MSc Biomedical Engineering and Technology

Academic year 2022-2023

KEY INFO

Duration: 1.5 year (3 academic semesters)
Studies start: October 2022
Course attendance: Full time, compulsory
ECTS: 90
Teaching Language: English
Tuition fees: 1200 €
Call for applications 2022-2023: 01/06 - 31/07/2022
Click here for more info

TARGET GROUP

Those holding a Bachelor (B.Sc.) university degree related to engineering, technology, life and health sciences or other relevant to biomedical engineering sciences, who wish for a career change in Biomedical Engineering

PROGRAM'S GOALS

a/ ***intensive introduction*** to biomedical engineering

b/ ***problem-solving*** skills development

c/ ***active interaction*** with the biomedical engineering industry

d/ ***prepare*** students ***for PhD studies***

PROGRAM'S TOPICS

- In vitro and in vivo diagnostic technologies
- Medical Imaging
- Biomedical instrumentation
- Rehabilitation and biomaterials
- Biomedical informatics
- Artificial intelligence
- Deep learning
- Emergency medicine
- Science, technology, ethics
- Marketing, management and sales
- Research methodology
- Labor market – The biomedical engineering profession

TEACHING STAFF

a/ Invited professors from **8 Universities**:

- *University of West Attica,* ***Greece*** *(host institution)*
- *National Kapodistrian University of Athens,* ***Greece***
- *Instituto Politécnico do Porto,* ***Portugal***
- *Universidad Rey Juan Carlos,* ***Spain***
- *Georgia Institute of Technology,* ***USA***
- *University of Plymouth,* ***UK***
- *Universitatea Politehnica din București,* ***Romania***
- *Trier University of Applied Sciences,* ***Germany***

b/ Invited Researchers from biomedical engineering research facilities

c/ Invited biomedical engineers from the labor market

CONTACT INFO

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CAREER PROSPECTS

Why studying biomedical engineering? Because the Biomedical Engineering sector is among the biggest industrial sectors worldwide, with tens of thousands of manufacturers producing more than 500,000 different types of biomedical products. In particular, in 2022 the European medical technology industry has been shown to employ over 730,000 people in 32,000 companies with a dynamic and increasing job outlook (source: Medtech Europe). Similarly in the US, the biomedical engineering sector currently supports about 19,300 jobs, which are expected to increase up to 6% until 2030 (source: United States Bureau of Labor Statistics).

Considering that a/ modern medicine and biology rely (and evolve) on technology, and b/ ageing of population will boost the necessity for technologies able to support the prolongation of life with good quality of living, biomedical engineers are expected to play a crucial role in the forthcoming technological era.

Biomedical engineers' careers may involve:

- **Biomedical Technology Industry** (service, application specialist, sales and marketing, field engineer etc)
- **Hospitals, clinics**, **healthcare centers**
- **Research and academia**
- **Computing and information technology**
- **Other engineering related fields**
- **Business and administration**
- **Management and finance**
- **Start-ups, spin-off businesses**
- **Teaching**

The real-world conditions and the labor market of Biomedical Engineering (BME) in Greece has been investigated in a recent study of the BME Department in February 2022. The study shows that BME graduates can find job placement even before their graduation. In fact, it is quite impressive that more than half of the study's participants (55.6%) found their first job placement in the BME market before finishing their BME studies. The BME jobs are perceived as most interesting (74.1%), in a good environment (71.0%), with satisfactory career prospects (45.6%), with satisfactory net salary (44.0%) and satisfactory working hours (50.8%).

The study concluded that there is a high demand for biomedical engineers in the labor market in Greece, despite the continuing economic recession that the country is suffering from the past 12 years.

PROGRAM CURRICULUM

1ST SEMESTER		
COURSE TITLE	**R: Required E: Elective**	**ECTS**
The science of Biomedical engineering	R	2.5
Research methodology	R	2.5
Biology-Biotechnology	R	5
The Biomedical engineering industry sector I	R	5
Biostatistics	E	5
Medical signal and image processing	E	5
Biomedical marketing	E	5
Quality Assurance and Medical Device Regulations	E	5
Biomechanics and Biomaterials	E	5
Optical Microscopy	E	5
REQUIRED ECTS FOR THE 1ST SEMESTER		**30**

2ND SEMESTER		
COURSE TITLE	**R: Required E: Elective**	**ECTS**
Diagnostic Medical Imaging Systems	R	5
Biomedical Instrumentation	R	5
The Biomedical engineering industry sector II	R	5
Emergency medicine	E	5
Control systems in biomedical engineering	E	5
Bioinformatics	E	5
Human machine interaction in healthcare	E	5
Machine Learning in Medicine and Biology	E	5
Science, Technology, Society: Biomedical Engineering, Social Aspects, Ethics	E	5
REQUIRED ECTS FOR THE 2ND SEMESTER		**30**

3RD SEMESTER		
COURSE TITLE	**R: Required E: Elective**	**ECTS**
Diploma thesis	R	30
REQUIRED ECTS FOR THE 3RD SEMESTER		**30**

For the successful completion of the program a minimum of ninety (90) ECTS is required, with at least 30 ECTS per semester.