

Department: Mechanical Materials & Aerospace Engr.
 Chair: L. C. Chou
 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. MMAE Doctoral 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.</p>	<p>1a. All Ph.D. students took and 100% passed upon first attempt a broad-based qualifying exam prior to candidacy.</p>	<p>1a. Data reveal that the goal of all MMAE Doctoral students taking and passing a broad-based qualifying exam prior to candidacy was met. Action: none required.</p>
<p>2. MMAE Doctoral graduate students will develop proficient mathematical, computational, and/or experimental skills.</p>	<p>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>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>1b. Data reveal that the goal of higher proficiency in first attempted candidacy was met; further, the goal of adequate demonstration of fundamental principles was also met. Action: none required.</p>	
<p>3. MMAE Doctoral 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>2. MMAE Doctoral 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 (59%-High, 34.4%-Medium, 6.6%-Low, 0%-N/A), computational (79%-High, 21%-Medium, 0%-Low, 41.3%-N/A), and/or experimental skills (0%-High, 12.5%-Medium, 0%-Low, 87.5%-N/A).</p>	<p>2. Data reveal that goals were met with respect to GSPAC assessment of dissertations and qualifying exams with respect to adequacy in foundation in fundamental principles. Action: none required.</p>	
<p>3. MMAE Doctoral 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 doctoral 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 2 presentations, produced nearly 2 conference papers on average, and at least one journal paper.</p>	<p>3. Data reveal goals were met with respect to GSPAC assessment of adequacy of Ph.D. students research skills, department colloquium presentation, student presentations, and scholarly paper production. Action: none required.</p>	