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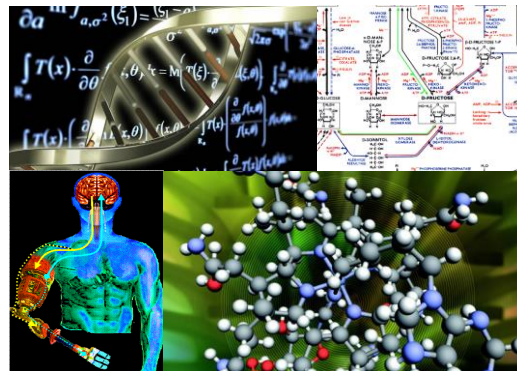
MARMARA UNIVERSITY



FACULTY OF ENGINEERING



DEPARTMENT OF BIOENGINEERING



<http://bioe.eng.marmara.edu>



A VERY BROAD AREA OF STUDY

- ✓ Food/Agriculture Industry
- ✓ Production of Biofuels
 - Biodiesel, bioethanol, biogas, biohydrogen, biomasse, etc.
- ✓ Pharmaceutical/ Medical Industry
 - Drug, vaccine, diagnostic kit, etc.
- ✓ Biochemical Industry
 - Protein, enzyme, genetic and biochemical tests, etc.
- ✓ Biomedical Area
 - Biomaterials, artificial organ, etc.
- ✓ Enviromental Area
 - Waste treatment, industrial and urban waste treatment, etc.
- ✓ Academia-Research

BIOENGINEERING

Bioengineering, in the most basic sense, is the application of engineering principles to life sciences. Bioengineering is a branch of science where biological techniques developed as a result of rapid advances in basic engineering sciences, biology, molecular biology, biochemistry, microbiology and cell metabolism are applied together with engineering principles to living systems and problems associated with them. In line with the rapid developments in recent years, bioengineering is considered as a key tool for the rapid socio-economic development of humanity in the 21st century. As a result of the rapid advances in this field, bioengineering tools are developed and used in many industrial fields such as pharmaceutical, chemical, food, and environment industries, consequently leading to the development and usage of novel products.

The foundation of the Department of Bioengineering at the Faculty of Engineering of Marmara University was laid in 2005. The Department of Bioengineering admitted its first undergraduate students in the 2010-2011 academic year. The department aims to provide its students with the knowledge and skills in basic bioengineering and bioprocess engineering, as well as in many other areas of bioengineering with elective courses such as biopolymers, protein engineering, proteomics, systems biology and biomaterials. Education at the department is given in a manner to establish scientific expertise in theoretical knowledge and practical research so that the graduates are equipped with the background necessary to work as a Biochemical Engineer as well as carry out activities in a variety of fields of biotechnology.

As one of the most recently founded departments of Marmara University's Faculty of Engineering at the onset of the second decade of 21st century, the Department of Bioengineering continues research and educational activities at undergraduate and graduate levels with 5 Professors, 2 Associate Professors, 4 Assistant

Professors, 3 Research Assistants and 6 ÖYP Research Assistants.

UNDERGRADUATE PROGRAMME

The undergraduate major in bioengineering includes the courses in basic and engineering sciences. Along with providing the basic bioengineering courses that defines the bio-process, elective courses equip students with the understanding of entrepreneurial and creative aspects of "innovation" in bioengineering.



COURSES

Basic and Biological Sciences

- ✓ Mathematic, Physic, Chemistry, Economy, Differential Equations, Linear Algebra
- ✓ General Biology, Biochemistry, Molecular Biology and Genetics, Microbiology

Engineering Sciences

- ✓ Thermodynamics
- ✓ Transport phenomena
- ✓ Mathematical Methods
- ✓ Biostatistics
- ✓ Biomaterials and Drug Delivery
- ✓ Bioreaction Engineering
- ✓ Computational Methods in Bioengineering
- ✓ Bioprocess Dynamics and Control
- ✓ Purification Techniques
- ✓ Bioprocess Design
- ✓ Biomedical Engineering
- ✓ System Biology
- ✓ Cell and Metabolic Engineering
- ✓ Proteomic and Mass Spectrometer
- ✓ Development and Management of Bioprocess
- ✓ Research Planning and Management
- ✓ Industrial Biotechnology
- ✓ Environmental Biotechnology
- ✓ Biomolecular Engineering
- ✓ Metabolic Engineering
- ✓ Biomaterials

