

Civil Engineering (CE)

Curriculum Outline

The Civil Engineering Program aims to produce graduates with sufficient fundamental knowledge in broad fields, and at the same time with strong knowledge in a specific area. This will enable graduates to serve the industrial sectors in Thailand where the need for specialists is increasing day by day.

The curriculum gives emphasis to various major fields of civil engineering, which include 1) structural engineering, 2) concrete engineering, 3) soil and foundation engineering, 4) water resources engineering, and 5) transportation engineering.

The total credits for major engineering subjects are uniformly distributed to all five major fields, except for the field of structural engineering, which has a slightly larger number of credits.

Further specialization can be achieved through the elective courses and the project. A practical training course is also provided to let students have a chance to practice civil engineering during their studies. In the practical training course, students will be placed in organizations that are related to their specialty in order to provide them with some practical experiences in their specialized field. In this curriculum, it is possible for students to study their elective courses at other universities, including foreign universities, as exchange students during the final semester. With special arrangements, it will also be possible for students to have thorough practical training during the final semester.

Structure and Components

1. General Basic Courses	30 Credits
1.1 Part I	21 Credits
1.1.1 Social Sciences	6 Credits
1.1.2 Humanities	3 Credits
1.1.3 Science and Mathematics	3 Credits
1.1.4 Languages	9 Credits
1.2 Part II	9 Credits
2. Major Courses	114 Credits
2.1 Basic Courses	50 Credits
2.1.1 Basic Mathematics and Sciences Courses	21 Credits
2.1.2 Basic Engineering Courses	29 Credits
2.2 Specialized Courses	64 Credits
2.2.1 Compulsory Engineering Courses	49 Credits
2.2.2 Elective Engineering Courses	15 Credits
3. Free Elective Courses	6 Credits
Total	150 Credits

Details of the Curriculum

1. General Basic Courses	30 Credits
1.1 Part I	21 Credits
1.1.1 Social Sciences (2 courses) TU100 TU101	6 Credits
1.1.2 Humanities (1 course) TU102	3 Credits
1.1.3 Science and Mathematics (1 course) TU103	3 Credits
1.1.4 Languages (3 courses) TU104 TU105 TU106	9 Credits
1.2 Part II	9 Credits
GTS133 GTS202 ITS100	
2. Major Courses	114 Credits
2.1 Basic Courses	50 Credits
2.1.1 Basic Mathematics and Sciences Courses MAS116 MAS117 MAS210 SCS126 SCS138 SCS139 SCS176 SCS183 SCS184	21 Credits
2.1.2 Basic Engineering Courses	29 Credits
CES201 CES202 CES215 CES361 CES362 CES371 CES381 CES382 CES403 GTS302 MES300 MES350	
2.2 Specialized Courses	64 Credits
2.2.1 Compulsory Engineering Courses	49 Credits
2.2.1.1 Structural Engineering & Materials CES311 CES312 CES315 CES321 CES322 CES351 CES352 CES354 CES414	
2.2.1.2 Soil & Hydraulics Engineering CES302 CES331 CES332 CES333 CES444	
2.2.1.3 Surveying & Engineering Management CES341 CES343 CES353	
2.2.2 Elective Engineering Courses	15 Credits
2.2.2.1 Special Study (select 1 group)	
2.2.2.2.1 Senior Project Track	6 Credits
CES303 CES407	
or	
2.2.2.2.2 Foreign Exchange Track	6 Credits
CES303 CES405 CES409	
or	
2.2.2.2.3 Extended Training Track	6 Credits
CES408	
and	
2.2.2.2 Technical Elective Courses	9 Credits
Select 9 credits from the list of courses offered by the Civil Engineering Program, except basic courses. CESxxx	
3. Free Elective Courses	6 Credits
Students may choose any free elective courses (not less than 6 credits in total) offered by SIIT or TU, including general basic courses, except:	
1. General basic courses in Science and Mathematics.	
2. General basic TU courses.	
3. Courses with contents similar to those of other courses in the curriculum already taken by the students.	
Total Credit Requirement	150 Credits

