

# PROGRAM STRUCTURE

**LEVEL** : Undergraduate  
**SCHOOL** : School of Science  
**PROGRAM** : 633110201 : Bachelor of Science Program in Applied Chemistry  
 (Cooperative Education)  
**PROGRAM YEAR** : 2563

## PHILOSOPHY

Applied chemistry has integrated the knowledge of chemistry and different disciplines. This interdisciplinary program is a driving force of technology and innovation development which has an impact on the economy, society, and livelihood of the people in the nation. Applied Chemistry Program has been developed with the objectives to produce graduates whose expertise lies in the field of chemistry with the ability to apply knowledge and scientific skills to participate in the creation of an innovative prototype. All graduates are trained to equip with proper English communication skills, professional ethics, disciplines, morality, and the ability to work effectively with others especially in a multicultural society.

## PURPOSE

1. Produce graduates whose expertise lies in the field of chemistry.
2. Produce graduates with the ability to apply knowledge and scientific skills to participate in the creation of an innovative prototype.
3. Produce graduates with professional ethics, disciplines, and morality.
4. Produce graduates with proper English communication skills.
5. Produce graduates with the ability to work effectively with others especially in a multicultural society.

1 General Education Course MINIMUM CREDIT : 30

1.1 Language Course MINIMUM CREDIT : 15

Course Code	COURSE	CREDIT
<b>1005120</b>	Thai for Communication E2: 1001105 Thai Language Skills 3 (3-0-6) OR E1: 1005121 Thai Language Conversation in Daily Life 3 (2-2-5)	3 (3-0-6)
<b>1006134</b>	English for Communication 1 P: 1006002 Intensive English 0 (3-0-6) OR P: 1006003 Intensive English for English Majors 0 (3-0-6)	3 (3-0-6)
<b>1006135</b>	English for Communication 2 P: 1006134 English for Communication 1 3 (3-0-6)	3 (3-0-6)

<b>2408101</b>	Chinese 1 E2: 2408001 Chinese 1 3 (3-0-6) OR E2: 1007101 Chinese 1 3 (3-0-6)	3 (3-0-6)
<b>2408102</b>	Chinese 2 P: 2408101 Chinese 1 3 (3-0-6) OR P: 2408001 Chinese 1 3 (3-0-6) OR P: 1007101 Chinese 1 3 (3-0-6)  ----- E2: 2408002 Chinese 2 3 (3-0-6)	3 (3-0-6)

### 1.2 Social Science Course MINIMUM CREDIT : 6

Course Code	COURSE	CREDIT
<b>1203102</b>	Managing Organization and Entrepreneurship	3 (3-0-6)
<b>1601104</b>	Global Citizenship E1: 1601103 Know Your Laws 3 (3-0-6) AND E1: 2302102 Man and Society 3 (3-0-6) OR E1: 1601103 Know Your Laws 3 (3-0-6) AND E1: 2302101 ASEAN Studies 3 (3-0-6)	3 (3-0-6)

### 1.3 Science and Mathematics Course MINIMUM CREDIT : 6

Course Code	COURSE	CREDIT
<b>1101105</b>	Sciences and Mathematics All Around E1: 1101100 Science for Life 3 (3-0-6) AND E1: 1106100 Mathematics for Life 3 (3-0-6)	3 (3-0-6)
<b>1301110</b>	Introduction to Information Technology and Data Science E1: 1301104 Introduction to Information Technology 3 (2-2-5) OR E1: 1301107 Basic Information Technology 3 (2-2-5)	3 (2-2-5)

### 1.4 Humanities Course MINIMUM CREDIT : 3

Course Code	COURSE	CREDIT
<b>1001127</b>	Psychology in Daily Life E2: 1001141 General Psychology 3 (3-0-6)	3 (3-0-6)

### 1.5 Integrative Course (non-credit) MINIMUM CREDIT : -

Course Code	COURSE	CREDIT
<b>MFU333</b>	MFU Character	0 (0-6-2)

