



NATIONAL  
TECHNICAL  
UNIVERSITY  
OF ATHENS

# Master of Science

## Translational Engineering in Health and Medicine



Translational Engineering is the process of translating engineering research findings and discoveries into innovations and functional products. Applications of Translational Engineering in Health and Medicine focus on the development of devices and services to improve the public and individual health.

The M.Sc. in Translational Engineering in Health and Medicine, organized by the School of Electrical and Computer Engineering in collaboration with the School of Mechanical Engineering of the National Technical University of Athens (NTUA), is designed to prepare students to pioneer the transformation of innovative technologies into commercial devices and services with a significant socioeconomic impact in the field of Health. The program builds on NTUA's decades of foundational work in biomedical engineering and science and focuses on cultivating deep knowledge and catalyzing interdisciplinary efforts to address urgent healthcare challenges.

Students will work on cutting-edge topics in biomedical data science and artificial intelligence, neuroengineering, multi-scale modeling, digital health, intelligent reality, healthcare robotics, and biomedical microelectro-mechanical systems (BioMEMs) among others. The curriculum focuses on instilling entrepreneurial and leadership skills in students as well as exposing them to all of the steps involved in translating research discoveries into innovative medical products and services. Seminars highlight emerging research in bioengineering and provide training in research ethics. The program fosters a multidisciplinary and multisectoral approach through student internships in research labs, clinical departments, and industry.

### KEY INFORMATION

**Duration:** 18 months

**Start Date:** October 2022

**Location:** NTUA Campus

**Language:** English

**ECTS:** 90 credits

### CONTACT US

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#### FACULTY

Learn from professors and researchers from top-ranked engineering Schools at a world-class technical university.

#### CURRICULUM

Academically rigorous coursework that links research-backed concepts to practice and accelerates impact in the healthcare domain.

#### ENTREPRENEURSHIP

Cultivate entrepreneurial skills to deliver high-impact solutions powered by deep science and technology.

#### GLOBAL NETWORK

Gain hands-on experience in the healthcare domain and build your professional network by interacting and connecting with a diverse community of experts from the industry, clinical sector, and regulatory bodies.

#### STRATEGIC COLLABORATIONS

Opportunities for internships and a richer academic experience are available to students through a strategic collaboration with Columbia University and the support of Bodossaki Foundation.

## PROGRAM OVERVIEW

This program is offered full-time and includes two semesters of coursework and one semester of Master's (M.Sc.) thesis research. The instruction language of the program is English. The maximum study period is 2 years.

To earn the M.Sc. degree, students must: (i) attend and successfully pass 7 compulsory and 5 elective courses, corresponding to a total of 60 credits (30 per semester) and (ii) complete and successfully defend their M.Sc. thesis (30 credits).

Fall Semester	
Course	ECTS
Life Sciences for Engineering <sup>(1)</sup>	5
Engineering for Biomedicine <sup>(2)</sup>	5
Biostatistics and Machine Learning	5
Biosignal acquisition and processing	5
Research methodology	5
Translational bioinformatics	5
Biomechanics	5
Biodesign Fundamentals	5

<sup>(1)</sup> Compulsory course for engineers

<sup>(2)</sup> Compulsory course for health scientists

<sup>(3)</sup> Prerequisite: Biodesign Fundamentals

## ORGANIZERS & COLLABORATORS

Starting in the 2022-2023 academic year, the M.Sc. in Translational Engineering in Health and Medicine is organized and offered by the School of Electrical and Computer Engineering of the National Technical University of Athens, in collaboration with the School of Mechanical Engineering. The Master program is taught by faculty from NTUA and collaborating universities and research centers. Distinguished guest speakers from industry, the clinical sector, and regulatory authorities are also invited to deliver lectures and interact with students. Through a strategic collaboration with Columbia University and the support of Bodossaki Foundation, students are offered internship opportunities at collaborating Columbia University labs.

Spring Semester	
Course	ECTS
Medical imaging and image analysis	5
Computational modeling and simulation for medicine	5
Artificial Intelligence in healthcare	5
BioMEMS	5
Introduction to neuroscience and neural engineering	5
Healthcare robotics	5
Biodesign Innovation Process <sup>(3)</sup>	5

 Compulsory  Elective

## WHO CAN APPLY?

Do you have a degree in Engineering, Life Sciences, or a similar field? Are you interested in discovering new knowledge at the interface of Engineering and Life Sciences? Do you enjoy working in multidisciplinary teams to develop breakthrough health-tech products and services? Are you looking for an academically rigorous training that will allow you to apply real-time your knowledge for an accelerated impact in healthcare? Then, you are welcome to apply!

## APPLICATION REQUIREMENTS

- Degree in Engineering, Life Sciences, or a similar field
- Proficiency with speaking and writing in English
- One-page Personal Statement
- Two Letters of Recommendation
- Resume/CV

More information about the application process at: [www.masterteam.ntua.gr/admissions](http://www.masterteam.ntua.gr/admissions)