**
  focuses on the topics of smart biomaterials, tissue engineering, bio-fabrication and advanced prosthetics as key elements for the development of innovative technologies for personalized and precision medicine with attention to current needs of sustainability.

Teaching methods

- The courses involve a combination of frontal teaching sessions, laboratory classes and supplementary activities.
- Students have the possibility to shape their study path through the choice of complementary courses or by presenting their own study plan.
- To graduate students must propose an original research activity and elaborate on it through the presentation of a Master's thesis.
- Additional activities aimed at skill enhancement in the form of visits to companies, summer schools and seminars.

Career opportunities

The Master's degree in Bioengineering for Personalized Medicine (B4PM) opens up career opportunities in a wide variety of productive and service contexts where robust engineering competences and knowledge of biomedical science are essential.

The professional competencies gained include innovation and technology development, advanced designing, planning, programming and complex systems management. Therefore, B4PM graduates can work in a variety of areas, such as industrial and commercial companies, public and private healthcare services and public administrations.

Graduates who are residents of Italy can apply for registration in the Order of the Engineers in their province once they have passed the State Certification Exam.

For any graduates interested in further specialization in Italy or abroad, the B4PM Master's degree opens the possibility to apply for national and international:

- Doctoral courses in the fields of biomaterial science and engineering, biomedical engineering, healthcare technology development and industrial innovation.
- Specialization courses and Second Level Master courses for technological park management, innovation in medicine, healthcare technology evaluation, risk analysis and management.
- Professional Master courses in Clinical Engineering.