Academic Assessment Plan

Master of Science in Civil Engineering (MSCE)

Program Options

Thesis Option	Coursework Option
• 24 semester credit hours[1] – graduate-level coursework • 6 semester credit hours[1] – MS Thesis • Successful completion of MS Thesis [1]*semester credit hours shown represent program minimums*	• 36 semester credit hours[1] – graduate-level coursework • Successful completion of a culminating design effort [1]*semester credit hours shown represent program minimums*

Program Goals	
	1. Prepare students to pursue careers in the broad field of civil engineering.
	2. Prepare students to demonstrate advanced technical knowledge related to civil engineering.

Student Learning Outcomes (SLO)

Outcome	Assessment Instrument[a]	Level of Achievement

Apply knowledge of mathematics, science, and engineering to **solve** advanced-level engineering problems in civil engineering.	**Direct Measures**
	1. (Coursework Option) Grade on exam question drawn from coursework (*Included in Student Academic Portfolio*)
	2. (Coursework Option) Grade on Comprehensive Exam question.
	3. (Thesis Option) Student's Graduate Committee Assessment of Abilities (AA) score
	Indirect Measure
	1. Student self-reported assessment of ability
		Direct Measures
		80% of students receive:
		  ≥ 80% of points possible..or..
		  ≥ 4.0 (on a 5-pt scale)
		
		Indirect Measure
		Average student response ≥ 4.0 on 5-pt scale

Locate and **evaluate** pertinent published literature relevant to a given topic, and **apply** the information gained to a design, analysis, or research effort.	**Direct Measures**
	1. (Coursework Option) Assessment of course-related assignment with a literature review
	Included in Student Academic Portfolio
	2. (Thesis Option) Student's Graduate Committee Assessment of Abilities (AA) score
	Indirect Measure
	1. Student self-reported assessment of ability
		Direct Measures
		80% of students receive:
		  ≥ 80% of points possible..or..
		  ≥ 4.0 (on a 5-pt scale)
		
		Indirect Measure
		Average student response ≥ 4.0 on 5-pt scale

[a]*Assessment is based on student work presented in either: (a) Student Academic Portfolio (Coursework Option) or MS Thesis (Thesis Option); the Student's Graduate Committee will compile and report assessment results using the Assessment of Abilities rubric.*

Academic Assessment Plan

Master of Science in Civil Engineering (MSCE)

Student Learning Outcomes (SLO) - continued

Outcome	Assessment Instrument[a]	Level of Achievement

Organize and **deliver** effective communications.	**Direct Measure**
	 1. **(Coursework Option)** Grade on course-related paper or presentation *(Included in Student Academic Portfolio)*
	 2. **(Thesis Option)** Student's Graduate Committee Assessment of Abilities (AA) score
	
	 Indirect Measure
	 1. Student self-reported assessment of ability
		Direct Measures
		 80% of students receive:
		   ≥ 80% of points possible..or..
		   ≥ 4.0 (on a 5-pt scale)
		
		 Indirect Measure
		 Average student response ≥ 4.0 on 5-pt scale

Design a system, component, or process to meet desired needs.	**Direct Measure**
	 1. **(Coursework Option)** Grade on exam question, assignment, or project drawn from coursework
	 Included in Student Academic Portfolio
	 2. **(Coursework Option)** Grade on Comprehensive Exam question.
	 3. **(Thesis Option)** Student's Graduate Committee Assessment of Abilities (AA) score
	
	 Indirect Measure
	 1. Student self-reported assessment of ability
		Direct Measures
		 80% of students receive:
		   ≥ 80% of points possible..or..
		   ≥ 4.0 (on a 5-pt scale)
		
		 Indirect Measure
		 Average student response ≥ 4.0 on 5-pt scale

Design and **conduct** experiments, and **analyze** and **evaluate** the resulting data.	**Direct Measure**
	 1. **(Coursework Option)** Grade on exam question, assignment, or project drawn from coursework
	 Included in Student Academic Portfolio
	 2. **(Coursework Option)** Grade on Comprehensive Exam question.
	 3. **(Thesis Option)** Student's Graduate Committee Assessment of Abilities (AA) score
	
	 Indirect Measure
	 1. Student self-reported assessment of ability
		Direct Measures
		 80% of students receive:
		   ≥ 80% of points possible..or..
		   ≥ 4.0 (on a 5-pt scale)
		
		 Indirect Measure
		 Average student response ≥ 4.0 on 5-pt scale

[a]*Assessment is based on student work presented in either: (a) Student Academic Portfolio (Coursework Option) or MS Thesis (Thesis Option); the Student's Graduate Committee will compile and report assessment results using the Assessment of Abilities rubric.*

MSCE Timelines		
Timing	**Program Option**	**Activity**
End of Student's 1st Semester	ALL	Student's Graduate Committee Created
Annually - June 30	ALL	Graduate School Form: *Academic Progress Report* submitted
Mid-Point of Student's Last Semester	Coursework	Student submits *Student Academic Portfolio* to Adviser and Committee
End of Student's Last Semester	ALL	Student's Graduate Committee completes Assessment of Abilities rubric
	ALL	Student completes self-reported assessment of abilities survey
	Coursework	Student completes Comprehensive Examination with Graduate Committee
	Thesis	Student defends MS Thesis (oral examination) to Graduate Committee
Overall MSCE Program Assessment		
Annually – August	ALL	Faculty review all direct and indirect measures for previous academic year; consider actions stemming from review.

