

**Code : 25500041111316**  
**Master of Engineering Program in Computer Engineering**  
 (หลักสูตรปรับปรุง พ.ศ.2559)

### Name of the degree

**Full** : Master of Engineering (Computer Engineering)

**Abbreviation** : M.Eng. (Computer Engineering)

### Curriculum structure

#### 06361011 Type 1 (Plan A Type A 1)

**Degree Requirement** **36**

**A. Thesis** **36**

261798	CPE	798	THESIS	36
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#### B. Academic Activities

1. A student has to organize and present a seminar on the topic related to his/her thesis once every semester for at least three semesters and students have to attend the seminar in every semester that the course is offered.

2. The whole or part of a thesis must be published/accepted for publication in national journal(s) which are categorized in TCI database Tier 1 or international journal according with the regulation on criteria of journal for publication by the office of the higher education commission. At least 1 academic paper must have the student's name as the first author.

3. A student has to report thesis progression to the Graduate School every semester, for approval by the Chairman of the Graduate Study Committee.

#### C. Non-credit Courses

1. Graduate School requirement

foreign language

2. Program requirement

- A student must pass a training course on research methodology to enhance his/her capability in conducting his/her research for at least 15 hours in his/her first semester. Unsuccessful examinee must pass a re-examination within the following two regular semesters.

- In the case that a student lacks sufficient academic knowledge concerning his/her research subject, the student will be required to enroll in course(s), without earning any credits, as recommended by his/her thesis advisor.

#### 06361021 Type 2 (Plan A Type A 2)

**Degree Requirement : a minimum of** **36**

**A. Course work : a minimum of** **24**

**1. Graduate Courses : a minimum of** **24**

**1.1 Field of concentration courses : a minimum of** **24**

**1.1.1 Required courses** **9**

261701	CPE	701	MATHEMATICS FOR COMPUTER ENGINEERING	3(3-0-6)
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261702	CPE	702	Algorithm Analysis and Design	3(3-0-6)
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261706	CPE	706	Research Methodology for Computer Engineering	2(2-0-4)
261791	CPE	791	SEMINAR IN COMPUTER ENGINEERING	1(1-0-2)

**1.1.2 Elective courses : a minimum of**

**15**

Students can select from the following subject groups.

Basic and General Computer Engineering

261704	CPE	704	Advanced Computer Architecture	3(3-0-6)
261705	CPE	705	Advanced Operating System	3(3-0-6)

Computer Hardware

261721	CPE	721	Computer Hardware Design	3(3-0-6)
261722	CPE	722	Advanced Embedded Systems	3(3-0-6)

Computer Network

261730	CPE	730	Wireless Communications	3(3-0-6)
261731	CPE	731	Parallel Processing and Distributed Systems	3(3-0-6)
261732	CPE	732	QUEUEING THEORY	3(3-0-6)
261733	CPE	733	DESIGN AND ANALYSIS OF COMPUTER NETWORKS	3(3-0-6)
261734	CPE	734	ADVANCED NETWORKS PROGRAMMING	3(3-0-6)
261735	CPE	735	Information Security	3(3-0-6)
261736	CPE	736	Wireless Networking	3(3-0-6)
261737	CPE	737	Advanced Routing Protocols	3(3-0-6)
261738	CPE	738	Multiprotocol Label Switching Technology	3(3-0-6)
261739	CPE	739	Advanced Network Management	3(3-0-6)

Information Technology

261741	CPE	741	DATABASE MANAGEMENT SYSTEM 1	3(3-0-6)
261742	CPE	742	DATABASE MANAGEMENT SYSTEM 2	3(3-0-6)
261743	CPE	743	Information Architecture	3(3-0-6)
261744	CPE	744	INFORMATION THEORY AND CODING	3(3-0-6)
261745	CPE	745	Data Mining	3(3-0-6)
261746	CPE	746	Human-Computer Interaction	3(3-0-6)
261747	CPE	747	INFORMATION TECHNOLOGY INFRASTRUCTURE LIBRARY	3(3-0-6)
261748	CPE	748	SERVICE-ORIENTED ARCHITECTURE	3(3-0-6)

Computational Intelligence

261751	CPE	751	Advanced Neural Networks	3(3-0-6)
261752	CPE	752	Digital Image Analysis	3(3-0-6)
261753	CPE	753	Computer Vision	3(3-0-6)
261754	CPE	754	Advanced Pattern Recognition	3(3-0-6)
261755	CPE	755	Advanced Fuzzy Set Theory	3(3-0-6)
261756	CPE	756	Digital Video Processing	3(3-0-6)
261757	CPE	757	Advanced Neuro-Fuzzy	3(3-0-6)
261758	CPE	758	Image Registration	3(3-0-6)

