

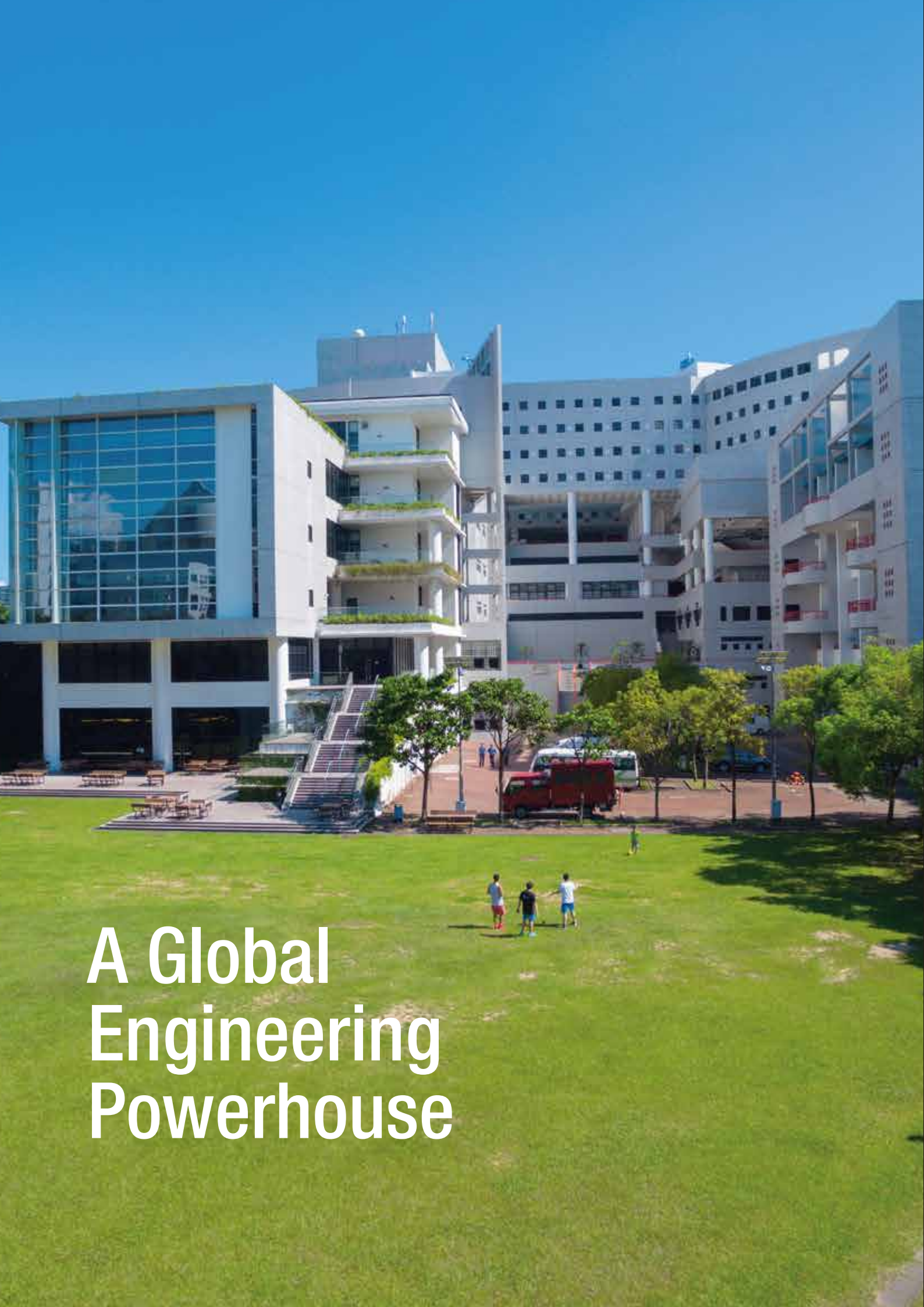
School of Engineering

# Master of Science Program

Asia's Foremost Engineering University

- **Aeronautical Engineering (AE)**
- **Intelligent Building Technology and Management (IBTM)**
- **Mechanical Engineering (MECH)**





# A Global Engineering Powerhouse

## Master of Science Program in

- **Aeronautical Engineering (AE)**
- **Intelligent Building Technology and Management (IBTM)**
- **Mechanical Engineering (MECH)**

Thinking of preparing yourself for senior positions in the engineering industry?  
Looking for reliable support to empower you to pursue your academic goals?

