M.S. in Mechanical Engineering
Assessment Plan

Mission.
The mission of the Mechanical Engineering graduate program is to provide students with advanced learning in the areas of thermo-fluid sciences, mechanical systems, or manufacturing/controls. The primary goals of the program are to develop the scholastic ability, independent creativity, and professional competence of the student to a higher level than is possible in an undergraduate program.

Objectives.
Through the education offered by the MS/ME program, students will learn to:
- to formulate solutions to mechanical engineering problems using multi-disciplinary approaches
- to be able to grow professionally and personally
- to serve their profession and community as valuable contributing leaders

Outcomes
Students undertaking education in MS/ME program are expected to:
- expand their knowledge and understanding of methods and approaches to advancing knowledge in the basic areas of Mechanical Engineering
- formulate solutions to problems related to thermo-fluid sciences, mechanical systems, or manufacturing/controls
- be able to conduct basic or applied research and development in Mechanical Engineering
- become an engineer who will serve their profession and community as valuable contributing leaders

Overall program assessment
The M.S. and Ph.D. Mechanical Engineering programs undergo a comprehensive self-study and external review every seven years. An external evaluator is retained, and the Curriculum Subcommittee of the Department's Industrial Advisory Board is also engaged in the review. A comprehensive self-study report is prepared, and an on-site review is conducted by an external reviewer. The next external review will take place in fall 2019.

Student learning assessment

Summative assessment for Thesis Program
> Upon completion of the thesis, mechanical engineering graduate students electing this option will be examined orally over the written thesis and coursework. The Mechanical Engineering MS Program Level Learning Outcomes Assessment Rubric (see below) is utilized at the oral examination to evaluate the student's attainment of the program's four learning outcomes.

Summative assessment for Non-Thesis Option

Upon the completion of their coursework the student's advisor will complete the Mechanical Engineering MS Program Level Learning Outcomes Assessment Rubric (see below) to evaluate the student's attainment of the program's four learning outcomes.

Summative assessment for the Accelerated Master's Program
The Accelerated Master's Program enables a student to complete both a B.S. and M.S. degree in as little as five years. The program is designed for academically-motivated students. Students in the program may apply up to nine (9) credits of 400/500-level coursework taken as an undergraduate for M.S. degree requirements to either the thesis or non-thesis option. All elective courses must be approved by the student's major professor. Accelerated Master's Program student select either the Thesis or Non-Thesis option and are assessed accordingly.

The rubric below is used to assess the student's attainment of the program's learning outcomes.

Program: M.S. Mechanical Engineering	Date:
Student:	Evaluator:

Program Learning Outcome	*Excellent*	*Average*	*Poor*
Outcome # 1: Contribution to Expanding Knowledge (*circle* one)	Sound, logical, and efficient application of knowledge of mechanical engineering has yielded new knowledge and understanding.	Student has demonstrated most of the "*Excellent*" traits. Some performance issues were observed with respect to some of the traits.	Student has failed to demonstrate the majority of the "*Excellent*" traits.
Outcome #2: Problem Solving Ability (circle one)	Advanced analytical, experimental, or computational skills used to define problems. Problems are solved in a sound, logical and efficient manner using advanced skills of analysis, experiments, or computing.	Student has demonstrated most of the "*Excellent*" traits. Some performance issues were observed with respect to some of the traits.	Student has failed to demonstrate the majority of the "*Excellent*" traits.
Outcome #3: Research Ability (circle one)	Sound, logical, and efficient application of knowledge to solve mechanical engineering problems. Research problems and their solution are effectively and efficiently communicated as evidenced by a thesis, peer reviewed publication, or graded course work.	Student has demonstrated most of the "*Excellent*" traits. Some performance issues were observed with respect to some of the traits.	Student has failed to demonstrate the majority of the "*Excellent*" traits.
Outcome #4: Servant Leadership (circle one)	Career goals and aspirations, we well as conduct during graduate studies, justify a high confidence that the student will be a leader that serves the profession and community.	Student has demonstrated most of the "*Excellent*" traits. Some performance issues were observed with respect to some of the traits.	Student has failed to demonstrate the majority of the "*Excellent*" traits.