

Academic Assessment Report
MS Industrial Engineering (INEGMS)
Covering Academic Year (AY) 2023-2024

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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

Table 1: Academic warning letters received from the Graduate School per semester

	AY 2021-2022	AY 2022-2023	AY 2023-2024
Fall	0	0	1
Spring	1	0	0

2. Master's Project Presentation, Thesis Proposal and Defense

Scores in Table 2 are averages of medians across Student, Chair and Member responses after the Master's Project Presentation, Thesis Proposal and Defense.

Table 2: The student has presented a project, is prepared to write, or has written a thesis based on...

	AY 2021-2022	AY 2022-2023	AY 2023-2024
Comprehension	4.26	4.01	4.10
Application	4.22	4.35	4.70
Analysis	4.22	4.24	4.70
Evaluation	4.30	4.29	4.70

3. Master's Coursework Exam

Scores in Table 3 are averages of medians across Student, Chair and Member responses after the Master's Coursework Exam.

Table 3: The student has achieved select course outcomes

AY 2021-2022	AY 2022-2023	AY 2023-2024
4.5	4.75	4.625

4. Effective Communication

Scores in Table 4 are averages of medians across Student, Chair and Member responses after the Master's Coursework Exam only. Note the assessment plan calls for using these data to assess SL06 for all master's student milestones, not just the coursework final exam. Data are missing for the project defense, thesis proposal and thesis defense milestones based on the current setup of the online form used to collect these data.

Table 4: The student has demonstrated effective communication skills

AY 2021-2022	AY 2022-2023	AY 2023-2024
4.67	4.71	5.00

Consequential Program Changes

AY 2021-2022: Faculty will discuss consequential program changes at August “retreat.” Relative weakness among coursework students relates to the clear understanding of course materials.

AY 2022-2023: Faculty will discuss consequential program changes at August “retreat.” Relative weakness among coursework students relates to the clear understanding of course materials.

AY 2023-2024: This report, including assessment results, will be presented during the faculty retreat in August 2024. Faculty will discuss whether any consequential program changes are needed in response to the results. During AY 2023-2024, scores in Tables 2-4 are generally stable or improving compared with two prior years. This suggests consequential program changes may not be needed.

Assessment Process Changes

AY 2021-2022: Faculty will discuss consequential assessment process changes at August “retreat.” An updated assessment form was uploaded to the departmental web site to resolve the problems with missing answers to those questions.

AY 2022-2023: Faculty will discuss consequential assessment process changes at August “retreat.” An updated assessment form was uploaded to the departmental web site to resolve the problems with missing answers to those questions.

AY 2023-2024: The assessment process will be reviewed during the faculty retreat in August 2024. During May 2024, an updated assessment form was uploaded to the departmental web site to resolve the problems with missing data in Table 4 for assessing SL06 for a subset of master’s student milestones.