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**Computer Software**

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261763	CPE	763	Advanced Computer Graphics	3(3-0-6)
261764	CPE	764	ADVANCED SOFTWARE ENGINEERING	3(3-0-6)
261766	CPE	766	ADVANCED OBJECT-ORIENTED PROGRAMMING	3(3-0-6)
261767	CPE	767	COMPUTER SIMULATION FOR ENGINEERING PROBLEMS	3(3-0-6)
261768	CPE	768	PARALLEL PROGRAMMING OF GRAPHICS PROCESSING UNITS AND MULTI-CORE CENTRAL PROCESSING UNITS	3(3-0-6)
261769	CPE	769	Computational Media	3(3-0-6)

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**Signal System and Computer-based Automatic Control**

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261771	CPE	771	ADVANCED DIGITAL SIGNAL PROCESSING FOR COMPUTER ENGINEERING	3(3-0-6)
261772	CPE	772	COMPUTER APPLICATION FOR MEDICAL INSTRUMENTS	3(3-0-6)
261773	CPE	773	SPEECH AND AUDIO SIGNAL PROCESSING	3(3-0-6)

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**Software Engineering**

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261781	CPE	781	SOFTWARE PROJECT MANAGEMENT	3(3-0-6)
261782	CPE	782	ADVANCED RISK MANAGEMENT IN SOFTWARE PROJECT	3(3-0-6)
261783	CPE	783	SOFTWARE REQUIREMENT ANALYSIS	3(3-0-6)
261784	CPE	784	FORMAL METHODS IN SOFTWARE ENGINEERING	3(3-0-6)
261785	CPE	785	SOFTWARE ARCHITECTURE	3(3-0-6)
261786	CPE	786	SOFTWARE QUALITY ASSURANCE	3(3-0-6)

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**Special Arrangement by the Department**

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261792	CPE	792	SELECTED TOPICS IN COMPUTER ENGINEERING	3(3-0-6)
261793	CPE	793	SELECTED TOPICS IN COMPUTER SOFTWARE	3(3-0-6)
261794	CPE	794	SELECTED TOPICS IN COMPUTER NETWORK	3(3-0-6)
261795	CPE	795	SELECTED TOPICS IN COMPUTATIONAL	3(3-0-6)
261796	CPE	796	SELECTED TOPICS IN INFORMATION TECHNOLOGY	3(3-0-6)
261891	CPE	891	SELECTED TOPICS IN COMPUTER ENGINEERING 1	3(3-0-6)
261892	CPE	892	SELECTED TOPICS IN COMPUTER ENGINEERING 2	3(3-0-6)
261893	CPE	893	SELECTED TOPICS IN COMPUTER SOFTWARE 1	3(3-0-6)
261894	CPE	894	SELECTED TOPICS IN COMPUTER NETWORK 1	3(3-0-6)
261895	CPE	895	SELECTED TOPICS IN COMPUTATIONAL INTELLIGENCE 1	3(3-0-6)
261896	CPE	896	SELECTED TOPICS IN INFORMATION TECHNOLOGY 1	3(3-0-6)

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NOTE A student may enroll in some courses in related areas to enhance his/her capability in conducting his/her research with the approval of the Graduate Program Administrative Committee. These courses can be counted as elective courses toward the degree. However, a student must enroll in elective courses of the Computer Engineering at least 9 credits.

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**1.2 Other Courses**

None

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**2. Advanced Undergraduate Courses**

None

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<b>B. Thesis</b>					
261799	CPE	799	THESIS		12

**C. Non-credit Courses**

1. Graduate School requirement:

a foreign language

2. Program requirement:

None

**D. Academic Activities**

1. The whole or part of a thesis must be published/accepted for publication in national journal(s) (as full paper) which are categorized in TCI database Tier 1 or international journal according with the regulation on criteria of journal for publication by the office of the higher education commission. Or it must be presented in a conference and published in proceedings with peer reviews as full academic paper. At least 1 academic paper must have the student's name as the first author.

**06361031 Type 3 (Plan B)**

**Degree Requirement : a minimum of 36**

**A. Course work : a minimum of 30**

**1. Graduate Courses : a minimum of 30**

**1.1 Field of concentration courses : a minimum of 30**

**1.1.1 Required courses 9**

261701	CPE	701	MATHEMATICS FOR COMPUTER ENGINEERING	3(3-0-6)
261702	CPE	702	Algorithm Analysis and Design	3(3-0-6)
261706	CPE	706	Research Methodology for Computer Engineering	2(2-0-4)
261791	CPE	791	SEMINAR IN COMPUTER ENGINEERING	1(1-0-2)

**1.1.2 Elective courses : a minimum of 21**

Students can select from the following subject groups.

