

**Fall 2017**

**TOTAL Credit Hours = 129**

**≥ C for prerequisites (bold-face items)**

**ONLY 6 cr. for Tech Electives**

<b>FALL SEMESTER</b>			Cr Hours	Grade	<b>SPRING SEMESTER</b>			Cr Hours	Grade
CIE 100	Intro to Civil & Env Eng		1	_____	CIE 101	Civil Eng Graphics	3	_____	
CIE 110	Materials		3	_____	CIE 115	Computing in CE	3	_____	
CIE 111	Materials Lab		1	_____	<b>MAT 127</b>	Calculus II	4	_____	
<b>CHY 131</b>	Chemistry for Engr		3	_____	<b>PHY 121</b>	Engr Physics I	4	_____	
<b>CHY 133</b>	Chemistry Lab		1	_____	_____	HVSC W S C P A <sup>1</sup>	3	_____	
<b>ENG 101</b>	College Comp		3	_____	_____	semester credits	17	_____	
<b>MAT 126</b>	Calculus I		4	_____					
	semester credits		16						
<b>FALL SEMESTER</b>			Cr Hours	Grade	<b>SPRING SEMESTER</b>			Cr Hours	Grade
<b>MAT 228</b>	Calculus III		4	_____	<b>CIE 225</b>	Transportation Engr <sup>2</sup>	3	_____	
<b>MEE 150</b>	Statics		3	_____	ECP 225	CE Tech Writing I	1	_____	
PHY 122	Engineering Physics II		4	_____	<b>MAT 258</b>	Diff Eq & Lin Alg	4	_____	
SVT 102	Surveying Principles		3	_____	<b>MEE 251</b>	Strength of Materials	3	_____	
_____	HVSC W S C P A <sup>1</sup>		3	_____	_____	Approved sci. elective <sup>7</sup>	4	_____	
	semester credits		17		_____	semester credits	15		
<b>FALL SEMESTER</b>			Cr Hours	Grade	<b>SPRING SEMESTER</b>			Cr Hours	Grade
<b>CIE 331</b>	Fund Env Eng		3	_____	<b>CIE 365</b>	Soil Mechanics	3	_____	
<b>CIE 340</b>	Intro Structural Anal		4	_____	<b>CIE 366</b>	Soil Mechanics Lab	1	_____	
<b>CIE 350</b>	Hydraulics		3	_____	STS 332	Statistics for Engr	3	_____	
<b>CIE 351</b>	Hydraulics Lab		1	_____	_____	CIE Elective <sup>3,4</sup>	3 4	_____	
CMJ 103	Fund of Public Comm		3	_____	_____	CIE Elective <sup>3,4</sup>	3 4	_____	
_____	HVSC W S C P A <sup>1</sup>		3	_____	_____	Engr Sci Elect <sup>5</sup>	3	_____	
	semester credits		17		_____	semester credits	16		
<b>FALL SEMESTER</b>			Cr Hours	Grade	<b>SPRING SEMESTER</b>			Cr Hours	Grade
CIE 412	Engineering Decisions <sup>6</sup>		2	_____	CIE 410	Engineering Ethics	1	_____	
CIE 413	Project Mgmt <sup>2,6</sup>		2	_____	CIE 411	Engineering Proj Design	3	_____	
ECP 413	CE Tech Writing II		1	_____	ECP 411	Tech Writing Workshop	1	_____	
_____	CIE Elective <sup>3,4</sup>		3 4	_____	_____	CIE Elective <sup>3,4</sup>	3 4	_____	
_____	CIE Elective <sup>3,4</sup>		3 4	_____	_____	CIE/Tech Elective <sup>3,4</sup>	3	_____	
_____	CIE/Tech Elective <sup>3,4</sup>		3	_____	_____	HVSC W S C P A <sup>1</sup>	3	_____	
_____	HVSC W S C P A <sup>1</sup>		3	_____	_____	semester credits	14	_____	
	semester credits		17						

