Master of Science in **Smart Manufacturing**

[45100-SMF/SMP] Pending final approval

Programme Aims

1. To equip students with an in-depth knowledge of smart manufacturing technologies and developments;

2. To prepare students with the capabilities of developing, selecting, deploying and managing smart manufacturing solutions by assessing industrial needs for real-life applications of digital transformation and upgrading;

3. To train students with the ability to integrate smart manufacturing into global supply chain context; and

4. To prepare students with the ability of manufacturing management and the enthusiasm of enrolling themselves into the process in a lifelong learning setting by leverage the power of smart manufacturing.

Learning Outcomes

a. Professional knowledge: Graduates from the programme will possess professional knowledge and skills in the smart manufacturing area. They will be able to apply their professional knowledge learned from this programme to develop and enhance their future professional careers.

b. Competence of specialists and leadership: Graduates will have their professional competence in the areas of smart factory and industrial analytics.

c. Systems and innovative thinking: Graduates will be able to think holistically in dealing with complex problems and situations pertinent to their professional practices in Industrial 4.0. They will be versatile problem solvers with good mastery of critical thinking and innovative skills.

d. Lifelong learning capability: Graduates will be able to recognize the need for, and engage in lifelong learning.

Innovative Curriculum

	Advanced Manufacturing	Smart Factory	Industrial Analytics
Electives (< 3 subjects)	**University-wide subjects** related to Supply Chain Management, Green Manufacturing or Industrial Sustainability; special manufacturing processes such as construction, food processing, textile / garment		
	Faculty-level subjects related to Aircraft and Aviation, Internet of Things, Sensor Networks, Data Communication and Security, Real-time computing, Enterprise Risk, Asset Management, Maintenance and Reliability Engineering		
	Dept-level subjects from existing ISE MSc programmes		
Core (> 3 subjects)	• ISE5312 Industrial Human-Robot Systems and Automation • *Relevant subjects will be recommended to students with different backgrounds.*	• ISE538 Process and Performance Measurement • ISE5323 Smart Product-Service Systems • ISE5322 Industrial Metaverse and Mixed Reality	• ISE5021 Technology Project Management • ISE5333 Industrial Blockchain and Applications • ISE5332 Smart Manufacturing Operations Management
Compulsory (1+3 Subjects)	ISE5311 Advanced Manufacturing Processes	ISE5321 Cyber-Physical Industry 4.0 Systems	ISE5331 Optimization and Data Analytics for Industry 4.0
	ISE5301 Frontiers in Industry 4.0		

Duration of study: 1.5 years (Full-time); 2.5 years (Part-time)

Programme Structure

To obtain the Master's degree, students must acquire a minimum of 30 credits:

➢ 7 taught subjects, including 4 Compulsory, at least 1 Core and at most 2 Elective subjects, and a Dissertation; or

➢ 10 taught subjects, including 4 Compulsory, at least 3 Core and at most 3 Elective subjects.

Each taught subject carries 3 credits and the Dissertation carries 9 credits.

THE HONG KONG POLYTECHNIC UNIVERSITY
香港理工大學

65th QS 2024
79th THE 2023

Department of
Industrial & Systems Engineering 工業及系統工程學系

Master of Science in **Smart Manufacturing**

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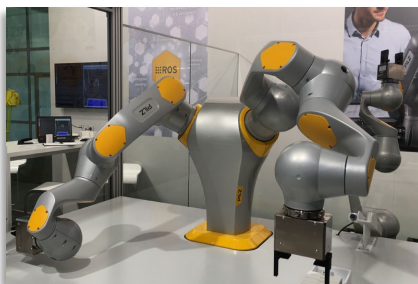
Programme Characteristics
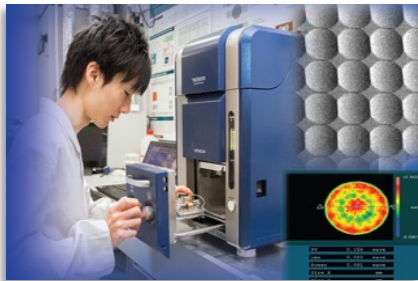
State Key Laboratory of Ultra-precision Machining Technology

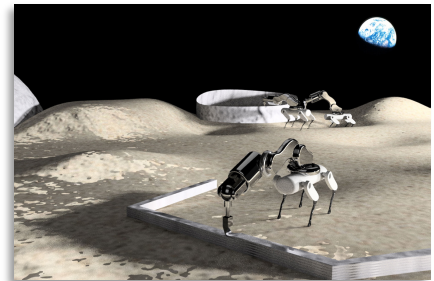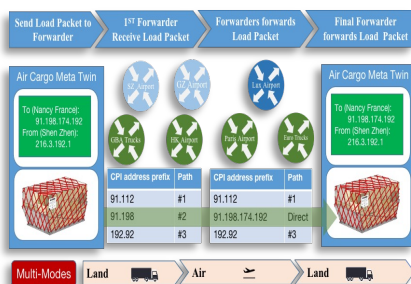**Experiential learning with industrial collaborators**

Cyber-Physical Factory

Research Institute for Advanced Manufacturing (RIAM)
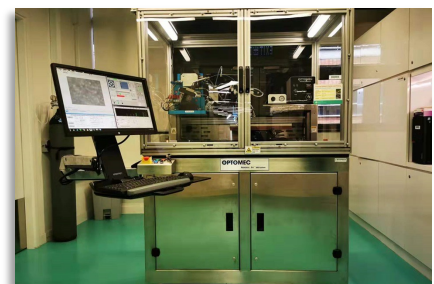
Cutting-edge Industry 4.0 capstone competences

Cyber-Physical Internet

Research Centre for Deep Space Explorations (RCDSE)

World-class research and development perspeatives

3D Printing

Career Prospects

➤ Industrial digitization and smartization

➤ Business and industrial analytics

➤ Smart factory and warehouse operations management

➤ Industry 4.0 project management

Admission Requirements

➤ A **Bachelor's degree** in engineering, sciences, or a related discipline, or the equivalent. Priority will be given to candidates with relevant working experiences.

➤ If you are not a native speaker of English, and your Bachelor's degree or equivalent qualification is awarded by institutions where the medium of instruction is not English, you are expected to fulfil the **University's minimum English language requirement** for admission purpose.

Programme leader: *Prof. George Q. Huang*

Deputy programme leader: *Prof. Sandy To*

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