

**Table 1 Core curriculum linkages to program outcomes**

Semester	Outcomes	a	b	c	d	e	f	g	h	i	j	k	
	Course												
Freshmen Fall	Eng 100							3	2			2	
	Math 241	3										2	
	Chem 161 & 161L	3	2									1	
	FG Global and Multicultural Perspectives								3				
Freshmen Spring	Math 242	3										2	
	Phys 170 & 170L	3	3									2	
	Chem 162	3										1	
	EE 160 or ICS 111	3		1					1			3	
Sophomore Fall	CEE 270	3				3	1		1	1	1	3	
	Math 243	3										2	
	Phys 272 & 272L	3	3	1								2	
	FG Global and Multicultural Perspectives								3				
	DH Hum. Div. Req. or DL Lit. Div. Req.								3				
Sophomore Spring	CEE 271	3				2	1						
	Math 244	3										2	
	CEE 370 & 370L	2	3	1	1	3	1	3		1	1	1	
	Biological science elective	3							3				
	Sp 251							3	2				
Junior Fall	CEE 305	3	1	1		2	1		1		1	1	
	CEE 320	3	3		2	2	1	3		1	1		
	CEE 361	1					1	1	2	1	3	1	
	DS Social Sci. Div. Req. Econ. Elect.								3				
	Math Elect - ME403,GG312,Math302/307	3										2	
Junior Spring	CEE 330	3	2	1	1	2	1	1	2		2	3	
	CEE 355	3	3		3	2		2	1	1	1	2	
	CEE 375	1	3	2	1	1	1	2	1	2	2	2	
	CEE 381	3				2				1		2	
	DS Social Science Div. Req.								3				
Senior Fall	CEE 461, CEE 462 or CEE 464	3 1 2	1 1 1	2	1 2 3	3 1 1	1 1 1	1 3 2	1 3 3	1 3 3	1 1 1	1 1 1	2 1 2
	CEE 472, CEE 473 or CEE 474	1 1 1		1	1 1 2	1 1 2	1 1 2	1 1 2	1 1 2	1 1 2	1 1 2	1 1 2	
	Technical Elective <sup>2</sup>	See below											
	Technical Elective <sup>2</sup>	See below											
	CEE 489B	1			1	1	1				1		2
	CEE 489C						3		1	1	1		
	Senior Spring	CEE 421 or CEE 431	3 3	2 2	3 2	1	3 3	2	1	2 2	2 2	1 2	3 3
		CEE 455	3	1	2		3	1		1	1		3
CEE 490		3		3	3	3		3	3	2	3	3	
Technical Elective <sup>2</sup>		See below											
Technical Elective <sup>2</sup>		See below											
<b>PROGRAM OUTCOME SUM TOTAL<sup>3</sup></b>		<b>70</b>	<b>25</b>	<b>14</b>	<b>13</b>	<b>30</b>	<b>15</b>	<b>21</b>	<b>39</b>	<b>17</b>	<b>18</b>	<b>48</b>	

Notes:

1. “blank” = no emphasis; 1 = some emphasis; 2 = moderate emphasis; 3 = significant emphasis
2. A list of technical electives and their curriculum linkages to program outcomes are provided below.
3. When calculating the program outcome sum total, the columns are summed using the lowest possible weighting scale if students have a choice among courses (e.g., for outcome *a*, CEE 462 has the lowest weighting scale among the CEE 46X courses. It is used to compute the sum.)

