1. **Knowledge base for engineering**
   Demonstrate competence in:
   1.A. mathematics and modeling.
   1.B. natural sciences and engineering fundamentals.
   1.C. specialized engineering knowledge appropriate to the program.

2. **Problem analysis**
   Demonstrate the ability to:
   2.A. identify and characterize an engineering problem.
   2.B. formulate a solution plan (methodology) for an engineering problem.
   2.C. formulate and interpret a model.

3. **Investigation**
   Demonstrate the ability to:
   3.A. define a problem.
   3.B. devise and execute a plan to solve a problem.
   3.C. use critical analysis to reach valid conclusions supported by the results of the plan.

4. **Design**
   Demonstrate the ability to:
   4.A. frame a complex, open-ended problem in engineering terms.
   4.B. generate a diverse set of candidate engineering design solutions.
   4.C. select candidate engineering design solutions for further development.
   4.D. advance an engineering design to a defined end state.

5. **Use of engineering tools**
   Demonstrate the ability to:
   5.A. use fundamental modern techniques, resources and engineering tools.
   5.B. use discipline specific techniques, resources and engineering tools.
   5.C. show recognition of limitations of the tools used.

6. **Individual and team work**
   Demonstrate the ability to:
   6.A. establish and monitor team organizational structure.
   6.B. promote team effectiveness through individual action.
   6.C. be successful in a team based project.

7. **Communication skills**
   Demonstrate the ability to:
   7.A. identify and credibly communicate engineering knowledge.
   7.B. use different modes of communication.
   7.C. develop communication through an iterative process.

8. **Professionalism**
   Demonstrate the ability to:
   8.A. describe engineering roles in a broader context, e.g. as pertains to the environment, health, safety, and public welfare.
   8.B. recognize the impacts of engineering within a global society (the broader public interest).
   8.C. behave in a professional manner.

9. **Impact of engineering on society and the environment**
   Demonstrate:
   9.A. understanding of relationships among technology and the social, cultural, economic and environmental conditions of society, locally and globally, in both the short-and long-term.
   9.B. ability to identify and choose alternative ways to mitigate or prevent adverse social, environmental, human health and safety impacts.
   9.C. awareness of legal issues relevant to an engineering activity.

10. **Ethics and equity**
    Demonstrate the ability to:
    10.A. recognize ethical and equity based dilemmas.
    10.B. apply the Code of Ethics and equity principles.
    10.C. act ethically and demonstrate individual accountability.

11. **Economics and project management**
    Demonstrate the ability to:
    11.A. estimate the life-cycle economic and financial costs and benefits for relevant engineering activities.
    11.B. evaluate the economic and financial performance of an engineering activity and compare alternative proposals on the basis of these measures.
    11.C. read and understand financial statements for engineering activities.
    11.D. plan and manage engineering activities to be within time and budget constraints.

12. **Life-long learning**
    Demonstrate the ability to:
    12.A. independently summarize, analyze, synthesize and evaluate information from a wide variety of sources.
    12.B. develop a strategy to identify and address gaps in knowledge.

**Perspectives & Management**

**Interpersonal Ability**

**Standards of Practice**