

College of Engineering

# Department of Mechanical Engineering

*Undergraduate Programmes*

JUPAS Code

JS1207 Mechanical Engineering

Majors:

- 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 equip students with a strong and broad foundation in engineering principles and skills.
- To address the evolving demands of the aerospace and related industries, including:
  - ✓ Smart manufacturing
  - ✓ Smart sensing, inspection & monitoring
  - ✓ Advanced flight technologies
  - ✓ Next-generation aircraft (e.g., unmanned, bio-inspired, and clean-power systems)
  - ✓ AI, robotics, and automation technologies
- To enhance graduate employability through a multidisciplinary education, preparing students for roles in:
  - ✓ Technical services and consultancy
  - ✓ Manufacturing and finance
  - ✓ Other sectors aligned with Hong Kong's manpower needs

## CAREER PROSPECTS

- The Aviation Forum at the Royal Aeronautical Society (2019) highlighted a growing global demand for professionals in:
  - ✓ Advanced materials and systems technologies
  - ✓ Systems design, sensors, and communication systems
  - ✓ Space technologies, exploration, and robotics
- Our programme covers these areas comprehensively, alongside fundamentals in computing, simulation, numerical methods, and professional engineering. Graduates will be well-prepared for careers in:
  - ✓ Research and development (R&D)
  - ✓ Technical services, finance, and consultancy
  - ✓ Teaching and research
- Graduates will also be equipped to pursue postgraduate studies in emerging fields such as:
  - ✓ Space urbanization and digital communications
  - ✓ AI-aided technologies and autonomous vehicles
  - ✓ Robotics and advanced materials for flight systems

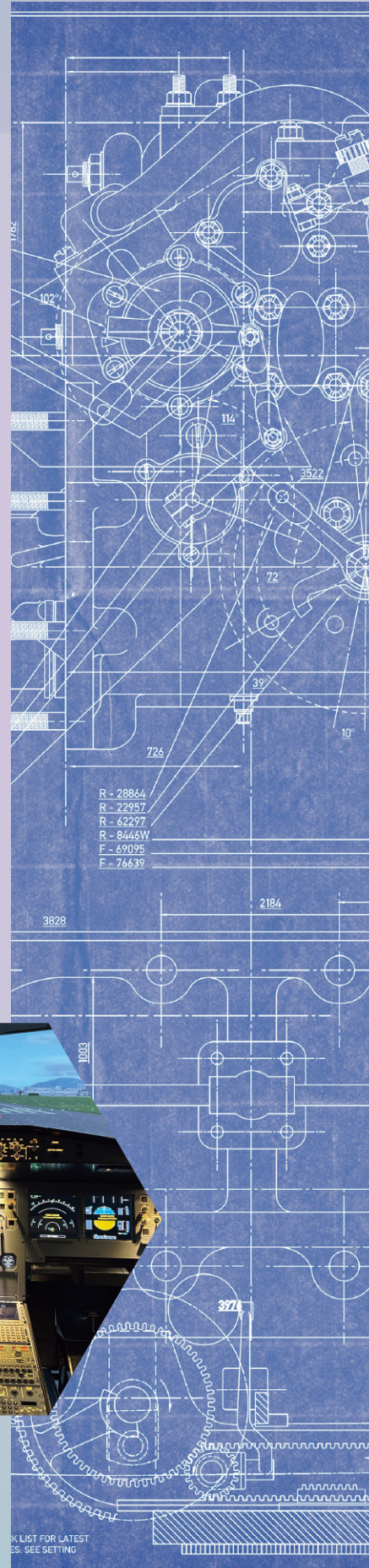
## CURRICULUM

Students will:

- Specialize in either **Aerospace Materials** or **Aerospace Systems** streams.
- Gain a deep understanding of the scientific principles and applications of aerospace engineering.
- Develop hands-on laboratory experience through aerospace engineering projects.
- Cultivate problem-solving skills and experimental expertise.
- Learn to formulate and solve real-world aerospace engineering challenges.
- Meet the accreditation standards of the **Hong Kong Institution of Engineers (HKIE)**.
- Complete a total of **120 credit units**, ensuring a rigorous and industry-aligned education.



