I	Introduced
D	Developed
A	Applied

Terms	Course Number	Course Name	**1.Knowledge Base**	**1a.** Demonstrate understanding of concepts in mathematics	**1b.** Demonstrate understanding of concepts in natural science	**1c.** Demonstrate understanding of engineering fundamentals	**1d.** Demonstrate understanding of specialized engineering knowledge	**2. Problem Analysis**	**2a.** Formulate a problem statement	**2b.** Develop models to solve engineering problems including identifying approximations, assumptions and constraints	**2c.** Critically evaluate solutions of engineering problems	**3. Investigation**	**3a.** Create investigative studies of complex engineering problems	**3b.** Gather information from relevant sources to address complex engineering problems	**3c.** Synthesize information from multiple sources to reach to reach valid conclusions	**4. Design**	**4a.** Define design requirements and specifications for complex, open-ended engineering problems	**4b.** Critically evaluate and compare design choices	**4c.** Generate and refine potential solutions to complex, open-ended design problems	**5. Use of Engineering Tools**	**5a.** Select appropriate engineering tools, considering their limitations	**5b.** Modify and/or create appropriate engineering tools, identifying their limitations	**5c.** Use engineering tools appropriately	**6. Individual and Team Work**	**6a.** Contribute as an active team member or leader to complete individual tasks	**6b.** Collaborate with others to complete tasks effectively as a team	**7. Communication Skills**	**7a.** Orally present information within the profession and to society at large	**7b.** Communicate in a written format within the profession and to society at large	**7c.** Interpret information, including instructions	**8. Professionalism**	**8a.** Articulate the roles and responsibilities of the professional engineer in society with reference to the protection of the public and its interest	**8b.** Describe the importance of codes, standards, best practices, laws, and regulations within engineering	**9. Impact of Engineering**	**9a.** Identify the relevance of and uncertainty associated with the different aspects (social, cultural, economic, health, safety, legal, environmental), of an engineering project	**9b.** Analyze the social, health, safety, and environmental aspects of an engineering project, incorporating sustainability considerations and environmental stewardship in making decisions	**10. Ethics & Equity**	**10a.** Identify ethical and unethical behavior in professional situations	**10b.** Identify how an engineer is accountable to multiple stakeholders in engineering practice	**10c.** Identify equitable and inequitable situations or behaviors	**11. Economics & Project Management**	**11a.** Apply project management techniques and other business practices in engineering projects, with attention to risk and change	**11b.** Perform economic analyses of engineering projects with attention to uncertainty and limitations	**12. Life-long Learning**	**12a.** Identify gaps in their knowledge, skills and abilities	**12b.** Obtain and evaluate information or training from appropriate sources	**12c.** Reflect on the use of information or training received
1A	AE 100	Concepts Studio																								I						I																
	AE 101	History of the Built Environment				I	I																							I	I																	I
	AE 104	Mechanics 1			I																	I			I															I			I				
	AE 115	Linear Algebra		I					I						I							I																				I						
	CHE 102	Chemistry for Engineers			I					I																															I	I						
	MATH 116	Calculus 1 for Engineering		I					I						I							I																										
1B	AE 105	Mechanics 2			I	D																I			I																							
	AE 121	Computational Methods		D		I								I									I																									
	AE 123	Electrical Circuits and Instrumentation				I				I			I												I																							
	AE 125	Structural Design Studio																I		I											I														I			
	MATH 118	Calculus 2 for Engineering		D					I							I																															
2A	AE 200	Enclosure Design Studio																	I							D																				I		D		
	AE 204	Solid Mechanics 1				D												D		D		D				D																			I			
	AE 221	Advanced Calculus		D					I	I																																					
	AE 224	Probability and Statistics		D		I			D				D																																			I
	AE 280	Fluid Mechanics and Thermal Sciences			I	D	I																	D																							
	ENGL 191	Communication in the Engineering Profession																												D	D	D															
2B	AE 205	Solid Mechanics 2				D			D	D						D				D																												
	AE 223	Differential Equations and Balance Laws		D					I	I						D																															
	AE 225	Environmental Building Systems Studio																D		D							D																						
	AE 265	Structure and Properties of Materials												D	D										D			I																				
	CSE 3 or TE1	Complementary Studies Elective or Technical Elective																																													
	WKRPT 200	Work-term Report																														I															
3A	AE 279	Energy and the Environment			D	D				D																																					
	AE 300	Architectural Engineering Studio 1																D																														
	AE 303	Structural Analysis		A			D		D	D	D																																			
