

Academic Assessment Report
MS / Industrial Engineering
Jun 1, 2016

Program Goals

1. Prepare students for significant applications of and contributions to Industrial Engineering beyond graduation.
2. Produce projects and theses which meet high academic standards and constitute significant applications of and contributions to Industrial Engineering.

Student Learning Outcomes (SLO)

1. Students will make satisfactory progress toward the degree, preparing to write a thesis which meets high academic standards and constitutes a significant contribution to Industrial Engineering.
2. Thesis students will be prepared to write a thesis which meets high academic standards and constitutes a significant contribution to Industrial Engineering.
3. Thesis students will write a thesis which meets high academic standards and constitutes a significant contribution to Industrial Engineering.
4. Project students will present a project which meets high academic standards and constitutes a significant application of Industrial Engineering.
5. Coursework students will demonstrate achievement of select course outcomes.
6. Students will be able to communicate effectively.

Assessment Process

1. Timeline
 - a) Annual Graduate Student Academic Reviews submitted to the Graduate School by June 30
 - b) Thesis students present a master's thesis proposal approximately one semester before graduation.
 - c) Thesis students submit a master's thesis and defend it in the Comprehensive Exam.
 - d) Project students present a master's project in the Comprehensive Exam.
 - e) Coursework students answer questions related to select course outcomes in the Comprehensive Exam.
 - f) Assessment results and analysis presented at August faculty "retreat" to stimulate discussion about any program (or assessment process) changes
2. Means of assessment
 - a) SLO1 assessed annually (indirect and direct)
 - Cumulative GPA (desired level of achievement ≥ 3.0)
 - Annual Graduate Student Academic Review by graduate coordinator in consultation with student advisor (desired level of achievement is "satisfactory")
 - b) SLO2 assessed with master's thesis proposal
 - Student self-assessment of preparation to write a thesis with respect to **Comprehension** (understanding literature), **Application** (problem solving),

Analysis and Synthesis (support for generalizations, alternative solutions), and **Evaluation** (validity)

- Thesis Committee members assessment of preparation to write a thesis...
 - c) SLO3 assessed with master's thesis defense (Comprehensive Exam)
 - Student self-assessment of having written a thesis which meets high academic standards and constitutes a significant contribution to Industrial Engineering with respect to...
 - Thesis Committee members assessment of having written a thesis...
 - d) SLO4 assessed with master's project presentation (Comprehensive Exam)
 - Student self-assessment of having presented a project which meets high academic standards and constitutes a significant application of Industrial Engineering
 - Advisory Committee assessment of having presented a project...
 - e) SLO5 assessed with master's coursework exam (Comprehensive Exam)
 - Student self-assessment of having achieved select course outcomes, on a scale from 1 (strongly disagree) to 5 (strongly agree)
 - Advisory committee members assessment of having achieved select course outcomes, on a scale from 1 (strongly disagree) to 5 (strongly agree)
 - f) SLO6 assessed with master's thesis proposal and Comprehensive Exam (master's thesis defense, master's project presentation, master's coursework exam)
 - Student self-assessment of effective communication
 - Committee members assessment of effective communication
3. Reported annually to the Dean: Assessment results and analysis, and any consequential program or assessment process changes

Assessment Results

1. Annual Graduate Student Academic Reviews
 - a) Academic Warning letters received from the Graduate School after spring 2015: **0**
 - b) Academic Warning letters received from the Graduate School after fall 2015: **1**
2. Master's Thesis Proposal

The student is prepared to write a thesis based on...

Comprehension	Student	Committee Chair	Committee Member
5	1	1	2
4	1		
3		1	2
2			
1			

Application	Student	Committee Chair	Committee Member
5	1		1
4	1	1	2
3		1	1
2			
1			

Analysis & Synthesis	Student	Committee Chair	Committee Member
5			1
4		1	1
3		1	1
2	1		1
1			
N/A	1		

Evaluation	Student	Committee Chair	Committee Member
5			
4		1	2
3		1	2
2	1		
1			
N/A	1		

3. Master's Thesis Defense

The student has written a thesis based on...

Comprehension	Student	Committee Chair	Committee Member
5	2	4	6
4	1	2	2
3			1
2			
1	1		

Application	Student	Committee Chair	Committee Member
5	2	4	4
4	1	2	5
3			
2			
1	1		

Analysis & Synthesis	Student	Committee Chair	Committee Member
5	2	4	4
4	1	1	3
3		1	2
2			
1	1		

Evaluation	Student	Committee Chair	Committee Member
5	1	3	
4	1	2	8
3		1	1
2			
1	1		
N/A	1		

4. Master's Project Presentation

The student has presented a project based on...

