## 2015-2016 Bulletin **Bachelor of Science in Civil Engineering**

To verify whether or not this document applies to you, go to Trailhead, run a Degree Evaluation and take note of which Catalog Term is specified. This document applies to a Catalog Term of Fall 2015.

LEGEND

Required by the CSM Core Curriculum



Distributed Science Courses



Assessed for ABET Accreditation

‡ indicates a course that applies to the in-major GPA. In addition to a 2.0 minimum overall GPA, students must maintain a 2.0 minimum in-major GPA for graduation.

H M A N S

**MATH 111** Calculus for Scientists and Engineers I

**GEGN 101** Earth and Environmental Systems

**CHGN 121** Principles of Chemistry I

**CSM 101** reshman Success Semina

4.0 hr. **LAIS 100** Nature and Human Values **PAGN 101** Physical Education

**MATH 112** Calculus for Scientists and Engineers II Pre-req: C or better in MATH 111

**PHGN 100** Physics I - Mechanics Co-req: MATH 112

**CHGN 122** Principles of Chemistry II Pre-req: C- or better in CHGN 121 **EPIC 151** Design (EPICS) I

**PAGN 102** Physical Education Pre-req: PAGN 101

P H O M O

**MATH 213** Calculus for Scientists and Engineers III Pre-req: C or better in MATH 112

**PHGN 200** Physics II - Electromagnetism & Ontics Pre-req: C- in PHGN 100; Co-req MATH 213

3.0 hr

**CEEN 241** 

Pre-rea: PHGN 100 and co-rea: MATH 112

EGGN 205 (Matlab), CSCI 260

(Fortran), or CSCI 261 (C++)

**CEEN 310** Fluid Mechanics for Civil & Env. Eng.

Co-req: CEEN 241

PAGN 2xx Physical Education Pre-req: PAGN 102

S P

**MATH 201** Pre-reg: MATH 213

**EBGN 201** Principles of Economics

CEEN 311<sup>‡</sup> Pre-reg: CEEN 241

**EPIC 251\*** Pre-reg: EPIC 151

**EGGN 250** Pre-reg: PHGN 200

**LAIS 200** Pre-reg: LAIS 100

PAGN 2xx Pre-reg: PAGN 102

CEEN 331<sup>‡</sup> Civil Engineering Field Session Pre-req: EPIC 251

0 R S P

**MATH 225** Differential Equations Pre-reg: C or better in MATH 112

3.0 hr. CE ELECT

Civil Engineering Elective \*\*\*\*

**MEGN 424** Computer Aided Engineering (CAE) Pre-reg: CEEN 311

**Environmental Engineering** Breadth Elective\* \*\* Pre-rea: CHGN 122. PHGN 100. & MATH 213 **CEEN 314**<sup>‡</sup> Structural Theory Pre-reg: CEEN 311

Structural Design Elective<sup>‡</sup> Pre-req: CEEN 314

CEEN 312<sup>‡</sup> Soil Mechanics

Pre-reg: CEEN 311

CEEN 415<sup>‡</sup> Foundation Engineering Pre-req: CEEN 312

CEEN 312L<sup>‡</sup> Co-req: CEEN 312

3.0 hr.

LAIS/EBGN\*\*\*\* H&SS Restricted Flective I Co-reg: LAIS 200

**FREE** Free Elective Pre-req:

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CE ELECT Civil Engineering Elective \*\*\*\*

Civil Engineering Elective \*\*\*\*

**CE ELECT** 

CE ELECT Civil Engineering Elective \*\*\*\*

> FREE Free Elective

3.0 hr **EGGN 491** Senior Design I

Pre-reg: CEEN 331; Co-reg: CEEN 443 or CEEN 445 or CEEN 440 or CEEN 415

3.0 hr. **EGGN 492** Senior Design II Pre-req: EGGN 491

**MEGN 315** 

3.0 hr.

Dynamics Pre-reg: CEEN 241, MATH 225

**FREE** 

Free Elective

Pre-req:MEL I; Co-Req: CEEN 310 & CEEN 311 3.0 hr.

**FREE** Free Elective

**EGGN 350** 

LAIS/EBGN\*\*\*\*\* H&SS Restricted Elective II Co-reg: LAIS 200

> LAIS/EBGN\*\*\*\* H&SS Restricted Elective III Co-req: LAIS 200

## Notes:

3.0 hr.

