

A Mapping representing the Distribution of Responsibilities from a Curriculum  
Standard to each Course in a Category of General Courses

The Headers of column in a Table Annex I-a mean

**1. Moral and Ethic**

- 1.1 Be responsible
- 1.2 Be participate
- 1.3 Has public consciousness
- 1.4 Has ethical behavior
- 1.5 Respect in Thai language and tradition

**2. Knowledge**

- 2.1 Has multilanguage skills
- 2.2 Criticize the Global and Asian traditions
- 2.3 Connect to current situation and life
- 2.4 learn to understand problems and the solutions using science and mathematics

**3. Intellectual Skill**

- 3.1 Analyze problems using logical methods
- 3.2 Be creative
- 3.3 Know a method to improve behavior and health

**4. Social and Responsible Skills**

- 4.1 Communicate to others using both great speaking and body language and via technology
- 4.2 Be intelligent to live with other people

**5. Numerical, Communicating and Technological Analysis Skills**

- 5.1 Analyze, design and summarize text for presenting in both Thai and other Language
- 5.2 Apply media and technology for interpreting , communicating and planning life

**6. Psychmotor Skill**

- 6.1 Practice to have a good health and mind
- 6.2 Develop an outstanding behavior and language usage that be approved international society

Table Annex I-a : A Mapping Representing the Distribution of Responsibilities from a Curriculum Standard to each Course

General Course Category

● Major responsibility ○ Minor responsibility

Course	1. Moral and Ethic					2. Knowledge				3. Intellectual Skill			4. Social and Responsible Skill		5.Numerical, Communicating and Technological Analysis Skill		6.Psychmotor Skill	
	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	5.1	5.2	6.1	6.2
<b>1. General Course Category</b>																		
<b>1.1 Language Courses</b>																		
001201 Thai Language Skills	○			○	●					●			●					
001211 Fundamental English	●	●	●		●	●	●				●		●	●	●	●		●
001212 Developmental English	●	●	●		●	●	●				●		●	●	●	●		●
001213 English for Academic Purposes		○	●		●	●	●				●		●	●	●	●		●
<b>1.2 Humanity Courses</b>																		
001223 Music Appreciation	○	●	○	○	○		○	●		○	●	○	●	○	○	○	●	
001224 Arts in Daily Life	●	●	○		○	○	●	○	●	●	○		●			●		

Table Annex I-a: A Mapping Representing the Distribution of Responsibilities from a Curriculum Standard to each Course (Cont.)

General Course Category

● Major responsibility ○ Minor responsibility X None

Course	1. Moral and Ethic					2. Knowledge				3. Intellectual Skill			4. Social and Responsible Skill		5.Numerical, Communicatin g and Technological Analysis Skill		6.Psychmotor Skill	
	1.1	1.2	1.3	1.4	1.5	2.1	2.2	2.3	2.4	3.1	3.2	3.3	4.1	4.2	5.1	5.2	6.1	6.2
<b>1.3 Social Courses</b>																		
001232 Fundamental Laws for Quality of Life									●	●								
001237 Life Skills	●	●	●	●	○		●	●		●	●	●	●	●	●			
<b>1.4 Science Courses</b>																		
001271 Man and Environment	●	○	○	●	○	●	○	●	○	●	○		●	○	○	○		○
001277 Human Behavior	●	●					○	●		○	○	●	○	○				

## A Mapping representing the Distribution of Responsibilities from a Curriculum Standard to each Course in a Category of Special Courses

The Headers of column in a Table Annex I-b mean

### 1. Moral and Ethic

1.1 Understand and realize Thai tradition, Appreciate the system of moral, ethic, sacrifice and loyalty

1.2 Discipline, be punctual, be responsible for yourself and society, respect to rules of institutes and sociality

1.3 Be both a leader and follower, work in a team, deal with conflicts prioritizedly, respect to other rights, be a good listener and respect to the worth and prestige of human

1.4 Analyze and assess consequences from using Engineering knowledge to people, institutes and environments.

1.5 Has both academic and professional ethics, be responsible in a role of profession and understand social roles of each major in Engineering from the past to present

1.6 Has a good vision of careers, show the moral and ethics while working and communicating to other people

### 2. Knowledge

2.1 Has a knowledge and understanding of basic mathematics, basic science, basic engineering and economics for applying to related engineering application and develop new technological innovations