2 Specific Required Course MINIMUM CREDIT : 96

2.1 MINIMUM CREDIT : 27

Course Code	COURSE	CREDIT
<a href="#"><u>1102109</u></a>	Fundamentals of Chemistry E1: 1102101 General Chemistry 1 3 (2-3-5) AND E1: 1102102 General Chemistry 2 3 (2-3-5)	4 (3-3-7)
<a href="#"><u>1102111</u></a>	Applied Chemistry Character 1	2 (1-3-3)
<a href="#"><u>1102226</u></a>	Applied Chemistry Character 2	2 (1-3-3)
<a href="#"><u>1102318</u></a>	Applied Chemistry Character 3	2 (1-3-3)
<a href="#"><u>1103108</u></a>	Fundamentals of Biology E1: 1103101 General Biology 1 3 (2-3-5) AND E1: 1103102 General Biology 2 3 (2-3-5)	4 (3-3-7)
<a href="#"><u>1104107</u></a>	Fundamental Physics	4 (3-3-7)
<a href="#"><u>1106103</u></a>	Mathematics 1	3 (3-0-6)
<a href="#"><u>1106104</u></a>	Mathematics 2 P: 1106103 Mathematics 1 3 (3-0-6)	3 (3-0-6)
<a href="#"><u>1106283</u></a>	Statistics and Experimental Design E2: 1106282 Statistics and Experimental Design 3 (3-0-6)	3 (2-3-5)

2.2 MINIMUM CREDIT : 54

Course Code	COURSE	CREDIT
<a href="#"><u>1102211</u></a>	Analytical Chemistry 1	4 (3-3-7)
<a href="#"><u>1102212</u></a>	Analytical Chemistry 2 P: 1102211 Analytical Chemistry 1 4 (3-3-7)	4 (3-3-7)
<a href="#"><u>1102224</u></a>	Physical Chemistry 1	4 (3-3-7)
<a href="#"><u>1102225</u></a>	Physical Chemistry 2 P: 1102224 Physical Chemistry 1 4 (3-3-7)	3 (3-0-6)
<a href="#"><u>1102227</u></a>	Chemical Safety and Managements	3 (3-0-6)
<a href="#"><u>1102231</u></a>	Organic Chemistry 1	4 (3-3-7)
<a href="#"><u>1102232</u></a>	Organic Chemistry 2 P: 1102231 Organic Chemistry 1 4 (3-3-7)	4 (3-3-7)
<a href="#"><u>1102253</u></a>	Biochemistry P: 1102231 Organic Chemistry 1 4 (3-3-7)	4 (3-3-7)
<a href="#"><u>1102311</u></a>	Spectroscopic Methods in Chemistry P: 1102212 Analytical Chemistry 2 4 (3-3-7)	3 (3-0-6)
<a href="#"><u>1102319</u></a>	Innovation in Chemistry	3 (2-3-5)
<a href="#"><u>1102320</u></a>	Validation Verification and Quality Assurance of Analytical Method	3 (3-0-6)
<a href="#"><u>1102341</u></a>	Inorganic Chemistry 1	4 (3-3-7)
<a href="#"><u>1102342</u></a>	Inorganic Chemistry 2 P: 1102341 Inorganic Chemistry 1 4 (3-3-7)	3 (3-0-6)
<a href="#"><u>1102467</u></a>	Special Problem in Applied Chemistry	3 (0-9-3)
<a href="#"><u>1102491</u></a>	Seminar	1 (0-3-1)
<a href="#"><u>1108260</u></a>	Introduction to Polymer Chemistry	3 (3-0-6)

<b>1112104</b>	Soft Skills for Science and Engineering Professionals	1 (0-3-1)
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### 2.3 MINIMUM CREDIT : 6

Course Code	COURSE	CREDIT
<b>1102497</b>	Cooperative Education	6 (0-40-6)

### 2.4 MINIMUM CREDIT : 9

Course Code	COURSE	CREDIT
<b>1102414</b>	Forensic Science	3 (3-0-6)
<b>1102415</b>	Selected Topics in Applied Chemistry	3 (3-0-6)
<b>1102416</b>	Natural Products Chemistry	3 (3-0-6)
<b>1102417</b>	Introduction to Medicinal Chemistry	3 (3-0-6)
<b>1102418</b>	Instrumental Analysis	4 (2-6-6)
<b>1102419</b>	Chemical Sensors	3 (2-3-5)
<b>1108440</b>	Structural Design and Applications of Polymers	4 (2-6-6)
<b>1108448</b>	Polymer Processing	3 (2-3-5)

### 3 MINIMUM CREDIT : 6

#### REMARKS

P : Prerequisite Course

E1 : One-way Equivalent

E2 : Two-way Equivalent

รายวิชา 1006393 Principles of Translation 3(3-0-6) ในกรณีที่นักศึกษาไม่สามารถใช้ภาษาไทยได้ ให้เรียนรายวิชา 1006382 Directed Studies แทน

รายวิชา 1006397 Comparative Study of English and Thai 3(3-0-6) ในกรณีที่นักศึกษาไม่สามารถใช้ภาษาไทยได้ ให้เรียนรายวิชา 1006381 Selected Reading แทน