Comprehension	Student	Committee Chair	Committee Member
5		2	
4			1
3			
2			
1			

Application	Student	Committee Chair	Committee Member
5		1	
4		1	1
3			
2			
1			

Analysis & Synthesis	Student	Committee Chair	Committee Member
5			
4			1
3		1	
2			
1			
N/A		1	

Evaluation	Student	Committee Chair	Committee Member
5		1	1
4			
3		1	
2			
1			

5. Master's Coursework Exam

The student has achieved select course outcomes.

	Student	Committee Chair	Committee Member
5		2	2
4	1	1	5
3		1	2
2		1	2
1			

6. Effective Communication

The student has demonstrated effective communication skills.

	Student	Committee Chair	Committee Member
5	3	8	10
4	3	4	11
3	1	1	2
2			2
1			
N/A	1		

Summary (unweighted mean of medians)

	Master's Thesis Proposal	Master's Thesis Defense	Master's Project Presentation
Comprehension	4.16	4.83	4.50
Application	4.00	4.50	4.25
Analysis & Synthesis	3.00	4.50	3.50
Evaluation	3.00	4.17	4.50

Master's Coursework Exam	The student has achieved select course outcomes	4.00
Effective Communication	The student has demonstrated effective communication skills	4.33

Consequential Program Changes

Faculty will discuss consequential program changes at August “retreat.” Note consistent improvement from Master's Thesis Proposal to Defense, while evaluation and validation remains a relative weakness among thesis students. Relative weakness among project students relates to generation of alternative solutions.

Assessment Process Changes

Faculty will discuss consequential assessment process changes at August “retreat.” Discussion may focus on how to increase faculty and student participation.

Academic Assessment Report
PhD / Industrial Engineering
Jun 1, 2016

Program Goals

1. Prepare students for independent research in Industrial Engineering.
2. Prepare students to contribute new knowledge of fundamental importance.
3. Contribute new knowledge of fundamental importance or significantly modify, amplify, or interpret existing knowledge in a new and important manner.

Student Learning Outcomes (SLO)

1. Students will make satisfactory progress toward the degree, preparing for independent research to contribute new knowledge of fundamental importance to Industrial Engineering.
2. Students will be prepared for independent research in Industrial Engineering.
3. Students will be prepared to contribute new knowledge of fundamental importance to Industrial Engineering.
4. Students will contribute new knowledge of fundamental importance to Industrial Engineering or significantly modify, amplify or interpret existing knowledge in a new and important manner
5. Students will be able to communicate effectively.

Assessment Process

1. Timeline
 - a) Annual Graduate Student Academic Reviews submitted to the Graduate School by June 30
 - b) Candidacy Exam after approximately two years of graduate study
 - c) Dissertation Proposal may not occur in the same semester as Candidacy Exam
 - d) Final Oral Defense may not occur in the same semester as Dissertation Proposal
 - e) Assessment results and analysis presented at August faculty “retreat” to stimulate discussion about any program (or assessment process) changes.
2. Means of assessment
 - a) SLO1 assessed annually (indirect and direct)
 - Cumulative GPA (desired level of achievement ≥ 3.0)
 - Annual Graduate Student Academic Review by graduate coordinator in consultation with student advisor (desired level of achievement is “satisfactory”)
 - b) SLO2 assessed with Candidacy Exam
 - Student self-assessment of independent research preparation with respect to **Comprehension** (understanding literature), **Application** (problem solving), **Analysis and Synthesis** (support for generalizations, alternative solutions), and **Evaluation** (validity)
 - Advisory Committee members assessment of independent research...
 - c) SLO3 assessed with Dissertation Proposal

- Student self-assessment of preparation to contribute new knowledge with respect to...
 - Dissertation Committee members assessment of preparation to contribute new knowledge...
- d) SLO4 assessed with Final Oral Defense
- Student self-assessment of contributing new knowledge...
 - Dissertation Committee assessment of contributing new knowledge...
- e) SLO5 assessed with Candidacy Exam, Dissertation Proposal, and Final Oral Defense
- Student self-assessment of effective communication
 - Committee members assessment of effective communication
3. Reported annually to the Dean: Assessment results and analysis, and any consequential program or assessment process changes

Assessment Results

1. Annual Graduate Student Academic Reviews
 - a) Academic Warning letters received from the Graduate School after spring 2015: **2**
 - b) Academic Warning letters received from the Graduate School after fall 2015: **1**
2. Candidacy Exam

The student is prepared for independent research based on...