2.2 Has a knowledge and understanding related to important strategies in a Computer Engineering topics both theories and practices widely, systematically, internationally and modernly

2.3 Integrate Computer Engineering knowledge into other relevant areas

2.4 Analyze and solve problems using appropriate ways and apply to a proper equipment such as computer programs.

2.5 Has knowledge of Computer Engineering professional criteria and apply the knowledge to solve real problems

### 3. Intellectual Skill

3.1 Has a good thinking and judgment

3.2 Collect, learn, analyze and summarize problems and need

3.3 Think, analyze and solve Engineering problems systematically and using information for making decisions efficiently

3.4 Has an imagination and flexibility for applying knowledge to develop innovations appropriately or extending knowledge creatively

3.5 Search and Seek further knowledge by yourself for a sustainable learning and being ready to knowledge and technology change

3.6 Apply knowledge theories, practices and other areas to perform Engineering work efficiently

#### **4. Social and Responsible Skills**

4.1 Communicate to many types of people and speak both Thai and other languages efficiently, represent professional knowledge to society with appropriate topics

4.2 Be a leadership for raising points that can solve both personal and social problems creatively, represent both your point of view and team's point of view appropriately, support and encourage to solve problems in any situations

4.3 plan and response to develop your learning that related to careers continuously

4.4 Understand your role and be responsible to do the work of personal and team mission, adjust and work in a team as a leader and follower efficiently, has appropriate behavior for your responsibilities

4.5 realize and be responsible to securities of working and aware of taking care of environments for society and nation

#### **5. Numerical, Communicating and Technological Analysis Skills**

5.1 Has a computer skill for doing work related to careers well

5.2 Analyze Mathematical information or present statistics for solving related problems creatively

5.3 Apply modern communication technology appropriately and efficiently

5.4 Has communication skills both speaking, writing and showing meaningful symbol

5.5 Use calculable devices and Engineering equipments for performing careers related to Engineering work

5.6 Use technology to communicate, select presentation format appropriated to contents and various audiences efficiently

Table Annex I-b: A Mapping Representing the Distribution of Responsibilities from a Curriculum Standard to each Course

Special Course Category

● Major responsibility ○ Minor responsibility

Course	1. Moral and Ethic						2. Knowledge					3. Intellectual Skill						4. Social and Responsible Skill					5. Numerical, Communicating and Technological Analysis Skill						
	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	
<b>2. Special Subject Category</b>																													
<b>2.1 Major Courses</b>																													
<b>2.1.1 Basic Mathematics and Science</b>																													
252182 Calculus I	○	○	○		○	○	●	●					○	○	○	○	○	○	○	○	○	●		○	●	○	○		○
252183 Calculus II	○	○	○		○	○	●	●					○	○	○	○	○	○	○	○	○	●		○	●	○	○		○
252284 Calculus III	○	○	○		○	○	●	●					○	○	○	○	○	○	○	○	○	●		○	●	○	○		○
256101 Principle of Chemistry	○	○	○		●	●	●	●					●	●	○	●	●	○	●	○	●			○	○	○	○		○
261101 Physics 1	●	●	●				●	●					●	●	●	●	●	○	○	●	○			●	●	●	●		●
261102 Physics 2	●	●	●				●	●					●	●	●	●	●	○	○	●	○			●	●	●	●		●
<b>2.1.2 Basic Engineering</b>																													
301304 Engineering Economics		●					○	●	○	○	○	○	○	●	○	○	○	○		○	○		○	●				●	
302151 Engineering Drawing		●						●		○				●						○								●	
305171 Computer Programming		○						○	○	●			●	○						○			●					○	
<b>2.2 Specific Special Courses</b>																													
<b>2.2.1 Required Courses</b>																													
<b>2.2.1.1 Computer Engineering Required Courses</b>																													

Table Annex I-b: A Mapping Representing the Distribution of Responsibilities from a Curriculum Standard to each Course (Cont.)

