



DEPARTMENT OF
SYSTEMS ENGINEERING AND
ENGINEERING MANAGEMENT



香港中文大學
The Chinese University of Hong Kong

BACHELOR OF
ENGINEERING PROGRAMME IN

SYSTEMS ENGINEERING AND ENGINEERING MANAGEMENT

系統工程與工程管理學工程學士課程

EMPOWER *with managerial vision*



最早於香港提供綜合技術與管理的學系
課程設計緊扣香港經濟支柱行業的需要
教授隊伍在學術領域享譽盛名
教研設施達世界一流水準



WHAT SEEM DOES

項目宗旨

The Bachelor of Engineering in Systems Engineering and Engineering Management (SEEM) trains students to utilize technologies (such as machine learning, big data analytics, and artificial intelligence) and mathematical tools (such as optimization, stochastic modeling, and simulation) to tackle decision-making problems for businesses including, but not limited to,

- Designing the supply chain network for global business
- Developing, pricing, and risk analysis of new financial products
- Developing, supporting, managing, and maintaining information systems and apps for data-intensive business applications
- Dynamic pricing for the airline industry or e-commerce platforms
- Financial investment decisions and risk management
- Large-scale route planning and scheduling in logistics systems
- Patient flow management in healthcare systems

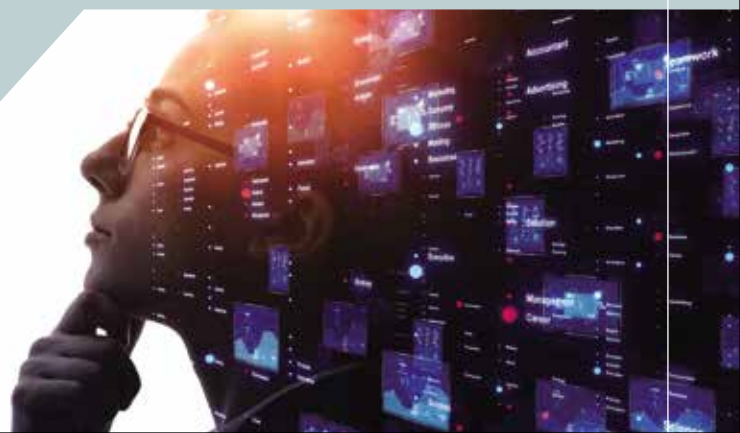


ADMISSION REQUIREMENTS

入學要求

Applicants applying on the strength of the HKDSE examination results will be admitted through the Joint University Programmes Admissions System (JUPAS) (JUPAS Code - JS4458). Please visit the JUPAS website (www.jupas.edu.hk) for eligibility and details of JUPAS application. For details of the admission score, please scan the QR code.

Non-JUPAS applications are strongly encouraged



STREAMS OF SPECIALISATION

專修範圍

Business Information Systems
商務資訊系統

Decision Analytics
決策分析

The core of any enterprise in a
knowledge-based society
知識型社會的企業核心

The application of quantitative
approaches and information
technologies to solve financial
problems
整合分析模型、計算方法與最先
進的人工智能技術

Software
engineering for
knowledge-based
information
processing
知識及信息處理的軟
件工程

Computational
intelligence for
decision making
決策分析中的
計算智能

User interface
technologies and
design
人機界面的技術
及設計

Information
security and
authentication
信息保安及確證

Infusing business
information
systems with AI
將人工智能融合至
商業資訊系統

Financial
Engineering
金融工程

Decision
methodology and
applications
決策方法及應用

Financial decision
and asset pricing
models
金融決策及定價模型

Financial markets
and risk management
金融市場及風險管理

Investment analysis
and portfolio
management
投資分析組合管理

Logistics and Supply
Chain Management
物流及供應鏈管理

Quality control and
management
品質控制與管理

Logistics systems
planning
物流系統策劃

Production and
operations
management
生產和營運管理

Supply chain
management:
Analysis and
coordination
供應與需求鏈之
分析和協調

Service Engineering
and Management
服務工程及管理

Service
systems
服務系統

Service
computing
服務計算學

Service
management
服務營運的管理

Electronic
payment
systems
電子支付系統

CURRICULUM

There are two streams of specialization: Business Information Systems, Decision Analytics. Students may choose to specialize in one of the two streams and select courses as prescribed. A student who does not wish to specialize in any of the two streams should follow a study scheme devised with the advice of the academic advisors of the Department.



