

Department: Mechanical, Materials, & Aerospace Engr.
 Chair: L.C. Chow
 Participating faculty: All

Program Name & CIP Code: Mechanical Engineering 14.1901 **Level:** Doctoral (Ph.D.)

Example of Linkage between Expanded Statement of Institutional Purpose,
 Departmental/Program intended Outcomes/Objectives, Assessment Criteria and Procedures,
 Results, and Use of Results at our University

Expanded Statement of Institutional Purpose	Departmental/Program Intended Outcomes/Objectives	Assessment Criteria & Procedures	Assessment Results	Use of Results
<p>Attain prominence in key areas of graduate education and research.</p>	<p>1. Graduates will demonstrate a strong foundation in the science and engineering principles underlying their area of specialization.</p>	<p>1a. All students will be required to take a rigorous broad-based examination and to perform satisfactorily. 1b. 90% of the students in doctoral status will demonstrate a high proficiency in their first attempt at the candidacy. The Graduate Students Performance and Assessment Committee (GSPAC) will collect the relevant data* and assess whether at least 90% have demonstrated the application of fundamental principles.</p>	<p>1a. All Ph.D. students are required to take and pass a broad-based qualifying exam prior to candidacy. 1b. Data were collected by examining a relevant samples of Ph.D. dissertations and qualifying exams and 92% were judged to have adequate foundation in fundamental principles.</p>	<p>1a. All Ph.D students passed the broad-based exam. 1b. The students who failed to perform satisfactorily on the qualifying or the candidacy exams were interviewed and counseled by the examining faculty.</p>
<p>2. MMAE graduate students will develop proficient mathematical, computational, and/or experimental skills.</p>	<p>2. MMAE graduate students will demonstrate proficient mathematical, computational, and/or experimental skills. The GSPAC will collect the relevant data* and assess whether at least 90% have demonstrated proficiency in mathematical, computational, and/or experimental skills.</p>	<p>2. GSPAC collected data by examining Ph.D. dissertations and qualifying exams and the determination was that over 90% demonstrated proficiency in mathematical (65%-High, 25%-Medium, 10%-Low, 0%-N/A), computational (37%-High, 19%-Medium, 0%-Low, 44%-N/A), and/or experimental skills (25%-High, 16%-Medium, 0%-Low, 59%-N/A).</p>	<p>2. Goals were met and no deficiencies were found.</p>	
<p>3. Graduates will demonstrate competency in advanced research, including problem definition, assimilation of previous research, formulation and implementation of a research approach, and effective oral and written communication.</p>	<p>3. The criterion is that all students write and successfully defend a dissertation, that all students give a Department Colloquium presentation in addition to a defense, and that at least half of the dissertations lead, within one year of completion, to a scholarly publication. The GSPAC will collect the relevant data and assess whether at least 90% have demonstrated acceptable research skills</p>	<p>3. The data gathered by the GSPAC demonstrates that well over 90% of Ph.D students have developed adequate research skills. Examination of graduating Ph.D. student survey reveals students have all given a department colloquium, on average made 3 presentations, produced nearly 4 conference papers on average, and 3 journal papers.</p>		

*See attached forms with questionnaires.