

DEPARTMENT OF CIVIL ENGINEERING

5 YEAR MODEL PROGRAM

For students starting second year fall 2017

Students are expected to follow either the 4 year or the 5 year model program.

This will ensure prerequisite and timetable requirements are met.

Offered in all 3 terms (Fall/Winter/Summer)

Offered fall & winter terms

* common to all engineering programs

FALL TERM			WINTER TERM			
FIRST YEAR	(2016)	hr	Prerequisites	(2017)	hr	Prerequisites
CHEM 1300 *	Chemistry	3		MATH 1210 *	C/L Algebra	3
COMP 1012 *	Comp Prog Eng	3	co MATH 1510	MATH 1710 *	App Calc 2	3 MATH 1510, p or c PHYS 1050
MATH 1510 *	App Calc 1	3		ENG 1430 *	Eng Design	3
PHYS 1050 *	Physics	3	p or c MATH 1510	ENG 1440 *	Eng Statics	3
Written English Requirement *	Choose course from approved List	3	(Previously was ENGL 1310)	ENG 1460 *	Thermal Sci	3
SECOND YEAR (2017)			(2018)			
Complementary Elective #1 (Arts or Management) * 3			CIVL 2790	Fluid Mechanics	4	ENG 1440, MATH 1700/1710
ENG 1450 *	Intro Elec Eng	3		GEOL 1340	Dynamic Earth	3 (formerly GEOL 2250)
MATH 2130 *	Math Analysis 1	3	MATH 1700/1710,1210	MATH 2132 *	Math Analysis 2	3 MATH 1700/1710, MATH 1210
CIVL 2830	Graphics	2	c CIVL 2840	ENG 2030	Eng Communication	3 Written English Course, ENG 1430 (or the former ENG 2010)
CIVL 2840	CE Geomatics	3	p or c MATH 1210, c CIVL 2830	ENG 2040	Eng Communication	
THIRD YEAR (2018)			(2019)			
CHEM 1310	Intro Phys Chem	3	CHEM 1300	CIVL 2770	CE Materials	5 ENG 1440; CIVL 2800
STAT 2220 *	Eng Statistics	3	MATH 1700/1710	CIVL 2780	CE Systems	4 MATH 1700/1710
CIVL 2800	Solid Mech 1	4	MATH 1700/1710, ENG 1440	CIVL 3590	Numerical Meth	4 COMP 1012, p or c MATH 2132
CIVL 3750	Hydrology	4	p or c STAT 2220	CIVL 3740	Hydraulics	4 CIVL 2790
Complementary Elective #2 (Arts/Management) * 3 (Civil Program) (Comp Elective can be taken any term as scheduling allows)			ENG 3000* Eng Economics 3 (formerly CIVL 4050)			
FOURTH YEAR (2019)			(2020)			
CIVL 3690	Enviro Eng Analysis	4	CHEM 1310 ,STAT 2220	CIVL 3700	Enviro Eng Des	4 CIVL 3690
CIVL 3730	Geo Mat Analysis	4	CIVL 2800,2770 GEOL 1340/2250	CIVL 3770	Struct Des 1	4 CIVL 2770, 3760
CIVL 3760	Struct Analysis	4	CIVL 2800	2 or 3 Technical Electives		8
CIVL 3790	Transp Eng 1	4	CIVL 2840,2770,2780 STAT 2220	(5 technical electives required in total)		
Technical Elective		4				
(5 technical electives required in total)						
Complementary Elective #2 - Environmental Option ONLY						
PHIL 2750	Enviro Ethics (E)	3	(Environmental Option) (Enviro option students can move tech elective course to different term)			
FIFTH YEAR (2020)			(2021)			
CIVL 4220	Geotech Des	4	CIVL 3730	CIVL 4460	Tech Soc	3 Written English Course
CIVL 4390	Struct Des 2	4	CIVL 2770,2800, 3760, 3770	CIVL 4590	Design Project	6 ENG 2010/30/40, CIVL 2840, 3690 3730, 3740, 3750, 3770, 3790
CIVL 4400	Trans Eng 2	4	CIVL 3790	1 or 2 Technical Electives		4
CIVL 4380	Infrastructure	4	CIVL 4050 or ENG 3000	(5 technical electives required in total)		
Technical Elective		4				
(5 technical electives required in total)						

