

Program specification

Awarding body/institution: International University HCMC

- **Teaching institution:** Department of Industrial and Systems Engineering, International University HCMC
- **Accreditation:** MOET standard, recognized in 2016
- **Name of the final award:** Master of Engineering in Industrial and Systems Engineering
- **Program Title:** Master of Engineering in Industrial and Systems Engineering
- **Learning outcomes of the program:**
 - a. An ability to apply knowledge of mathematics, science and engineering
 - b. An ability to design and conduct experiments, as well as to analyze and interpret data
 - c. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
 - d. An ability to function in multidisciplinary teams
 - e. An ability to identify, formulate, model and simulate and solve industrial and systems problems
 - f. An understanding of professional and ethical responsibility
 - g. An ability to communicate effectively
 - h. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
 - i. A recognition of the need for, and an ability to engage in life-long learning
 - j. A knowledge of contemporary issues and ability to self-update
 - k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

- **Program objectives**

1. Be practicing engineers in the field of production and services, who are able to
 - (i) *Design or redesign industrial systems*

Create new design for industrial systems in production and service from small to medium size. For some especial cases, new design for large systems will also be considered

Analyze and research existing systems of production and service to see whether it needs redesigning or not for increasing productive and efficiency.

- (ii) *Operate and manage industrial systems*

Operate effectively industrial systems in production and services by efficiency combination all system's resources (people, finance, machines, ect.)

- (iii) *Improve the existing industrial systems*

Detect, simulate, and get result to determine optimization index for new productive and services. Propose necessary change to improve existing systems.

- (iv) *Support for wise decision making*

Analyze, evaluate, and simulate managing models to give alterative solution as single-criteria and multi-criteria for supporting managers in making decision

2. Engage in lifelong learning to maintain and enhance professional skills

3. Work effectively with people and demonstrate leadership, professional skills and ethical behavior in the workplace

4. Fulfill the needs of community and industrial sector of Vietnam in solving technical and management problems using industrial and systems engineering principles, tools and techniques.

• **Admission criteria of the program:**

- Depending on the type of bachelor degree, master students may be asked to take additional deficiency courses

Academic Background		Deficiency Courses
1	Applicants who graduated from ISE major at Universities of Vietnam Nation University Applicants who graduated from overseas universities in the field of Industrial Engineering/ Industrial and Systems Engineering/ Logistics Engineering/ Operations Research.	No deficiency courses
2	Applicants who received bachelor degrees in Vietnam or overseas universities in the following majors: Engineering technology; Sciences: Computer Science, Mathematics, Applied Mathematics, Information Technology; Economics;	Production management course
3	Applicants who received bachelor degrees in Vietnam or overseas universities in natural science majors: Physics, Chemistry, Astronomy, Biology	- Production Management - Engineering Probability and Statistics

- Entrance exam includes three tests: Comprehensive subjects (Production Management, Probability and Statistics, Advanced Mathematics), Interview and English. Writing Exam is prepared in both Vietnamese and English versions. Candidates can choose either Vietnamese or English option.

• **Program structure**

Main part	Credit requirement	
	Coursework	Research
Part1 – Foundation	4	4

Philosophy Research methodology	2	2
Part 2 – Fundamental knowledge	9	9
Part 3 – Specialized knowledge - Compulsory (for different tracks) - Elective	9 6	
Part 4 – Thesis	12	30
Total	42	45

• **Course Assessment:**

According to the Academic Regulations of IU-VNU, the assessments fall into three categories as follows:

- Final exam: 35% - 60%
- Mid-term exam: 20% - 40%
- Others (e.g. In-class quizzes, group presentation, etc): 10% - 30%

The final grade of a laboratory course includes:

- Laboratory assignment: 70% - 80%
- Laboratory final exam: 20% - 30%