Basic and General Computer Engineering

261704	CPE	704	Advanced Computer Architecture	3(3-0-6)
261705	CPE	705	Advanced Operating System	3(3-0-6)

Computer Hardware

261721	CPE	721	Computer Hardware Design	3(3-0-6)
261722	CPE	722	Advanced Embedded Systems	3(3-0-6)

Computer Network

261730	CPE	730	Wireless Communications	3(3-0-6)
261731	CPE	731	Parallel Processing and Distributed Systems	3(3-0-6)
261732	CPE	732	QUEUEING THEORY	3(3-0-6)
261733	CPE	733	DESIGN AND ANALYSIS OF COMPUTER NETWORKS	3(3-0-6)
261734	CPE	734	ADVANCED NETWORKS PROGRAMMING	3(3-0-6)
261735	CPE	735	Information Security	3(3-0-6)

261736	CPE	736	Wireless Networking	3(3-0-6)
261737	CPE	737	Advanced Routing Protocols	3(3-0-6)
261738	CPE	738	Multiprotocol Label Switching Technology	3(3-0-6)
261739	CPE	739	Advanced Network Management	3(3-0-6)
Information Technology				
261741	CPE	741	DATABASE MANAGEMENT SYSTEM 1	3(3-0-6)
261742	CPE	742	DATABASE MANAGEMENT SYSTEM 2	3(3-0-6)
261743	CPE	743	Information Architecture	3(3-0-6)
261744	CPE	744	INFORMATION THEORY AND CODING	3(3-0-6)
261745	CPE	745	Data Mining	3(3-0-6)
261746	CPE	746	Human-Computer Interaction	3(3-0-6)
261747	CPE	747	INFORMATION TECHNOLOGY INFRASTRUCTURE LIBRARY	3(3-0-6)
261748	CPE	748	SERVICE-ORIENTED ARCHITECTURE	3(3-0-6)
Computational Intelligence				
261751	CPE	751	Advanced Neural Networks	3(3-0-6)
261752	CPE	752	Digital Image Analysis	3(3-0-6)
261753	CPE	753	Computer Vision	3(3-0-6)
261754	CPE	754	Advanced Pattern Recognition	3(3-0-6)
261755	CPE	755	Advanced Fuzzy Set Theory	3(3-0-6)
261756	CPE	756	Digital Video Processing	3(3-0-6)
261757	CPE	757	Advanced Neuro-Fuzzy	3(3-0-6)
261758	CPE	758	Image Registration	3(3-0-6)
Computer Software				
261763	CPE	763	Advanced Computer Graphics	3(3-0-6)
261764	CPE	764	ADVANCED SOFTWARE ENGINEERING	3(3-0-6)
261766	CPE	766	ADVANCED OBJECT-ORIENTED PROGRAMMING	3(3-0-6)
261767	CPE	767	COMPUTER SIMULATION FOR ENGINEERING PROBLEMS	3(3-0-6)
261768	CPE	768	PARALLEL PROGRAMMING OF GRAPHICS PROCESSING UNITS AND MULTI-CORE CENTRAL PROCESSING UNITS	3(3-0-6)
261769	CPE	769	Computational Media	3(3-0-6)
Signal System and Computer-based Automatic Control				
261771	CPE	771	ADVANCED DIGITAL SIGNAL PROCESSING FOR COMPUTER ENGINEERING	3(3-0-6)
261772	CPE	772	COMPUTER APPLICATION FOR MEDICAL INSTRUMENTS	3(3-0-6)
261773	CPE	773	SPEECH AND AUDIO SIGNAL PROCESSING	3(3-0-6)
Software Engineering				
261781	CPE	781	SOFTWARE PROJECT MANAGEMENT	3(3-0-6)
261782	CPE	782	ADVANCED RISK MANAGEMENT IN SOFTWARE PROJECT	3(3-0-6)
261783	CPE	783	SOFTWARE REQUIREMENT ANALYSIS	3(3-0-6)
261784	CPE	784	FORMAL METHODS IN SOFTWARE ENGINEERING	3(3-0-6)
261785	CPE	785	SOFTWARE ARCHITECTURE	3(3-0-6)