Note: c = corequisite
p= prereq[Technical electives \(TE\) offered vary from year to year. See final page for complete TE list.](#)[Check current course schedule on Civil Engineering website for details.](#)

Total credit hrs: 163

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FALL TERM			WINTER TERM		
FIRST YEAR (2016)	hr	Prerequisites	(2017)	hr	Prerequisites
Complementary Elective (Arts or Management) * 3			ENG 1430	Eng Des	3
CHEM 1300	Chem	3	ENG 1440	Eng Statics	3
COMP 1012	Comp Prog Eng	3	ENG 1450	Intro Elec	3
MATH 1510	App Calc 1	3	ENG 1460	Thermal Sci	3
PHYS 1050	Physics	3 p or c 1500/1510	MATH 1210	C/L Algebra	3
Written English Requirement	Choose course from approved List	3 Previously was ENGL 1400. Effective Sept 2016	MATH 1710	App Calc 2	3 1500/1510, p or c PHYS 1050
SECOND YEAR (2017)			(2018)		
CHEM 1310	Intro Phys Chem	3 CHEM 1300	CIVL 2770	CE Materials	5 ENG 1440, CIVL 2800
CIVL 2800	Solid Mec 1	4 MATH 1710/1700, ENG 1440	CIVL 2780	CE Systems	4 MATH 1710 or 1700
CIVL 2830	Graphics	2 c CIVL 2840	CIVL 2790	Fluid Mech	4 ENG 1440, MATH 1710
CIVL 2840	CE Geomatics	3 p or c MATH 1210, c CIVL 2830	CIVL 3590	Numerical Meth	4 COMP 1012, p or c MATH 2132
ENG 2030 or ENG 2040	Eng Communication	3 $\left\{ \begin{array}{l} \text{Written English Crs, ENG 1430} \\ \text{(or the former ENG 2010)} \end{array} \right.$	GEOL 1340	Dynamic Earth	3 (formerly GEOL 2250)
MATH 2130	Math Analysis 1	3 MATH 1710, 1210	MATH 2132	Math Analysis 2	3 MATH 1710, MATH 1210
STAT 2220	Eng Statistics	3 MATH 1710/1700			
THIRD YEAR (2018)			(2019)		
CIVL 3690	Env Eng Analysis	4 CHEM 1310/2560, STAT 2220	CIVL 3700	Env Eng Des	4 CIVL 3690
CIVL 3730	Geo Mat Analysis	4 CIVL 2800, 2770 GEOL 1340/2250	CIVL 3740	Hydraulics	4 CIVL 2790
CIVL 3750	Hydrology	4 p or c STAT 2220	CIVL 3770	Struct Des 1	4 CIVL 2770, 3760
CIVL 3760	Struct Analysis	4 CIVL 2800	ENG 3000	Eng Economics	3 STAT 2220 (formerly CIVL 4050)
CIVL 3790	Transp Eng 1	4 CIVL 2840, 2770, 2780 STAT 2220	Technical Elective #1		4
Complementary Elective (Arts/Management) * 3 (Civil Program)			Technical Elective #2		4
or			(5 technical electives required in total)		
PHIL 2750	Enviro Ethics (E)	3 (Environmental Option Only)	OR		
<i>1 Technical Elective Course may be taken this term. Move complementary elective course to a different term.</i>					
FOURTH YEAR (2019)			(2020)		
CIVL 4220	Geotech Des	4 CIVL 3730	CIVL 4460	Tech Soc	3 Written English Course
CIVL 4380	Infrastructure	4 CIVL 4050	CIVL 4590	Design Project	6 ENG 2010/30/40, CIVL 2840, 3690
CIVL 4390	Struct Des 2	4 CIVL 2770, 2800, 3760, 3770			3730, 3740, 3750, 3770, 3790
CIVL 4400	Trans Eng 2	4 CIVL 3790	Technical Elective #4		4
Technical Elective #3		4	Technical Elective #5		4
(5 technical electives required in total)			(5 technical electives required in total)		

Note: c = corequisite

[Technical electives \(TE\) offered vary from year to year. See final page for complete TE list.](#)

[Check current course schedule on Civil Engineering website for details.](#)

TECHNICAL ELECTIVES

Students are required to take 5 technical electives. A minimum of 3 courses must be taken from Group A and up to 2 from Group B, with no more than one course from outside the Department of Civil Engineering.

