

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. In its curriculum, two main areas of study are provided for selection. They are: 1) general civil engineering, and 2) infrastructure engineering.

The general civil engineering option 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 infrastructure engineering option, though still concentrating on the above major fields, puts more emphasis on knowledge related to infrastructure.

The credits for major engineering subjects in both options are uniformly distributed among all five major fields, except for the field of structural engineering which has a slightly larger number of credits. For students in the infrastructure engineering option, some major courses provided in the general civil engineering option are replaced by those related to the infrastructure engineering field.

Further specialization can be achieved through the elective courses and the project. A practical training course is also provided to let students have an opportunity 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 is also 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 Humanities	3	Credits
1.1.2 Social Sciences	3	Credits
1.1.3 Languages	9	Credits
1.1.4 Science and Mathematics	6	Credits
1.2 Part II	9	Credits
2. Core Courses	114	Credits
2.1 Compulsory Courses	99	Credits
2.1.1 Science and Mathematics	21	Credits
2.1.2 Civil Engineering Courses	61	Credits
2.1.3 Non-Civil Engineering Courses	17	Credits
2.2 Compulsory Elective Courses	12	Credits
2.3 Technical Elective Courses	3	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 Humanities	3	Credits
TU 110		
1.1.2 Social Sciences	3	Credits
TU 120		
1.1.3 Languages	9	Credits
EL 171 EL 172 TU 140		
1.1.4 Science and Mathematics	6	Credits
ITS 100 TU 130		
1.2 Part II	9	Credits
GTS 132 GTS 133 GTS 202		
2. Core Courses	114	Credits
2.1 Compulsory Courses	99	Credits
2.1.1 Science and Mathematics	21	Credits
MAS 116 MAS 117 MAS 210 SCS 126		
SCS 138 SCS 139 SCS 176 SCS 183		
SCS 184		
2.1.2 Civil Engineering Courses	61	Credits
CES 201 CES 215		
[(CES 303 and CES 407) or		
(CES 303 and (CES 405 and CES 406)) or (CES 408)]		
CES 311 CES 312 CES 321 CES 322		
CES 331 CES 332 CES 333 CES 343		
CES 351 CES 352 CES 353 CES 361		
CES 371 CES 381 CES 382 CES 403		
CES 414 CES 426 CES 444		
2.1.3 Non-Civil Engineering Courses	17	Credits
ECS 203 GTS 302 IES 371 MES 211		
MES 300 MES 350		
2.2 Compulsory Elective Courses	12	Credits
Option I: General Civil Engineering		
CES 302 CES 315 CES 323 CES 341		
Option II: Infrastructure Engineering		
CES 305 CES 344 CES 424 CES 450		
2.3 Technical Elective Courses	3	Credits
Select 3 credits from the list of courses offered by the Civil Engineering Program, except basic courses.		
CES xxx		
3. Free Elective Courses	6	Credits
Select any courses offered by the university, except basic courses.		
XXX xxx, XXX xxx		

CE CURRICULUM : 150 CREDITS

First Year

Total Credit Requirement 150 Credits

Semester I Credits (lecture-practice-self study hrs)

EL	171	English Course II	3(3-0-6)
GTS	132	Introduction to Biological Science	3(3-1-5)
MAS	116	Mathematics I	3(3-1-5)
SCS	126	Chemistry for Engineers	3(3-1-5)
SCS	138	Applied Physics I	3(3-1-5)
SCS	176	Chemistry Laboratory	1(0-3-0)
SCS	183	Physics Laboratory I	1(0-3-0)
TU	130	Integrated Sciences and Technology	3(3-0-6)

Sub-Total 20(18-10-32)

Semester II

EL	172	English Course III	3(3-0-6)
GTS	133	Environmental Studies	3(2-2-5)
ITS	100	Intro. to Computers and Programming	3(2-3-4)
MAS	117	Mathematics II	3(3-1-5)
SCS	139	Applied Physics II	3(3-1-5)
SCS	184	Physics Laboratory II	1(0-3-0)
TU	140	Thai Studies	3(3-0-6)

Sub-Total 19(16-10-31)

Second Year

Semester I Credits (lecture-practice-self study hrs)

CES	201	Engineering Materials	3(3-0-6)
CES	215	Applied Mathematics in Civil Engineering	3(3-0-6)
CES	361	Surveying	3(2-3-4)
GTS	202	English Language Structures	3(3-1-5)
MAS	210	Mathematics III	3(3-1-5)
MES	300	Engineering Drawing	3(2-3-4)
MES	350	Engineering Statics	3(3-1-5)

Sub-Total 21(19-9-35)

