

# Biomedical Engineering



**"As the medical and healthcare solutions industry continues to globalise and advance at a rapid pace, biomedical professionals today face increasing demands and challenges. Students of this course are armed with sound fundamental knowledge, giving them a mastery of engineering skills so as to empower them to excel in their future careers while meeting the rigorous demands of this industry."**

Hema Venkataraman  
Director  
Infinity Biomed Solutions Pte Ltd,  
Singapore

The development of medical devices, from a tiny hearing aid to an X-ray machine; the search for a cure for human diseases; or even the very pills that you pop into your mouth – these are all part of the biomedical life sciences, which are now seeing a boom in related industries worldwide.

This course involves the application of engineering skills to the biomedical sciences and healthcare industry. You will learn the necessary biological techniques and apply them in the field of biomedical engineering. Under the Economic Development Board's plan, the field of life sciences is slated to be one of the four key pillars of Singapore's economy, besides chemicals, electronics and engineering.

Singapore is on its way to becoming a global centre for medical research and advanced patient care in specialised fields such as oncology, cardiology, ophthalmology, neurology and rehabilitation. It also aims to be a regional hub for a wide spectrum of healthcare services such as integrated healthcare services, hospital management, laboratory services, healthcare consulting, pharmaceutical research and clinical trials.

Companies dealing in medical devices and drugs will find it attractive to undertake the development and manufacturing of new drugs and medical products in

Singapore. In fact, numerous prominent overseas biomedical companies have set up base in Singapore, providing excellent job opportunities and career advancement prospects for holders of this diploma.

## Career Opportunities

You will be able to find employment in companies (MNCs, SMEs or public companies) dealing in the life sciences and electronics, as well as government agencies, health care institutions and hospitals. There are excellent career prospects in life science research centres, providing support in medical research activities, the maintenance of equipment, and specialist procedures. You can also be employed in pharmaceutical manufacturing firms, dealing with process control and quality control, or in hospitals, handling the operations and maintenance of specialised medical equipment. Some of our graduates are in wholesale and retail firms, doing the marketing and sales of medical devices and equipment, or providing after sales services such as commissioning, maintenance and training.

## Graduation Requirements

Cumulative Grade Point Average : min 1.0  
TP Fundamentals Subjects : 36 credit units  
Diploma Core Subjects : 83 credit units  
Diploma Elective Subjects : min 7 credit units  
Total Credit Units Completed : min 126 credit units

## Application

Apply during the Joint Admissions Exercise following the release of the GCE O Level results. For other categories of local applicants, please refer to the section on “Admission and Requirements”. For international students, please refer to the section on “Information for International Students”.

## Entry Requirements for Singapore-Cambridge GCE O Level Qualification Holders

To be eligible for consideration for admission, applicants must obtain 26 points or better for the net ELR2B2 aggregate score (i.e. English Language, 2 relevant subjects and best 2 other subjects, including CCA Bonus Points) and meet the minimum entry requirements of this course. CCA cannot be used to meet the minimum entry requirements.

For details on GCE O Level Minimum Entry Requirements, refer to page 125.

*Note: Applicants should not be suffering from mild or severe colour vision deficiency, uncontrolled epilepsy, profound hearing loss or severe vision impairment.*

## Course Structure

TP FUNDAMENTALS (TPFun) SUBJECTS				
SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS	
ECS1005	Communication & Information Literacy	1	2	
ECS1006	Workplace Communication	1	2	
ECS1007	Persuasive Communication	1	2	
EGS1002	Global Studies	1	3	
EGS1003	Managing Diversity at Work*	1	3	
EGS1004	Global Citizenship & Community Development*	1	3	
EGS1005	Expressions of Culture*	1	3	
EIN1001	Innovation & Entrepreneurship	1	2	
GCC1001	Current Issues & Critical Thinking	1	2	
LEA1011	Leadership: Essential Attributes & Practice 1	1	1	
LEA1012	Leadership: Essential Attributes & Practice 2	1	1	
LEA1013	Leadership: Essential Attributes & Practice 3	1	1	
LSW1002	Sports & Wellness	1	2	
MCR1001	Career Readiness 1	1	1	
MCR1002	Career Readiness 2	1	1	
MCR1003	Career Readiness 3	1	1	
TGL1001	Guided Learning	1	3	
ESI3001	Student Internship Programme	3	12	

\* Students must choose one of these three subjects or TGL1001 Guided Learning.

DIPLOMA SUBJECTS – CORE SUBJECTS

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
EBS1004	Human Anatomy & Physiology	1	4
EED1001	Electronic Prototyping	1	3
EEE1001	Circuit Analysis	1	6
EEE1002	Electronic Devices & Circuits	1	6
EEE1003	Digital Fundamentals 1	1	5
EEE1004	Digital Fundamentals 2	1	5
EMA1002	Engineering Mathematics 2	1	4
EMA1003	Engineering Mathematics 1	1	4
ESC1003	Chemistry	1	4
ESC1004	Engineering Physics	1	3
ESE1006	Computer Programming for Problem-solving	1	4
ESE1007	Engineering Analytics	1	3
EMA2003	Engineering Mathematics 3	2	4
EMC2001	Microcontroller Technology	2	5
EMD2001	Medical Electronics	2	4
EMD2002	Medical Devices	2	4
EMF2003	Medical Device Manufacturing Practices	2	3
EBI3008	Medical Imaging & Informatics	3	4
EMP3002	Major Project	3	8

DIPLOMA SUBJECTS – ELECTIVES

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
EBS2004	Medical Biochemistry	2	4
EBS2005	Clinical Laboratory Equipment	2	3
EBI3004	Audiometry & Hearing Devices	3	4
EED3014	Advanced Skills Practices	3	8



#### DIPLOMA SUBJECTS – SPECIAL ELECTIVES

You can opt to take Special Electives when offered. These optional subjects, taken in addition to the diploma electives, will stretch your potential and help you to meet your aspirations.

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
EED3009	Special Project 1	3	2
EED3010	Special Project 2	3	2
EED3011	Higher Engineering Skills 1	3	2
EED3012	Higher Engineering Skills 2	3	2
EMA3001	Higher Engineering Mathematics	3	4