Master of Engineering Program in Industrial Engineering
(Edition 2023)

Name of University :

Graduate School, Chiang Mai University and Faculty of Engineering, Department of Industrial Engineering

Name of the degree

Full : Master of Engineering (Industrial Engineering)

Abbreviation : M.Eng. (Industrial Engineering)

Degree Requirement : a minimum of

Plan A Type A1 (Regular Study)	36	credits
Plan A Type A2 (Regular Study)	36	credits
Plan B (Part-time Study)	36	credits

Tuition fees

Plan A Type A1 (Regular Study)	100,000 Baht per course
	25,000 Baht per semester
Plan A Type A2 (Regular Study)	100,000 Baht per course
	25,000 Baht per semester
Plan B (Part-time Study)	168,000 Baht per course
	42,000 Baht per semester

Curriculum structure

Plan A Type A1 (Regular Study)

Degree Requirement :	36	credits
A. Thesis	36	credits

B. Academic Activities

1. Student has to organize seminar and present paper on the topic related to his/her thesis for 1 time in every semester for at least 2 semesters.

2. The thesis or parts of the thesis have been published or at least accepted to be published in international journals or national journals in TCI Tier 1, with the student as first author, at least 1 paper

or national journals which are qualified and accepted in the field of study or related fields. The journals must regularly and continuously publish for at least 3 years. The quality of publications must be evaluated by at least 3 peer reviewers from various outside university. The journal can be published in both print and electronic, which have an exact schedule, with the student as first author

or published as a full paper in the proceeding of international conference, which was accepted in the field of study, with the student as first author, at least 1 paper and/ or in compliant with Announcement of Graduate School, Chiang Mai University.

3. A student has to report thesis progression to the Graduate School every semesters which approved by the Chairman of the Graduate Study Committee.

C. Non-credit Courses

1. Graduate School requirement : a foreign language

2. Program requirement –none

Plan A Type A2 (Regular Study)

Degree Requirement : a minimum of				36	credits
A. Course work : a minimum of				24	credits
1. Graduate Courses : a minimum of				24	credits
1.1 Filed of Specialization : a minimum of				24	credits
1.1.1 Required courses				6	credits
255722	IE	722	Optimization		3(3-0-6)
255793	IE	793	Smart Operation Management		3(3-0-6)
1.1.2 Elective courses : a minimum of				18	credits

Student can enroll the followings courses or the others which the graduate education executive committee approves.

255710	IE	710	INDUSTRIAL PROJECT MANAGEMENT	3(3-0-6)
255711	IE	711	Advanced Industrial Organization and Management	3(3-0-6)

255712	IE	712	Entrepreneurship	3(3-0-6)
255713	IE	713	HUMAN RESOURCE DEVELOPMENT	3(3-0-6)
255714	IE	714	Industrial Environment Impact Assessment	3(3-0-6)
255715	IE	715	Advanced Engineering Economy	3(3-0-6)
255716	IE	716	Agility Manufacturing Organization	3(3-0-6)
255720	IE	720	Quality Management	3(3-0-6)
255721	IE	721	Inventory Theory	3(3-0-6)
255723	IE	723	Scheduling and Sequencing Theory	3(3-0-6)
255724	IE	724	Multi-criteria Decision Making Technique for Industrial Engineering	3(3-0-6)
255730	IE	730	Management of Technology	3(3-0-6)
255731	IE	731	Product Design and Development	3(3-0-6)
255732	IE	732	Queuing Theory	3(3-0-6)
255733	IE	733	Modern Production and Industrial System	3(3-0-6)
255736	IE	736	Plant Layout and Facility Design	3(3-0-6)
255738	IE	738	Concurrent Engineering	3(3-0-6)
255739	IE	739	Data - Mining Techniques for Industrial Applications	3(3-0-6)
255740	IE	740	Advanced Manufacturing Costing Techniques	3(3-0-6)
255741	IE	741	Nanotechnology, Nanomaterials and their applications	3(3-0-6)
255742	IE	742	Plasma Engineering and Technology	3(3-0-6)
255744	IE	744	Manufacturing Strategy	3(3-0-6)
255745	IE	745	Lean Manufacturing Systems	3(3-0-6)
255746	IE	746	Industrial System Simulation	3(3-0-6)
255747	IE	747	APPLIED STOCHASTICS FOR INDUSTRY	3(3-0-6)
255748	IE	748	MANUFACTURING SYSTEMS OPTIMIZATION	3(3-0-6)
255749	IE	749	Artificial Intelligence Techniques in Manufacturing	3(3-0-6)
255750	IE	750	Innovation Management and New Product	3(3-0-6)

