



澳門科技大學
MACAU UNIVERSITY OF SCIENCE AND TECHNOLOGY

FIE

創新工程學院

FACULTY OF
INNOVATION ENGINEERING



Faculty of Innovation Engineering

創新工程學院

The Strategic Plan of Macau University of Science and Technology (M.U.S.T.) lays out an ambitious blueprint for the University's development objectives and priorities in the five-year period 2021-2025. It particularly calls for further strengthening of the engineering disciplines and stipulates more coherent academic planning and development of areas of excellence.

We live in a time when innovation and technological development take place at an increasingly fast pace. To prepare and cultivate future engineering talents and leaders who can succeed and thrive in such a challenging time, educators worldwide have come to the consensus that the academic approach to engineering disciplines and interdisciplinary collaborations is in need of a fundamental rethinking and strategizing. This is what inspires the University to undertake the initiative of creating **Faculty of Innovation Engineering (FIE)**.

Innovation Engineering is about creating scientific and technological breakthroughs based on fundamental, applied and multi-disciplinary research. Innovation – a key driver of a knowledge economy – is also about an entrepreneurial mindset to explore the unknown, to imagine the unthinkable, to make use of emerging technologies and novel multi-disciplinary approaches and business models to tackle grand challenges, and to create social and economic value.

The decision to establish FIE is based on extensive deliberation by the University leadership, substantial consultation with stakeholders, careful examination of similar initiatives from universities and research institutes worldwide, and positive feedbacks from high-tech leaders. The official unveiling will take place on March 27, 2022.

The establishment of FIE brings strong but detached research clusters into a single unified structure and organization, integrates and consolidates resources for engineering disciplines, creates fertile grounds and opportunities for inter-disciplinary ideas to flourish and come to fruition, and is conducive to the internationalization effort.

The FIE consists of the following academic units: School of Computer Science and Engineering, Department of Engineering Science, Department of Materials Science and Engineering, and Department of Environmental Science and Engineering. In addition, FIE is academic home to the following research institutes: Macao Institute of Systems Engineering; Macao Environmental Research Institute; Macao Institute of Materials Science and Engineering; Macao Institute of Smart City; International Institute of Next Generation Internet; Open Intelligent Electric Vehicles Research Center (OIEV-RC); Joint Laboratory on Medical Robotics Innovations; and Macao Centre for Mathematical

Sciences. The organization structure facilitates crossdisciplinary collaboration with other units including the Faculty of Medicine, the State Key Laboratory of Quality Research in Chinese Medicine, the Dr. Neher's Biophysics Laboratory for Innovative Drug Discovery, the State Key Laboratory of Lunar and Planetary Sciences, the National Research Station of Coastal Ecological Environments in Macao and the Key Laboratory of River Basin Digital Twinning of Ministry of Water Resources.

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

School of Computer Science and Engineering (Former Faculty of Information Technology) is one of the first four faculties established in the newly founded Macau University of Science and Technology in 2000. It offers a comprehensive suite of degrees: Bachelor of Science, Master of Science, and Doctor of Philosophy degrees. Currently, the School offers three majors in the Bachelor of Science degree: (1) Computer Science, (2) Electronic and Information Engineering, and (3) Software Engineering. Bachelor of Science in Artificial Intelligence is coming soon. There are two Master's degree programs in the School: Master of Science degree which includes three focus areas: (1) Computer and Information Systems, (2) Communication Engineering, and (3) Space Information Technology; and Master of Science in Applied Mathematics and Data Science. For Doctor of Philosophy in Science degree, there are three focus areas: (1) Computer Technology and Application, (2) Electronic Information Technology, and (3) Space Information Technology. In addition, the School recently established two new PhD degree programs: Doctor of Philosophy in Advanced Networking degree, and Doctor of Philosophy in Artificial Intelligence degree. Over the years, 1458 BSc's, 489 MSc's, and 136 PhDs have graduated.

Computer Science at M.U.S.T is ranked 101-125 world-wide by the Times Higher Education World University Rankings by Subject in 2023. For Shanghai Ranking's Global Ranking of Academic Subjects 2022, Computer Science and Engineering at M.U.S.T. is ranked at 151-200 among over 500 universities in the world.

