

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

2nd

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

26th

Times Higher Education World University Rankings 2023 – Engineering

30th

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 (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
- 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

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





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

- A Gentle Introduction to Deep Learning
- Advanced Algorithms
- Advanced Cloud Computing
- Advanced Digital Design
- Advanced Database Systems
- Advanced Topics in Human-Computer Interaction
- Artificial Intelligence
- Computer Networks: An Internet Perspective
- Data Mining and Knowledge Discovery
- Engineering Reliable Software Systems
- Financial Technology for Engineering Professionals
- Independent Project
- Machine Learning
- Search Engines and Applications

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

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

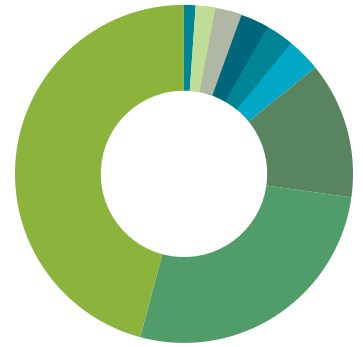
MSc(BDT) and MSc(IT) Program Duration and Credit Requirement

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 36%
- Engineering 27%
- Scientific / Research Work 19%
- Administration / Management 5%
- Banking / Finance 5%
- Economic, Statistical & Mathematical Work 5%
- Others 2%
- Teaching / Lecturing 1%



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

Banking / Finance/ Consulting	Technology	Telecommunications
<ul style="list-style-type: none"> • Arup • AQUUMON • Bank of China • Bloomberg • BNP Paribas • Bupa (Asia) Limited • China Merchants Bank • Citadel • Citibank • DBS Bank • Deloitte Touche Tohmatsu Limited • Deutsche Bank • Euler Hermes • HSBC • J.P. Morgan Chase • KPMG • Morgan Stanley • OKX • PwC 	<ul style="list-style-type: none"> • Alibaba • Amazon Web Services • Ant Group • 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 	<ul style="list-style-type: none"> • 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:





I love the program as I can live in a multicultural environment here and work with world-class professors and my brilliant classmates who have their own talents and visions. Before I came here, I was a little worried as I do not know any Chinese. But, it is not an issue here – people speak English. I have conversations with my classmates from different countries including France, Spain, Kazakhstan, India, USA, mainland China and Hong Kong. I am also becoming more flexible and making less ignorant judgments.



Meanwhile, I believe that the program would be the best way to build solid knowledge in machine learning and data science technology within a short period, no matter if you will then go for a career in research or industry after graduation. The courses are well designed which cover various trendy technology issues. It made me understand what I really want to do in AI and big data era, as well as my career path.

PARK Seoyoung
(Korea, 2019)



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)



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)



HKUST MSc BDT gives you a taste of the industrial revolution 4.0. I learned the basic theory and math of data mining and machine learning. Topics like Data Visualization, Parallel Computing, and Natural Language Processing teach me the skills I need for work. Offering a wide range of topics in Big Data, it's great for people of all backgrounds. Getting to know people from different backgrounds and working on projects with them helps me grow my social network and friendships. Buckle up your seatbelts and get ready to be a part of the fourth wave of the industrial revolution.

WONG Tsz Ho
(Hong Kong, 2022)



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)

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 Talent Development Scholarship
- Targeted Taught Postgraduate Programmes Fellowships Scheme – For MSc(BDT)

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)



“ The MSc(IT) programme offers a great variety of courses to students and we can choose any of them based on our own interests. The professors are able to deliver state-of-the-art knowledge and inspire me a lot during the lectures. Also, we might choose to undertake an independent project to gain hands-on experience. For me, I have developed a machine learning-based application for multimedia databases. This experience is valuable to me as it gives me both research and practical experience. It also allows me to develop soft skills such as communication and presentation skills.

I believe the MSc(IT) programme benefits me a lot as it has broadened my horizon and helped me to find the area that I am most passionate about and be prepared for my future career. My one final piece of advice for future MSc(IT) candidates is that: Don't forget to enjoy the beautiful sea view in HKUST as it helps you to relieve yourself during stressful times. ”

CHAN Kevin
(Hong Kong, 2022)



Contact

✉ BDT: mscbdt@ust.hk
IT : mscit@ust.hk

📞 BDT: (852) 2358 5773
IT: (852) 3469 2521

📠 (852) 2719 3027

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

MSc Program, Professional Program Office
Room 5601, 5/F, Lifts 29-30, School of Engineering
The Hong Kong University of Science and Technology
Clear Water Bay, Kowloon, Hong Kong

