



香港城市大學  
City University of Hong Kong

College of Engineering

# Department of Mechanical Engineering

*Undergraduate Programmes*

JUPAS Code

JS1207 (options BEngA.E., BEngM.E. & BEngNRE)

- BEng Aerospace Engineering
- BEng Mechanical Engineering
- BEng Nuclear and Risk Engineering



# Bachelor of Engineering in Aerospace Engineering (BEngA.E.) 工學士(航空航天工程)

## OBJECTIVES OF THE MAJOR

- To provide students with a significantly broad base of engineering skills.
- To meet the needs of current and changing aerospace and related industries, e.g.
  - ✓ smart manufacturing
  - ✓ smart sensing, inspection & monitoring
  - ✓ flight technologies
  - ✓ next generation aircraft (e.g. unmanned, bio-inspired and clean-power)
  - ✓ AI, robots, and automation technology, etc.
- To enhance graduate employment with a multi-disciplinary education, e.g.
  - ✓ technical services, consultancy, manufacturing and finance, all aligned with the manpower needs in Hong Kong

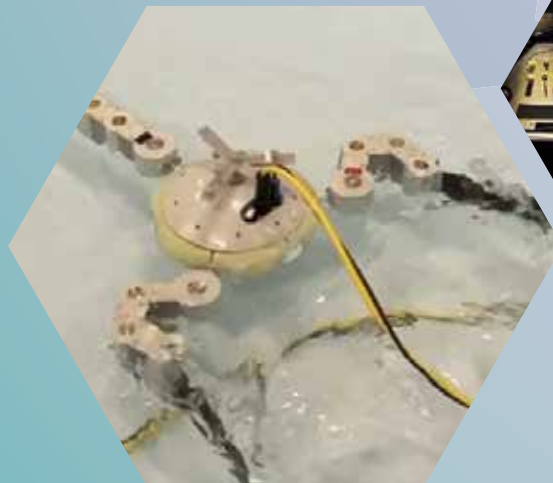
## CAREER PROSPECTS

- The Aviation Forum regarding Global Megatrends held at the Royal Aeronautical Society (2019) revealed that there has been an increasing demand at local, national and global levels for training undergraduates in the fields of **advanced materials, systems technologies, systems design, sensors, communication systems, space technologies/exploration and robotic technologies**.
- The new major covers all these aspects and the fundamentals of computing, simulation, numerical methods and professional engineering which opens additional career opportunities in R&D, technical services, finance, teaching/research and consultancy.
- Our graduates will be capable of pursuing postgraduate studies for more specializing in some of the next generation fields of developing areas e.g. **space urbanization, digital communications, AI aided technology, autonomous vehicles, robotics, new materials for flight systems**, etc.

## CURRICULUM

Students will

- specialize in either **Aerospace Materials** or **Aerospace Systems** streams
  - ✓ understand the scientific principles and applications of aerospace engineering
  - ✓ gain laboratory experience with aerospace engineering projects
  - ✓ develop necessary problem-solving capability and experimental skills
  - ✓ acquire the ability for formulating and solving real aerospace engineering problems
  - ✓ meet the required levels and standards of HKIE accreditation
- The major requires a total of 120 credit units. This major is designed to meet the accreditation requirements of the Hong Kong Institution of Engineers (HKIE).



Underwater Robot



Flight Simulator



# Bachelor of Engineering in Mechanical Engineering (BEngM.E.)

## 工學士(機械工程)

### OBJECTIVES OF THE MAJOR

The aim of the major of Mechanical Engineering is to prepare students with a strong foundation of the discipline and knowledge of the latest development from the industries. Our graduates are expected to serve and contribute to a broad range of mechanical engineering industries in their future careers, including chartered engineers, chief administrators/managers of technical teams, and technology consultants. Some of them can even choose to be entrepreneurs for their own start-up companies.

The objectives of the major are:

- To provide a systematic curriculum by combining education, research and development of innovative technology and enable students to tackle engineering problems in mechanical related areas efficiently and independently.
- To equip students with critical thinking, independent research, qualitative and quantitative analysis capacities. Students can perform high-impact and leading edge research and development for the continuous advancements of both industrial and academic expertise.
- To prepare students for professional employment in areas such as engineering design of materials, dynamical and control analysis, automation engineering, and micro & nano technologies.
- To nurture students to contribute to the community and professional groups with both academic achievements and knowledge transferable products.

### CAREER PROSPECTS

Our Bachelor degree programme in Mechanical Engineering was launched in view of the great need from the industries. Long-term careers of our graduates in the industries include qualified mechanical engineers, consumer product designers, automotive system designers, "heating, ventilation, and air conditioning (HVAC)" engineers, system automation engineers, chief administrators/managers of technical teams, and technology consultants. Graduates can also choose to further study in graduate schools for inventing state-of-the-art technologies. Some of them can even choose to be entrepreneurs for their own start-up companies.