Semester II

CES	371	Mechanics of Solids I	3(3-1-5)
ECS	203	Basic Electrical Engineering	3(3-1-5)
GTS	302	Technical Writing	2(2-1-3)
IES	371	Engineering Management	3(3-0-6)
MES	211	Thermofluids	3(3-1-5)
TU	110	Integrated Humanities	3(3-0-6)

Option I: General Civil Engineering

CES	302	Engineering Hydrology	3(3-0-6)
-----	-----	-----------------------	----------

Sub-Total 20(20-4-36)

Option II: Infrastructure Engineering

CES	305	Urban Hydrology	3(3-0-6)
-----	-----	-----------------	----------

Sub-Total 20(20-4-36)

Third Year

Semester I Credits (lecture-practice-self study hrs)

CES	311	Theory of Structures	3(3-0-6)
CES	331	Soil Mechanics	3(3-0-6)
CES	333	Soil Mechanics Laboratory	1(0-3-0)
CES	343	Highway Engineering	3(3-0-6)
CES	351	Concrete Technology	3(3-0-6)
CES	381	Hydraulics	3(3-0-6)
CES	382	Hydraulics Laboratory	1(0-3-0)

Option I: General Civil Engineering

CES	341	Transportation Engineering and Planning	3(3-0-6)
-----	-----	---	----------

Sub-Total 20(18-6-36)

CES	450	Urban Engineering	3(3-0-6)
-----	-----	-------------------	----------

Sub-Total 20(18-6-36)

Semester II

CES	312	Structural Analysis	3(3-0-6)
CES	322	Reinforced Concrete Design	3(3-1-5)
CES	332	Foundation Engineering	3(3-0-6)
CES	352	Material Testing	1(0-3-0)
CES	426	Durability of Concrete Structures	3(3-0-6)
CES	444	Hydraulic Engineering	3(3-0-6)

Option I: General Civil Engineering

CES	315	Computational Methods in Civil Engineering	3(3-0-6)
-----	-----	--	----------

Sub-Total 19(18-4-35)

Option II: Infrastructure Engineering

CES	344	Logistics System Engineering	3(3-0-6)
-----	-----	------------------------------	----------

Sub-Total 19(18-4-35)

Summer

Select either Senior Project Track, Foreign Exchange Track, or Extended Training Track.

1. Senior Project Track and Foreign Exchange Track

CES	303	Civil Engineering Training	0(0-0-0)
-----	-----	----------------------------	----------

Sub-Total 0(0-0-0)

2. Extended Training Track

XXX	xxx	Free Elective	3(x-x-x)
-----	-----	---------------	----------

XXX	xxx	Free Elective	3(x-x-x)
-----	-----	---------------	----------

Sub-Total 6(x-x-x)

Fourth Year

Semester I Credits (lecture-practice-self study hrs)

CES	321	Timber and Steel Design	3(3-1-5)
CES	353	Construction Engineering and Management	3(3-0-6)

CES	403	Seminar	1(0-3-0)
-----	-----	---------	----------

CES	414	Finite Element Methods in Engineering	3(3-0-6)
-----	-----	---------------------------------------	----------

CES	xxx	Technical Elective	3(x-x-x)
-----	-----	--------------------	----------

TU	120	Integrated Social Sciences	3(3-0-6)
----	-----	----------------------------	----------

Option I: General Civil Engineering

CES	323	Advanced Structural Concrete Design	3(3-0-6)
-----	-----	-------------------------------------	----------

Sub-Total 19(x-x-x)

Option II: Infrastructure Engineering

CES	424	Bridge Engineering	3(3-0-6)
-----	-----	--------------------	----------

Sub-Total 19(x-x-x)

Semester II

1) Senior Project Track

CES	407	Senior Project	6(0-18-0)
-----	-----	----------------	-----------

XXX	xxx	Free Elective	3(x-x-x)
-----	-----	---------------	----------

XXX	xxx	Free Elective	3(x-x-x)
-----	-----	---------------	----------

Sub-Total 12(x-x-x)

2) Foreign Exchange Track

CES	405	Special Study in Civil Engineering I	3(3-0-6)
-----	-----	--------------------------------------	----------

CES	406	Special Study in Civil Engineering II	3(3-0-6)
-----	-----	---------------------------------------	----------

XXX	xxx	Free Elective	3(x-x-x)
-----	-----	---------------	----------

XXX	xxx	Free Elective	3(x-x-x)
-----	-----	---------------	----------

Sub-Total 12(x-x-x)

3) Extended Training Track

CES	408	Extended Civil Engineering Training	6(0-40-0)
-----	-----	-------------------------------------	-----------

Sub-Total 6(0-40-0)