The School has made significant strides in its research programs in recent years. During the academic year 2019-2020, the School's total research funding reached 70.5 million MOP for a total of 69 projects, with the funding support primarily from the Macao Science and Technology



▲ 2021/2022 Faculty Graduation Ceremony Group Photo
2021/2022 學年學院畢業典禮合照



▲ MUST won the 2nd Prize in the Huawei ICT Competition Asia Pacific on Network Track and represented Macau in the Global Final
澳門科技大學的隊伍獲得網絡賽道亞區亞軍，並代表澳門晉級全球總決賽

Development Fund, the National Natural Science Foundation of China, the Macao Higher Education Fund, and so forth. In the latest release of "Essential Science Indicators (ESI)" in July, 2021, by Clarivate Analytics (former Thomson Reuters), it is revealed that the Computer Science field of M.U.S.T. has for the first time joined the rank of the top 1% among universities and research institutes across the world in the relevant area. Our research accomplishments have made significant contributions to this designation. To further accelerate the research momentum, the School applied and was granted over 7 million MOP by the Macao Science and Technology Development Fund and the Macao Higher Education Bureau in 2019 to establish Macao's first NVIDIA's GPU cluster server.

DEPARTMENT OF ENGINEERING SCIENCE

Corresponding to rapid advances of modern science and technology, the frontiers of engineering application are continuously expanding. While the contents of engineering disciplines are quickly increasing, cross disciplinary training is becoming even more critical. The need for broad knowhow is also a necessity for engineering-related management and business practices. The Department of Engineering Science under the Faculty of Innovation Engineering is created in response to these challenges. The Department provides training that emphasizes on a solid foundation in mathematics, science, and technology whilst providing students with broad interdisciplinary

exposures (with areas of concentrations). Such foundation is a pre-requisite for nurturing the capacity to pursue advanced work. The Department aims at producing engineers who can deal with the technically multifaceted nature of modern-day projects and can create solutions with overall considerations. Areas of concentration include intelligent systems engineering, biotechnology, sustainability, and engineering management. The Department offers bachelor's degree programs in Automation and Systems Engineering and Interdisciplinary Engineering*, a Master of Science degree program in Intelligent Technology, and one Doctor of Philosophy degree program in Intelligent Science and Systems.

The Department has made significant contributions in the engineering science area. According to the report of "Essential Science Indicators (ESI)" made by Clarivate Analytics (formerly Thomson Reuters) in 2019, MUST's rank in the systems engineering field is in the top 1% among universities and research institutes across the world. Also, according to the Shanghai Ranking's Global Ranking of Academic Subjects announced in 2022, Automation & Control is ranked 51-75 among 500 universities in the world.

The Department of Engineering Science is composed of an international team of high-level researchers from broad disciplines. It is developing to become a first-class research and education institute in the Greater Bay Area, to produce innovative talents in intelligent production, intelligent robotics, digital twin systems, biotechnology,

environmental protection, and engineering management.

* Choice from three concentrations: AI + Biotechnology, AI + Environmental Engineering, AI + Business & Management.

DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING

With the aim to adapt the challenging needs of Macao Society, Department of Materials Science and Engineering (DMSE) at M.U.S.T. was established in March, 2022 under the leadership of Chair Prof. Shuit-Tong Lee, an academican of the Chinese Academy of Sciences and The Academy of Sciences for the Developing World.

DMSE will be guided by the Strategic Development Outline of the Macao SAR Government for the Greater Bay Area as well as the Research Development Plan of Macau University of Science and Technology. DMSE is mainly oriented to the fields of artificial intelligence, advanced manufacturing, biomedicine and comprehensive health. It will focus on the advanced functional materials, and prioritize nanomaterials and nanotechnology which falls in the categories of information display, organic optoelectronics, flexible electronics, wearable intelligent sensors, biomedical materials, nano-catalysis and energy materials, functional surfaces and interfaces, and materials genome etc. DMSE has established an international high-level faculty team and gradually established the academic status all over the world. It is also planning to set up a master's degree program and a doctoral degree program in "Materials Science and Engineering" to cultivate innovational talents characterized as investigative, interdisciplinary, and international frontier as well as conceptualized by innovative thinking ability, interdisciplinary advantages, and international vision.

DEPARTMENT OF ENVIRONMENTAL SCIENCE AND ENGINEERING

The Department of Environmental Science and Engineering is one of the four school/ departments in the Faculty of Innovation Engineering. Environmental Science and Engineering is an important academic platform for the professional program in engineering education and research, which may lead to further

▼ A Student from the School of Computer Science and Engineering won the first prize in the 2021 Pan-Pearl River Delta+ University Student Computer Competition
計算機科學與工程學院學生榮獲 2021 泛珠三角+大學生計算機作品賽一等獎



World University Rankings 2023 by subject: computer science

The computer science subject table uses the same trusted and rigorous performance indicators as the Times Higher Education World University Rankings 2023, but the methodology has been recalibrated to suit the discipline.

