BIOMEDICAL ENGINEERING

Temasek Polytechnic
School of Engineering

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BIOMEDICAL ENGINEERING

Course Overview

This inter-disciplinary course provides you with integrated training in biological techniques and biomedical instrumentation, including BioMEMS (Biomedical Micro-Electro-Mechanical Systems), microfluidics, flexible hybrid electronics for healthcare wearables, and smart healthcare devices using artificial intelligence.

- Integrates various multi-disciplinary fields to serve the escalating demands of the exciting and diverse medical technology industry
- Wide coverage of medical instruments and high-tech medical equipment (not found in other biomedical diploma courses) which is extremely useful for a career or further studies in the medical or MedTech field
- Recognised for admission into the Medicine degree programme at NTU, and the Diagnostic Radiology, Radiation Therapy, and Physiotherapy, as well as various other relevant degree programmes, at local and overseas universities

Career Opportunities

An ageing population, global health pandemics, chronic diseases, greater health awareness and the growing affluence of the population have collectively led to a surge in demand for high quality medical technology (MedTech) products and biomedical services. Additionally, Singapore has established itself as a strategic hub for innovative healthcare solutions and MedTech manufacturing, producing about S$19 billion worth of high-value manufacturing products. More than 400 MedTech companies, including world renowned brands operate in Singapore, hiring about 16,000 MedTech professionals (The Straits Times, 8 July 2024).

Hence, you will have exciting and lucrative job opportunities as:

- Application / Service Engineers
- Biomedical Technical Officers
- Biomedical Design Engineers
- Imaging Specialists
- Medical Product Specialists
- Medical Technologists
- Medical Sales & Marketing Executives
- Regulatory Affairs Executives

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What You'll Study

Select the Elective Cluster that brings your dream job to life!

Year 1:
- Circuit Analysis
- Computer Programming for Problem Solving
- Digital Fundamentals 1 & 2
- Electronic Devices & Circuits
- Electronic Prototyping
- Engineering Mathematics 1 & 2
- Engineering Physics

Year 2:
- Artificial Intelligence in Engineering
- Chemistry
- Data Visualisation & Analytics
- Engineering Mathematics 3
- Human Anatomy & Physiology
- Medical Devices
- Medical Device Manufacturing Practices
- Medical Electronics
- Medical Imaging & Informatics
- Microcontroller Applications

Year 3:
- Major Project

Advanced Engineering Skills Elective Cluster #
- Advanced Skills Practices

Biomedical Design & Devices Elective Cluster #
- Audiometry & Hearing Devices
- CAD & Additive Manufacturing

Cardiology Technology Elective Cluster #
- Clinical Cardiology

Clinical Equipment & Process Elective Cluster #
- Clinical Laboratory Equipment
- Medical Biochemistry

Clinical Laboratory Practice Elective Cluster #
- Medical Laboratory Technology

Healthcare Informatics Elective Cluster #
- Healthcare Analytics
- Patient Monitoring Technology

Sustainability in Engineering Elective Cluster # (Choose any 2 subjects in this cluster)
- Green Urban Transportation Energy Storage
- Life Cycle Analysis
- Renewable Energy Technologies
- Solar Photovoltaic Technology & Leasing

Wafer Fabrication Process & Equipment Technologies Elective Cluster #
- Wafer Fabrication Technology
- Cleanroom & Vacuum Technology

Structured Work-Based Learning Elective Cluster ^ #
- Work-Based Learning

University Pathway Programme (NUS) ^ #
University Pathway Programme (SUTD) ^ #

Students to choose one of these elective clusters
^ For selected students

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T38
Diploma in Biomedical Engineering

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