	AE 353	Soil Mechanics and Foundations			D	D				I	I																																				
	AE 377	Structural Timber Design			A		A																																							
	WKRPT 300	Work-term Report																														D															
3B	AE 310	Introduction to Structural Design				A				D	D												A														D										
	AE 325	Architectural Engineering Studio 2												A				A							A		A																	D		A		
	AE 392	Economics and Life Cycle Analysis											D																							D											A		
	CIVE 507	Building Science and Technology							A	A	A											A																A										
	CSE 3 or TE 1	Complementary Studies Elective or Technical Elective																																													
	WKRPT 400	Work-term Report																																													
4A	AE 400	Project Studio 1											A			A			A								A															A				A			
	AE 491	Engineering Law and Ethics																																	A	A									A	A	A			
	TE 2	Technical Elective																																													
	TE 3	Technical Elective																																													
	TE 4	Technical Elective																																													
4B	AE 425	Project Studio 2																		A											A	A	A							A							A
	CSE 6	Complementary Studies Elective																																													
	TE 5	Technical Elective																																													
	TE 6	Technical Elective																																													
	TE 7	Technical Elective																																													
	TE 8	Technical Elective																																													

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Technical Electives																																																	
List A - Architectural Engineering Technical Electives																																																	
W	AE 301	Building Enclosure Systems																																															
W	AE 315	Building Structural Systems					A												D												D												D			
S	AE 405	Building Performance Measurement Lab																											A	A	A												A			
S	AE 450	Building Service Systems					A														A												A		A									A			
F,W,S	AE 495	Design Intensive Special Topics in Architectural Engineering																																														
F,S	AE 572	Building Energy Analysis					D			D	D							D	D				D												D												
W	AE 573	HVAC Systems, Equipment, and Energy Efficiency				D	D			D	D							D													D				D												
F,W,S	ARCH 570	Special Topics in Building Technology and Environmental					A												A							A					A		A	A	A												
W	ME 452	HVAC Load Analysis and Design Fundamentals					A			D	D			D	D		D	D	D		A		A					A				D	A		D	A		D	D	D					A			
List B - Engineering Design Intensive Technical Electives																																															
S	ARCH 463	Integrated Environmental Systems																																														
S	CIVE 413	Structural Steel Design					A				A												A								A				A												
S	CIVE 414	Structural Concrete Design					A				A															A								A												
W	CIVE 415	Structural System Design					A										A														A				A									A			
W	CIVE 460	Engineering Biomechanics				D									A															A	A						D	D								
F,W,S	CIVE 495	Design Intensive Special Topics in Civil Engineering				A				A				A					A																A												
W	CIVE 512	Rehabilitation of Structures					A											A																	A									A			
S	CIVE 596	Construction Engineering								A									A																									A	A			
List C - Engineering Technical Electives																																																
F,W,S	AE 497	Special Topics in Architectural Engineering																																														
W	CIVE 422	Finite Element Analysis																																															
S	CIVE 484	Physical Infrastructure Planning																											A	A			A	A			A										
F,W,S	CIVE 497	Special Topics in Civil Engineering																																														
S	CIVE 505	Structural Dynamics					A			A												A																							A			
List D - Natural Science Technical Electives																																																
F,W	BIOL 130	Introductory Cell Biology																																														
F	BIOL 150	Organismal and Evolutionary Ecology																																														
F,W,S	BIOL 240	Fundamentals of Microbiology			D										D																												D	D	D	
F,W,S	BIOL 273	Principles of Human Physiology 1																																													
W,S	CHE 161	Engineering Biology				I																													I		I							I	I		
F	CHEM 209	Introductory Spectroscopy and Structure																																														
F,W	CHEM 262	Organic Chemistry for Engineering			D	D				D																																		D	D		
W,S	EARTH 221	Introductory Geochemistry																																														
W	EARTH 270	Disasters and Natural Hazards																																														
W	EARTH 281	Geological Impacts on Human Health																																														
F,W,S	ENVS 200	Field Ecology																																														
W	KIN 100	Regional Human Anatomy			I																									I	I	I														I
W	KIN 100L	Regional Human Anatomy Laboratory																																														
W	SCI 207	Physics, the Universe, and Everything																																														
F,W,S	SCI 238	Introductory Astronomy																																														