

ENGINEERING SOLUTIONS FOR TOMORROW'S HEALTHCARE

MASTER OF SCIENCE IN BIOMEDICAL ENGINEERING

WHAT IS BIOMEDICAL ENGINEERING?

Biomedical Engineering is the application of engineering principles and design concepts to medicine and biology for healthcare purposes. It closes the gap between engineering and medicine, combining design and engineering solutions with medical biological sciences.

WHO IS IT FOR?

The Master of Science in Biomedical Engineering is for:

- Recent graduates who are interested in pursuing a higher degree
- Professionals working in the biomedical industry

WHAT'S IN IT FOR ME?



Get a head start in state-of-the-art biomedical technology with our industry relevant courses that integrate learning with hands-on training



Increase your career options with our electives as you match scientific knowledge in the pharmaceutical and medical device fields with entrepreneurial skills and regulatory principles



Choose from 2 specialisations that provide more training in diagnostics and therapeutics techniques:

- **Bioanalytical and Diagnostic Technologies**
- **Biotechnology and Pharmaceutical Engineering**

- BIOMEDICAL DATA ANALYTICS
- GENOME TECHNOLOGIES
- BIOMEDICAL DEVICES
- DRUG DELIVERY & NANOMEDICINE
- REGULATORY SYSTEMS
- BIOMEDICAL ENTREPRENEURSHIP

HOW BIG IS THE BIOMEDICAL ENGINEERING INDUSTRY?

With growing demand for biomedical engineering innovations in recent years and the long-term prominence of healthcare issues in our aging society, biomedical engineers play crucial roles in the expanding healthcare sector. The healthcare and biomedical industry that broadly covers pharmaceuticals, medical technology, healthcare products, biotechnology, and more continuously provides revolutionary solutions to disease screening, diagnosis, and treatment. In 2024, the medical technology market alone is projected to reach about US\$600bn worldwide and is expected to demonstrate a steady annual growth rate of 5.29% from 2024 to 2029.

Singapore continues to be a regional hub to draw investments and jobs in this area. More than 100 multinational pharmaceutical and medical device companies have sites or facilities in Singapore. All 30 of the top 30 multinational MedTech companies have R&D or manufacturing activities, or regional headquarters in Singapore.

WHAT ARE MY CAREER OPTIONS?

- Hospital Biomedical Engineer
- Medical Technology Professionals
- Quality Engineer
- Manufacturer for Medical Devices
- Healthcare Consultants
- Biomedical Researcher
- Medtech Entrepreneur
- Healthcare Data Analyst

LIST OF RELEVANT COMPANIES IN SINGAPORE:

For Healthcare and Research:

National University Hospital (NUH) JurongHealth, Abbott, A*STAR, etc.

For Pharmaceutical and Biotechnology:

Thermo Fisher Scientific, GSK, Johnson & Johnson, Pfizer, Sanofi, Roche, Illumina, etc.

For Medical Technology

3M, Philips, Cytiva, TriReme Medical, Biotronik, Johnson & Johnson, Abott, etc.

CONTACT US:

For enquiries:

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WHAT QUALIFICATIONS DO I NEED TO APPLY?

- Bachelor's degree with minimum Honours (Distinction) or equivalent from a recognised university
- Minimum TOEFL score of 85 or IELTS score of 6.0 (Only if your university first degree is not taught in the English language)
- Special consideration will be given on a case-by-case basis to applicants with relevant work experience and recommendation letters

WHAT IS THE DURATION?

Full-time: minimum 1 year, maximum 2 years

Part-time: minimum 2 years, maximum 4 years

WHAT ARE THE REQUIREMENTS TO GRADUATE?

- Complete a minimum of 30 AU (10 course: 4 core and 6 elective courses)
- A minimum CGPA of 2.5

COURSE PROGRAMME

Core Courses

1. BG6001 Advanced Biomaterials (3 AU)
2. BG6003 Advanced Biomedical Instrumentation (3 AU)
3. BG6008 3D Printing for Biomedical Applications (3 AU)
4. BG6013 Data Analytics for Biomedical Applications (3 AU)
5. Academic Communications (0 AU)
6. Laboratory Rotation (0 AU)
7. Research Sharing & Journal Club (0 AU)

Bioanalytical and Diagnostic Technology Specialization: Prescribed Elective Courses (3 courses required)

1. BG6011 Microfluidics and Lab-On-Chip for Chemical & Biomedical Applications (3 AU)
2. BG6012 In Vitro Diagnostics and Bionanotechnology (3 AU)
3. BG6009 Introduction to Project Management in the Health and Biomedical Sector (3 AU)
4. BG6010 Biomedical Device Regulatory Systems (3 AU)

Biotechnology and Pharmaceutical Engineering Specialization Prescribed Elective Courses (3 course required)

1. BG6018 Genome Technologies (3 AU)
2. BG6016 Drug Delivery and Nanomedicine (3 AU)
3. CH6270 Sustainable Pharmaceutical Technology (3 AU)
4. CM6862 Advanced Analytical & Manufacturing Techniques in Pharmaceutical Industry (3 AU)

General Elective Courses

1. BG6015 Engineering in Mechanobiology (3 AU)
2. BG6017 Biomedical Entrepreneurship (3 AU)
3. BG6018 Tissue Engineering and Regenerative Medicine (3 AU)
4. BG6007 MSc Research I (3 AU)
5. BG6008 MSc Research II (3 AU)
6. BG6006 Professional Internship (3 AU)