Special Course Category

● Major responsibility ○ Minor responsibility

Subject	1. Moral and Ethic						2. Knowledge					3. Intellectual Skill						4. Social and Responsible Skill					5. Numerical, Communicating and Technological Analysis Skill					
	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6
<b>2.2.1.1.1 Technology for Applications Courses</b>																												
305453 Artificial Intelligence		○	○				○	●	○	○	○		○	○	●	○	○	○		○	○			●	○		○	
305361 Database		○	○	○			○	●	○				●	○			○	○		○	○		●	○		○		
<b>2.2.1.1.2 Technology and Software Procedure Courses</b>																												
305111 Fundamental Skills for Computer Engineering	○	●	○	○	○	○	○	○	○	○	○	○	●	○	●	●	○	○	○	●	○	○	○	○	○	○	○	○
305172 Computer Programming Laboratory		○						○	○	●			●	○					○			●				○		
305233 Algorithm Analysis and Design			○				●		○	○		○		○		○	○		○			○				○		
305272 Advanced Computer Programming		○					○	○		●		●		○			○		○	○		○	○					
305371 Software Engineering		●	●	●	●	●	○	●	●	●	●		●	●				○				○	●	●	●	●	●	
<b>2.2.1.1.3 Basic Structure of System Courses</b>																												
305131 Computer Mathematics I		○					●	○		○					○	○	●		○				●		○	○		
305132 Computer Mathematics II		○					●	○		○					○	○	●		○				●		○	○		
305214 Data Structures		○					○	●	○	●		○	○	●		○			○	○		○	○	○				
305346 Computer Networks	○							●	○	○			○	●	○		○		○	○				○	●	○		
305351 Computer System Engineering		○		●	●	●	○	●	●	●	○	●	●	●	●		●	○				○	●	●	●	●	●	
305383 Operating Systems	○	○				○	○	○	●		○	○	○	●				○	○					●	○	○		

Table Annex I-b: A Mapping Representing the Distribution of Responsibilities from a Curriculum Standard to each Course (Cont.)

Special Course Category

● Major responsibility    ○ Minor responsibility

Course	1. Moral and Ethic						2. Knowledge					3. Intellectual Skill						4. Social and Responsible Skill					5. Numerical, Communicating and Technological Analysis Skill						
	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	
<b>2.2.1.1.3 Basic Structure of System Courses</b>																													
305232 Applied Probability for Computer Engineering		○					●	○		○						○	○	●			○			●		○	○		
305331 Theory of Computation		○					●	○		○						○	○	●			○			●		○	○		
<b>2.2.1.1.4 Hardware and Computer Architecture Courses</b>																													
303213 Electrical Circuit Analysis for Computer Engineering		●						●								●					○			○					
303242 Electronics for Computer Engineering		○						●					●							○							●		
305224 Digital Logic							●	○		○			○	●						○	○					○			
305332 Digital Signal Processing		○					○	●	○	●	○	○	○	●		○			○	○		○	○	○					
305381 Microprocessor and Assembly Language			○				○	●		○				○						○	○						●		
305382 Computer Architecture and Organization	○	○				○	○	●						○		○	○		○	○		○	○	○	○	○	●	○	
305384 Microcontroller and Microcomputer Interfacing		○	○					○	●	○			○	○		○	●			○	○	●	○		●	○	○	○	
<b>2.2.1.1.5 Project Courses</b>																													
305491 Computer Engineering Project I	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
305492 Computer Engineering Project II	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	



Table Annex I-b: A Mapping Representing the Distribution of Responsibilities from a Curriculum Standard to each Course (Cont.)

Special Course Category

● Major responsibility    ○ Minor responsibility

Course	1. Moral and Ethic						2. Knowledge					3. Intellectual Skill						4. Social and Responsible Skill					5. Numerical, Communicating and Technological Analysis Skill						
	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	
<b>2.2.2 Required Language Courses</b>																													
205200 Communicative English for Specific Purposes	○					○			○				●						●									●	●
205201 Communicative English for Academic Analysis	○					○			○				●						●									●	●
205202 Communicative English for Research Presentation	○				○	○			○				●						●									●	●
<b>2.3.2 Computer Engineering Elective Courses</b>																													
305273 Personal Process for Software Development		●			●	●	○	○	○			○		●			○			●			○	○	○	○		○	
305274 Software Process and Quality Assurance		●			●	●					●	●		●			●	●	○		○	○	○	○	○	○		○	
305275 Software Design				●			●		●	○	○	○	○	●			●	●	●			○	○	○	○	●		●	
305276 Software Verification and Validation				○			○	●	●	●	●	●		○	○							○	○	●	○				
305321 Control Systems for Computer Engineering				○			○	●	●	○			○	●	○	○	○			○	○		●	●	○	○	○	○	
305352 Introduction to Human Computer Interaction		○		○			○	●	●	●	○	○	○	●	●	○	●			○	○		○	○	●	○	●	○	
305358 Robotics Engineering I		○	○				●	○	●	○	○		○	●	●	○	●			○	●		●	●	○	○	●	○	
305362 Computer and Information Security				●	●		○	○	○	○	○	○	●	○						○	●				●	○	●	○	
305363 Electronic Commerce	○			○					●	○					○	●			○	○			○				●		
305364 Social Network Programming		○	●	●				○	●	●	○	○	○	●	○	○	○	○		○				●	●	○		●	
305372 Compiler Construction		○					○	○	○	●				○	●		○			○	●		○	○		○			
305373 Team Process for Software Development		●	●		●	●	○	○	○			○		●			○	●	●		●					●		●	