Recommended Study Plan

Students are required to complete a minimum of 75 units of courses as follows:

Faculty Package 9 units		Foundation Courses 18 units		Required Courses 30 units		Six Elective Courses 18 units			
Total: 75 units									
Term 1				Term 4					
Term Courses		Units		Term Courses		Units			
ENGG1110/ESTR1002	Problem Solving By Programming	6		CSCI2100/ESTR2102	Data Structures	9			
ENGG1125/ESTR1007	Single Variable Calculus for Engineers			ENGG2780/ESTR2020	Statistics for Engineers				
ENGG1111	AI Literacy Workshop (0 unit)			SEEM2420	Operations Research I				
		SEEM2602		Systems Engineering Practicum		9			
Term 2				Term 5					
Term Courses		Units		Term Courses		Units			
ENGG1120/ESTR1005	Linear Algebra for Engineers	3		CSCI2040	Introduction to Python	8			
ENGG1130/ESTR1006	Multivariable Calculus for Engineers	5		SEEM3410	System Modeling and Simulation				
ENGG1310/ESTR1003	Engineering Physics: Electromagnteics, Optics and Modern Physics			SEEM3440/ESTR3500	Operations Research II				
ENGG2720/ESRT2014	Complex Variables for Engineers			Major Elective for respective stream		3			
ENGG2740/ESTR2016	Differential Equations for Engineers					11			
PHYS1003	General Physics for Engineers								
PHYS1110	Engineering Physics: Mechanics and Thermodynamics								
SEEM2460/ESTR2540	Introduction to Data Science								
		8		Term 6					
Term 3		Units		Term Courses		Units			
CSCI1120/1130/ ESTR1100/1102	Introduction to Computing Using C++/ Introduction to Computing Using Java	11			SEEM3550/ESTR3506	Fundamentals in Information Systems		6	
ENGG2440/ESTR2004	Discrete Mathematics for Engineers				SEEM3650/ESTR3516	Fundamentals in Decision and Data Analytics			
ENGG2760/ESTR2018	Probability for Engineers				Major Elective for respective stream			3	
SEEM2440/ESTR2500	Engineering Economics				9				
		11	Term 7						
Term Courses		Units			Term Courses		Units		
SEEM4998	Final Year Project I	3			Major Elective for respective stream		6		
							9		
Term 8					Term 8				
Term Courses		Units			Term Courses		Units		
SEEM3450/ESTR3502	Engineering Innovation and Entrepreneurship	6			SEEM4999	Final Year Project II	6		
Major Elective for respective stream					12				

Recommended Elective Courses

Students choosing a stream of specialization should take at least 6 courses (2 stream required and 4 stream elective courses) from the corresponding list for their stream of specialization.

Business Information Systems (BIS)		Decision Analytics (DA)	
SEEM3430	Information Systems Analysis and Design	SEEM3620/ESTR3514	Introduction to Logistics and Supply Chain Management
SEEM4540	Open Systems for E-Commerce	SEEM4760/ESTR4512	Stochastic Models for Decision Analytics
AIST3510/SEEM3510	Human and Computer Interaction	ENGG1820	Engineering Internship (1 Unit)
CSCI4140	Open Source Software Project Development	FTEC3001	Financial Innovation and Structured Products
ENGG1820	Engineering Internship (1 Unit)	FTEC4002	Behavioral Analytics
FTEC4001	Advanced Database Technologies	FTEC4005	Financial Informatics
FTEC4005	Financial Informatics	MKTG2010	Marketing Management
FTEC4007	Introduction to Blockchain and Distributed Ledger Technology	SEEM2520	Fundamentals in Financial Engineering and Financial Technology
IERG4210	Web Programming and Security	SEEM3500	Quality Control and Management
SEEM3460/ESTR3504	Computer Processing System Concepts	SEEM3580	Risk Analysis for Financial Engineering
SEEM3490	Information Systems Management	SEEM3590/ESTR3509	Investment Science
SEEM3680/ESTR3512	Technology, Consulting and Analytics in Practice	SEEM3630/ESTR3510	Service Management
SEEM4570	System Design and Implementation	SEEM4630	E-Commerce Data Mining
SEEM4630	E-Commerce Data Mining	SEEM4670	Service Systems
		SEEM4720/ESTR4506	Computational Finance
		SEEM4730/ESTR4508	Data Analytics Models and Methods for Financial Engineering and FinTech
		SEEM4750/ESTR4510	Advances in Logistics and Supply Chain Management