Student's 1st Semester	(intervening semesters)	Student's Last Semester	
Graduate Committee Created ↑	Adviser meets with Student; submits Academic Progress Report to Graduate School *(due June 30, annually)* ↑	Student submits *Student Academic Portfolio* **(Coursework Only Option)** ↑	↑
	Student's Graduate Committee completes Assessment of Abilities rubric		
	Student defends MS Thesis (oral examination) to Graduate Committee		
	Student completes Comprehensive Examination with Graduate Committee		
	Student completes self-reported assessment of abilities survey		

Assessment of Abilities						
Master of Science in Civil Engineering (MSCE)						
Thesis Option						
Name:		**Student I.D.:**			**Semester:**	
Graduate Committee:	**Chair/Adviser**					
	Member 1					
	Member 2					
	Member 3					
Outcome	**Assessment of Abilities Score (1-5 scale)**					
	Chair	**Member 1**	**Member 2**	**Member 3**	**Average**	
Apply knowledge of mathematics, science, and engineering to **solve** advanced-level engineering problems in civil engineering.						
Comments:						
Locate and **evaluate** pertinent published literature relevant to a given topic, and **apply** the information gained to a design, analysis, or research effort.						
Comments:						
Organize and **deliver** effective communications.						
Comments:						
Design a system, component, or process to meet desired needs.						
Comments:						
Design and **conduct** experiments, and **analyze** and **evaluate** the resulting data.						
Comments:						

Assessment of Abilities					
Master of Science in Civil Engineering (MSCE)					
Thesis Option					
Rubric Scoring Guide					
Outcome	**1**	**2**	**3**	**4**	**5**
Apply knowledge of mathematics, science, and engineering to **solve** advanced-level engineering problems in civil engineering.	*Solutions contain numerous errors and show no creativity or innovation*	*Solutions contain errors and show little creativity or innovation*	*Solutions mostly correct but show little creativity or innovation*	*Solutions correct and show some creativity and/or innovation*	*Correct solutions which exhibit a high degree of creativity and/or innovation*
Locate and **evaluate** pertinent published literature relevant to a given topic, and **apply** the information gained to a design, analysis, or research effort.	*Review is incomplete, poorly evaluated, and misapplied*	*Review is fairly complete, minimally evaluated, and fairly applied*	*Review is substantially complete, adequately evaluated, and adequately applied*	*Review is complete, well evaluated, and well applied*	*Review is complete, excellently evaluated, and excellently applied*
Organize and **deliver** effective communications.	*Written and verbal work is poorly organized and poorly delivered*	*Written and verbal work is organized, but poorly delivered*	*Written and verbal work is organized and adequately delivered*	*Written and verbal work is well organized and well delivered*	*Written and verbal work is well organized and excellently delivered*
Design a system, component, or process to meet desired needs.	*Designs of inferior quality; cannot be used without major modification*	*Designs of poor quality; should not be used without substantial modification*	*Designs of average quality; should not be used without modification*	*Designs of good quality; may be used with only minor modifications*	*Designs of excellent quality; may be used without modification*
Design and **conduct** experiments, and **analyze** and **evaluate** the resulting data.	*Design is missing; experiments conducted with significant errors; data analysis is superficial; evaluation of results is incomplete*	*Design is incomplete; experiments conducted with errors – but errors are noted; data analysis is superficial; evaluation of results is superficial*	*Design is adequate; experiments conducted correctly; data analysis complete; results evaluated adequately*	*Design is appropriate; experiments conducted correctly; data analysis and evaluation of results are well done*	*Design is innovative; experiments conducted flawlessly; data analysis and evaluation of results are conducted excellently*

Assessment of Abilities				
Master of Science in Civil Engineering (MSCE)				
Non-Thesis Option				

Name:		Student I.D.:		Semester:	

Graduate Committee:	Chair/Adviser	
	Member 1	
	Member 2	
	Member 3	

Outcome	Assessment of Student Academic Portfolio			
	Class / Final Exam	Assignment / Question	Points Possible	Points Earned
Apply knowledge of mathematics, science, and engineering to **solve** advanced-level engineering problems in civil engineering.				
Comments:				
Locate and **evaluate** pertinent published literature relevant to a given topic, and **apply** the information gained to a design, analysis, or research effort.				
Comments:				
Organize and **deliver** effective communications.				
Comments:				
Design a system, component, or process to meet desired needs.				
Comments:				
Design and **conduct** experiments, and **analyze** and **evaluate** the resulting data.				
Comments:				