Why is this Major Needed?
China is under the economic transition from a manufacturing base to a more integrated economy with a wider variety of value-added capabilities. Healthcare will be one of the fastest-developing fields and thus considerable amount of job opportunities will be created in Hong Kong and Mainland China. Hong Kong is well positioned to become a major centre in the following areas:

• New biomedical devices for disease diagnosis, monitoring, surveillance, and therapeutic treatment
• Food safety and bio-security
• New drug discovery

Aging, air and chemical pollution, threats to bio-security, obesity, and fast spreading of infectious diseases all impose enormous pressure on the provision of trained professionals in the field of biomedical engineering.

Hong Kong government clearly identifies medical and testing/certification services being among the six industries which Hong Kong has clear advantages for further development. The Biomedical Engineering major will serve to educate the future professionals in these industries.

Objectives of the Major
This major aims to pursue excellence in education, research, and innovation through the fusion of engineering with life sciences for the advancement of human health. Students will be well prepared for the following:

• be able to apply their skills to a variety of challenges in their chosen field.
• be equipped with spirits of innovation, creativity, adaptability, and critical thinking to solve problems in the biomedical engineering related professions.
• to function effectively in multidisciplinary team environments and communicate to a variety of audiences.
• to demonstrate competency in their chosen fields, and make decisions that are socially and ethically responsible.
• to build and expand upon their undergraduate foundations by engaging in learning opportunities throughout their careers.
Curriculum

- **Medical Devices and Systems:** Medical Biotechnology, Medical Imaging and Signal Processing, Micro and Nanotechnology, Computational Biology and Bioinformatics, Biomedical Instrumentation, Biosensors and Devices, Biomedical Systems and Control, Consumer Mechatronics, Robotics and Machine Vision
- **Cell and Molecular Engineering:** Microbiology, Molecules and Cells, Cell Transport and Signalling, Genetics and Proteomics, Tissue Engineering, Regenerative Medicine
- **Health and Wellness Technology:** Human Quantitative Physiology, Health Maintenance and Wellness Technology, Data Science, Bio-safety and Security, Technology for Drug Discovery, Radiotherapy Physics
- **Integrated courses:** Design Project, Professional Engineering Practice, Quality Engineering, Project Management

The major requires a total of 120 credit units. Applicants with Associate Degree, Higher Diploma or equivalent qualifications may be admitted with Advanced Standing I or II.

Entrance Requirements and Admission Arrangements

To be eligible for admission, you must satisfy the University’s General Entrance Requirements, with at least one elective subject in Physics, Chemistry, Biology or Combined Science for HKDSE applicants.

JUPAS HKDSE students will apply for admission to the Department of Biomedical Engineering with direct admission to the Bachelor of Engineering – Biomedical Engineering programme (JS1211). During their first year, students will study a broad range of Gateway Education (GE) and College core courses.

Direct/non-JUPAS applicants are expected to have, or to be close to having, Associate Degrees or Higher Diplomas with high grades (CGPA ≥3.0 or equivalent) or credit awards in Science- or Engineering-related disciplines. Preference will be given to applicants with Physics and Mathematics background.

Career Prospects

Upon graduation, you will find career opportunities in healthcare device manufacturing, public health consulting and services, government departments, laboratories and the commercial or educational sectors, or you can pursue postgraduate studies. After education from this major, you will possess expertise that will meet the needs from the increasing public concerns on food safety and quality, demands for advancement in pharmaceutical and health maintenance products, and medical diagnostics and therapeutic treatments, as well as the awareness for human health and wellness.

Subject Ranking

Biomedical Engineering:
- 34th in the World
- 1st in Hong Kong

(From Academic Ranking of World Universities – Global Ranking of Academic Subjects 2018)