



DEPARTMENT OF  
SYSTEMS ENGINEERING AND  
ENGINEERING MANAGEMENT



香港中文大學

BACHELOR OF  
ENGINEERING PROGRAMME IN  
**FINANCIAL  
TECHNOLOGY**

金融科技學工程學士課程



## PROGRAMME MISSION

To educate and equip students with the essential knowledge and capabilities to apply technological innovations to financial services; to nurture leadership and entrepreneurship for the next generation of financial talents in support of Hong Kong's endeavor to grow to an international FinTech hub.

## ADMISSION REQUIREMENT

Applicants applying on the strength of the HKDSE examination results will be admitted through the Joint University Programmes Admissions System (JUPAS) (JUPAS Code - JS4428). Please visit the JUPAS website ([www.jupas.edu.hk](http://www.jupas.edu.hk)) for eligibility and details of JUPAS application.

Non-JUPAS applications are strongly encouraged.

## STUDY SCHEME

Students are required to complete a minimum of 75 units of major courses to graduate.

The curriculum consists of a combination of FinTech foundation courses, required and elective courses, and practicum and research component courses. Students are also encouraged to take other courses offered by the Engineering, Business, and Law Faculties.

Major Programme Requirement (Tentative)		Units
(All are 3-unit courses unless specified)		
<b>1 Faculty Package</b>		<b>9</b>
ENGG1110/ESTR1002	Problem Solving By Programming	
ENGG1120/ESTR1005	Linear Algebra for Engineers	
ENGG1130/ESTR1006	Multivariable Calculus for Engineers	
<b>2 FinTech Foundation Courses</b>		<b>13</b>
CSCI1120/ESTR1100	Introduction to Computing Using C++ or	
CSCI1130/ESTR1102	Introduction to Computing Using Java	
ENGG2440/ESTR2004	Discrete Mathematics for Engineers	
ENGG2760/ESTR2018	Probability for Engineers (2-unit)	
ENGG2780/ESTR2020	Statistics for Engineers (2-unit)	
MATH1510	Calculus for Engineers	
<b>3a Required Courses</b>		<b>30</b>
CSCI2100/ESTR2102	Data Structures	
CSCI4130/IERG4130/ESTR4306	Introduction to Cyber Security	
ECON2011	Basic Microeconomics	
FINA2310	Fundamentals of Business Finance	
FTEC2101/ESTR2520	Optimization Methods	
FTEC3001	Financial Innovation & Structured Products	
FTEC3002	Introduction to Financial Infrastructures	
SEEM2520	Fundamentals in Financial Engineering	
SEEM3550/ESTR3506	Fundamentals in Information Systems	
SEEM3590/ESTR3509	Investment Science	
<b>3b Research Component Courses</b>		<b>6</b>
FTEC4998	Final Year Project I	
FTEC4999	Final Year Project II	
<b>3c Practicum Course</b>		<b>1</b>
FTEC2602	Financial Technology Practicum (1-unit)	
<b>3d Legal Course</b>		<b>2</b>
FTEC2001	FinTech Regulation and Legal Policy (2-unit)	

Major Programme Requirement (Tentative)		Units
(All are 3-unit courses unless specified)		
<b>4 Elective Courses</b>		<b>14</b>
ACCT2111	Introductory Financial Accounting	
AIST4010/ESTR4140	Foundation of Applied Deep Learning	
CSCI2040	Introduction to Python (2-unit)	
CSCI2120	Introduction to Software Engineering (2-unit)	
CSCI3150/ESTR3102	Introduction to Operating Systems	
CSCI3160/ESTR3104	Design and Analysis of Algorithms	
CSCI3320	Fundamentals of Machine Learning	
CSCI4160/ESTR4104	Distributed and Parallel Computing	
CSCI4180/ESTR4106	Introduction to Cloud Computing and Storage	
CSCI4430/ESTR4120	Data Communication and Computer Networks or	
IERG3310/ESTR3310	Computer Networks	
ECON2021	Basic Macroeconomics	
ENGG1820	Engineering Internship (1-unit)	
FINA3020	International Finance	
FINA3030	Management of Financial Institutions	
FINA3070	Corporate Finance: Theory and Practice	
FINA3210	Risk Management and Insurance	
FINA4010	Security Analysis	
FTEC4001	Advanced Database Technologies	
FTEC4002	Behavioral Analytics	
FTEC4003	Data Mining for FinTech	
FTEC4005	Financial Informatics	
FTEC4006	Internet Finance	
FTEC4007	Introduction to Blockchain and Distributed Ledger Technology	
FTEC4008	Natural Language Processing for FinTech	
IERG4080/ESTR4312	Building Scalable Internet-based Services	
IERG4210	Web Programming and Security	
MKTG4120	Quantitative Marketing	
SEEM3410	System Simulation	
SEEM3450/ESTR3502	Engineering Innovation and Entrepreneurship	
SEEM3570/ESTR3508	Stochastic Models	
SEEM3580	Risk Analysis for Financial Engineering	
SEEM4730/ESTR4508	Statistics Modeling and Analysis in Financial Engineering	
<b>Total</b>		<b>75</b>