Welcome to the School of Engineering of The Hong Kong University of Science and Technology (HKUST), a global engineering powerhouse and one of Asia's top academic faculties.

## International Success

HKUST is a relatively new institution at only 32 years old, but it has consistently been ranked amongst the world's top research universities over the past decade.

# 2<sup>nd</sup>

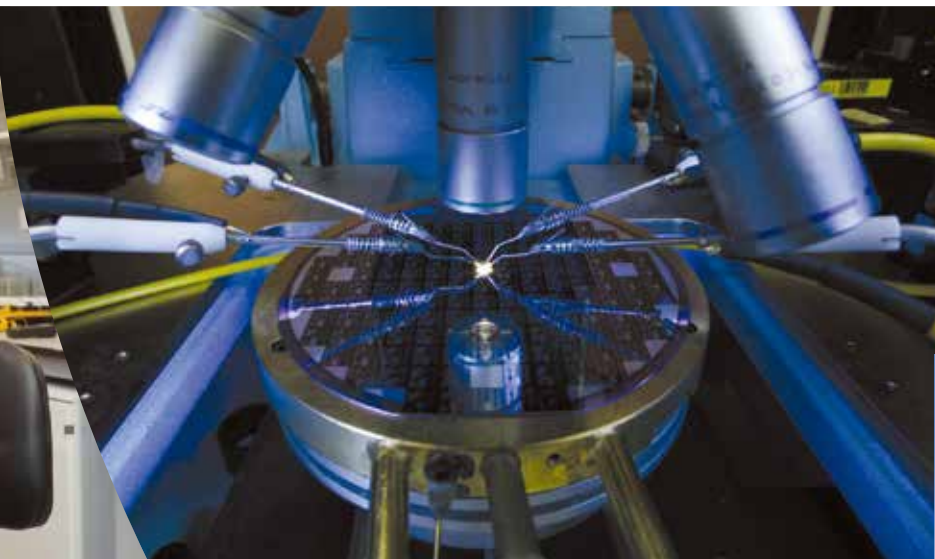
*Times Higher Education Young University Rankings 2023  
– World's Top 600+ Young Universities*

# 26<sup>th</sup>

*Times Higher Education World University Rankings 2023 – Engineering*

# 30<sup>th</sup>

*Global Employability University Ranking 2022*



## Why study at HKUST

- **Located in Hong Kong** – A vibrant cultural and business hub in Asia and a gateway to mainland China.
- **English language instruction** – Enable a broad range of students to access the world-class teaching and facilities.
- **A broad range of specializations available** – Ensure students' academic potential and interests are fulfilled.
- **Affordable tuition** – Between one-third and one-half of a comparable MSc in US and the UK.
- **Guaranteed 24-month visa to work in Hong Kong** – Enable non-local students to explore the myriad of opportunities available to them.
- **International faculty** – Majority originate from the world-class universities.

# MSc (IBTM)

## Program Objective

The program aims to provide a balance between both frontier technology updates and management strategies, in both a quantitative and qualitative way. It is designed for professionals in the building services industry who have to deal with complex multi-disciplinary building projects. They can be mechanical engineers, electrical engineers, building services engineers, civil engineers, architects and other building operation professionals who wish to pursue comprehensive studies in intelligent building design, operation and facilities management.