## EXPLANATION OF REQUIREMENTS

1. Students are assisted by faculty advisors in developing an elective program to meet their individual needs within the University's general education requirements. While most of the general education requirements are automatically met with a civil engineering degree, a student is required to select an additional 15 credit hours of electives to help meet the 18 credit hour "Human Values and Social Context" requirement (**REQUIRED: CMJ 103 satisfies the other three credit hours**).
2. General education requirements mandate two writing intensive courses. CIE 225 and CIE 413 are designated as writing intensive courses within the CIE major, while ECP 411 meets the outside-the-major writing intensive course. **NOTE:** CIE 225 must be taken concurrently with ECP 225 and CIE 413 must be taken concurrently with ECP 413 for CIE 225 and CIE 413 to count as writing intensive courses.
3. Civil Engineering and technical electives must be a minimum of 21 credit hours with no more than two technical elective courses (6 credits maximum). Civil engineering electives are advanced (400 or 500 level) civil engineering courses. The technical elective is an advanced Civil Engineering course or CIE 394 Civil Engineering Practice or other advanced level engineering, science, or mathematics course relevant to Civil Engineering. In addition, ERS 101 Intro to Geology, BIO 100 Basic Biology and CHY 122/124 can be taken as technical electives.
4. An additional requirement of the CIE Electives is that students take a CIE elective course in three of the five civil engineering sub-disciplines: Transportation (CIE 42X), Environmental (CIE 43X), Structural (CIE44X), Water Resources (CIE 45X), and Geotechnical (CIE 46X).
5. Three credits of approved engineering science electives, usually in mechanical or electrical engineering, are required. Civil Engineering courses cannot be used for these three specific credit hours. Typical courses taken are:
 

MEE 230	Thermodynamics I	MEE 270	Dynamics
ECE 209	Fundamentals of Electric Circuits		
6. CIE 413 must be taken in the fall semester immediately preceding CIE 411.
7. Courses satisfying the Approved Science Elective are: BIO 100 Basic Biology, ERS 101 Introduction to Geology, ERS 102 Environmental Geology of Maine, EES 140/141 Soil Science and SMS 302/303 Oceanography

### SPECIAL NOTE:

Sixteen credit hours of engineering design courses are required. Eleven hours are earned in the required courses. At least five additional design hours must be included in the electives selected by the student. The College of Engineering only allows seniors whose "advancement in the field will permit their taking a graduate level course among graduate students without disadvantage to themselves" to take 500-level courses. The design content of CIE electives are as follows:

### **Engineering Science & Design Content of Departmental Electives**

Course No.	*	Engr. Design	Engr. Science	Course No.	*	Engr. Design	Engr. Science
CIE 394		1-3	0	CIE 533	E	0	3
CIE 424	T	2	1	CIE 534	E	0	3
CIE 425	T	1	2	CIE 537	E	0	3
CIE 426	T	3	0	CIE 540	S	0	3
CIE 427	T	1	0	CIE 543	S	2	1
CIE 430	E	3	1	CIE 544	S	4	0
CIE 431	E	3	0	CIE 545	S	0	3
CIE 432	E	3	0	CIE 547	S	3	0
CIE 434	E	4	0	CIE 548	S	3	0
CIE 439	E	0	3	CIE 549	S	0	3
CIE 440	S	0	4	CIE 556	W	1	2
CIE 442	S	4	0	CIE 562	G	3	0
CIE 443	S	4	0	CIE 563	G	1	1
CIE 450	W	1	2	CIE 564	G	3	0
CIE 455	W	1	2	CIE 565	G	3	0
CIE 456	W	1	2	CIE 566	G	3	0
CIE 460	G	3	0	CIE 567	G	3	0
CIE 480		0	3				

- T = transportation; E = environmental; W = water resources; S = structures; G = geotechnical