This year's table includes 974 universities, up from 892 last year.

Read more...

Show me universities best for overall in Macao

Or, find specific universities by name

RANKING	SCORES	Read more about the World University Rankings 2023 by subject: computer science			
101-125		STUDENT INSIGHTS			
		Best universities for computer science degrees			
		What can you do with a computer science degree?			
		ACADEMIC INSIGHTS			
		World University Rankings by Subject 2023: results announced			

▲ Computer Science at M.U.S.T is ranked 101-125 world-wide by the Times Higher Education World University Rankings by Subject in 2023
泰晤士高等教育 (Times Higher Education) 發布的 2023 年世界大學學科排行榜中，澳科大計算機科學位列世界 101-125 區間

development of technologies to tackle critical environmental issues, such as pollution control.

In order to achieve the goal of “Carbon Peak in 2030 and Carbon Neutrality in 2060” and to meet the demands of the ecological civilization in China, the Department of Environmental Science and Engineering has been building a system of educational training for interdisciplinary professionals. A undergraduate degree program (B.Sc. in “Environmental Science and Engineering”) and a postgraduate degree program (M.Sc. in “Environmental Science and Management”) have commenced with student admission since 2023 and 2017. The “Environmental Science and Engineering Doctoral degree program” has also been proposed.

The Department of Environmental Science and Engineering is well equipped with laboratories for teaching and research in environmental analyses, such as GC-MS, AAS, ICP-OES, ICP_ MS, HPLC-MS – developed in collaboration



with the National Observation and Research Station of Coastal Ecological Environments in Macao; two Guangdong-Hong Kong-Macao Joint Laboratory: The Guangdong-Hong Kong-Macao Environmental and Quality, Collaborative and Innovative Joint Laboratory and The Guangdong-Hong Kong-Macao Joint Laboratory on Pollutant Exposure and Health.

Based on the research platform of the university, a research group of 20 internationally recognized scholars with various backgrounds led by President Joseph Hun-wei Lee has been formed. The research focuses are hydro-environment engineering and coastal water quality modeling, intelligent monitoring of air-land-sea continuum for Macao ecological environment, assessment and forecast technology for coastal environment, transport and transformation processes, ecological and environmental effect and control technology on key and emerging pollutants, and municipal solid waste recycling and management.

The course design and education/training at the Department of Environmental Science and Engineering concentrate on offering theoretical knowledge combining with practice in the laboratory and field work. Students are prepared to be professionals with inter-disciplinary skills and international outlook, independent scientific research ability, and with engineering technology and design training – to meets the demands for engineering talents from regional to national level. The goal of our education is to train our students to become multi-field professionals and experts in environmental science and engineering, playing important roles in enterprise, science and technology, and government sectors.

The Department of Environmental Science and Engineering welcomes students who are interested to acquire knowledge and skills in a conducive educational environment through personalized creation and innovation to understand principles and practices, and training for life-long learning.

Four Bachelor Programs Proposed

Bachelor of Science in Artificial Intelligence

Artificial intelligence (AI) is an interdisciplinary subject based on computer science and integrated by multiple disciplines. It mainly researches and develops theories, methods, technologies and application systems for simulating, extending and expanding human intelligence. Artificial intelligence has gradually changed from a branch of computer science to an independent discipline in theory and practice.

- (1) Artificial intelligence is the development direction of the future society
- (2) The establishment of a bachelor's degree program in artificial intelligence is in line with the policy direction of the country's higher education
- (3) Cultivate innovative artificial intelligence talents with solid theory and strong practical ability for Macau, the Greater Bay Area and the country
- (4) Macau University of Science and Technology has the ability to offer a bachelor's degree program in AI

Bachelor of Science in Automation and Systems Engineering

The purpose of this course is to consolidate students' mathematical and physical foundation, guide students' thinking mode in engineering field, and cultivate application-oriented professionals with forward-looking theory and technology and innovative thinking.

