Annual Assessment Report for Academic Programs

The University Assessment Team advocates for the enhancement of student learning through purposeful, meaningful, and feasible student-outcomes assessment practices. The Assessment Team seeks to collaborate with programs, departments, and units to ensure that effective assessment of student learning occurs across the University. To assist in meeting this goal, the Team requests that you complete this Annual Assessment Report form to document student learning in your program. A PDF version of this completed form will be posted to the Academic Affairs Assessment website. Please note that this Annual Assessment Report form should only be completed after you have an Assessment Plan for Academic Programs forms on file with the University Assessment Team. The plan is completed once and only updated when revisions have been made to components of the plan.

1. Degree Level and Program Name: Master of Science in Product Development

2. College/School: College of Engineering & Science

3. Assessment Overview - Briefly share how student learning outcomes assessment is conducted within your program/department (e.g. number of outcomes, examples of assignments used, and frequency of assessment).

The Master of Science in Product Development program has six student learning outcomes, with two outcomes assessed each year. Faculty members evaluate these learning outcomes using direct measures from embedded assignments, such as exams, quizzes, and projects, which are assessed with rubrics.

This assessment cycle will focus on evaluating student learning outcomes 5 - Function effectively in a high-performing, multidisciplinary team, and 6 - Transform customer and market requirements into competitive product portfolios as well as product functions and features.

4. Student Learning Outcomes -Which student learning outcome(s) from the assessment plan filed with the University Assessment Team is/are being reported on in this report? Include the corresponding benchmark(s) for each outcome.

Based on the Master of Science in Product Development's Program Assessment Plan on file with the University Assessment Team, two outcomes are being assessed in this cycle.

• Student Learning Outcome #5: Function effectively in a high-performing, multidisciplinary team.
The benchmark for success is to have at least 70% of the students earn a rubric equivalent score of a C or better on the Quizzes, technical papers, and the Term project in MENG 5925 – Modeling of Complex Systems via Systems Modeling Programming.

• Student Learning Outcome #6: Transform customer and market requirements into competitive product portfolios, encompassing product functions and features. The benchmark for success is to have at least 70% of the students earn a rubric equivalent score of C or better on homework, technical papers, and the Term project in MPD 5600: Product Planning and Development.

Institutional Outcomes - For which institutional outcome(s) do the reported student learning outcome(s) align?

SLO Outcome Alignment	Institutional Outcome
	I. Jesuit & Mercy Values
	II. Diversity & Cultural Awareness
Yes	III. Critical Thinking & Problem Solving
Yes	IV. Communication
	V. Professionalism
	VI. Lifelong Learning

6. **Assessment Period:** Select the academic year for which you are reporting results (i.e. when data were collected):

2024-2025

7. **Results, Planned Actions, and/or Actions Taken** -Briefly summarize the assessment results, how they relate to benchmark(s), and how you are using them to enhance student learning and improve program quality.

Student Learning Outcome #5: Function in a high-performing, multidisciplinary team.
The term project in MENG 5925 – Modeling of Complex Systems via Systems Modeling Programming involves the collaborative modeling of a descriptive system architecture in Systems Modeling using the Magic System of Systems Architect. Students must convert requirements and other design intent information into a rigorously validated architecture; each of their contributions must integrate into the collaborative model. In addition to regular grading, students are required to submit reports at each milestone detailing their process, lessons learned, and other team dynamic information. They must also assign "shares" of the team grade and highlight individuals not contributing.

The collaborative project in this course has undergone continuous evolution since its inception, with several papers having been published in peer-reviewed conference proceedings. The term project will be continued in its current form, with minor adjustments to align with current best practices in descriptive architecture modeling. Students who have completed the course are successfully modeling in the automotive, aerospace, and defense domains and have credited the term project with preparing them to succeed in this highly competitive, niche systems engineering domain.

The 15 students were broken into three teams: two teams of six and one team of three. The maximum score was 99.9%, the average was 97.5%, and the lowest score was 77.5%. For rubric-based assessment methods, students who achieve a level of 3/4 (i.e., 75%) or higher are considered to have performed satisfactorily. The entire class demonstrated a generally high level of understanding based on this result.

Student Learning Outcome #6: Transform customer and market requirements into competitive product portfolios, including product functions and features.

In MPD 5600: Product Planning and Development, the students complete a semester-long project that begins with exploring potential opportunities for new products in the marketplace and concludes with pitching the team's most promising concept. The course requires eight deliverables related to the team project. These are: (1) Pain-storming and Opportunity Recognition, (2) Opportunity Selection and Problem/Mission Statement Development, (3) Identification and Organization of Customer Needs, (4) Establishing Target Specifications, (5) Patent Search, (6) Concept Generation, (7) Concept Selection, and (8) Concept Test/Prototype/Pitch. The class comprises students with a variety of technical backgrounds and expertise, most of whom hold undergraduate degrees in either mechanical engineering or electrical engineering. The team assignments typically include tasks for each team member to complete before the team gathers to compile the individual work and proceed with the following steps. This offering included two high-achieving students enrolled in the five-year Master's program in Mechanical Engineering, along with seven MPD students, all of whom successfully achieved this direct outcome.

There were no action items from previous worksheets; however, the course lecture materials and assignment guidelines are continually being improved and updated. Some experiments with AI were conducted in this offering, with further implementations planned for the course running in Term 2 2024-2025.
In the future, we will refine the course to incorporate minor enhancements and expand the exploration of AI tools' application across various stages of the product development process.
Assignment Scores in % by Assignment (see above for what each assignment entailed):
1 2 3 4 5 6 7 8
94.0 83.8 99.5 97.0 99.2 95.4 98.3 96.2

Attachment(s):

None