261786	CPE	786	SOFTWARE QUALITY ASSURANCE	3(3-0-6)
Special Arrangement by the Department				
261792	CPE	792	SELECTED TOPICS IN COMPUTER ENGINEERING	3(3-0-6)
261793	CPE	793	SELECTED TOPICS IN COMPUTER SOFTWARE	3(3-0-6)
261794	CPE	794	SELECTED TOPICS IN COMPUTER NETWORK	3(3-0-6)
261795	CPE	795	SELECTED TOPICS IN COMPUTATIONAL	3(3-0-6)
261796	CPE	796	SELECTED TOPICS IN INFORMATION TECHNOLOGY	3(3-0-6)
261891	CPE	891	SELECTED TOPICS IN COMPUTER ENGINEERING 1	3(3-0-6)
261892	CPE	892	SELECTED TOPICS IN COMPUTER ENGINEERING 2	3(3-0-6)
261893	CPE	893	SELECTED TOPICS IN COMPUTER SOFTWARE 1	3(3-0-6)
261894	CPE	894	SELECTED TOPICS IN COMPUTER NETWORK 1	3(3-0-6)
261895	CPE	895	SELECTED TOPICS IN COMPUTATIONAL INTELLIGENCE 1	3(3-0-6)
261896	CPE	896	SELECTED TOPICS IN INFORMATION TECHNOLOGY 1	3(3-0-6)

### 1.2 Other Courses

None

### 2. Advanced Undergraduate Courses

None

### B. Independent Study

261797	CPE	797	INDEPENDENT STUDY	6
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### C. Non-credit Courses

1. Graduate School requirement:

a foreign language

2. Program requirement:

None

### D. Academic activity

The whole or part of an independent study must be published in any sources which can be search according the regulation of the Graduate School.

### 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 a comprehensive examination.

## Study plan

### 06361011 Type 1 (Plan A Type A 1)

#### First Year

			<u>First Semester</u>	<u>Credits</u>
261798	CPE	798	THESIS	9

			Pass foreign language requirement	0
			Present thesis proposal	0
			seminar	0
			<b>Total</b>	<b><u>9</u></b>
			<b><u>Second Semester</u></b>	<b>Credits</b>
261798	CPE	798	THESIS	9
			seminar	0
			<b>Total</b>	<b><u>9</u></b>

### Second Year

			<b><u>First Semester</u></b>	<b>Credits</b>
261798	CPE	798	THESIS	9
			seminar	0
			<b>Total</b>	<b><u>9</u></b>
			<b><u>Second Semester</u></b>	<b>Credits</b>
261798	CPE	798	THESIS	9
			seminar	0
			Thesis Defense	0
			<b>Total</b>	<b><u>9</u></b>

### 06361021 Type 2 (Plan A Type A 2)

#### First Year

			<b><u>First Semester</u></b>	<b>Credits</b>
261701	CPE	701	MATHEMATICS FOR COMPUTER ENGINEERING	3
261702	CPE	702	Algorithm Analysis and Design	3
261706	CPE	706	Research Methodology for Computer Engineering	2
			Elective course	3
			Pass foreign language requirement	0
			<b>Total</b>	<b><u>11</u></b>
			<b><u>Second Semester</u></b>	<b>Credits</b>
			Elective course	12
			Present thesis proposal	0
			<b>Total</b>	<b><u>12</u></b>

#### Second Year

			<b><u>First Semester</u></b>	<b>Credits</b>
261791	CPE	791	SEMINAR IN COMPUTER ENGINEERING	1
261799	CPE	799	THESIS	6
			<b>Total</b>	<b><u>7</u></b>
			<b><u>Second Semester</u></b>	<b>Credits</b>
261799	CPE	799	THESIS	6
			Thesis Defense	0

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Total 6

**06361031 Type 3 (Plan B)**

**First Year**

**First Semester**

				<b>Credits</b>
261701	CPE	701	MATHEMATICS FOR COMPUTER ENGINEERING	3
261702	CPE	702	Algorithm Analysis and Design	3
261706	CPE	706	Research Methodology for Computer Engineering	2
			Elective course	3

**Total** 11

**Second Semester**

				<b>Credits</b>
			Elective course	12
			Pass foreign language requirement	0

**Total** 12

**Second Year**

**First Semester**

				<b>Credits</b>
261791	CPE	791	SEMINAR IN COMPUTER ENGINEERING	1
261797	CPE	797	INDEPENDENT STUDY	3
			Elective course	6
			Present independent study proposal	0

**Total** 10

**Second Semester**

				<b>Credits</b>
261797	CPE	797	INDEPENDENT STUDY	3
			Independent study defense	0

**Total** 3

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