With the rapid development of a new generation of information technology represented by big data, cloud computing, and artificial intelligence, the industrial revolution has entered the era of Industry 4.0 characterized by intelligence. In June 2016, the Ministry of Education put forward the concept of "new engineering" for the first time, bringing innovation ideas to the construction of artificial intelligence subject knowledge into the talent training model. The proposal of automation and systems engineering program will be in line with the development and goals of the university:

- (1) Improvement and optimization of teaching and learning, application of new technologies to update educational concepts, and innovation of teaching modes;
- (2) Research innovation and cooperation;
- (3) Internationalization and diversity
- (4) Integration into the Greater Bay Area and the nation.

Bachelor of Environmental Science and Engineering

The purpose of this course is to cultivate innovative application-oriented professionals who have a comprehensive grasp of the basic knowledge of environmental science and engineering and related majors and have excellent practical application capabilities.

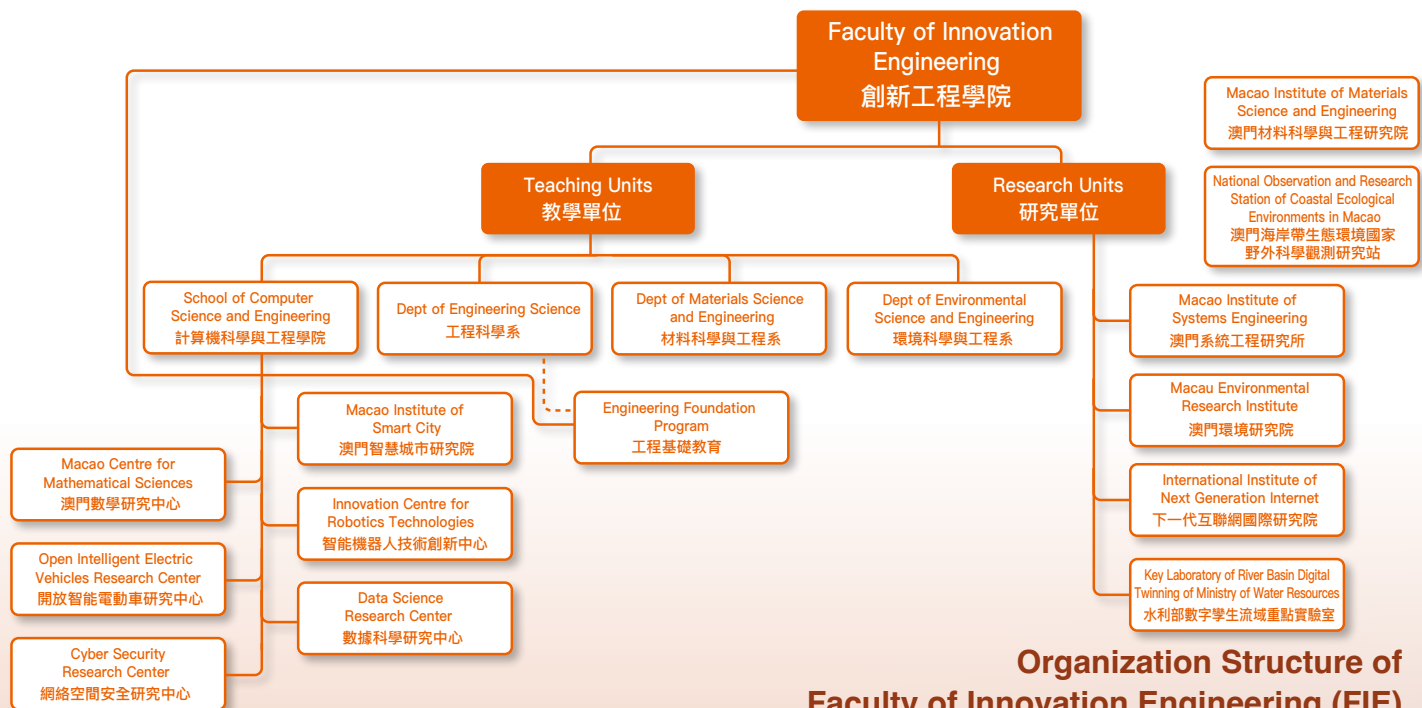
The establishment of the "Environmental Science and Engineering" bachelor's degree program can provide curriculum support for the cultivation of talents in this field, and can cultivate technical talents in the field of environmental science and engineering in Macao. At the same time, the proposal of the concept of the Guangdong-Hong Kong-Macao Greater Bay Area and the country's strong support for Macao have also provided a broader development space for graduates of the Bachelor of Environmental Science and Engineering. It is foreseeable that the demand for talents in the field of environment in Macao and the country will continue to increase in the future.