Comprehension	Student	Committee Chair	Committee Member
5	3	2	4
4		3	6
3			2
2			
1			

Application	Student	Committee Chair	Committee Member
5	2	1	4
4	1	4	8
3			
2			
1			

Analysis & Synthesis	Student	Committee Chair	Committee Member
5	3	2	1
4		2	6
3		1	4
2			1
1			

Evaluation	Student	Committee Chair	Committee Member
5	2		2
4	1	4	3
3		1	5
2			
1			
N/A			2

3. Dissertation Proposal

The student is prepared to contribute new knowledge based on...

Comprehension	Student	Committee Chair	Committee Member
5	4	4	7
4	1	1	2
3			
2			
1			

Application	Student	Committee Chair	Committee Member
5	4	3	3
4	1	2	6
3			
2			
1			

Analysis & Synthesis	Student	Committee Chair	Committee Member
5	3	3	3
4	2	2	6
3			
2			
1			

Evaluation	Student	Committee Chair	Committee Member
5	3	4	3
4	2		5
3		1	1
2			
1			

4. Final Oral Defense

The student has contributed new knowledge based on...

Comprehension	Student	Committee Chair	Committee Member
5		3	1
4	1		4
3			
2			
1			

Application	Student	Committee Chair	Committee Member
5	1	3	2
4			3
3			
2			
1			

Analysis & Synthesis	Student	Committee Chair	Committee Member
5		1	
4		2	3
3	1		2
2			
1			

Evaluation	Student	Committee Chair	Committee Member
5	1	1	
4		1	3
3		1	2
2			
1			

5. Effective Communication

The student has demonstrated effective communication skills.

	Student	Committee Chair	Committee Member
5	2	6	8
4	6	5	9
3	1	1	9
2		1	
1			

Summary (unweighted mean of medians)

	Candidacy Exam	Dissertation Proposal	Final Oral Defense
Comprehension	4.33	5.00	4.33
Application	4.33	4.67	4.67
Analysis & Synthesis	4.33	4.67	3.67
Evaluation	4.67	4.67	4.33

Effective Communication	The student has demonstrated effective communication skills	4.00
--------------------------------	---	------

Consequential Program Changes

Faculty will discuss consequential program changes at August “retreat.” Note improvement from Candidacy Exam to Dissertation Proposal, while Final Oral Defense scores were downgraded. Relative weakness among students relates to generation of alternative solutions.

Assessment Process Changes

Faculty will discuss consequential assessment process changes at August “retreat.” Discussion may focus on how to increase faculty and student participation.

Closed-Form Assessment

Student name: _____

MS / PhD / Industrial Engineering

Date: _____

Who are you?

- The student
- The committee chair
- A committee member (not the chair)

In the table below please choose a milestone, and reply to the appropriate items: 1 is strongly disagree; 2 is disagree; 3 is neither agree nor disagree; 4 is agree; 5 is strongly agree; N/A is not applicable.

	1	2	3	4	5	N/A
What is the occasion for assessment? Please pick one of the milestones below, and reply as directed...						
<input type="radio"/> MS coursework (reply to items 1 and 6): 1. The student has achieved select course outcomes.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/> MS proposal (reply to items 2 – 6): The student is prepared to write a thesis based on...						
<input type="radio"/> MS thesis (reply to items 2 – 6): The student has written a thesis based on...						
<input type="radio"/> MS project (reply to items 2 – 6): The student has presented a project based on...						
<input type="radio"/> Candidacy exam (reply to items 2 – 6): The student is prepared for independent research based on...						
<input type="radio"/> Diss. proposal (reply to items 2 – 6): The student is prepared to contribute new knowledge based on...						
<input type="radio"/> Final oral defense (reply to items 2 – 6): The student has contributed new knowledge based on...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. comprehension of the relevant literature.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. application of methods for problem solving.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. analysis and support for generalizations, or generation of alternative solutions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. evaluation and validation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. The student has demonstrated effective communication skills.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please return hardcopy directly to Justin Chimka or his mailbox. Individual replies will remain confidential.