## Curriculum

Students are required to complete at least 30 credits of IBTM courses, including 6 credits of core courses. Subject to approval, students may take certain number of courses from MSc in Civil Infrastructural Engineering and Management and MSc in Mechanical Engineering programs.

### Core Courses:

- Building Internet of Things: Technologies, Big Data and Strategies for the Building Manager
- Intelligent Building Facility Management
- Intelligent Building System

### A Selection of Elective Courses:

- Advanced Energy Conversion Systems
- Advanced HVAC Systems
- Computational Methods in Building Environment Design
- Electrical Facilities in Intelligent Buildings
- Energy Management in Buildings
- Financial Assessment of Intelligent Building Systems
- Fire Safety Engineering
- Fuel Cells for Buildings
- Indoor Air Quality Technology and Management
- Lighting Engineering
- Materials in Built Environment
- Mechanical Vibration
- Micro Sensors for Buildings
- Occupational Safety and Health Issues in Buildings
- Project Engineering and Management
- Risk Management and Decision-Making in Intelligent Building
- Utility Services





## Program Objective

The program is designed to benefit students with a broad range of backgrounds. It aims to enable them to acquire advanced up-to-date technical knowledge in emerging mechanical engineering fields. This will in turn enhance their skills and knowledge in the design and manufacturing of various electrical, mechanical and thermal systems, their components, as well as in materials technology.

## Curriculum

Students are required to complete at least 30 credits of MESF courses. Subject to approval, students may take a maximum of 9 credits of courses from IBTM or MECH postgraduate courses offered by the Department of Mechanical and Aerospace Engineering to fulfill the program requirements.

### A Selection of Courses:

- Advanced Materials Analytics
- Advanced Mechanical Behavior of Materials
- Advanced Numerical Methods in Engineering
- Composites and Nanocomposites
- Finite Element Methods
- Fluid Dynamics
- Foundation of Solid Mechanics
- Fracture Behavior of Polymers
- Fundamentals of Electronic Packaging
- Fundamentals Theories and Algorithms of CAD/CAM/CAE
- Intermediate Heat and Mass Transfer
- Precision Machining
- Precision Manufacturing Technologies
- Robotics
- Thermodynamics and Kinetics of Materials
- Topology Optimization and Additive Manufacturing

Please refer to program websites for the most updated course list:

<https://seng.hkust.edu.hk/msc/ibtm>

<https://seng.hkust.edu.hk/msc/mech>

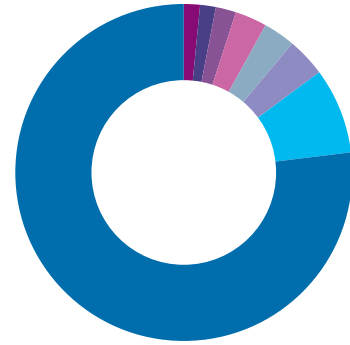
## Program Duration and Credit Requirement

Program	Total Credits	Mode of Study	Fall	Spring	Summer
AE	30 credits	Full-time (1 year)	12 - 15 credits	12 - 15 credits	-
		Part-time (2 - 2.5 years)	6 - 9 credits	6 - 9 credits	-
IBTM	30 credits	Full-time (1 year)	12 - 15 credits	12 - 15 credits	3 credits, if applicable
		Part-time (2 - 2.5 years)	6 - 9 credits	6 - 9 credits	-
MECH	30 credits	Full-time (1 year)	12 - 15 credits	12 - 15 credits	-
		Part-time (2 - 2.5 years)	6 - 9 credits	6 - 9 credits	-

Subject to availability, classes are normally held on weekday evening or Saturday afternoons. Each course typically meets once a week for approximately three hours.

