

## Objectives and Outcomes

The new objective statements were determined from input from all constituencies and the outcome statements are a combination of the required a-k statements and non –required statements voted on by the constituencies.

*The following describe the characteristics that the Cal. State LA Mechanical Engineering Program is seeking to produce in its graduates in the three areas:*

- *The knowledge they will have*
- *The skills they will possess*
- *The attitudes they will hold*

### Knowledge

*Graduates of the Mechanical Engineering program will have the knowledge in math, science and engineering fundamentals, as well as societal issues, that allows them to approach real-world Mechanical Engineering problems with an understanding of their impact on society.*

*This educational objective will be demonstrated by the following outcomes:*

1. *an ability to apply knowledge of mathematics, science, and engineering (abet **a**)*  
*In particular, an ability to apply knowledge of:*
  - a) *chemistry and calculus-based physics.*
  - b) *advanced mathematics through multivariate calculus and differential equations.*
  - c) *statistics and linear algebra.*
2. *an understanding of professional and ethical responsibility (abet **f**)*
3. *the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context (abet **h**)*
4. *knowledge of current events and societal contemporary issues -- non-engineering related. (abet **j**)*
5. *a knowledge of computer aided design and simulation software*
6. *a knowledge of measurement and manufacturing techniques*
7. *an ability to apply common sense*

### Skills

*Graduates of the Mechanical Engineering program will be able to function competently as an individual or part of a team. They shall be able to analyze, define, and solve thermal, mechanical, manufacturing problems through application of engineering fundamentals and Mechanical Engineering tools logically and effectively as well as communicating the problems and their solutions clearly. They are expected to acquire professional competence in the aforementioned skills within five years.*

*This educational objective will be demonstrated by the following outcomes:*

1. *an ability to design and conduct experiments as well as to analyze and interpret data (abet b)*
2. *ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability (abet c)*
3. *an ability to function on multidisciplinary teams (abet d)*
4. *an ability to communicate effectively (abet g)*
5. *an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice (abet k)*
6. *an ability to visualize designs from engineering drawings*
7. *an ability to identify, formulate, and solve engineering problems (abet e)*
8. *an ability to think in a logical, sequential, holistic process*

### Attitudes

*Graduates of the Mechanical Engineering program will have the confidence in their abilities to be successful in either industrial, governmental, or academic positions, and will have a positive and inquisitive outlook on life and continuous learning, necessary to promote their professional and personal development throughout their careers.*

*This educational objective will be demonstrated by the following outcomes:*

1. *an understanding of professional and ethical responsibility (abet f)*
2. *a recognition of the need for an ability to engage in lifelong learning (abet i)*
3. *an understanding of responsibility and accountability*
4. *a desire to be a professional that exhibits values, dedication and a need for continual improvement*
5. *a desire to have critical thinking and organizational skills*