Flight Simulator



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

## 工學士(機械工程)

### OBJECTIVES OF THE MAJOR

The goal of our Mechanical Engineering major is to equip students with a robust foundation in the discipline and cutting-edge industry knowledge. Our graduates are poised to excel in diverse mechanical engineering fields, becoming chartered engineers, technical team leaders, and technology consultants. Some may even venture into entrepreneurship, launching their own innovative start-up companies. The major aims to:

- **Empower students** with a cutting-edge curriculum that blends education, research, and innovative technology, enabling them to solve mechanical engineering problems efficiently and independently.
- **Develop critical thinkers** with skills in independent research, and both qualitative and quantitative analysis, ready to lead high-impact research and drive advancements in industry and academia.
- **Prepare students** for careers in engineering design, dynamic and control, robotics & automation, and micro & nano technologies.
- **Inspire students** to contribute to the community and professional groups with their academic achievements and practical knowledge.

### CAREER PROSPECTS

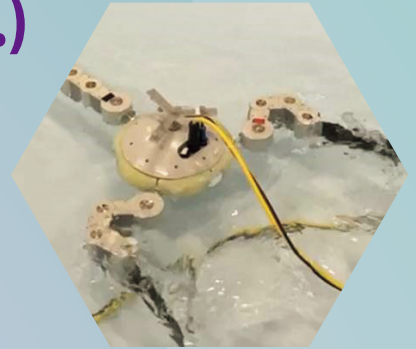
Our Bachelor's degree in Mechanical Engineering was created to meet the booming demand from industries. Graduates can embark on thrilling careers as mechanical engineers, consumer product designers, automotive system designers, HVAC engineers, system automation engineers, technical team leaders, and technology consultants. They also have the option to pursue advanced studies, invent cutting-edge technologies, or even launch their own start-up companies as entrepreneurs.

### CURRICULUM

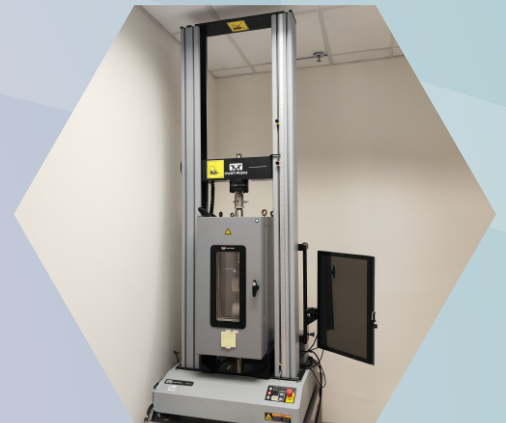
Our Mechanical Engineering programme not only covers essential knowledge areas like engineering mechanics, materials engineering, mechanical product design, mechatronics, dynamics and controls, and thermal fluids, but also focuses on future societal needs:

- **Innovative Product Design:** Create high-functionality, eco-friendly products with cutting-edge design and manufacturing techniques.
- **Robotics & Automation:** Dive into the world of robotics, automation, and system integration, working with everything from consumer products to transportation vehicles.
- **Comprehensive Engineering Skills:** Gain a solid foundation in both traditional and emerging mechanical engineering techniques, empowering you to innovate and lead in your field.

Choose from a variety of electives to deepen your interests and apply your knowledge. Our programme adheres to top international quality standards, ensuring a world-class education. With a total of 120 credit units, applicants with an Associate Degree, Higher Diploma, or equivalent qualifications may be eligible for advanced standing.



Underwater Robot



34TM-30 Universal Testing System



Stratasys J850 Pro 3D Printer



# 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.

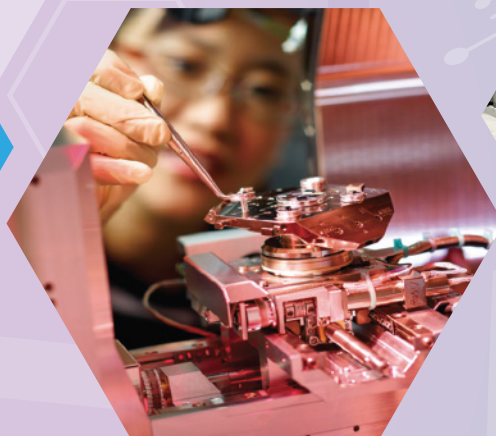
JUPAS HKDSE students will apply for admission to the Department of Mechanical Engineering (JS1207). They will enter a major after the first year of study. During their first year, students will study a broad range of Gateway Education (GE), College of Engineering and Home Department specified courses. 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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