## Postgraduate Career Opportunities

- Engineering 55%
- Scientific / Research Work 22%
- Administration / Management 5%
- Aircraft & Marine 5%
- Others 5%
- System Analysis & Computer Programming 4%
- Banking / Finance 3%
- Architecture / Surveying 1%



## Some of the companies which our graduates are working in / have received job offer from:

- |  |   |   |   |
|--|---|---|---|
| <ul style="list-style-type: none"> <li>• Aegle Aviation Limited</li> <li>• AIA Group Limited</li> <li>• Air China Limited</li> <li>• Airport Authority Hong Kong</li> <li>• Allied Environmental Consultants Limited</li> <li>• Alton Aviation Consultancy (Hong Kong) Limited</li> <li>• Apple Inc</li> <li>• Arup</li> <li>• Aviation Industry Corporation of China (AVIC)</li> <li>• Bank of China (Hong Kong) Limited</li> <li>• Cathay Pacific</li> </ul> | <ul style="list-style-type: none"> <li>• China Jinmao Holdings Group Limited</li> <li>• Civil Aviation Department (CAD), HKSAR</li> <li>• CLP Holdings Limited</li> <li>• Commercial Aircraft Corporation of China Ltd.</li> <li>• DJI Technology Co., Ltd.</li> <li>• Ecoinno (H.K.) Limited</li> <li>• FDM Group</li> <li>• FLYING WHALES</li> <li>• Hong Kong Aero Engine Services Limited (HAESL)</li> <li>• Hong Kong Aircraft Engineering Co Ltd. (HAECO)</li> <li>• Hong Kong Airlines Ltd.</li> <li>• Hong Kong Center for Construction Robotics</li> </ul> | <ul style="list-style-type: none"> <li>• Hong Kong Productivity Council</li> <li>• International Automobiles Ltd.</li> <li>• ISS Facility Services Limited</li> <li>• Jacobs China Limited</li> <li>• Jardine Aviation Service Limited</li> <li>• Jardine Schindler Group</li> <li>• Jones Lang LaSalle</li> <li>• Keio Engineering Co., Ltd.</li> <li>• Kum Shing Group</li> <li>• LG Electronic</li> <li>• Lufthansa</li> <li>• Marti Technics Ltd.</li> <li>• Meinhardt Group</li> </ul> | <ul style="list-style-type: none"> <li>• Prudential Hong Kong Limited</li> <li>• P&amp;T (M&amp;E) Ltd.</li> <li>• Singapore Airlines Limited</li> <li>• Streamax Technology</li> <li>• SUTD-MIT International Design Center</li> <li>• The Hong Kong and China Gas Company Limited</li> <li>• Topcast Aviation Supplies Co., Ltd.</li> <li>• Union Sea International Limited</li> <li>• Water Supplies Department (WSD), HKSAR</li> <li>• Welbot Technology</li> </ul> |
|--|---|---|---|

## International Student Body

The MSc students are from all corners of the world. Their culture and academic background bring a unique quality to our engineering programs and allow them to learn from peers with remarkably diverse backgrounds.

### Countries of Origin:



# MSc (AE)

## Program Objective

The program aims to equip those who want to enter the aeronautical engineering profession or to enhance the knowledge of those who have already been working in the aeronautical field.

This program complements the existing undergraduate and graduate curricula in mechanical and aerospace engineering, allowing students to get exposure to the various core aspects of aeronautical engineering and how they are used in real world.

## Curriculum

Students are required to complete a total of 30 credits of coursework, including at least 12 credits of foundation courses and 6 credits of elective courses.

### A Selection of Foundation Courses:

- Aeronautical Independent Project
- Advanced Aerodynamics
- Advanced Aircraft Design
- Advanced Aircraft Structures
- Aircraft Propulsion
- Fluid Dynamics
- Six Sigma Quality Management

### A Selection of Elective Courses:

- Advanced Mechanical Behavior of Materials
- Airplane Design, Development and Operations
- Avionics Technology
- Composites and Nanocomposites
- Computational Fluid Dynamics
- Finite Element Methods
- Fracture Behavior of Polymers
- Hong Kong Airworthiness
- Operation/Production Management

Please refer to program website for the most updated course list:

<https://seng.hkust.edu.hk/msc/ae>





*Studying in IBTM at HKUST was a meaningful experience. After graduated from the undergraduate program under the department of Mechanical & Aerospace Engineering at HKUST, I have chosen IBTM for my part-time study. During the postgraduate period, I can study more about the advanced knowledge of the building service that prepare me to get the professional qualification of Building Service Discipline in HKIE. The program not only allows me to learn more about comprehensive frontier technology updates and management strategies but also expands my network in the engineering industry. It can benefit us to develop our career paths in the future. At the same time, I work in China State Construction Engineering (Hong Kong) Limited for cultural construction and epidemic prevention projects related to society. I can also apply the principle of intelligence building in my project. It lets me know engineering is not only the job but also the mission which contributes to society with innovative technology. ”*

**CHIU Wai Peter**

(IBTM graduate, Hong Kong, 2022)  
China State Construction Engineering (Hong Kong) Limited



*The HKUST experience with Master of Science (MSc) in Aeronautical Engineering (AE) program is unique. The program helps me to explore different options and opportunities in the aviation industry. With the curriculum developed by the University, students have flexibility to decide whether they prefer to dig deep into the core engineering aspect or to learn more about the experience/knowledge from different sectors of the aviation industry. Professors have very strong academic background, who definitely help students to learn about the technical knowledge or even doing research. The industrial professionals are experts from different sectors. Their on-job-experience is invaluable. We can learn a lot even by having a short chat with them. The program helps me to have a better understanding of what the aviation industry includes, the opportunities available and equip myself to develop my career. ”*

**LI Man Yui Christy**

(AE graduate, Hong Kong, 2021)

**Application**

For admission details and procedures, please check: <https://fytgs.hkust.edu.hk>  
Early application is recommended for non-local applicants for visa processing.

**Program Fee / Scholarship / Financial Support**

Please refer to individual program website <https://seng.hkust.edu.hk/programs> for the most updated program fee, scholarship and financial support.

Various scholarships are available, including:

- Arthur and Louise May Scholarship
- Asian Future Leaders Scholarship Program
- Entrance Scholarship
- Excellent Student Scholarship
- Hong Kong Aviation Scholarship Program
- Hong Kong Talent Development Scholarship
- Targeted Taught Postgraduate Programmes Fellowships Scheme – For MSc (IBTM)

Financial support is available to citizens from Brazil, Indonesia, the Republic of Kazakhstan, Norway, Russia, Sweden, and many more.



*I chose Hong Kong to pursue my master’s degree in Mechanical Engineering, for the reason that it is an ideal place to explore and enjoy traditional Chinese culture and habits of the western world at the same time – this city is a purely fast paced, highly dynamic melting pot. Looking back, I really enjoyed my master’s study in HKUST! Here, I not only gained solid academic knowledge, but also boosted both my mental and physical level, as well as explored diversified career opportunities from engineering to finance industry.*

*HKUST is a truly international university where students from all over the world come together. Choosing HKUST not only gave me the opportunity to develop my knowledge and skills from one of Asia’s leading technology universities, but also the chance to make international friends along the way. For me, practising sports is an essential part of my life. HKUST’s sports facilities are well-equipped and free to use by the universities’ members in order to provide a balance between challenging academic studies and physical health and fitness. Additionally the setting of the university in a wonderful natural surrounding near the campus always inspired me and helped me to relax between lectures. HKUST has a unique and enjoyable dynamic spirit – from high caliber faculty to strikingly competitive and motivated students. In the end, the greatly recognised and valuable degree from HKUST helped me to explore exciting career opportunities as a quantitative developer in the finance industry in Hong Kong. ”*

**Jan Magnus ROTH**

(MECH graduate, Germany, 2020)



**Contact**

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☎ IBTM / MECH: (852) 2358 6953

☎ (852) 2719 3027

🌐 <https://seng.hkust.edu.hk/programs>

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Clear Water Bay, Kowloon, Hong Kong