Bachelor of Engineering in Interdisciplinary Engineering (Technology and Management)

The purpose of this program is to cultivate adaptive, innovative professionals who have a solid foundation in mathematics and science, are proficient in the principles and usages of computers and artificial intelligence, and at the same time master a professional discipline (Specialty Stream) with in-depth knowledge and skills for an extended range of applications.

(Specialty Streams include Biotechnology, Environmental Engineering, Business & Management.)

Taking advantage of the establishment of new undergraduate engineering programs, MUST's Faculty of Innovation Engineering offers an "Interdisciplinary Engineering Program" designed in the form AI (artificial intelligence) + X where X is not limited to traditional engineering fields, the subject can be in, for example, environmental science, business & management, biotechnology, etc. Students with excellent grades can even design individualized, innovative course tracks under the guidance of the program director. This new program is geared towards producing multi-talented professionals for modern engineering needs.



Organization Structure of Faculty of Innovation Engineering (FIE)
創新工程學院組織架構圖

Academic Units / Departments 學術單位 / 學系	Degree Program 學位課程	Major 專業	Duration of Study (Year) 修讀年期	Medium of Instruction 授課語言
School of Computer Science and Engineering 計算機科學與工程學院	Doctor of Philosophy in Science 理學博士	Computer Technology and Application / Electronic Information Technology / Space Information Technology 計算機技術及其應用 / 電子資訊科技 / 太空資訊技術	3	English / Chinese 英 / 中
	Doctor of Philosophy in Advanced Networking 先進網絡博士		3	English / Chinese 英 / 中
	Doctor of Philosophy in Artificial Intelligence 人工智能博士		3	English / Chinese 英 / 中
	Master of Science (Information Technology) 理學碩士 (資訊科技)	Computer and Information Systems / Communication Engineering / Space Information Technology 計算機與資訊系統 / 通訊工程 / 太空資訊技術	2	English / Chinese 英 / 中
	Master in Applied Mathematics and Data Science 應用數學與數據科學碩士		2	English / Chinese 英 / 中
	Bachelor of Science 理學學士	Computer Science ^[1] / Electronic and Information Engineering / Software Engineering ^[1] 計算機科學 ^[1] / 電子與信息工程 / 軟件工程 ^[1]	4	English / Chinese 英 / 中
Department of Engineering Science 工程科學系	Bachelor of Science in Artificial Intelligence ^[2] 人工智能理學學士 ^[2]		4	English / Chinese 英 / 中
	Doctor of Philosophy in Intelligent Science and Systems 智能科學與系統博士		3	English / Chinese 英 / 中
	Master of Science in Intelligent Technology 智能技術碩士		2	English / Chinese 英 / 中
	Bachelor of Science in Automation and Systems Engineering ^[2] 自動化與系統工程理學學士 ^[2]		4	English / Chinese 英 / 中
Department of Environmental Science and Engineering 環境科學與工程系	Bachelor of Engineering in Interdisciplinary Engineering (Technology and Management) ^[2] 跨學科 (科技及管理) 工程學士 ^[2]	Artificial Intelligence + Biotechnology Stream ^[3] / Artificial Intelligence + Environmental Engineering Stream ^[3] / Artificial Intelligence+ Business and Management Stream ^[3] 人工智能 + 生物科技分流 ^[3] / 人工智能 + 環境工程分流 ^[3] / 人工智能 + 商務與管理分流 ^[3]	4	English / Chinese 英 / 中
	Master of Environmental Science and Management 環境科學與管理碩士		2	English / Chinese 英 / 中
	Bachelor of Environmental Science and Engineering ^[2] 環境科學與工程學士 ^[2]		4	English / Chinese 英 / 中

[1] Major in "Computer Science" and "Software Engineering" have "Artificial Intelligence" direction.

[2] The new programs are planned to be launched in the 2023/2024 academic year, and to be registered with Education and Youth Development Bureau and published in the "Macao Special Administrative Region Official Gazette".

[3] A Student with excellent academic performance can apply for designing his/her own interdisciplinary program with choices across streams.

