

# CURRICULUM HIGHLIGHTS

## BEng in Mechanical Engineering

The BEng(MECH) program prepares students to become high-caliber professionals in engineering industries and services, both in the Greater Bay Area and beyond. Our curriculum offers a balanced foundation in mechanics and materials, thermodynamics and fluids, design and manufacturing, control technologies, and more. Throughout their studies, students benefit from hands-on laboratories, independent research projects, and various enrichment opportunities.

Our graduates excel in various fields, with many joining major companies such as MTR (Hong Kong's metro system) and CLP (a leading energy provider). Others choose to pursue postgraduate studies at prestigious institutions in Hong Kong, the United States, the United Kingdom, and Mainland China.

Our programs are designed to develop students' personal and professional skills while fostering innovative thinking. We offer a variety of enrichment opportunities to nurture these aspects in our students. For details, please visit: <https://mae.hkust.edu.hk/en/academics/undergraduate-program/enrichment-overview>.

Year	BEng in Mechanical Engineering	BEng in Aerospace Engineering	Enrichment
4	<b>Integrative</b> Final Year Design Project or Co-op Program Electives & Common Core	<b>Integrative</b> Final Year Design Project or Co-op Program Electives & Common Core	Overseas Exchange Internships Industrial Training UROP Co-op Program Minor in AE Student Interest Groups
3	<b>Core</b> Heat Transfer Machinery & Design Controls & Electrical Tech Mechanical Lab	<b>Core</b> Aerodynamics & Propulsion Aircraft Structure & Materials Aircraft Performance & Design Controls & Avionics Aerospace Lab	In-depth Options Energy Option (MECH) Design Option (MECH) Materials Option (MECH) Research Option (MECH/AE)
2	<b>Fundamentals</b> Thermodynamics & Fluid Mechanics Design & Manufacturing Mechanics & Materials Statics & Dynamics Electronics	<b>Fundamentals</b> Thermodynamics & Fluid Mechanics Mechanics & Materials Statics & Dynamics Electronics	
1	<b>Introduction</b> Common Core Engineering Introduction Engineering Fundamentals	<b>Introduction</b> Common Core Engineering Introduction Engineering Fundamentals	

## BEng in Aerospace Engineering

The BEng(AE) program prepares students to become high-caliber professionals in the aerospace industry, both in the Greater Bay Area and beyond. Our curriculum provides students with the fundamental knowledge and practical skills needed to design, analyze, and test aerospace vehicles as well as associated technologies. Throughout their studies, students benefit from hands-on laboratories, independent research projects, and various enrichment opportunities.

Our graduates pursue various career paths. Many join major aerospace service companies, including Cathay Pacific, Hong Kong Aero Engine Services Limited (HAESL), and Hong Kong Aircraft Engineering Company Limited (HAECL). Some opt to further their education at the postgraduate level, while others embark on their dream careers as airline pilots.



# Mechanical and Aerospace Engineering



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## What is MECHANICAL AND AEROSPACE ENGINEERING?



Engineering involves the acquisition and application of scientific, mathematical, economic, social, and practical knowledge to solve problems in our daily lives. Engineering is everywhere in the world around us.

Mechanical Engineering is one of the earliest branches of engineering, which has been traditionally associated with power generation, mining, machinery, manufacturing, design, development, construction, and early testing of aircraft and space vehicles. Examples of the different aspects of mechanical engineering that have transformed our society include automobiles, aircraft, rockets, spacecraft, ships and submersibles, robots, wind turbines, material coatings, offshore structures, refrigeration systems, and manufacturing systems.

Aerospace engineering is a significant branch in Mechanical Engineering; it deals with the design, development, construction, testing and all technological aspects of aerial and space vehicles, such as aircraft and spacecraft. It includes broad disciplines of aeronautical engineering and astronautical engineering, covering the operation of these vehicles both within the earth's atmosphere and beyond.

In practice, mechanical and aerospace engineers conceive, plan, design and direct the manufacture, distribution, and operation of a wide variety of devices, machines, and systems used for energy conversion, environmental control, materials processing, transportation via air, space and land, and the manufacture of consumer products.

