Outcome K. Graduates will have an ability to use the techniques, skills and modern engineering tools necessary for engineering practice.

Course	Performance indicators
MAE 244, 316, 365, 434, 456, 460	Use of modern computational engineering tools and software or instruments.
MAE 244, 316, 365, 434, 456, 460	Development of skills to use and apply modern computational engineering tools and software or instruments.
MAE 244, 316, 365, 434, 456, 460	Grade distribution.

Tools used: Course assessment by faculty, Alumni survey, Employer survey.

Data Collection: The data are collected every semester based on the course offerings.

Frequency of data collection: The data are collected every time courses are taught.

Data Analysis: The data obtained are analyzed every year.

Closing the loop: This outcome is subject to review every year based on performance criteria and metrics and specific action items are developed, if necessary, to revise the content of the courses. The analyzed data are presented separately to the following groups in meetings.

    a) Feedback to students on all assignments

    b) Feedback to faculty, particular from majors.

Outcome and Performance Indictor		Performance Indicator Rubric				
Outcome K "Graduates will have an ability to use the techniques, skills and modern engineering tools necessary for engineering practice."		**Poor**	**Fair**	**Good**	**Very Good**	**Excellent**
PI1	Use of modern computational engineering tools and software or instruments.	Comp. tools used as black boxes	Comp. tools selected based on needs	Comp. tools used effectively in solution of eng. prob.	Comp. tools used with in depth knowledge of application	Comp. tools used in depth knowledge of application and explained
PI2	Development of skills to use and apply modern computational engineering tools and software or instruments.	Tools used but skills not developed	Some skills developed to use tools	Skill developed to apply tools to solve of eng. prob.	In depth skill development to apply tools to solve eng. Prob.	High level skill dev. to apply tools to solve eng. Prob.
PI3	Grade distribution	1 (F)	2 (D)	3 (C)	4 (B)	5 (A)

Performance Indicator 1. (PI1). "Use of modern computational engineering tools and software or instruments." The engineering profession often requires practitioners to use modern techniques, tools and equipment to solve engineering problems. The following rubrics are used to assess this indicator:

- **Poor.** This rubric is used when an assignment offering the opportunity to use modern engineering tools, software or instruments produces poor evidence of their use in the solution of an engineering problem.
- **Fair**. This rubric is used when an assignment produces some general evidence of modern engineering tools, software or instruments being used in the solution of an engineering problem.
- **Good**. This rubric is used when an assignment produces clear evidence of specific modern engineering tools, software or instruments being used in the solution of an engineering problem.
- **Very Good**. This rubric is used when an assignment produces strong evidence of specific modern engineering tools, software or instruments being used in the solution of an engineering problem with some evidence of effectiveness of the applications used.
- **Excellent**. This rubric is used when in addition to the previous rubric; the modern engineering tools, software or instruments require in depth knowledge and there is a narrative describing the application.

Performance Indicator 2. (PI2). "Development of skills to use and apply modern computational engineering tools and software or instruments." The engineering profession often requires practitioners to develop skills to use modern techniques, tools and equipment to solve engineering problems. The following rubrics are used to assess this indicator:

- **Poor.** This rubric is used when an assignment offering the opportunity to develop skills to use and apply modern computational engineering tools, software or instruments produces poor evidence of skills being developed for the solution of an engineering problem.
- **Fair**. This rubric is used when an assignment produces some general evidence of skills developed and used in the solution of an engineering problem.
- **Good**. This rubric is used when an assignment produces clear general evidence of skills developed and used to specifically obtain a solution of an engineering problem.
- **Very Good**. This rubric is used when an assignment produces strong evidence of specific skills being developed to use modern tools, techniques or equipment for the solution of engineering problems with some evidence of effectiveness and depth of skills developed.
- **Excellent**. This rubric is used when in addition to the previous rubric, the assignment produces documentation that describes and illustrates the skills developed and used to find the solution of the engineering problem.

Performance Indicator 3. (PI3). Grade distribution from class on applicable assignments or exercises. A, B, C, D ,F