[1] "計算機科學"及"軟件工程"專業範疇設有"人工智能"方向。

[2] 2023/2024 學年擬開辦之新課程，並將於教育及青年發展局完成課程登記及刊登《澳門特別行政區公報》後方正式運作。

[3] 成績優秀的學生可在符合本課程基本要求及審批情況下，申請不設分流學科。



▲ Macau University of Science and Technology held a 22nd Anniversary Ceremony for the Conferment of Honorary Doctoral Degrees cum Ceremony for Inauguration of the Faculty of Innovation Engineering
澳門科技大學 22 周年校慶榮譽博士學位頒授典禮暨創新工程學院成立儀式

澳門科技大學的五年策略規劃（2021- 2025 年）為大學的發展目標和重點發展方向制定了宏偉的藍圖。在重點發展方向中特別提出進一步加強工程學科建設以及鞏固優勢學科發展。我們生活在一個創新和技術高速發展的時代。在如此充滿挑戰的年代，為了成功培養未來的科技人才和領導者，重新調整學術和教育的目標，鞏固多學科、跨學科研發和教育的基石，已經成為全球教育工作者達成的共識。為適應時代的發展和社會的需求，大學**創新工程學院 (FIE)** 由此而生。

創新工程是在基礎研究、應用研究和多學科交叉研究中科學和技術上的突破。創新不僅是知識經濟的關鍵驅動力，也是探索未知世界的進取心態，是對看上去似乎不能實現的事物的創新探索和展望，是將能夠創造巨大社會和經濟價值的跨學科新技術、新方法和新商業模式應用的能力。

成立創新工程學院是在大學領導層深思熟慮，與持份者充分磋商，對全球大學和研究機構類似舉措認真研究，以及參考了來自科技界翹楚的積極反饋而做出的重大決定。澳門科技大學創新工程學院於 2022 年 3 月 27 日正式成立。

創新工程學院把具實力但分散的重點研究方向集中到統一的結構和組織中，從而鞏固了工程學科間的協作而提升了資源的效用，為跨學科的創建、發展、和開花結果提供肥沃的土壤，且為大學國際化集中了力度。創新工程學院的初步組織和結構已包含以下學術單位：計算機科學與工程學院、工程科學系、材料科學與工程系以及環境科學與工程系。創新工程學院中各院系將成為以下相應研究機構依附的教學單位：澳門系統工程研究所、澳門環境研究院、澳門材料科學與工程研究院、澳門智慧城市研究院、下一代互聯網國際研究院、開放智能電動汽車研究中心、智能機械人技術創新中心以及澳門數學研究中心。這個結構更促進了與校內其他單位的跨部門合作，包括醫學院，中藥質量研究國家重點實驗室，埃爾文內爾博士生物物理與創新藥物實驗室，月球與行星科學國家重點實驗室，澳門海岸帶生態環境國家野外科學觀測研究站和水利部數字學生流域重點實驗室。

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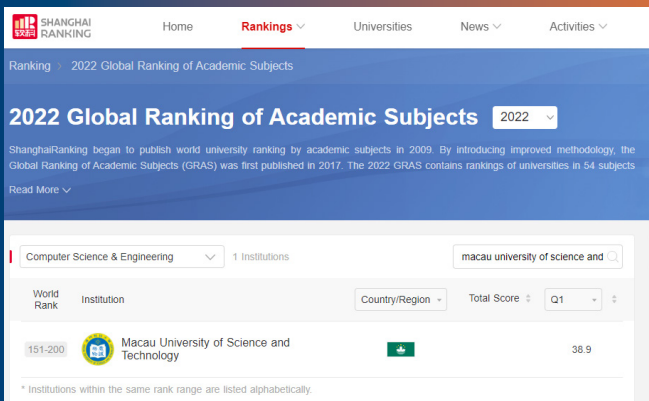
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▼ For Shanghai Ranking's Global Ranking of Academic Subjects 2022, Computer Science and Engineering at M.U.S.T. is ranked at 151-200
上海軟科於 2022 年發佈的「2022 軟科世界一流學科排名」中，位列世界 151-200 區間



工程科學系

由於現代科技的快速發展，工程科學應用的前沿不斷擴張，其涵蓋的範圍日趨多元而相互交叉，對相關的商務與管理亦造成了新的要求。澳門科技大學創新工程學院的工程科學系正是因應這些挑戰而設，特色是強調學生數、理、工的根基，使其有能力緊貼科技的前沿，與時俱進。學系的學科集成自動化，人工智能 (AI)，系統工程，可持續與環境，生物科技，商務與管理等，對應設立自動化與系統工程學士和跨學科工程學士*兩本科課程，智能技術碩士，和智能科學與系統博士課程。

