Master of Science (MSc) Program in Mechanical Engineering

Program Director:

Huihe QIU, Professor of Mechanical and Aerospace Engineering

As a result of major structural changes in Hong Kong's economy, its industry has been going through an important transition. In the past decade, in response to the need for the enhancement of human resources to cope with changes arising from the transition, the Department of Mechanical and Aerospace Engineering is offering a range of innovative and practical courses in emerging fields, including advanced/smart materials, electronic packaging, CAD/CAM, MEMS, mechatronics, and advanced manufacturing technologies, each prepared and taught by leading specialists in the field. In addition to demand from graduates of local universities, graduates of overseas universities, including Mainland universities, in relevant engineering disciplines also feel the need to upgrade their qualifications. An advanced degree in mechanical engineering helps address this need, which is sustainable not just because there is strong local demand. The booming manufacturing and electronic industries in various sectors in the Pearl River Delta region, for which Hong Kong serves as the administration, marketing, logistics and technical support headquarter, also provide a strong and sizeable market for the offering of advanced studies at the postgraduate level in mechanical engineering.

The Master of Science (MSc) program in Mechanical Engineering provides an excellent opportunity for fresh graduates, applied scientists and engineers to pursue an in-depth study at an advanced level in broad-based mechanical engineering disciplines, which is essential to the technological development of industry in Hong Kong and Mainland. Designed to benefit students with a broad range of backgrounds, the MSc program aims to enable them to acquire advanced up-to-date technical knowledge in emerging mechanical engineering fields, which will in turn enhance their skills and knowledge in the design and manufacturing of various electrical, mechanical and thermal systems and their components, as well as in electronic packaging.

Program Learning Outcomes

On successful completion of the program, graduates will be able to:

- Creatively and innovatively design and develop useful products and/or services for society based on mathematical and scientific principles;
- Analyze and find solutions for Mechanical Engineering problems;
- Effectively communicate analysis and design ideas to peers, clients and customers;
- Review, analyze, and interpret the body of scientific literature, contemporary issues and innovations in Mechanical Engineering;
- Apply and validate innovations and discoveries in the lab or real world settings in efficient and effective ways utilizing modern engineering tools; and

- Professionally and ethically conduct quality research/development in Mechanical Engineering.

Admission Requirements

Applicants must possess a bachelor's degree in Mechanical Engineering / Manufacturing Engineering / Engineering Management / Materials Science and Engineering / Electrical and Electronic Engineering / Civil Engineering, Environmental Engineering or related disciplines with second class honors or above, or an equivalent qualification from a recognized university or tertiary institution.

Program Duration

The normal duration for program completion is one year in full-time mode, or two years in part-time mode. Lectures will be held on weekday evenings and Saturdays. Each course will meet for three hours per week.

Program Fee

The program fee is HK$125,000 for full-time mode, and HK$120,000 for part-time mode. New students admitted with credit transfer are also required to pay the full program fee. Students who take additional courses or need to retake any courses are required to pay additional fee.

Curriculum

General Option

For students who opt for a general MSc degree in Mechanical Engineering, a minimum of 30 credits of MESF courses is required. Students may repeat MESF 6950 Independent Project to obtain a maximum of 6 credits.

Subject to the approval of the Program Director, students may take a maximum of 9 credits of IBTM or MECH postgraduate courses offered by the Department of Mechanical and Aerospace Engineering to fulfill the program requirements.

Materials Technology Concentration

For students who opt for the Materials Technology concentration, a minimum of 30 credits of MESF courses is required, including a minimum of 18 credits of courses from the following list:

MESF	5010	Foundation of Solid Mechanics
MESF	5040	Nanoscale Thin Films and Nano-Structured Materials
MESF	5050	Fracture Behavior of Polymers
MESF	5370	Composites and Nanocomposites
MESF	5410	Advanced Mechanical Behavior of Materials
MESF	5430	Thermodynamics and Kinetics of Materials

MESF 5920 Fundamentals of Electronic Packaging

Student may also take MESF 6910 Special Topics in Mechanical Engineering and MESF 6950 Independent Project in the area of Materials Technology to fulfill the credit requirements.

Subject to the approval of the Program Director, students may take a maximum of 9 credits of IBTM or MECH postgraduate courses offered by the Department of Mechanical and Aerospace Engineering to fulfill the program requirements.

Part-time students may take a maximum of 9 credits in each term.

Credit Transfer

Credit transfer may be granted to students in recognition of studies satisfactorily completed elsewhere. Upon the approval of the Program Director, a maximum of 9 credits can be transferred to the program, subject to University regulations governing credit transfer for postgraduate programs.

Graduation Requirements

Students must complete the program with a graduation grade average (GGA) of 2.850 or above as required of all postgraduate students at the University. Students failing to meet the GGA requirement are required to repeat or take additional course(s) even if they attain passing grades for all courses.