Postgraduate Programs

The Department offers postgraduate programs leading to the degrees of Doctor of Philosophy (PhD), Master of Philosophy (MPhil), and Master of Science (MSc) in Industrial Engineering and Engineering Management and Master of Science (MSc) in Engineering Enterprise Management. Full-time and part-time options are available for most of these programs.

It is well known that industrial engineers are uniquely trained from the total system perspective to practice as a system integrator, as a cross-function trainer, and as a change facilitator. In addition to engineering training, Industrial Engineering and Engineering Management also emphasizes strategic issues, integration, and customer-orientation. Research focuses of the department are very diverse, thus providing an opportunity for engineering graduates to fit-in quite easily. Research activities in the Department may be broadly categorized into Engineering Management, Ergonomics/ Human Factors Engineering, Systems Engineering/Operations Research, Information Technology, Product Design and Manufacturing, and Transportation Logistics & Supply Chain Management.

Master of Science (MSc) Program in Engineering Enterprise Management

Program Director:

Neville Ka-Shek LEE, BS *Univ of California, Los Angeles*; PhD *Massachusetts Inst of Tech*
(Associate Professor of Industrial Engineering and Engineering Management)

In today's knowledge-based economy, companies and enterprises must compete relentlessly in terms of costs, quality and time to market themselves in the global context. Knowledge of cutting-edge management techniques, such as Logistics Management, Supply Chain Management, Six Sigma Processes, and knowledge in the effective deployment of information technology are necessary to help companies compete successfully in the global arena. In addition to these advanced management techniques, a good foundation in basic managerial training such as operations management, project management, people management and basic business management is essential in launching a management career.

This unique MSc program is the result of collaboration between the School of Engineering and the School of Business and Management. It is specially designed for professionals with technical background who wish to launch or further their career in management. This program will provide the know-how and techniques from line management to middle management, and all the way to global enterprise management.

The MSc program in Engineering Enterprise Management is a part-time degree program designed for practicing engineers and scientists of all disciplines who wish to start a career in management. Industry managers who desire more advanced and up-to-date training to further their careers in future global enterprise - either in the service industry or manufacturing industries - can benefit from the program.

Admission Requirements

Applicants should have a bachelor's degree in science or engineering, or an equivalent qualification from a recognized university.

Program Fee

The program fee is HK$88,000 for the 2003-04 academic year. The fee will be payable in two installments, of which HK$48,000 should be paid before the start of the first semester of the first year of study and HK$40,000 is to be paid before the start of the first semester of the second year of study. Students admitted with credit transfer are also required to pay the full program fee.

Curriculum

The program comprises a total of 30 credits of coursework. It can normally be completed in two years. All lectures will be delivered at HKUST. Classes will be held in the evenings and/or weekends.

Students are required to take the following courses totaling 30 credits:

EEMT 510	Principles and Techniques for Technical Management	[3-0-0:3]
EEMT 512	Operation/Production Management	[3-0-0:3]
EEMT 516	Transportation and Logistics Management	[3-0-0:3]
EEMT 522	Six Sigma Quality Management	[3-0-0:3]
EEMT 526	Product Development Management	[3-0-0:3]
EEMT 530	Global Supply Chain Management	[3-0-0:3]
EEMT 536	IT System for Global Enterprise	[3-0-0:3]
SBMT 501	Accounting for Managers	[3-0-0:3]
SBMT 502	Fundamentals of Economics and Finance	[3-0-0:3]
SBMT 503	Marketing Management and Strategy	[3-0-0:3]

Credit transfer may be granted to students in recognition of studies completed successfully elsewhere. With the guidance of the program committee and upon the approval of the Program Director, a maximum of 6 credits may be transferred from other programs or institutions to the program. For regulations governing credit transfer for postgraduate programs, please refer to Section 31 of the Postgraduate Regulations in this Calendar.

Course Assessment and Graduation Requirements

Regular attendance of courses is expected. Courses will be assessed according to the grading scheme used for postgraduate courses. Students must complete the program with a graduation grade average (GGA) of B grade or above as required of all postgraduate students in HKUST. If a student fails to meet the graduation requirement, he/she is required to repeat or substitute the courses(s) even if he/she attains the passing grades for all courses. Individual instructors will determine the methods of assessment for their courses.

Master of Science (MSc) Program in Industrial Engineering and Engineering Management

The MSc program prepares students to master skills, tools and technologies to manage technical professionals and engineering aspects of business.