## University of Maine Courses Meeting CIE Technical Elective Requirements

### *<sup>1</sup>Biochemistry, Microbiology & Molecular Biology*

BMB 322 Biochemistry

### *<sup>1</sup>Biological Engineering*

BLE 462 Power Transmission and Control

### *Biology*

BIO 100 Basic Biology

BIO 200 Biology of Organisms

BIO 222 Biology: The Living Science

BIO 319 General Ecology

BIO 468 Limnology

### *<sup>1</sup>Chemical Engineering*

CHE 420 Colloid Technology

CHE 480 Pollution Prevention in Industrial Ecology

### *Chemistry*

CHY 122 The Molecular Basis of Chemical Changes

CHY 242 Principles of Quantitative Analysis and Solution Equilibria

CHY 251 Organic Chemistry I

CHY 252 Organic Chemistry II

CHY 443 Instrumental Analysis

CHY 471 Physical Chemistry I

CHY 472 Physical Chemistry II

### *<sup>1</sup>Civil & Environmental Engineering*

CIE 394/498/598 courses

### *Computer Science*

COS 215 Introduction to Computing Using FORTRAN

COS 220 Introduction to C++ Programming

COS 221 Advanced C++ Programming

### *Construction Management*

CET 360 Construction Estimating and Bidding

CET 412 Sustainable Population and Environmental Design and Construction

CET 462 Construction Planning and Scheduling

### *Earth Science*

ERS 101 Introduction to Geology

ERS 102 Environmental Geology of Maine

ERS 210 Geology Applied to Engineering

ERS 315 Principles of Sedimentology and Stratigraphy

ERS 316 Structural Geology

ERS 317 Introduction to Geophysics

ERS 369 Energy Resources and Climate Change

ERS 420 Computation in Earth Science

ERS 441 Glaciers and Our Landscape

ERS 461 Fluvial Processes in Geomorphology

### *Ecology and Environmental Science*

EES 418 Environmental Assessment and Management Techniques

EES 450 Principles of Environmental Science

### *Economics*

ECO 341 Waste Management

ECO 366 Applied Data Analysis for Resource Economics and Policy

ECO 377 Introduction to Natural Resource Economics and Policy

ECO 381 Sustainable Development Principles and Policy

ECO 405 Sustainable Energy Economics & Policy

ECO 473 Economic and Policy Applications of GIS  
ECO 477 Economics of Environmental and Resource Management  
ECO 479 Land Use Planning

*<sup>1</sup>Electrical and Computer Engineering*

ECE 209 Fundamentals of Electrical Circuits

*Electrical Engineering Technology*

EET 321 Electro-Mechanical Energy Conversion  
EET 323 Power Systems Analysis  
EET 460 Renewable Energy and Electricity Production

*Global Positioning Systems*

400 level courses

*Information Systems Engineering*

ISE 303 Human-Computer Interaction  
ISE 304 Digital Image Processing  
ISE 305 Digital Video Analysis  
ISE 403 Spatial Database Systems  
ISE 404 Time in Information Systems Design

*Marine Sciences*

SMS 302 Oceanography  
SMS 402 Oceans and Climate Change

*Mathematics*

MAT 400 Topics in Mathematics  
MAT 453 Partial Differential Equations I  
MAT 471 Differential Geometry

*<sup>1</sup>Mechanical Engineering*

MEE 230 Thermodynamics I  
MEE 270 Applied Mechanics: Dynamics

*Plant, Soil & Environmental Science*

PSE 140 Soil Science  
PSE 344 Soil and Water Quality: Human Impacts on the Environment  
PSE 413 Wetland Delineation and Mapping  
PSE 423 Wetland Ecology and Conservation

*School of Forestry Resources*

SFR 400 Applied Geographic Information Systems  
SFR 454 Wood Composites  
SFR 455 Bioenergy Sources, Systems and Environmental Effects  
SFR 482 Industrial Ecology and Life Cycle Assessment

*Surveying Engineering Technology*

SVT 329 Site Planning and Subdivision Design  
SVT 331 Photogrammetry  
SVT 341 Advanced Surveying  
SVT 437 Practical GPS

*Wildlife Ecology*

WLE 423 Wetland Ecology and Conservation

Notes:

<sup>1</sup> 300/400/500 level courses in CIE, other engineering disciplines, and math and sciences are typically accepted. Refer to advisor for approval of courses in other engineering disciplines designated as 498 or 598.

<sup>2</sup> Refer courses (including those for the Renewable Energy Minor) not listed to advisor for approval.

Updated 27 May 2016