香港科技大學
THE HONG KONG
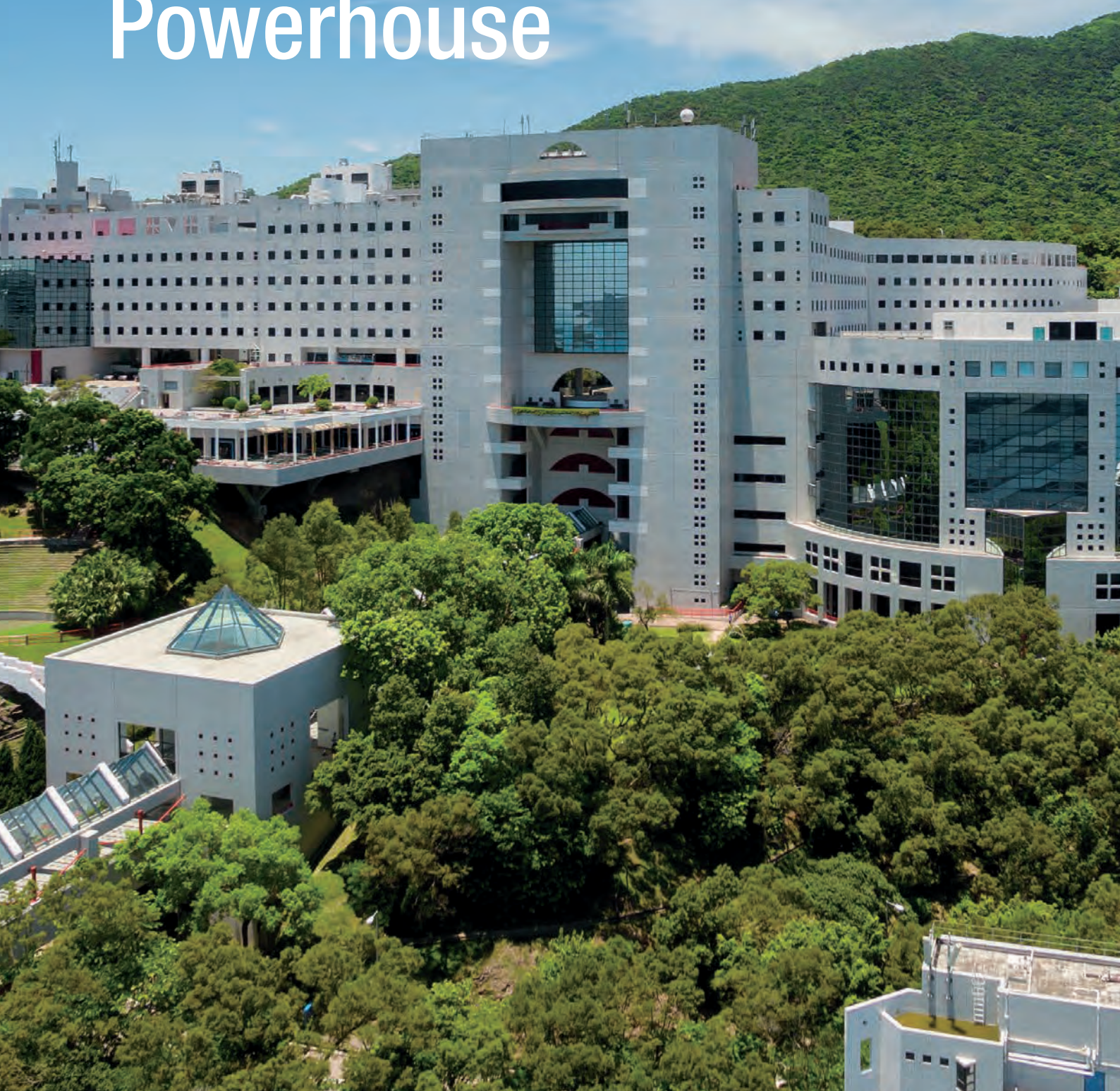UNIVERSITY OF SCIENCE
AND TECHNOLOGY

工學院
SCHOOL OF
ENGINEERING

School of Engineering
Master of Science Program

Asia's Foremost Engineering University

- **Big Data Technology (BDT)**
- **Information Technology (IT)**

A Global
Engineering
Powerhouse

Master of Science (MSc) in

- **Big Data Technology (BDT)**
- **Information Technology (IT)**

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 30 years old, but it has consistently been ranked amongst the world's top 30 research universities over the past decade

20th
QS University Rankings 2021 – Engineering and Technology

26th
Times Higher Education World University Rankings 2021 – Engineering and Technology

26th
Global University Employability Rankings 2020

30th
QS World University Rankings 2021 –Computer Science & Information Systems

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 12-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 (BDT)

Program Objective

This unique program is jointly offered by the Department of Computer Science and Engineering and the Department of Mathematics. The program integrates a variety of disciplines to allow students to learn all the important facets of big data and how it is used in the real world.

