Accreditation Indicators (College-Level)

1. Knowledge Base for Engineering

- 1a) Apply fundamental math, including linear algebra, calculus, and probability & statistics.
- 1b) Demonstrate knowledge in natural sciences.
- 1c) Demonstrate competence in engineering fundamentals, including computing, statics & dynamics, and electricity & magnetism
- 1d) Demonstrate competence in program specific knowledge & principles - varies by program.

2. Problem Analysis

- 2a) Define - articulate the objective of the analysis and identify relevant information
- 2b) Solve - choose and appropriately apply methods, models, and assumptions.
- 2c) Verify - evaluate the validity of the solution and reach substantial conclusion.

3. Investigation

- 3a) Conduct - apply an investigative approach / experimental plan.
- 3b) Analyze - analyze and interpret experimental or other data.
- 3c) Validate - assess validity of conclusions within limitations of data and methods.

4. Design

- 4a) Define problem - synthesize and explain the design problem, requirements, objectives, and constraints.
- 4b) Identify approach - create and compare alternative design solutions.
- 4c) Develop solution - create the design, often applying an iterative, open-ended approach.

5. Use of Engineering Tools

- 5a) Select - select a tool appropriate for the engineering activity.
- 5b) Apply - apply an appropriate tool(s) to accomplish an engineering activity.
- 5c)Evaluate - understand limitations and evaluate the reliability and quality of results from engineering tools.

6. Individual and Teamwork

- 6a) Work effectively - as a team, effectively work towards achieving the goal of the engineering activity.
- 6b) Contribute - be a responsible, respectful and contributing member of a team, and/or a leader showing initiative, prioritizing and directing activities.

7. Communication

- 7a) Write - communicate engineering concepts clearly and effectively through written work.
- 7b) Present - effectively communicate to intended audience through presentations.
- 7c) Create - effectively develop engineering graphics, including drawings, tables, and diagrams.

8. Professionalism

- 8a) Understand roles and limitations - recognize roles and limitations of a professional engineer.
- 8b) Understand responsibilities – embrace awareness of standards, codes & regulations which aim to protect the public.

9. Impact of Engineering on Society and Environment

- 9a) Analyze impact - recognize social aspects of engineering activities, such as the interaction between engineering and the economy, health, safety, culture, and legal implications, and associated uncertainties.
- 9b) Analyze environmental impact – recognize concepts of sustainable design & development in engineering activities.

10. Ethics and Equity

- 10a) Apply professional ethics – demonstrate knowledge and application of professional ethics, such as maintaining confidentiality, avoiding conflicts of interest, fairly distributing workload, and properly acknowledging sources.
- 10b) Be accountable – Demonstrate accountability to stakeholders, such as co-workers, clients, supervisors/advisors, the public.
- 10c) Consider equity - recognize the role of equity in our practice, such as potential impacts of the composition of the team and stakeholders on design decisions, and the composition of the audience on design needs.

11. Economics and Project Management

- 11a) Incorporate economics - consider economics on an engineering project, such as through cost-benefit analysis, timelines, and risk assessment.
- 11b) Manage projects - apply principles of project, risk, and change management as a basis for planning, organizing & managing resources, including setting clear milestones.

12. Life-long Learning

- 12a) Self assess - identify own competencies and deficiencies in a changing world.
- 12b) Address - demonstrate an ability to identify and critically evaluate sources of information, with appropriate citation and referencing.