This plan provides the PLO/SLO assessment plan for AY 2022-2025

Name of the program: _____MS Mechanical Engineering_____

Plan for AY 2022-2023, 2023-2024, 2024-2025 _____2022- 2023_____

Expected date of submission 6/30/2022

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Program's Student Learning Outcome Assessment Plan

1. PLO: State/update each degree program's learning outcomes.

   We will follow the similar PLOs as the BS Mechanical Engineering program but with slight modification according to the nature of MS program, following is a set of (1)-(6) Student Outcomes (SOs):
   1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
   2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
   3. an ability to communicate effectively with a range of audiences
   4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

6.   an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

7.   an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

2. Matrix: provide/update the assessment matrix that indicate which learning outcomes are assessed in which set of courses.

The matrix is listed below:

	(1) Engineering, science, math	(2) Design, solve engineering problems	(3) Communication	(4) Ethical and professional responsibilities	(5) Experiment	(6) Learning new knowledge
MENG 601	X					
603	X					

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604	X					
634	X					
640	X					
660	X	X	X	X	X	X

3. METHOD: Describe the method of assessment, and measurement instruments (e.g., rubric, exam items, scoring guide for a particular task, supervisor evaluation form, and standardized assessment tool). Note: direct learning outcome assessment is required. Both direct and indirect assessment are strongly recommended.

our direct method of assessment is based on Faculty Course Assessment Reports (FCARs) which are submitted by the faculty for each course they teach during the academic year. The FCAR requires:

- The faculty member to identify course-specific learning outcomes (LO's) for his/her course and to establish appropriate performance tasks (APTs) with appropriate documentation to assess to what extent the Student Outcomes are being met. These APTs may be quizzes, exam questions, reports, projects, presentations, etc. Each student's APT is then scored with the method shown below (Table 1), to create an EGMU vector for that specific Student Outcome and a corresponding assessment metric.
- Each faculty member must satisfy a minimum set of Student Outcomes (1 - 7) for his/her course as established by the department. This is accomplished by using a subset of the Appropriate Performance Tasks (APTs) to satisfy the COs. Here the faculty member is required to show what part of each task is being used to form a metric for the Student Outcomes (1 – 7) with appropriate documentation. To accomplish this task, the department formulated a set of criteria for each Student Outcome (1 – 7) that can be used as a guiding rubric to explain and help faculty evaluate what that outcome requires for an EGMU score of 3 (or "Excellent"). EGMU

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scores of 2, 1, and 0 represent partial satisfaction of the rubric.

The department has determined that the minimum level of quality that it felt was necessary in order to produce graduates that will ultimately achieve our Program Educational Objectives is **an EGMU score of 2.0 for each Student Outcome**. This score of 2.0 was chosen by the department because in the EGMU score of 2.0 indicates Good and therefore represents what a student would need in order to satisfy the requirements for graduation.

We analyzed the FCARs of all core engineering courses submitted by the faculty in last year and found we met the minimum requirements with average EGMU score of 2.28.

4. Timeline of the PLO assessment: for example:

    We we access all PLO in each year of the next three years.

5. Personal responsibilities for implementing the assessment, collecting data and analyzing the results against expected outcomes

    All instructors will be involved in the implementation of the assessment, including collecting data and analyzing the results. The department chair will summarize the results of all courses' outcomes.

II. Brief description of how the plan is shared and communicated with all faculty members in the department

We have regular department meetings for all instructors, we will remind them the importance of student outcome assessments. At the end of each semester, department chair and administrative assistant will collect the assessment from all instructors.

Last updated 2/11/22