Technical electives vary from year to year and may have limited enrollment.

[Check current course schedules on the Civil Engineering website for details.](#)

Most technical electives courses are offered every two years.**

Civil Engineering Program			Environmental Option Program		
Group A (select 3 to 5 courses)			Group A (select 3 to 5 courses)		
		Prerequisites			Prerequisites
CIVL 3710	Finite Element	4 CIVL 2790, 2800, 3590	CIVL 3710	Finite Element	4 CIVL 2790, 2800, 3590
CIVL 4020	Masonry Des	4 CIVL 3760	CIVL 4100	Eng Mngmnt & Enviro	4 p or c CIVL 3700
CIVL 4022	Des of Concrete Mix	4 CIVL 2770	CIVL 4120	Water Treat Plnt Des	4 CIVL 3690
CIVL 4024	Sustainable Bldg Desig	4 p or c CIVL 3770	CIVL 4130	Solid Waste	4 p or c CIVL 3700
CIVL 4030**	Struct Des 3	4 CIVL 2770,2800,3760,3770 4390	CIVL 4180	Enviro Systems	4 CIVL 2780,3690, 3750
CIVL 4040	Struc Dyn	4 CIVL 3760	CIVL 4200	Grndwater Contam	4 GEOL 1340/2250,CIVL 2790, p or c CIVL 3690
CIVL 4100	Eng Mngmnt & Enviro	4 p or c CIVL 3700	CIVL 4250	Grndwater Hydrol	4 GEOL 1340/2250, CIVL 2790 MATH 2130, 2132
CIVL 4120	Water Treat Plnt Des	4 CIVL 3690	CIVL 4300	Urban Water Syst	4 CIVL 3750, p or c CIVL 3740
CIVL 4130	Solid Waste	4 p or c CIVL 3700	CIVL 4350	Haz Waste	4 CIVL 3690
CIVL 4180	Enviro Systems	4 CIVL 2780,3690, 3750	CIVL 4470	Watershed Proc	4 CIVL 3750, p or c CIVL 3740
CIVL 4200	Grndwater Contam	4 GEOL 1340/2250,CIVL 2790, p or c CIVL 3690	Group B (Up to 2 courses, only 1 from outside of Civil Dept.)		
CIVL 4230	Geotech Eng	4 CIVL 3730	CIVL 4332	Thesis Project	4 ENG 2010/30/40 & 120 cr hrs
CIVL 4232	Geotech Earthqk Eng	4 CIVL 3730	BIOE 4460	Air Pollution	4 p or c CIVL 2790
CIVL 4250	Grndwater Hydrol	4 GEOL 1340/2250, CIVL 2790 MATH 2130, 2132	SOIL 4500	Remed Cont Soil	3 instructor consent
CIVL 4300	Urban Water System	4 CIVL 3750, p or c CIVL 3740			
CIVL 4350	Haz Waste	4 CIVL 3690			
CIVL 4410	Transp Systems	4 CIVL 3790			
CIVL 4420	Hwy Pave Des	4 CIVL 2770, 3790			
CIVL 4470	Watershed Proc	4 CIVL 3750, p or c CIVL 3740			
Group B (Up to 2 courses, only 1 from outside of Civil Dept.)					
CIVL 4332	Thesis Project	4 ENG 2010/30/40 & 120 cr hrs			
BIOE 4560	Struct Des Wood	4 CIVL 3770			

** CIVL 4030 is currently offered every winter term.

COMPLEMENTARY ELECTIVES - Arts or Management Elective

Students are required to take 6 credit hours of Arts or Management electives. The written english requirement is not included in this 6 hrs.

1000 level or higher courses offered by the Faculties of Arts or Management qualify except ARTS 1100 - Introduction to University.

Students in the Environmental Option, must take PHIL 2750 - Environmental Ethics as one complementary elective.

[Suggested complementary elective courses are listed on the Civil Engineering web site.](#)