			Development	
255751	IE	751	Information System for Industrial Management	3(3-0-6)
255752	IE	752	Precision Manufacturing Systems	3(3-0-6)
255753	IE	753	Establishing Sustainable Start-Ups	3(3-0-6)
255754	IE	754	Advanced Humanitarian Logistics Planning in Disaster Relief Operations	3(3-0-6)
255757	IE	757	Human Performance in System Design	3(3-0-6)
255758	IE	758	Applied Ergonomics	3(3-0-6)
255760	IE	760	Artificial Intelligence Techniques and AI Applications	3(3-0-6)
255761	IE	761	Advanced Materials in Biomedical Industries	3(3-0-6)
255762	IE	762	Technology Transfer and Commercialization	3(3-0-6)
255764	IE	764	Distribution Engineering	3(3-0-6)
255766	IE	766	Information Technology for Logistics	3(3-0-6)
255769	IE	769	Trading and International Logistics	3(3-0-6)
255770	IE	770	Operations and Supply Chain Management	3(3-0-6)
255772	IE	772	Special Topics in Engineering Logistics	3(3-0-6)
255773	IE	773	STATISTICAL DATA ANALYSIS FOR DECISION MAKING	3(3-0-6)
255775	IE	775	ENGINEERING STATISTICS FOR INDUSTRIAL ENGINEERING	3(3-0-6)
255776	IE	776	STATISTICAL QUALITY ENGINEERING AND CONTROL	3(3-0-6)
255777	IE	777	Economic Design of Quality Control for Manufacturing Process	3(3-0-6)
255778	IE	778	Stream of Variation for Multistage Manufacturing Process	3(3-0-6)
255779	IE	779	Advanced Quality Improvement	3(3-0-6)
255780	IE	780	Advanced Quality Assurance	3(3-0-6)
255781	IE	781	Reliability Engineering	3(3-0-6)

255782	IE	782	Regression Analysis for Quality Control	3(3-0-6)
255783	IE	783	Design and Analysis for Quality Improvement	3(3-0-6)
255784	IE	784	Quantitative Technique for Advanced Design and Analysis of Quality Improvement	3(3-0-6)
255786	IE	786	Special Topic in Quality Management	3(3-0-6)
255787	IE	787	Special Topic in Statistical Quality and Process Control	3(3-0-6)
255788	IE	788	Quality Control for Geometric Dimensioning & Tolerancing	3(3-0-6)
255789	IE	789	Tolerance Analysis and Allocation for Quality Improvement	3(3-0-6)
255790	IE	790	Robust Experimental Design for Product Development	3(3-0-6)
255791	IE	791	Special Topics in Industrial Engineering 1	3(3-0-6)
255792	IE	792	Special Topics in Industrial Engineering II	3(3-0-6)
255794	IE	794	การจัดการคุณภาพ 4.0 สำหรับองค์กรขยายผล	3(3-0-6)
255795	IE	795	Special Topics in Industrial Engineering	3(3-0-6)
265711	IM	711	Smart Technology and Artificial Intelligence	3(3-0-6)

1.2 Other courses

The student may enroll other graduate courses(s) under the agreement of the advisor

2. Advanced Undergraduate Courses (if any)

In case the student lacks some basic knowledge which is necessary for education, the student must enroll some advanced undergraduate courses(s) under the recommendation of program administrative committee

B. Thesis 12 credits

255799	IE	799	Master’s thesis	3(3-0-6)

C. Non-credit Courses

1. Graduate School requirement: a foreign language

2. Program requirement -A Student must pass 255735 Research Techniques in Industrial Engineering, without earning any credits.

D. Academic Activities

1. Student has to organize seminar and present paper on the topic related to his/her thesis for 1 time in every semester for at least 2 semesters.

2. The thesis or parts of the thesis have been published or at least accepted to be published in international journals or national journals in TCI Tier 1, with the student as first author, at least 1 paper

or national journals which are qualified and accepted in the field of study or related fields. The journals must regularly and continuously publish for at least 3 years. The quality of publications must be evaluated by at least 3 peer reviewers from various outside university. The journal can be published in both print and electronic, which have an exact schedule, with the student as first author

or published as a full paper in the proceeding of international conference, which was accepted in the field of study, with the student as first author, at least 1 paper and/or in compliant with Announcement of Graduate School, Chiang Mai University.