工程科學系已有矚目的研究成果和相當的學術地位，按照「科睿唯安」(原「湯森路透」)於 2019 年 5 月發佈的「基本科學指標資料庫」(Essential Science Indicators, 簡稱 ESI) 統計數據，澳門科技大學的系統工程科學首次進入全球高校及科研機構相關學科領域排名前 1%。在「上海軟科」於 2022 年發佈「軟科世界一流學科排名 2022」(Shanghai Ranking's Global Ranking of Academic Subjects) 中，澳門科技大學控制科學與工程學科位列世界 51-75 區間。

本學系聚集多領域國際高水準教師，正發展成為國際認可的一流學術和創新人才培育機構，為大灣區智能製造、數位學生、生物科技、管理工程等領域培養高素質的新型科技人才。

★ 包涵三個專業分流：人工智能+生物科技，人工智能+環境工程，和人工智能+商務與管理。

計算機科學與工程學院

計算機科學與工程學院(原資訊科技學院)創建於 2000 年，是大學最早的四個學院之一，擁有從學士、碩士到博士的完整人才培養體系。目前理學學士學位課程設有：計算機科學、電子與信息工程和軟件工程三個專業；而人工智能理學學士學位課程即將開辦；理學碩士(資訊科技)學位課程設有：計算機與資訊系統、通訊工程和太空資訊技術三個專業，以及應用數學與數據科學碩士課程；而理學博士學位課程設有：計算機技術及其應用、電子資訊科技和太空資訊技術三個專業，先進網絡博士學位課程，以及人工智能博士學位課程。歷年來，學院已培養了近 1458 名理學學士，489 名理學碩士，以及 136 名理學博士。

2022 年，澳門科技大學的計算機科學專業，在泰晤士高等教育 (Times Higher Education) 發佈的「2023 年世界大學學科排行榜」中，位列世界 101-125 區間；以及在上海軟科於 2022 年發佈的「2022 軟科世界一流學科排名」(Shanghai Ranking's Global Ranking of Academic Subjects 2022) 中，位列世界 151-200 區間，此次排名的對象為全球 500 餘所大學。近年來，學院的研究取得長足進步。2019-2020 學年，學院的研究經費為七千五百萬澳門元 (69 個項目)，經費來源包括：澳門特別行政區科學技術發展基金、國家自然科學基金、澳門高等教育基金等。科睿唯安(原湯森路透)於 2021 年 7 月發佈的「基本科學指標資料庫」(Essential Science Indicators, 簡稱 ESI) 統計數據顯示，澳門科技大學的計算機科學首次進入相關學科領域全球高校及科研機構排名前 1%。學院的科研成果為此做出了重要貢獻。為了進一步推動研究項目的開展，學院還申請獲得七百多萬澳門元的經費，並於 2019 年建立了澳門最先進的 GPU 族服務器。



材料科學與工程系

為適應澳門社會不斷變化的需求，2022 年 3 月，澳門科技大學材料科學與工程系在澳門材料科學與工程研究院的全力支持下，由中國科學院院士、發展中國家科學院院士李述湯教授領銜組建。

材料科學與工程系將以澳門特區政府的粵港澳大灣區戰略發展綱要以及澳門科技大學的科研發展規劃為指引。學系主要面向人工智能、先進製造、生物醫用與大健康領域，以先進功能材料為核心，重點開展信息顯示、有機光電器件、柔性電子、可穿戴智能傳感、生物醫用材料、納米催化與能源材料、功能表面與界面、材料基因組等方向的前沿交叉融合創新，已建立了一支國際高水準教師隊伍，正逐步建立國內外的學術地位。計劃開設「材料科學與工程」碩士學位課程及博士學位課程，以「研究性、學科交叉性、國際前沿性」為培養特質，以「具有創新思維能力、具備學科交叉優勢、擁有國際化視野」為培養理念，開展材料專業創新人才培養。



▲ Research team led by Associate Professor Hon Chi Tin received the commendation certificate from Academician Zhong Nanshan
韓子天副教授團隊接受鐘南山院士嘉許狀

環境科學與工程系

環境科學與工程系是創新工程學院的四個院系之一。環境科學與工程系是致力於環境專業人才培養以及環境污染控制技術研發的重要教學和科研機構。

面向“2030 碳達峰 2060 碳中和”雙碳目標和國家生態文明建設的需求，環境科學與工程系正在建設從本科教學到博士研究生培養的全方位人才培養體系。“環境科學與工程學士學位課程”和“環境科學與管理碩士學位課程”分別於 2023 年及 2017 年開始招生，計劃開設“環境科學與工程博士學位課程”。

