



**NANYANG  
TECHNOLOGICAL  
UNIVERSITY**  
SINGAPORE

School of Materials  
Science and Engineering  
College of Engineering

# MATERIALS ENGINEERING

WITH A SECOND MAJOR IN

# MEDICAL BIOLOGY



# OVERVIEW



Biomedical and biological materials science is a new and emerging field at the interface of materials science and biology. The emergence of the discipline is due in part to the advent of regenerative medicine, which requires biomaterials that interact with the body in a specific and predictable manner. In today's world, materials designed for usage with biological systems as well as materials derived from biological systems for medical and other applications are rising in importance. To fully participate in the exciting new sphere, a strong foundation in both materials science and medical biology is essential.

Designed for students who possess a special interest in biomaterials and biomedical devices, the Bachelor of Materials Engineering with a Second Major in Medical Biology programme will arm candidates with the fundamentals of medical biology, with a special emphasis on the principles of biological science. Graduates from this programme can look forward to engaging in research and development work in this dynamic and rapidly-evolving field.

## ACADEMIC STRUCTURE

The structure of the Bachelor of Materials Engineering with a Second Major in Medical Biology programme integrates the requirements of both majors within the typical candidature of 4 years.

**Students must meet all the requirements for the Bachelor of Materials Engineering programme and fulfill the following conditions:**

- (1) complete a Biomaterials-related Final Year Project; and
- (2) choose at least two major prescribed electives from the following list<sup>^</sup>:

- > Advanced Analysis of Materials
- > Advanced Biomaterials
- > Biomedical Devices
- > Drug Delivery and Tissue Engineering

**In addition, students will read the following compulsory courses for the Second Major in Medical Biology programme:**

### Foundation Courses:

- Biophysical Chemistry
- Biochemistry I
- Bioinformatics and Statistics
- Experimental Molecular and Cell Biology
- Introductory Biology
- Molecular and Cell Biology I
- Molecular and Cell Biology II
- Physiology

### Choose three courses from the following list:

- Bioentrepreneurship
- Bioimaging
- Biochemistry II
- Biology of Aging
- Drug Discovery and Development, Biotechnology
- Synthetic Biology
- Undergraduate Advanced Experimental Biology (UAEB) Workshop (Series I) – Applied Biophysics
- Undergraduate Advanced Experimental Biology (UAEB) Workshop (Series I) – Methods in Histology

<sup>^</sup>List of courses is subject to changes

## ADMISSION REQUIREMENTS

Candidates must meet the minimum entry requirements for the Bachelor of Materials Engineering programme, including the following minimum subject requirements:

- Pass in H2 Level Mathematics, and
- Pass in H2 Level Biology/Chemistry/Physics, and
- Pass in H1/'O' Level Physics\* or equivalent

\* Pass in H1 Level/'O' Level Physics is only applicable to applicants who have not read H2 Level Physics.

## CAREERS

Graduates will enjoy the flexibility of choosing from a wide range of career options and roles in diverse industries, in addition to biomedical industries both locally and abroad.

### Sectors/Industries

- Biotechnology Firms
- Consumer Goods
- Food and Nutrition
- Healthcare
- Pharmaceutical
- Research and Development

### Possible Career Paths

- Biomedical Engineer
- MedTech Analyst
- R&D professional / Manager
- Regulatory Scientist
- Scientist
- Technical Specialist
- Technopreneur / Innovator

## TUITION FEES AND SCHOLARSHIPS

The tuition fees for the Bachelor of Materials Engineering with a Second Major in Medical Biology programme will be pegged to the fees for Bachelor of Engineering programmes. Eligible students may be considered for scholarships that offer fully subsidised tuition fees and living allowances. Terms and conditions apply. For more information on tuition fees and scholarships, please visit <http://admissions.ntu.edu.sg>.

## ACCREDITATION

All Bachelor of Engineering programmes offered by the College of Engineering are accredited by The Institution of Engineers Singapore, the Singapore signatory to the Washington Accord, through its Engineering Accreditation Board. The Washington Accord is an international agreement for mutual recognition of substantial equivalence of engineering academic programmes worldwide in satisfying the academic requirements for the practice of engineering at a professional level.

## INFORMATION AND ENQUIRIES

For more information and enquiries on the Bachelor of Materials Engineering with a Second Major in Medical Biology programme, please visit <http://coe.ntu.edu.sg/MedBio>.



**Admission Enquiries**

Office of Admissions and Financial Aid  
Nanyang Technological University,  
Student Services Centre, Level 3  
42 Nanyang Avenue, Singapore 639815

Email (for local admissions): [Adm\\_local@ntu.edu.sg](mailto:Adm_local@ntu.edu.sg)

Email (for international admissions): [Adm\\_intnl@ntu.edu.sg](mailto:Adm_intnl@ntu.edu.sg)

Email (for scholarships): [ug\\_scholarships@ntu.edu.sg](mailto:ug_scholarships@ntu.edu.sg)

**Website:** [www.ntu.edu.sg/admissions](http://www.ntu.edu.sg/admissions)

**Programme Enquiries**

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