3. Student who does not have Industrial Engineering background must enroll in a set of Industrial Engineering fundamental topics according to the program committee recommendations and must pass the exam to fulfill the Industrial Engineering fundamental knowledge. There are 7 topics as follows: 1. Engineering Economics 2. Motion and Time Study 3. Manufacturing Process 4. Quality Control 5. Production Planning and Control 6. Fundamental Statistics 7. Operations research

Plan B Type (Part-time Study)

Degree Requirement : a minimum of	36	credits
A. Course work : a minimum of	30	credits
1. Graduate Courses : a minimum of	30	credits
1.1 Filed of concentration : a minimum of	30	credits
1.1.1 Required courses	6	credits
255722 IE 722 Optimization		3(3-0-6)

255793	IE	793	Smart Operation Management	3(3-0-6)

1.1.2 Elective courses : a minimum of 24 credits

Student can enroll the followings courses or the others which the graduate education executive committee approves.

255710	IE	710	INDUSTRIAL PROJECT MANAGEMENT	3(3-0-6)
255711	IE	711	Advanced Industrial Organization and Management	3(3-0-6)
255712	IE	712	Entrepreneurship	3(3-0-6)
255713	IE	713	HUMAN RESOURCE DEVELOPMENT	3(3-0-6)
255714	IE	714	Industrial Environment Impact Assessment	3(3-0-6)
255715	IE	715	Advanced Engineering Economy	3(3-0-6)
255716	IE	716	Agility Manufacturing Organization	3(3-0-6)
255720	IE	720	Quality Management	3(3-0-6)
255721	IE	721	Inventory Theory	3(3-0-6)
255723	IE	723	Scheduling and Sequencing Theory	3(3-0-6)
255724	IE	724	Multi-criteria Decision Making Technique for Industrial Engineering	3(3-0-6)
255730	IE	730	Management of Technology	3(3-0-6)
255731	IE	731	Product Design and Development	3(3-0-6)
255732	IE	732	Queuing Theory	3(3-0-6)
255733	IE	733	Modern Production and Industrial System	3(3-0-6)
255736	IE	736	Plant Layout and Facility Design	3(3-0-6)
255738	IE	738	Concurrent Engineering	3(3-0-6)
255739	IE	739	Data - Mining Techniques for Industrial Applications	3(3-0-6)
255740	IE	740	Advanced Manufacturing Costing Techniques	3(3-0-6)
255741	IE	741	Nanotechnology, Nanomaterials and their applications	3(3-0-6)
255742	IE	742	Plasma Engineering and Technology	3(3-0-6)
255744	IE	744	Manufacturing Strategy	3(3-0-6)

255745	IE	745	Lean Manufacturing Systems	3(3-0-6)
255746	IE	746	Industrial System Simulation	3(3-0-6)
255747	IE	747	APPLIED STOCHASTICS FOR INDUSTRY	3(3-0-6)
255748	IE	748	MANUFACTURING SYSTEMS OPTIMIZATION	3(3-0-6)
255749	IE	749	Artificial Intelligence Techniques in Manufacturing	3(3-0-6)
255750	IE	750	Innovation Management and New Product Development	3(3-0-6)
255751	IE	751	Information System for Industrial Management	3(3-0-6)
255752	IE	752	Precision Manufacturing Systems	3(3-0-6)
255753	IE	753	Establishing Sustainable Start-Ups	3(3-0-6)
255754	IE	754	Advanced Humanitarian Logistics Planning in Disaster Relief Operations	3(3-0-6)
255757	IE	757	Human Performance in System Design	3(3-0-6)
255758	IE	758	Applied Ergonomics	3(3-0-6)
255760	IE	760	Artificial Intelligence Techniques and AI Applications	3(3-0-6)
255761	IE	761	Advanced Materials in Biomedical Industries	3(3-0-6)
255762	IE	762	Technology Transfer and Commercialization	3(3-0-6)
255764	IE	764	Distribution Engineering	3(3-0-6)
255766	IE	766	Information Technology for Logistics	3(3-0-6)
255769	IE	769	Trading and International Logistics	3(3-0-6)
255770	IE	770	Operations and Supply Chain Management	3(3-0-6)
255772	IE	772	Special Topics in Engineering Logistics	3(3-0-6)
255773	IE	773	STATISTICAL DATA ANALYSIS FOR DECISION MAKING	3(3-0-6)
255775	IE	775	ENGINEERING STATISTICS FOR INDUSTRIAL ENGINEERING	3(3-0-6)
255776	IE	776	STATISTICAL QUALITY ENGINEERING AND CONTROL	3(3-0-6)