## Why HKUST MAE?

**A unique curriculum** which integrates fundamental principles and hands-on laboratory experience

**State-of-the-art laboratories and computing facilities:** Students can design, practice and experiment

**World-Class Academic Innovators**

**Wide range of career opportunities:** Transportation, Building and Infrastructure, Energy and Environment, Design, Manufacturing, Aeronautics, and Astronautics



## Enrichment Programs

To enhance students' communication skills and widen their exposure to the industry, HKUST MAE provides a wide range of enrichment activities.

### Co-Op Programs

The credit-bearing program enables the final year students to gain practical work experience and valuable engineering design opportunities in the engineering sector. MAE students have gained valuable experience in:

- ATAL
- Cathay Pacific Airways
- China Aircraft Services
- CLP Power Hong Kong
- Compass Technology
- HAECO
- Jardine Engineering (JEC)
- MTR
- Ove Arup & Partners (HK)
- Towngas



### International Exchange Program

It offers an opportunity for students to build cross-cultural understanding and widen their network by providing them with an experience of studying abroad. MAE students have gained valuable exchange experiences around the world, included but not limited to:

- Cornell University, USA
- University of California Berkeley, USA
- Georgia Institute of Technology, USA
- University of Michigan, USA
- University of Minnesota, USA
- INP Grenoble, France
- Royal Institute of Technology, Sweden
- Technical University of Denmark
- KAIST, Korea
- Kyoto University, Japan
- National University of Singapore
- Tsinghua University, China



### Undergraduate Research Opportunities Program (UROP)

UROP provides a unique opportunity for undergraduate students to engage in academic research thereby helping them to develop a broad and insightful perspective of their areas of interest.



### Industrial Training

This training course aims to broaden students' understanding of engineering practice and enhance their appreciation of the knowledge acquired from the classrooms in an industrial environment.

### Mentorship Scheme

It offers students an early connection with industrial professionals from MAE related sectors for valuable insight and career advice. The scheme also brings invaluable long-term knowledge-sharing and friendship between mentors and mentees.



## ACCREDITATION BY HKIE

The HKUST BEng in Mechanical Engineering and BEng in Aerospace Engineering are accredited by the Hong Kong Institute of Engineers (HKIE), which are also recognized by many engineering institutions/authorities throughout the world.

Graduates are qualified to join the HKIE formal training scheme in the related discipline offered by major Hong Kong companies. The training, plus a period of practical experience, can lead to the status of Professional Engineer.

## CAREER PROSPECTS

The key employment sectors for BEng in Mechanical Engineering and BEng in Aerospace Engineering graduates are:



### Transportation Systems Sector:

Aircraft Engineering, Automotive Engineering, Piloting, Marine Engineering. Companies include Cathay Pacific, HAECO, HAESL, MTR, etc.



### Building & Infrastructure Sector:

Building Services, E&M Systems. Companies include AECOM Asia Company Limited, ATAL, Chevalier International Holdings Limited, Otis Elevator Company, SWIRE, etc.



### Energy Sector:

Power Generation, Renewable Energy, New Products, Energy Management. Companies include Arup, Hong Kong & China Gas, CLP, HK Electric, WSP Parsons Brinckerhoff, etc.



### Design & Manufacturing Sector:

Electronic Packaging, Aeronautical Engineering and Service, Automobile Industry, and Automation Systems. Companies include ASM, Foxconn, Huawei, Jardine Engineering Corporation Limited (JEC), NXP, etc.



### Others:

EMSD, EPD government agencies, Consultancy, Strategic business analysis and start-ups.

