

## **ME Program Outcomes**

- a) An ability to apply knowledge of mathematics, science, and engineering
- b) An ability to design and conduct experiments, analyze, and interpret data
- c) An ability to design a system, component, or process to meet desired needs
- d) An ability to function on multi-disciplinary teams
- e) An ability to identify, formulate, and solve engineering problems
- f) An understanding of professional and ethical responsibility
- g) An ability to communicate effectively
- h) The broad education necessary to understand the impact of engineering solutions in a societal context
- i) A recognition of the need and an ability to engage in life-long learning
- j) A knowledge of Contemporary issues
- k) An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

## **ME Department Professional Components/Major Design Experience, PC1 & PC2, (Note: PCs are for ME 480, 481, & 482):**

**PC1:** A culminating design experience, that integrates knowledge and skills acquired throughout the curriculum

**PC2:** The application of engineering standards and realistic constraints, including consideration of Economics, Environmental Sustainability, Manufacturability, Ethics, Health, Safety, Society, and Politics

## **ME Program Objectives**

### **Program Objectives (1)**

- O1) Our graduates will be accomplished professionals by being able to formulate, communicate, and solve problems using engineering principles, methodologies, and modern tools

### **Program Objectives (2)**

- O2) Our graduates will be professionals and leaders in industry, national laboratories, academia, and society by employing engineering fundamentals, design skills, thinking creatively, communicating effectively, working collaboratively, and implementing emerging and innovative technologies

### **Program Objectives (3)**

- O3) Our graduates will be professionals and leaders who accept and practice their professional and ethical responsibilities, respect diversity of opinion and culture, and have a proper understanding and consideration for a healthy and aesthetic environment

**Table 1. Program Objectives (O1-O3) Map to Program Outcomes (a-k)**

<b>Objectives</b>	<b>Outcomes</b>
<b>O1</b>	<b>a, b, c, e, g, k</b>
<b>O2</b>	<b>b, c, d, g, h, i, j</b>
<b>O3</b>	<b>f, h, j</b>

**Table 2. Program Outcomes (a-k) Map to Program Objectives (O1-O3)**

<b>Outcomes</b> (abbreviated form of <i>a-k</i> )	<b>Objectives</b>
<i>a.</i> math, science & engineering	O1
<i>b.</i> design & conduct experiments	O1, O2
<i>c.</i> design system, component, process	O1, O2
<i>d.</i> function on multi-disciplinary teams	O2
<i>e.</i> identify, formulate & solve eng. problems	O1
<i>f.</i> professional & ethical responsibility	O3
<i>g.</i> communicate effectively	O1, O2
<i>h.</i> understand impact in global & societal context	O2, O3
<i>i.</i> life-long learning	O2
<i>j.</i> knowledge of contemporary issues	O2, O3
<i>k.</i> use techniques, skills and tools for eng. practice	O1

### **Relationship of Program Outcomes to Program Educational Objectives and Professional Components**

The following gives the above relationship, which is consistently followed in our Syllabi (S-Forms, H-Forms, and Program Assessments by Rubrics conducted by our faculty).

**PC1: [(O1 :a, b, c, e, g, k) + (O2: b, c, d, g, i)]**

**PC2: [(O2: h, j) + (O3: f, h, j)]**

**Table 3. Program Objectives (O1-O3) & Outcomes (a-k) as well as Professional Components (PC1-PC2) Map to ME Courses/Program**

<b>COURSE</b>	<b>I</b>	<b>O1</b>	<b>O2</b>	<b>O3</b>	<b>a</b>	<b>b</b>	<b>c</b>	<b>d</b>	<b>e</b>	<b>f</b>	<b>g</b>	<b>h</b>	<b>i</b>	<b>j</b>	<b>k</b>	<b>PC1</b>	<b>PC2</b>	
ME 213	○	RG	X	X	-	X	-	X	X	-	-	X	-	-	-	X	-	-
ME 311	○	JA	X	-	-	X	-	-	-	X	-	-	-	-	-	-	-	-
ME 312	X	BHC	X	X	X	X	-	-	-	X	-	-	X	X	X	-	-	-
ME 322	○	MK	X	-	-	X	-	-	-	X	-	-	-	-	-	-	-	-
ME 331	○	JL	X	X	X	X	-	-	-	-	-	-	X	X	X	-	-	-
ME 341	○	SM	X	X	X	X	-	-	-	-	-	-	X	X	-	-	-	-
ME 342	X	SM	X	X	-	-	X	-	-	-	-	X	-	-	-	X	-	-
ME 360	X	BHC	X	X	-	X	-	-	-	X	-	-	-	X	-	X	-	-
ME 371	○	MGN	X	-	-	X	-	-	-	X	-	-	-	-	-	-	-	-
ME 372	X	BB	X	X	-	-	-	X	-	X	-	-	-	-	-	-	-	-
ME 374	X	PB	X	-	-	X	-	-	-	X	-	-	-	-	-	-	-	-
ME 375	X	PB	X	-	-	X	-	-	-	X	-	-	-	-	-	-	-	-
ME 402	+	BB	X	X	-	X	X	-	-	X	-	X	-	-	-	X	-	-
ME 422	+	YZ	X	X	X	X	-	-	-	X	-	-	X	-	X	-	-	-
ME 480	+	WQ	X	X	X	-	X	X	X	-	X	X	X	X	X	X	X	X
ME 481	+	MGN	X	X	X	-	-	X	X	X	-	X	X	X	X	X	X	X
ME 482	+	MGN	X	X	-	-	-	X	X	-	-	X	-	-	-	X	X	X
<b>Courses for Evaluation</b>			17	12	6	12	3	5	4	11	1	6	6	6	5	7	3	3
<b>Total Courses</b>			17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
<b>Courses%</b>			100	70	35	70	18	29	24	65	6	35	35	35	29	41	18	18

○: introductory, X: practice, +: mastery

**Note:** In the above table, an “X” (under Objectives & Outcomes) indicates the Program Outcomes that are used for the Rubric Assessments for each course by the ME Faculty, and hence it does not include minor hrs the faculty spends on a particular outcome.