255777	IE	777	Economic Design of Quality Control for Manufacturing Process	3(3-0-6)
255778	IE	778	Stream of Variation for Multistage Manufacturing Process	3(3-0-6)
255779	IE	779	Advanced Quality Improvement	3(3-0-6)
255780	IE	780	Advanced Quality Assurance	3(3-0-6)
255781	IE	781	Reliability Engineering	3(3-0-6)
255782	IE	782	Regression Analysis for Quality Control	3(3-0-6)
255783	IE	783	Design and Analysis for Quality Improvement	3(3-0-6)
255784	IE	784	Quantitative Technique for Advanced Design and Analysis of Quality Improvement	3(3-0-6)
255786	IE	786	Special Topic in Quality Management	3(3-0-6)
255787	IE	787	Special Topic in Statistical Quality and Process Control	3(3-0-6)
255788	IE	788	Quality Control for Geometric Dimensioning & Tolerancing	3(3-0-6)
255789	IE	789	Tolerance Analysis and Allocation for Quality Improvement	3(3-0-6)
255790	IE	790	Robust Experimental Design for Product Development	3(3-0-6)
255791	IE	791	Special Topics in Industrial Engineering 1	3(3-0-6)
255792	IE	792	Special Topics in Industrial Engineering II	3(3-0-6)
255794	IE	794	การจัดการคุณภาพ 4.0 สำหรับองค์กรขยายผล	3(3-0-6)
255795	IE	795	Special Topics in Industrial Engineering	3(3-0-6)
265711	IM	711	Smart Technology and Artificial Intelligence	3(3-0-6)

1.2 Other courses

The student may enroll other graduate courses(s) under the agreement of the advisor

2. Advanced Undergraduate Courses (if any)

In case the student lacks some basic knowledge which is necessary for education, the student must enroll some advanced undergraduate courses(s) under the recommendation of program administrative committee

B. Thesis 6 credit

255799 IE 798 INDEPENDENT STUDY 6 credit

C. Non-credit Courses

1. Graduate School requirement: a foreign language

2. Program requirement - A Student must pass 255735 Research Techniques in Industrial Engineering, without earning any credits.

D. Academic activities

1. Independent study or parts of the independent study must be published in the academic publications, which are accepted by the program and the Graduate School Academic Administrative Committee (GSAAC) and/or in compliant with Announcement of Graduate School, Chiang Mai University.

2. Student who does not have Industrial Engineering background must enroll in a set of Industrial Engineering fundamental topics according to the program committee recommendations and must pass the exam to fulfill the Industrial Engineering fundamental knowledge. There are 7 topics as follows: 1. Engineering Economics 2. Motion and Time Study 3. Manufacturing Process 4. Quality Control 5. Production Planning and Control 6. Fundamental Statistics 7. Operations research

E. Comprehensive Examination

Having submitted a request form to the Graduate School, approved by general advisor or major thesis advisor, a student must then complete and pass a comprehensive examination.

Study Plan

Plan A Type A1 (Regular Study)

First Year

First Semester		Credits	Second Semester		Credits
	Registration for university servieces	-	255797	MASTER'S THESIS	12
	Pass foreign language examination requirement	-		Present thesis proposal	-
				Organize seminar and present paper	-
	Total	**-**		**Total**	**12**

Second Year

First Semester		Credits	Second Semester		Credits
255797	MASTER'S THESIS	12	255797	MASTER'S THESIS	12
	Organize seminar and present paper	-		Master's Thesis defense	-
	Total	**12**		**Total**	**12**

Total credits 36 credits

Plan A Type A2 (Regular Study)

First Year

First Semester		Credits	Second Semester		Credits
255722	Optimization	3	255735	RESEARCH TECHNIQUES IN INDUSTRIAL ENGINEERING	-
255793	Smart Operation Management	3	255xxx	Elective courses	9
255xxx	Elective courses	3		Pass foreign language examination requirement	-
	Total	**9**		**Total**	**9**

Second Year

First Semester		Credits	Second Semester		Credits
255799	MASTER'S THESIS	6	255799	MASTER'S THESIS	6
255xxx	Elective courses	6		Master's Thesis defense	-
	Present thesis proposal	-		Organize seminar and present paper	-
	Organize seminar and present paper	-			
	Total	**12**		**Total**	**6**

Total credits: a minimum of 36 credits

Plan B (Part-time Study)

First Year

First Semester		Credits	Second Semester		Credits
255722	Optimization	3	255735	RESEARCH TECHNIQUES IN INDUSTRIAL ENGINEERING	-
255793	Smart Operation Management	3	255xxx	Elective courses	12
255xxx	Elective courses	3			
	Total	**9**		**Total**	**12**

Second Year

ภาคการศึกษาที่ 1		หน่วยกิต	ภาคการศึกษาที่ 2		หน่วยกิต
255798	INDEPENDENT STUDY	3	255798	INDEPENDENT STUDY	3
255xxx	Elective courses	9		Comprehensive examination	-
	Present Independent study proposal	-		Independent study defense	-
	Pass foreign language examination requirement	-			
	Total	**12**		**Total**	**3**

Total credits: a minimum of 36 credits