Students will learn the major components of big data, including infrastructure, data integration, storage, modeling and management, computing systems, analytic and mining systems, security, policy and social implications, as well as human factors and big data applications in various fields (data science).

Curriculum

Students are required to complete 30 credits of coursework, including 12 credits of core courses and 18 credits of elective courses. Subject to approval, students may take a maximum of 6 credits of courses from the Master of Science in Information Technology.

Core Courses

• Big Data Computing

• Data Mining and Knowledge Discovery

• Foundations of Data Analytics

• Mathematical Methods for Data Analysis

A Selection of Elective Courses

• Advanced Statistics: Theory and Applications

• Artificial Intelligence

• Data Visualization

• Deep Learning Meets Computer Vision: Practice and Applications

• Image Processing and Analysis

• Independent Project

• Introduction to Blockchain Technology

• Introduction to Social Computing

• Machine Learning

• Natural Language Processing

• Optimization and Matrix Computation

• Parallel Programming

• Quantitative Analysis of Financial Time Series

• Statistical Prediction

Please refer to program website for the most updated course list:
https://seng.hkust.edu.hk/msc/bdt

MSc (IT)

Program Objective

The program is designed for those who wish to obtain broad-based and leading-edge skills in Information Technology and provides students with a strong theoretical foundation in all areas of IT.

The courses give students insight into the application areas of all the subject materials that they study. The dual emphasis on a strong theoretical foundation and practical application, combined with extensive skill-set training, gives our students a broad array of expertise to draw on, enabling them to meet both the present and future needs of the IT industry.

Curriculum

Students are required to complete a total of 30 credits of CSIT courses. Subject to approval, students may take a maximum of 3 credits of courses from the Master of Science in Big Data Technology.

A Selection of Courses

• Advanced Algorithms

• Advanced Database Systems

• Artificial Intelligence

• Computer Graphics

• Computer Networks: An Internet Perspective

• Cryptography and Security

• Data Mining and Knowledge Discovery

• Engineering Reliable Object-Oriented Software Systems

• Financial Technology for Engineering Professionals

• Independent Project

• Introduction to Big Data

• Machine Learning

• Multimedia Development

• Recognition Systems

• Search Engines and Applications

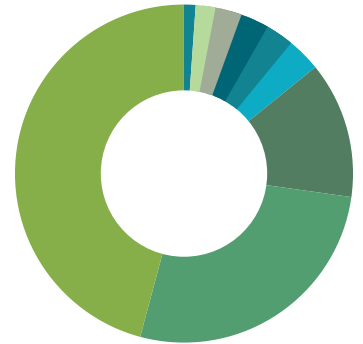Please refer to program website for the most updated course list:
https://seng.hkust.edu.hk/msc/it

Program Duration and Credit Requirment

Term	Full-time	Part-time
	1 year to complete 30 credits	2 - 2.5 years to complete 30 credits
Fall	12 - 15 credits	6 - 9 credits
Spring	12 - 15 credits	6 - 9 credits
Summer	3 - 6 credits, if applicable	3 - 6 credits, if applicable

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

Postgraduate Career Opportunities

- System Analysis & Computer Programming 39%
- Engineering 26%
- Scientific / Research Work 18%
- Banking / Finance 4%
- Administration / Management 4%
- Economic, Statistical & Mathematical Work 4%
- Others 4%
- Teaching / Lecturing 1%

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

Banking / Finance/ Consulting

- Arup
- AQUMON
- Bank of China
- BNP Paribas
- Bupa (Asia) Limited
- China Merchants Bank
- Citibank
- DBS Bank
- Deloitte Touche Tohmatsu Limited
- Euler Hermes
- Deutsche Bank
- HSBC
- J.P. Morgan Chase
- KPMG
- Morgan Stanley
- PwC