**Technical Electives**

Course \ Outcomes	<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>j</i>	<i>k</i>
CEE 424	3	3	2	2	3	2	2	2	2	2	3
CEE 432	3	2	1	1	3	1	2		1	1	3
CEE 471	1				1	1		1	1	1	
CEE 476	1		2		1	1		2	2	2	2
CEE 482	3				2				1		2
CEE 485	3	3	2	2	3	1	2	1	2	2	2
CEE 486	3		3		3	1	1	1	2	2	2
CEE 491 <sup>a</sup>	1		3	3	2	1	3	3	2	2	2
CEE 491 <sup>b</sup>				2			3	2		1	3

- a. Sustainable Construction
- b. Policy and Infrastructure

**Table 2 Mapping of program educational objectives, outcomes and assessment methods**

PROGRAM EDUCATIONAL OBJECTIVES	PROGRAM OUTCOMES (ABBREVIATED FORM OF <i>a</i> THROUGH <i>k</i> )	Exit Surveys	F.E. Exam	Senior Design Project
1, 3, 4	<i>a.</i> math, science & engineering	✓	✓	
1, 3, 4	<i>b.</i> design & conduct experiments	✓		
1, 3, 4	<i>c.</i> design system, component, process	✓		✓
1, 3, 4	<i>d.</i> function on multi-disciplinary teams	✓		✓
1, 3, 4	<i>e.</i> identify, formulate & solve eng. problems	✓		
1, 2, 3, 4	<i>f.</i> professional & ethical responsibility	✓	✓	
1, 3, 4	<i>g.</i> communicate effectively	✓		✓
1, 3, 4	<i>h.</i> understand impact in global & societal context	✓		
1	<i>i.</i> life-long learning	✓		
1	<i>j.</i> knowledge of contemporary issues	✓		
1, 3, 4	<i>k.</i> use techniques, skills and tools for eng. practice	✓	✓	

**Table 3 Mapping of program educational objectives, outcomes and assessment methods**

OUTCOME COORDINATOR	PROGRAM OUTCOMES (ABBREVIATED FORM OF a THROUGH k)	Performance Appraisal	F.E. Exam	Senior Design Projects
Kim	<i>a.</i> math, science & engineering	361 Archilla 381 Ma	Ray	
Teng	<i>b.</i> design & conduct experiments	320 Francis 375 Shen		
Yan	<i>c.</i> design system, component, process	485 Robertson		490 Babcock
Babcock	<i>d.</i> function on multi-disciplinary teams	444 Prevedouros 490 Babcock		
Robertson	<i>e.</i> identify, formulate & solve eng. Problems	305 Singh 485 Robertson		
Grace	<i>f.</i> professional & ethical responsibility	489C Babcock	Ray	
Ma	<i>g.</i> communicate effectively	462 Prevedouros 489C Babcock 490 Babcock		
Papacostas	<i>h.</i> understand impact in global & societal context	431 Yan 464 Papacostas		
Brandes	<i>i.</i> life-long learning	421 Teng 462 Prevedouros		
Nicholson	<i>j.</i> knowledge of contemporary issues	431 Yan 444 Prevedouros		
Ooi	<i>k.</i> use techniques, skills and tools for eng. Practice	381/482 Ma 455 Brandes/Nicholson/Ooi	Ray	

**Table 4 Six-year cycle of assessment and evaluation activity**

Activities	2009-2010 (2012-2013)			2010-2011 (2013-2014)			2011-2012 (2014-2015)		
	a. math, science & engineering - PA(CEE 361, 381), FE	b. design & conduct experiment - PA(CEE 320, 375)	c. design system, component, process - PA(CEE 485), DP	a. math, science & engineering - PA(CEE 361, 381), FE	b. design & conduct experiment - PA(CEE 320, 375)	c. design system, component, process - PA(CEE 485), DP	a. math, science & engineering - PA(CEE 361, 381), FE	b. design & conduct experiment - PA(CEE 320, 375)	c. design system, component, process - PA(CEE 485), DP
Review of performance criteria defining that outcome		•			•		•		
Lessons learnt from performance criteria			•			•			
Review mapping and identify where data will be collected			•		•		•		
Develop or review assessment methods			•		•		•		
Collect and analyze data	•			•		•			
Evaluate assessment data including processes		•			•		•		
Report findings		•			•		•		
Take action where necessary		•			•		•		

- Notes
1. PA = performance appraisal
  2. FE = fundamentals of engineering exam
  3. DP = Senior Design Project