CAREER PROSPECTS

With a curriculum closely related to the four pillar industries (finance, trading and logistics, professional service, and tourism) in HK, SEEM program keeps the graduates very competitive in the job market. After graduation, some students of the program have joined leading firms like AIA, Bank of China, Cathy Pacific Airways, FedEx, HSBC, IBM, PCCW, The Hong Kong SAR Government, and so on.

SEEM program graduates will be ideally suited for positions requiring strong engineering background (in technologies like AI and in mathematics like mathematical modeling) and a comprehensive understanding of the business management environment. Our graduates are very competitive for jobs such as

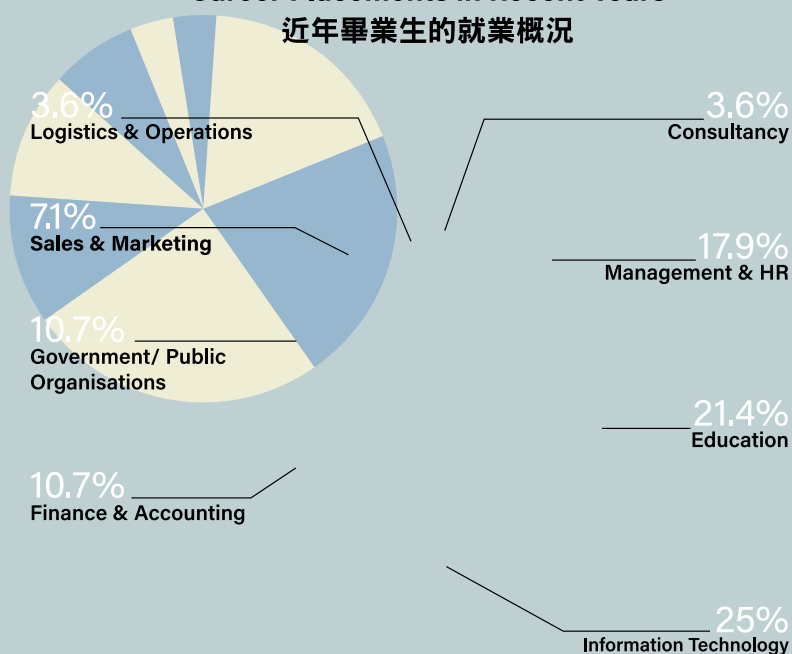
由於與香港四大支柱產業(貿易及物流、金融服務、專業服務和旅遊)結合緊密，系統工程與工程管理項目的畢業生於就業市場上非常有競爭力。部分學生畢業後，加入了傑出公司如友邦保險、中國銀行、國泰航空、聯邦快遞、匯豐銀行、IBM、電訊盈科、香港政府機構等。

系統工程與工程管理項目的畢業生非常適合需要深厚的工程背景(專注於人工智能等技術及數學建模等數學領域)和對商業管理環境有全面了解的職位。我們的畢業生在工作方面非常有競爭力，例如

- **Asset and wealth management**
(e.g. data-driven investment strategy design)
- **Information Technology consulting**
(e.g. provide guidance on technology to companies to meet their business demands)
- **IT Companies or IT service roles in banking or e-commerce companies**
(e.g. develop, support, manage, or maintain the IT system in these companies)
- **Supply chain system management in e-commerce**
(e.g. use data analytics to predict the demand and hence determine the inventory level)
- **Dynamic pricing for a broad class of industries**
(e.g. real-time pricing for flight tickets by incorporating customer behaviors)
- **Healthcare systems management**
(e.g. appointment scheduling for surgeries)
- **Operational analyst for logistics companies**
(e.g. using optimization models to improve the operations in logistics systems, such as route planning and scheduling)

Career Placements in Recent Years

近年畢業生的就業概況





DEPARTMENT OF SYSTEMS ENGINEERING AND ENGINEERING MANAGEMENT

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