環境科學與工程系依託澳門海岸帶生態環境國家野外科學觀測研究站（澳門野外站），兩個粵港澳大灣區聯合實驗室包括粵港澳環境質量協同創新聯合實驗室和粵港澳污染物暴露與健康聯合實驗室，配備有用於環境分析的精密儀器設備如氣象色譜高解析度質譜儀精密電子天平離子色譜儀，原子吸收光譜儀、ICP-OES、ICP-MS、HPLC 等大型化學分析儀器，可滿足教學和研究需求。

依託大學及相關研究平臺，環境科學與工程系已經組建了一支由李行偉校長領銜的近 20 人具多學科背景和能力的國際化高水平團隊，研究方向集中於環境水力學和近海水質模擬技術、澳門生態環境天空地海一體化智能監測技術、海岸帶生態環境風險評價與預報預警技術、環境質量演化過程和調控機制、典型污染物的生態環境效應及控制技術、城市固體廢物循環和管理等方面。



▲ Wang Xi, Vice Governor of Guangdong Province, and his colleagues has investigated the Zhuhai M.U.S.T. Science and Technology Research Institute
廣東省副省長王曦一行調研珠海澳科大科技研究院發展

環境科學與工程系課程設置和人才培養兼顧紮實的基礎理論知識和科學實踐，定位於培養具有多學科交叉背景和國際視野，能夠獨立開展科學研究、工程技術方案設計，服務國家社會發展的國際化高質量科學研究、管理和工程技術人才，努力將學生培養成為未來產業界、科技界以及政府管理層所倚重的綜合性環境科學與工程專業人才。

環境科學與工程系熱切希望，青年學子在這裡不僅能夠獲取知識，增長智慧，更能夠創造知識，領會到終身學習的原則及重要性。

擬開辦四個學士學位課程

人工智能理學學士學位課程

人工智能（AI），是一個以計算機科學為基礎，由多學科融合的交叉學科，主要研究、開發用於模擬、延伸和擴展人的智能的理論、方法、技術及應用系統。人工智能已逐步從一個計算機科學的分支，成為在理論和實踐上獨立的一個學科。

- （一）人工智能是未來社會的發展方向
- （二）設立人工智能學士課程符合國家高等教育的政策方向
- （三）為澳門，大灣區和國家培養具有理論紮實、实操能力強的創新型人工智能人才
- （四）澳門科技大學有能力開辦 AI 學士學位課程

自動化與系統工程理學學士學位課程

本課程的目的是夯實學生的數理基礎，引導學生工程領域的思維模式，培養具備理論和技術前瞻性、思維創新性的未來戰略科學家和傑出工程師。

隨著大數據、雲計算、人工智能等為代表的新一代信息技術的迅猛發展，工業革命進入到以智能化為特徵的工業 4.0 時代。2016 年 6 月，教育部首次提出“新工科”的概念，為人工智能學科知識融入人才培養模式的構建帶來了新思路。自動化與系統工程課程的設置契合大學發展目標，即（1）教與學提升優化，應用新技術更新教育理念，創新教學模式；（2）研究創新與合作；（3）國際化與多元化目標；（4）融入大灣區、服務國家。

環境科學與工程學士學位課程

本課程的目的是培養全面掌握環境科學與工程及其相關專業的基礎知識並且具有優秀實踐應用能力的創新應用型專業人才。

“環境科學與工程”學士學位課程的設立，可以為培養該領域人才提供課程支援，可為澳門地區培養環境科學與工程領域的技術人才。同時，粵港澳大灣區概念的提出以及國家對澳門的大力支持，也為環境科學與工程學士畢業生提供了更為廣闊的發展空間。可以預見，未來本澳及國家對環境領域的人才需求將持續增加。

跨學科 (科技及管理) 工程學士學位課程

本課程旨在培養具有紮實數學和科學基礎，熟悉計算機、人工智能原理和運用，同時深入掌握一門具重要拓展潛力的學科（稱分流學科）作為專業方向的新型工程人才。

（分流學科目前包括生物科技，環境工程，商務與管理。）

藉著學院新成立的契機，澳科大創新工程學院開辦「跨學科工程課程」，提供了面向新時代工程需求的本科通道。課程採用 AI（人工智能）+ X 方式設計，而 X 不局限於傳統工程領域，範圍可包括例如環境科學，商務與管理，生物科技等。成績優秀的學生在課程主任指導下甚至可以設計創新的個人化課程。