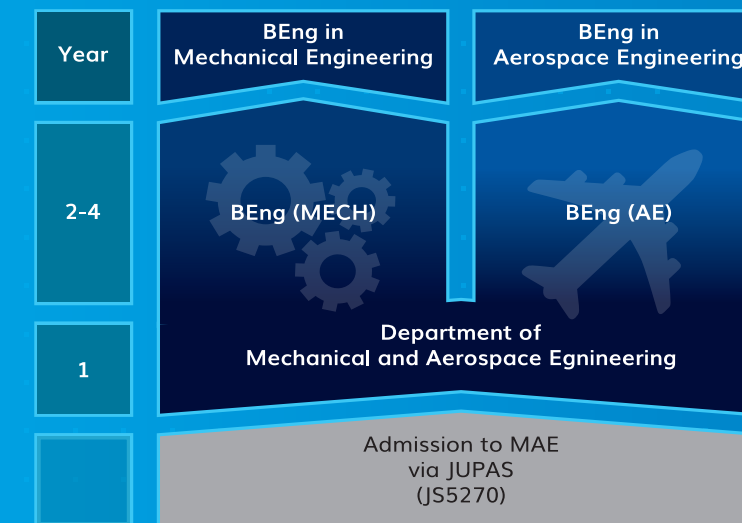
## ADMISSION

### JUPAS Applicants

#### Department-based Admission Track (JUPAS Code: JS5270)

This admission track provides students with the flexibility to explore both mechanical and aerospace engineering before specializing. It ensures a robust foundation in core engineering principles while enabling students to make an informed decision about their specific degree path. From day one, students begin working towards their academic and career goals, gaining valuable insights into both fields.

- Entry to the Department of Mechanical and Aerospace Engineering at the start of Year 1.
- Select BEng(MECH) or BEng(AE) no later than the end of Year 1.
- For HKDSE Entry Requirements and application procedures, please visit <http://join.ust.hk/>.



#### School-based Admission Track (JUPAS Code: JS5282)

For students seeking broader exposure to various engineering fields, the School-based Admission Track is recommended. By selecting the "Engineering + AI" option during application, students can explore multiple engineering fields before committing to a specific degree path.

- Entry to the School of Engineering (SENG) at the start of Year 1.
- Select BEng(MECH) or BEng(AE) no later than the end of Year 1.
- For HKDSE Entry Requirements and application procedures, please visit <http://join.ust.hk/>.

### Non-JUPAS (Direct Entry) Applicants

We welcome applications from both local and international students with:

- Non-HKDSE results
- International qualifications
- Other relevant qualifications
- Mainland Joint Entrance Examination
- Hong Kong sub-degree qualifications

For application procedures and important dates, please visit <http://join.ust.hk/>.

## ALUMNI SHARING

### Mr. WONG Man Hang, Henry (Class of 2014)

First Officer  
Hong Kong Express Airways Limited



Being an avid aviation enthusiast, I found my sense of belonging in this university. HKUST not only has experienced professors and teaching staff, but also offers unlimited opportunities to students with passion in this field. As international exposure is conducive to students' career development, HKUST endeavors to provide a blend of overseas exchange and internship opportunities for students to broaden their horizon. I was fortunate enough to intern at Boeing and Cathay Pacific during my school time. These internships fortified my aviation interest and laid a solid foundation for my career.

### Mr. CHIU Wai, Peter (Class of 2020)

Building Services Engineer  
China State Construction Engineering (Hong Kong) Limited



Studying in the Department of Mechanical and Aerospace Engineering (MAE) at HKUST was a meaningful experience. During my undergraduate studies, I not only gained academic knowledge but also developed an international perspective and broadened my horizons. In 2018, I had the opportunity to participate in the HKUST Co-op program and go on two exchanges to Tsinghua University and National University of Singapore. These experiences taught me to be passionate, outgoing, and adaptable to new environments. Through the Co-op program, I gained valuable work experience and a better understanding of the industry, which prepared me for my career path. After graduation, I worked at China State Construction Engineering (Hong Kong) Limited on cultural construction and epidemic prevention projects that contribute to society. This job taught me that engineering is not just a job, but also a mission to serve society.

### Mr. YEUNG Chi Shing, Sam (Class of 2021)

Mechanical Engineer, Vision  
ITEC Equipment and Automation Technologies



Like most the students when they first get into the School of Engineering, I was not clear about my career direction. Thankfully, the School of Engineering provides plenty of resources for students to explore their interests and achieve what they imagine. In particular, the MAE department encourages students to participate in different competitions to gain hands-on experience and foster their entrepreneurial spirit. Being a member of the HKUST Robotics team, I collaborated with multidisciplinary students to design and build a Remotely Operated Vehicle (ROV) for an international competition. This experience helped me build up the technical skills necessary for a mechanical engineer and sharpened my communication skills in a team environment. With my experience at HKUST, I would like to encourage students to step out of their comfort zone and seize every opportunity to make a difference.