- \* You may substitute EPIC 262 (AutoCAD) or EPIC 261 (GIS) or EPIC 267 (Civil Engineering) for EPIC 251. A course substitution form will be required.
- \*\* Select either CEEN 301 ‡(Fundamentals of Environmental Science and Engineering I) or CEEN 302 ‡(Fundamentals of Environmental Science and Engineering II).
- \*\*\* Select either CEEN 443‡ (Design of Steel Structures) or CEEN 445‡ (Design of Reinforced Concrete Structures)
- \*\*\*\* The list of courses that can be used as Civil Engineering Electives is on the reverse side of this document. You may select a maximum of 2 "List B" electives to fulfill this requirement.
- \*\*\*\*\* The list of classes that qualify for this requirement are revised yearly and posted on the CSM website. At least one of the 3 courses must be at the 400-level; at least one must have an LAIS prefix.

135.5 Credit Hours

## **Civil Engineering Electives**

You must take a minimum of 4 electives from this list. Of those 4, at least 2 must be "List A" electives.

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Structural Engineering	Geotechnical Engineering	Water Resources Engineering	Site Civil Engineering	Environmental Engineering	Underground Construct./Tun	Preparation for Grad. Researc		
truc	seote	Vate	ite (	invir	Jnde	Prep	List:	
0,	$\overline{}$		, 	x	_		CEEN 301/2 <sup>‡</sup> A	
				X		х		ENVIRONMENTAL ENGINEERING LABORATORY
				<u> </u>		Х		NUMERICAL METHODS FOR ENGINEERS
х	х							FINITE ELEMENT METHODS FOR ENGINEERS
	х							ADVANCED SOIL MECHANICS
	Х						CEEN 411 <sup>‡</sup> A	SOIL DYNAMICS
			х				CEEN 423 <sup>‡</sup> A	SURVEYING II
Х								ADVANCED STRUCTURAL ANALYSIS
Х							CEEN 440 <sup>‡</sup> A	
х							CEEN 441 A	INTRODUCTION TO THE SEISMIC DESIGN OF STRUCTURES
х							CEEN 443/5 <sup>‡</sup> A	(THE ONE NOT USED FOR THE STRUCTURAL DESIGN ELECTIVE)
				Х			CEEN 470 <sup>‡</sup> A	WATER AND WASTEWATER TREATMENT PROCESSES
				х			CEEN 471 <sup>‡</sup> A	WATER AND WATERWATER TREATMENT SYSTEMS ANALYSIS & DESIGN
				Х			CEEN 472 A	ONSITE WATER RECLAMATION AND REUSE
				х			CEEN 474 A	SOLID WASTE MINIMIZATION AND RECYCLING
				Х			CEEN 475 <sup>‡</sup> A	SITE REMEDIATION ENGINEERING
				х			CEEN 480 A	CHEMICAL FATE AND TRANSPORT IN THE ENVIRONMENT
		X					CEEN 481 A	HYDROLOGIC AND WATER RESOURCES ENGINEERING
		х				Х	CEEN 482 A	HYDROLOGY AND WATER RESOURCES LABORATORY
						Х	EENG 307 <sup>‡</sup> A	INTRODUCTION TO FEEDBACK CONTROL SYSTEMS
						х	MEGN 416 <sup>‡</sup> A	ENGINEERING VIBRATION
	X						MEGN 451 <sup>‡</sup> A	FLUID MECHANICS II
	X				Х			INTRODUCTION TO ROCK MECHANICS
		X			_		CEEN 412 B	UNSATURATED SOIL MECHANICS (note: Course Subst. Form req'd.)
				Х	_		CEEN 476 B	POLLUTION PREVENTION: FUNDAMENTALS AND PRACTICE
X	X	X	Х	Х	Х		CEEN 477 <sup>‡</sup> B	SUSTAINABLE ENGINEERING DESIGN
				Х	_		CEEN 492 B	ENVIRONMENTAL LAW
_	X			_	Х	Ш	GEGN 466 <sup>‡</sup> B	GROUNDWATER ENGINEERING
_	X	_	_	_	X	$\square$	GEGN 468 <sup>‡</sup> B	ENGINEERING GEOLOGY AND GEOTECHNICS
-	X				X	$\vdash \vdash$	GEGN 473 <sup>‡</sup> B	GEOLOGICAL ENGINEERING SITE INVESTIGATION
-					Х		MNGN 404 <sup>‡</sup> B	TUNNELING
-				_	X		MNGN 405 B	ROCK MECHANICS IN MINING
<u>_</u>	X	_			X		MNGN 406 <sup>‡</sup> B	DESIGN AND SUPPORT OF UNDERGROUND EXCAVATIONS
?	?	?	?	?	?	?	CEEN 498 ?	SPECIAL TOPICS COURSES - SEE YOUR ADVISOR FOR DETAILS

## **Individual Plan of Study**

<u>Sem.</u>	<u>Year</u>	Course Name/Number	Cr. Hr.	<u>Grade</u>
			-	
			+	