Technology

- Alibaba
- Amazon Web Services
- Apple
- ASM Pacific Technology
- ASTRI
- Baidu
- ByteDance
- DJI
- EMOS Technologies
- Google
- HP Pavilion
- IBM
- Intel
- Jingdong
- Kuaishou
- Lenovo
- Magnum Research Limited
- Meituan
- Microsoft Azure
- Microsoft Netease Games
- Oracle
- Ping An Technology
- Qutoutiao
- SAGE Technologies
- SenseTime Group Limited
- Shopee
- Shunfeng Technology
- TCL
- Thales Group
- Tencent
- TP-Link
- ValueChain
- Vivo
- WeBank
- Xiaomi Tech
- Yuanfudao

Telecommunications

- China Mobile International
- China Telecom
- Huawei
- Hutchison Telecommunications HK Holdings Limited
- OOCL
- PCCW
- TFI Digital Media

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:

> The syllabus of BDT program is well designed. It not only offers practical courses focusing on hands-on application, but also provides powerful theoretical courses that tell us math idea behind popular algorithms. These courses have laid a solid foundation for a systematic understanding of big data analysis. Whether the student will pursue a career or further study after graduating, BDT's courses will equip him/her with necessary skills and confidence.
>
> In a nutshell, I'm so glad that I have spent my time here and have learned all I want.

GU Yimeng
(Mainland China, 2020)

MSc (BDT)

> I enjoy the MSc (BDT) program very much. This program integrates different disciplines such as statistics, mathematics and computer science for us to learn the big data technologies. We can develop our own specialties by choosing among the well-diversified elective courses covering topics like natural language processing, data visualization and blockchain technologies.
>
> Overall, this program would be a best choice to learn big data applications and machine learning in a comprehensive way. The technologies and materials are very up-to-date such that we could stay relevant in big data era and apply what we learnt into real world applications.

LING Kai Leong
(Hong Kong, 2020)

> The Big Data Technology program at HKUST is a one of a kind program in Hong Kong that blends the practical and the theoretical aspects of Data Science seamlessly. It has not only helped me to undertake my job with greater analytic depth but has also prepared me to pursue further studies in those areas of Mathematics that are central to Data Science, which is the next field of study I am going to pursue.

SAMI Muhammad Talha
(Pakistan, 2020)

> As a part-time student, while working as a software engineer in a finance firm in Hong Kong, it was challenging but fruitful when I had the opportunities to take courses in various fields such as AI, ML, software engineering, as well as statistics. Most courses offered by the BDT program not only cover the theoretical knowledge but also require a hands-on project where students either in a group or individually use the technics learned in class to solve a problem by coding. The classwork and projects familiarize and equip me with the coding skills to complete the whole lifecycle of a machine learning algorithm. The knowledge and experience I acquired through the BDT program would definitely help my future career development as I expand my knowledge domain from traditional software engineering to more big data related fields which could provide me more job opportunities in the industry.

LIU Qihong Leo
(Mainland China, 2021)

Scan QR Code for more student testimonials.

> *The MSc IT has been my most fulfilling year of my education so far. The diversity among the students, as well as outstanding professors, provided an unparalleled learning atmosphere. There is a broad selection of courses which has been relevant for my future career…*
>
> *HKUST has one of the best study environments I've encountered and is extremely accessible… Whenever I wanted a break, I was able to put on my hiking boots and explore any of the breath-taking trails all over the city…*

Joergen Fosseng DULEY
(Norway, 2017)

> *The Program enriched my knowledge in computer science and information technology. I learned to identify real-world IT problems from different dimensions and perspectives and develop solutions to address those problems effectively.*
>
> *I also found my passion to explore unknown fields in computer science and information technology. The courses profoundly broadened our visions in such fields, which would be of great help to our career development and scientific research studies in the future.*
>
> *It is worth mentioning that it is a wonderful life experience studying and living here with first-class facilities and a beautiful environment.*

MA Xiao
(Mainland China, 2021)

MSc (IT)

Application

For admission details and procedures, please check: *http://pg.ust.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 Talent Development Scholarship

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

> *Taking MSc IT program has been an awesome experience for me. I really liked the courses offered by the program which gave me a perfect mixture of theoretical and practical knowledge that I sought by pursuing Master's degree.*
>
> *The lecturers are extremely knowledgeable, encouraging and very approachable which made the learning experience more enjoyable.*
>
> *The program has provided me with the tools to effectively translate strategic goals and enables me to achieve my career goals (both short term and long term).*
>
> *Really had a pleasant time at HKUST studying this program for last one year, made some good friends from different countries and learnt a lot from them.*

Avirag Narendra SRIVASTAVA
(India, 2018)

Contact

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🌐 https://seng.hkust.edu.hk/programs

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