CE Curriculum : 150 Credits

First Year			Semester II		
Semester I			Semester II		
TU104	Critical Thinking, Reading, and Writing	3(3-0-6)	CES312	Structural Analysis	3(3-0-6)
MAS116	Mathematics I	3(3-0-6)	CES321	Timber and Steel Design	4(3-3-6)
SCS126	Chemistry for Engineers	3(3-0-6)	CES322	Reinforced Concrete Design	4(3-3-6)
SCS138	Applied Physics I	3(3-0-6)	CES332	Foundation Engineering	3(3-0-6)
SCS176	Chemistry Laboratory	1(0-3-0)	CES343	Highway Engineering	3(3-0-6)
SCS183	Physics Laboratory I	1(0-3-0)	CES352	Material Testing	1(0-3-0)
TU100	Civic Engagement	3(3-0-6)	CES354	Maintenance of Structures	3(3-0-6)
TU103	Life and Sustainability	3(3-0-6)	Sub-Total		21(18-9-36)
Sub-Total		20(18-6-36)	Summer		
Semester II			Select either Senior Project Track, Foreign Exchange Track, or Extended Training Track.		
TU105	Communication Skills in English	3(3-0-6)	1. Senior Project Track and Foreign Exchange Track		
GTS133	Environmental Studies	3(3-0-6)	CES303	Civil Engineering Training	1(0-40-0)
ITS100	Introduction to Computers and Programming	3(2-3-4)	Sub-Total		1(0-40-0)
MAS117	Mathematics II	3(3-0-6)	2. Extended Training Track		
SCS139	Applied Physics II	3(3-0-6)	XXXxxx	Free Elective	3(x-x-x)
SCS184	Physics Laboratory II	1(0-3-0)	XXXxxx	Free Elective	3(x-x-x)
TU106	Creativity and Communication	3(3-0-6)	Sub-Total		6(x-x-x)
Sub-Total		19(17-6-34)	Fourth Year		
Second Year			Semester I		
Semester I			Semester I		
CES201	Engineering Materials	3(3-0-6)	CES353	Construction Engineering and Management	3(3-0-6)
CES215	Applied Mathematics in Civil Engineering	3(3-0-6)	CES403	Seminar	1(0-3-0)
CES361	Surveying	3(2-3-4)	CES414	Finite Element Methods in Engineering	3(3-0-6)
GTS202	English Language Structures	3(3-0-6)	CESxxx	Technical Elective	3(x-x-x)
MAS210	Mathematics III	3(3-0-6)	CESxxx	Technical Elective	3(x-x-x)
MES300	Engineering Drawing	3(2-3-4)	CESxxx	Technical Elective	3(x-x-x)
MES350	Engineering Statics	3(3-0-6)	TU101	Thailand, ASEAN, and the World	3(3-0-6)
Sub-Total		21(19-6-38)	Sub-Total		19(x-x-x)
Semester II			Semester II		
CES202	Introduction to Building Facilities	3(3-0-6)	1) Senior Project Track		
CES371	Mechanics of Solids I	3(3-0-6)	CES407	Civil Engineering Project	5(0-15-0)
GTS302	Technical Writing	2(2-1-3)	XXXxxx	Free Elective	3(x-x-x)
CES381	Hydraulics	3(3-0-6)	XXXxxx	Free Elective	3(x-x-x)
CES382	Hydraulics Laboratory	1(0-3-0)	Sub-Total		11(x-x-x)
TU102	Social Life Skills	3(3-0-6)	2) Foreign Exchange Track		
CES302	Engineering Hydrology	3(3-0-6)	CES405	Special Studies in Civil Engineering I	3(3-0-6)
Sub-Total		18(17-4-33)	CES409	Special Studies in Civil Engineering III	2(2-0-4)
Summer			XXXxxx	Free Elective	3(x-x-x)
CES362	Field Surveying Camp	1(0-80-0)	XXXxxx	Free Elective	3(x-x-x)
Sub-Total		1(0-80-0)	Sub-Total		11(x-x-x)
Third Year			3) Extended Training Track		
Semester I			CES408	Extended Civil Engineering Training	6(0-40-0)
CES311	Theory of Structures	3(3-0-6)	Sub-Total		6(0-40-0)
CES331	Soil Mechanics	3(3-0-6)	Fourth Year		
CES333	Soil Mechanics Laboratory	1(0-3-0)	Semester I		
CES351	Concrete Technology	3(2-3-4)	Semester I		
CES315	Computational Methods in Civil Engineering	3(3-0-6)	CES353	Construction Engineering and Management	3(3-0-6)
CES341	Transportation Engineering and Planning	3(3-0-6)	CES403	Seminar	1(0-3-0)
CES444	Hydraulic Engineering	3(3-0-6)	CES414	Finite Element Methods in Engineering	3(3-0-6)
Sub-Total		19(17-6-34)	CESxxx	Technical Elective	3(x-x-x)
			CESxxx	Technical Elective	3(x-x-x)
			CESxxx	Technical Elective	3(x-x-x)
			TU101	Thailand, ASEAN, and the World	3(3-0-6)
			Sub-Total		19(x-x-x)