## DUAL DEGREE PROGRAMME WITH SHANGHAI JIAO TONG UNIVERSITY

### Background

Department of Systems Engineering and Engineering Management (SEEM), The Chinese University of Hong Kong (CUHK) offers a dual degree programme (DDP) together with Antai College of Economics and Management (ACEM), Shanghai Jiao Tong University (SJTU). Under this framework, students of this programme will obtain Bachelor degree of Engineering in Financial Technology offered by CUHK and Bachelor degree of Economics in Finance offered by SJTU upon completion of the graduation requirements of the concerned programmes. Students participating in this programme benefit from rigorous training in economics, finance, and engineering, which significantly enhance their competitiveness.



### Study Plan and Graduation Requirements

Students are required to take fundamental and major courses at SJTU in the first and fourth years, and study FinTech in CUHK in the second and third years.



### Website

<https://fintech.se.cuhk.edu.hk/programmes/programme-dual-degree-sjtu/>

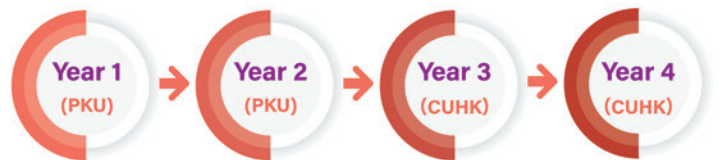
## DUAL DEGREE PROGRAMME WITH PEKING UNIVERSITY

### Background

Department of Systems Engineering and Engineering Management (SEEM), The Chinese University of Hong Kong (CUHK) offers a dual degree programme (DDP) together with Department of Financial Mathematics (FMA), Peking University (PKU). Under this framework, students of this programme will obtain Bachelor degree of Engineering in Financial Technology offered by CUHK and Bachelor degree of Science in Financial Mathematics offered by PKU upon completion of the graduation requirements of the concerned programmes. Students participating in this programme benefit from rigorous training in both mathematics and engineering, which significantly enhance their competitiveness.

### Study Plan and Graduation Requirements

Students are required to take mathematical foundation courses at PKU in the first two years, and study FinTech in CUHK in the third and fourth years.



### Website

<https://fintech.se.cuhk.edu.hk/programmes/programme-dual-degree-pku/>

## DOUBLE MAJOR PROGRAMME

### Background

Department of Systems Engineering and Engineering Management together with the Faculty of Business offers Bachelor of Engineering in Financial Technology and Integrated BBA Programme Double Major Programme (DMP). The two major programmes have natural complementarities. While the FinTech major equips students with the technical knowledge in designing and implementing FinTech solutions, extensive trainings in various business areas in the IBBA major can help students identify the most suitable areas to apply such solutions, realising full potentials of financial technology.

### Study Plan and Graduation Requirements

The normative study period for the DMP is four years and students are required to complete a minimum of 90 units of major courses to fulfill the graduation requirements.

## BEng + BBA

### Website

<https://fintech.se.cuhk.edu.hk/programmes/programme-double-major/>





## PROGRAMME OUTCOMES

FinTech graduates are expected to be able to

- derive and develop financial and managerial insights from big data
- design and engineer innovative solutions to meet financial service needs
- optimize financial decisions in complex business environment
- understand and analyze the social, economic, security, and legal impacts from their solutions

## CAREER PROSPECTS

The industry creates a great amount of employment opportunities to accommodate innovative young talents. Some students of the programme have taken internship opportunities at Hong Kong Monetary Authority, Goldman Sachs, HSBC, ZhongAn Insurance, Haitong International, CreditEase Wealth Management, Deloitte, etc. Employers of the recent graduates include HSBC, BOCHK, Goldman Sachs, and Deloitte.

FinTech graduates are ideally suited for positions requiring strong technological and quantitative skills. Besides the traditional careers in the financial industry, the graduates are very competitive for jobs with innovative nature, such as

- Insurance (automatic underwriting and claiming, precision marketing, risk management)
- Asset and wealth management (data-driven investment strategy design, robo-advisory, algo trading)
- Internet finance (P2P lending, crowdfunding, mobile payment system, credit analytics, electronic currencies)
- Retail and Investment banks, security companies, and other trading platforms (IT system development, financial infrastructure architecture, investment analysis, trading)
- Government regulatory agencies (data analytics, Regtech)
- FinTech related startups

The programme also provides a good foundation for pursuit of further advanced studies.



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Programme Website: <https://fintech.se.cuhk.edu.hk>



Double Major  
Programme  
Admission



Dual Degree  
Programme  
Admission



SJTU



Programme  
Website