### CURRICULUM

While maintaining the major aspects of mechanical engineering knowledge (e.g. engineering mechanics, materials engineering, mechanical product design, mechatronics, dynamics and controls, and thermal fluids), this programme will focus on the following areas for the future needs of the society:

- Product design with comprehensive considerations in high levels of functionality and the environment-friendly product design and manufacturing.
- Automation (with control algorithms, sensors and actuators) and system integration of machines ranging from consumer products, building facilities to transportation vehicles.
- Solid background on both conventional and emerging mechanical engineering techniques, as integrated knowledge, such that graduates can generate new products, and at the same time can serve as the next generation to handle and inherit obligations of the existing occupations.

The choice of electives will provide students the opportunities to enhance their interests in applying what they have learnt. Appropriate quality assurance processes and guidelines will be adopted to ensure that the programme will be managed and delivered as all other well-recognized international undergraduate programmes.

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.



# Bachelor of Engineering in Nuclear and Risk Engineering (BEngNRE)

## 工學士(核子及風險工程)

### OBJECTIVES OF THE MAJOR

The major aims to equip the students with multi-disciplinary knowledge in nuclear engineering and risk engineering. Besides teaching the discipline-related technical knowledge, we will also help the students develop their problem solving skills so that they can analyze and solve a broad spectrum of engineering problems. The students will gain a sound foundation in the relevant disciplines through practical hands-on projects and extensive exposure to real-life scenarios through industrial placements and overseas exchange arrangements with a view to attaining the dynamic levels and standards required by highly competitive markets such as Hong Kong and Mainland China.

### CAREER PROSPECTS

As this major is multi-disciplinary in nature, job prospect is promising. After graduation, students can choose to work in many related professions or industrial sectors, such as power generation industry, materials engineering for large corporations, testing and certification services, medical radiation related fields in hospitals and diagnostic centres, radiation protection and environmental protection in government departments and private consultancy firms, product research and development in nuclear radiation equipment companies, risk assessment in the financial sector, and also disaster management for Government, public utilities companies and big corporations.

### CURRICULUM

The curriculum has been categorized into eight main programme building blocks:

- General Science and Engineering
- Nuclear Engineering
- Nuclear Medicine and Medical Radiation
- Materials Engineering
- Risk Engineering
- Crisis Management
- Integrative Project
- Language and Out-of-Discipline studies

Innovative teaching approaches will be adopted in the delivery of the curriculum in order to integrate theories with industrial practices. Problem-solving activities, experience-based learning, integrative workshops, industrial attachment, co-operative education, and industry-based projects are typical means to help achieve the targets.

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.

*This major is hosted by the Department of Mechanical Engineering (MNE), in conjunction with the Departments of Architectural and Civil Engineering (ACE), Chemistry (CHEM), Physics (PHY), and Systems Engineering (SYE).*



## Co-curricular Activities



Robocon Contest



HK ICT Awards



MATE International ROV Competition



International Exchange



Technical Visits



Overseas Internship Scheme



Study Tours



CGN China & UK Internship Programme Sponsored by CLP

## 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, M1/M2, Design and Applied Technology or Chemistry for HKDSE students.

JUPAS HKDSE students will apply for admission to the Department of Mechanical Engineering (JS1207). They will enter a major after the first year of study. During their first year, students will study a broad range of Gateway Education (GE), College of Engineering and Home Department specified courses. The top 40% of students [based on (i) cumulative grade point average (CGPA) at the end of Semester B; (ii) no failed grades in any courses in Semesters A and B; (iii) completion of at least 30 credit units in Semesters A and B, including the number of credit units specified by the College of Engineering & respective Home Department for its required courses] will have free choice of the majors offered by the Department. The other 60% of students will be allocated a major of their choice, subject to the availability of places and the selection criteria set by the Department of Mechanical Engineering.

Direct/non-JUPAS applicants are expected to have, or to be close to having, Associate Degrees or Higher Diplomas with high grades or credit awards in engineering-related disciplines.

## Professional Recognition

Bachelor of Engineering in Mechanical Engineering and Bachelor of Engineering in Nuclear and Risk Engineering have been granted full accreditation by the Hong Kong Institution of Engineers (HKIE) respectively, a signatory member of the Washington Accord under which all members agree to recognize each other's accredited engineering degree programmes. Full Signatories to the Washington Accord include Australia, Canada, China, Chinese Taipei, Costa Rica, Hong Kong-China, India, Indonesia, Ireland, Japan, Korea, Malaysia, Mexico, New Zealand, Pakistan, Peru, Russia, Singapore, South Africa, Sri Lanka, Turkey, the United Kingdom and the United States.

Join us, Light up your Colourful lives



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