

# Biomedical Engineering



## Programme description

Master studies in Biomedical Engineering last three semesters starting in February each year. The first semester concentrates on common subjects related to biomechanical modeling and simulation, orthopedic and rehabilitation engineering, pathobiomechanics, testing of biomaterials and tissues, and modern technologies in medicine and biomedical engineering (bionics and virtual engineering, telemedicine, virtual reality). In the second semester, students expand their knowledge in biomaterials (biopolymers and biocomposites, surface engineering), medical image processing, and operating room and medical office equipment. Students choose one of three specializations: Medical and Rehabilitation Devices, Engineering of Implants and Prostheses or Bionics and Virtual Engineering. The specialization subjects are realized in the second and third semesters. The students also can select elective courses within their specializations. The last semester focuses on laser applications in medicine and specialization subjects. The students prepare their master thesis in the area of their specializations and study elective courses in humanistic or social sciences, physical education, and foreign language.

Biomedical Engineering is an interdisciplinary field of study. A graduate receives the title Master of Science in Biomedical Engineering. He/she is prepared to work with doctors, physical therapists, and other medical professionals to apply advanced technologies in the medical environment and design prostheses, implants, and medical devices. A graduate can be employed both in research and industry.

## Course summary:

### Semester 1

- Elective course 1 (humanistic / social)
- Basics of bionics and virtual engineering
- Biomechanical modeling of human movement
- Information systems in medicine
- Mechanics of body fluids and bioflows
- Mechano- and balneotherapy
- Medical and rehabilitation robots
- Orthopaedic and rehabilitation engineering
- Pathobiomechanics
- Telemedical engineering
- Testing of biomaterials and tissues
- Virtual design in biomedical engineering

### Semester 2

- Biomaterials surface engineering
- Clinical trials of medicinal products and medical devices
- Equipment of surgical and medical rooms
- Polymer and composite biomaterials
- Medical images processing
- Passing project
- Pre-graduate seminar
- Specialization subjects in Medical and Rehabilitation Devices / Engineering of Implants and Prosthesis / Bionics and Virtual Engineering

### Semester 3

- Elective course 2 (humanistic / social)
- Elective course 3 (humanistic / social)
- Foreign language
- Lasers in medicine
- Physical education
- Diploma seminar
- Preparation of diploma thesis
- Specialization subjects in Medical and Rehabilitation Devices / Engineering of Implants and Prosthesis / Bionics and Virtual Engineering



# Biomedical Engineering

<b>University</b>	Poznan University of Technology Poznan, POLAND
<b>Degree to be obtained</b>	Master of Science
<b>Programme website</b>	<a href="https://www.put.poznan.pl/en">https://www.put.poznan.pl/en</a>
<b>Contact</b>	International Relations Office Piotrowo 5, room 101 61-138 Poznań, Poland
<b>Phone</b>	+48 61 665 3544
<b>Fax</b>	+48 61 665 3956
<b>E-mail</b>	<a href="mailto:study@put.poznan.pl">study@put.poznan.pl</a>
<b>Language of instruction</b>	English
<b>ECTS points</b>	90
<b>Duration</b>	1.5 years (3 semesters)
<b>Programme begins</b>	end of February
<b>Programme ends</b>	end of June
<b>Deadline for application</b>	3 months before the course starts – end of November
<b>Education requirements</b>	English language – level B2 (Common European Framework), Bachelor of Science degree (or equivalent) in biomedical engineering or similar fields. Full list of the required documents is available at: <a href="https://www.put.poznan.pl/en">https://www.put.poznan.pl/en</a>
<b>Mode of instruction</b>	Lectures, classes, laboratory classes, projects