Table Annex I-b: A Mapping Representing the Distribution of Responsibilities from a Curriculum Standard to each Course (Cont.)

Special Course Category

● Major responsibility ○ Minor responsibility

Course	1. Moral and Ethic						2. Knowledge					3. Intellectual Skill						4. Social and Responsible Skill					5. Numerical, Communicating and Technological Analysis Skill					
	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6
305375 Software Construction and Evolution		○		●				●	○	○			●	○	○				○					●				○
305376 Introduction to Software Architecture		○	●	○			○	●	●	●	●	○	●	●	●	●	●	○	○	○			●	●	●	○	●	●
305391 Special Topic in Computer Engineering		○	●					●		○			○			○			○	○	○				○	●		○
305392 Special Topic in Computer and System		○	●					●		○			○			○			○	○	○				○	●		○
305393 Special Topic in Human Computer Interaction		○	●					●		○			○		●	○			○	○	○				○	●		○
305394 Special Topic in Embedded System		○	●					●		○			○		●	○			○	○	○	○			○	●		○
305395 Special Topic in Robotic		○	●					●		○			○		●	○			○	○	○	○			○	●		○
305396 Special Topic in Software Engineering	○	○	●		●	○		●		○			○			○			○	○	○				○	●		○
305432 Computer Graphics		○					○	●	●	○	○	○	●	●	●	○	●			○	○		●	●	●	○	●	○
305434 Digital Image Processing		○					○	●	○					●					○					●	●			
305438 Multimedia		○					○	●	○					●					○					●	●			
305445 Network System Programming				●	●		○	○	○	○	○	○	●	○						○	●			●	○	●	○	○
305454 Advanced Artificial Intelligence		○	○				○	●	○	●	●	○	●	○	●	○	○	○		○	○			●	●	○	●	●
305452 Robotics Engineering II		○	○				●	○	●	○	○		○	●	●	○	●			○	●				○	○	●	○
305455 Pattern Recognition		○	○				○	●	○	●	●	○	●	○	●	○	○	○		○	○				●	○	●	●
305456 Computer Vision		○					○	●	●	●	○	○	●	●	●	○	●			○	○			●	○	○	●	○
305463 Management Information Systems				●	○	○	○	●	●	○	●		●			●					●	○			●		●	

Table Annex I-b: A Mapping Representing the Distribution of Responsibilities from a Curriculum Standard to each Course (Cont.)

Special Course Category

● Major responsibility    ○ Minor responsibility

Course	1. Moral and Ethic						2. Knowledge					3. Intellectual Skill						4. Social and Responsible Skill					5. Numerical, Communicating and Technological Analysis Skill					
	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6	1	2	3	4	5	1	2	3	4	5	6
305464 Distributed Application				●	○	○	○	●	●	○	●		●				●				●	○			●		●	
305465 Data and Application Integration		○	●	○			○	●	●	●	●	○	●	●	○	○	●	○	○	○			●	●	●	○	●	●
305466 Foundation of IT Services				●	○	○	○	●	●	○	●		●				●				●	○			●		●	
305467 Foundation of IT Governance				●	○	○	○	●	●	○	●		●				●				●	○			●		●	
305472 Service Oriented Architecture		○	●	●			○	●	●	●	●	○	●	●	○	●		○	●	●			●	●	●	○	●	●
305481 Embedded System				○		○	○	●	●	●		○	●	●	●	○	●	○	○	○	○	○		○	●	○	○	○
<b>4. Required Courses (none credits)</b>																												
305390 Training in Computer Engineering	○	●	○	○	○	○	○	○	○	○	●	○	○	○	○	○	●	○	○	○	●	○	○	○	○	○	○	○