In the MSc program, a student has two options:

1. **Coursework-and-Project Option**
   A student is required to take a minimum of 30 credits of approved postgraduate coursework, including:

   - IEEM 511 Information System Design [2-0-3:3]
   - IEEM 526 Design and Analysis of Engineering Experiments [3-0-0:3]
     or IEEM 531 Total Quality Management [3-0-0:3]
   - At least 18 credits of IEEM PG courses, and
   - 6 credits may be from IEEM 698 MSc Industrial Engineering Design Project.

2. **Coursework-only Option**
   A student is required to take a minimum of 30 credits of approved coursework, including:

   - IEEM 511 Information System Design [2-0-3:3]
   - IEEM 526 Design and Analysis of Engineering Experiments [3-0-0:3]
     or IEEM 531 Total Quality Management [3-0-0:3]
   - At least 18 credits of IEEM PG courses

Master of Philosophy (MPhil) Program in Industrial Engineering and Engineering Management

The MPhil program focuses on strengthening the students' background in their chosen areas of concentration, and training them for engineering research and development. The MPhil degree program is highly suitable for individuals with aspirations to take leading technical roles in Hong Kong's high value-added business organizations.

In the MPhil program, a student is required to take a minimum of 15 credits of approved postgraduate coursework, with at least three courses (9 credits) from the following five course groups:

1.	IEEM	511	Information System Design	[2-0-3:3]
2.	IEEM	513	Manufacturing System Design	[2-0-3:3]
or	IEEM	517	Advanced Production Planning and Control	[3-0-1:3]
3.	IEEM	523	Deterministic Models in Operations Research	[3-0-0:3]
or	IEEM	525	Stochastic Models in Operations Research	[3-0-0:3]
4.	IEEM	526	Design and Analysis of Engineering Experiments	[3-0-0:3]
5.	IEEM	532	Design for People	[3-0-0:3]
or	IEEM	552	Human-Computer Systems	[3-0-0:3]

Students are also required to participate in the departmental seminar series (IEEM 680) for at least two semesters.

Students must pass LANG 501 Group Communication Skills Development [0-3-0:1], the one credit earned from which cannot be counted toward the degree requirements. Students can be exempted from taking LANG 501 by the Department Head or the PG Coordinator, based on the students' background and/or the English proficiency assessment of the Language Center.

To complete the degree program, a student must satisfactorily complete a thesis to demonstrate competency in engineering research.

Doctor of Philosophy (PhD) Program in Industrial Engineering and Engineering Management

The PhD degree is the highest degree offered by the Department. It caters for students who wish to pursue a career in advanced industrial research and development, or university research and teaching.

The PhD program emphasizes training in original thinking and independent research. Students are free to design the program of study most suitable to their interests and needs. The program of study should cover a specialized area in industrial engineering.

The PhD program aims at developing a student's skills in identifying issues related to a theoretical problem or a practical application, formulating an original research project that addresses some of the significant issues, and independently creating an effective solution to the problem.

Students who have a bachelor's degree are required to take a minimum of 36 credits of approved coursework. Students who have a relevant MSc or MPhil degree may be granted credit transfer of 12 credits. Subject to the approval of the student's thesis supervisor and the PG Committee, a maximum of 6 credits of undergraduate 300-level coursework may be counted toward the degree requirement.

Students are required to take:

•	1.		IEEM	511	Information System Design [2-0-3:3]
	2.		IEEM	513	Manufacturing System Design [2-0-3:3]
		or	IEEM	517	Advanced Production Planning and Control [3-0-1:3]
	3.		IEEM	523	Deterministic Models in Operations Research [3-0-0:3]
		or	IEEM	525	Stochastic Models in Operations Research [3-0-0:3]
	4.		IEEM	526	Design and Analysis of Engineering Experiments [3-0-0:3]
	5.		IEEM	532	Design for People [3-0-0:3]
		or	IEEM	552	Human-Computer Systems [3-0-0:3]

- At least one 3-credit IEEM Special Topics or 600-level course.
- Students must pass LANG 501 Group Communication Skills Development [0-3-0:1], the one credit earned from which cannot be counted toward the degree requirements. Students can be exempted from taking LANG 501 by the Department Head or the PG Coordinator, based on the students' background and/or the English proficiency assessment of the Language Center
- Take and pass IEEM 680 for at least 6 semesters during their residency. Part-time students may be exempted from this requirement.
- Pass the qualifying examination and the preliminary oral examination to review and approve the student's written thesis research proposal, write a thesis and pass a final thesis examination.

A faculty member of the Department should serve as the supervisor of a PhD student. Subject to the approval by the Head of the Department, a thesis advisory committee which consists of a minimum of three faculty members (including the supervisor) should be set up at least six weeks before the date of the thesis proposal presentation. At least two members of this committee must be from the Department of Industrial Engineering and Engineering Management.