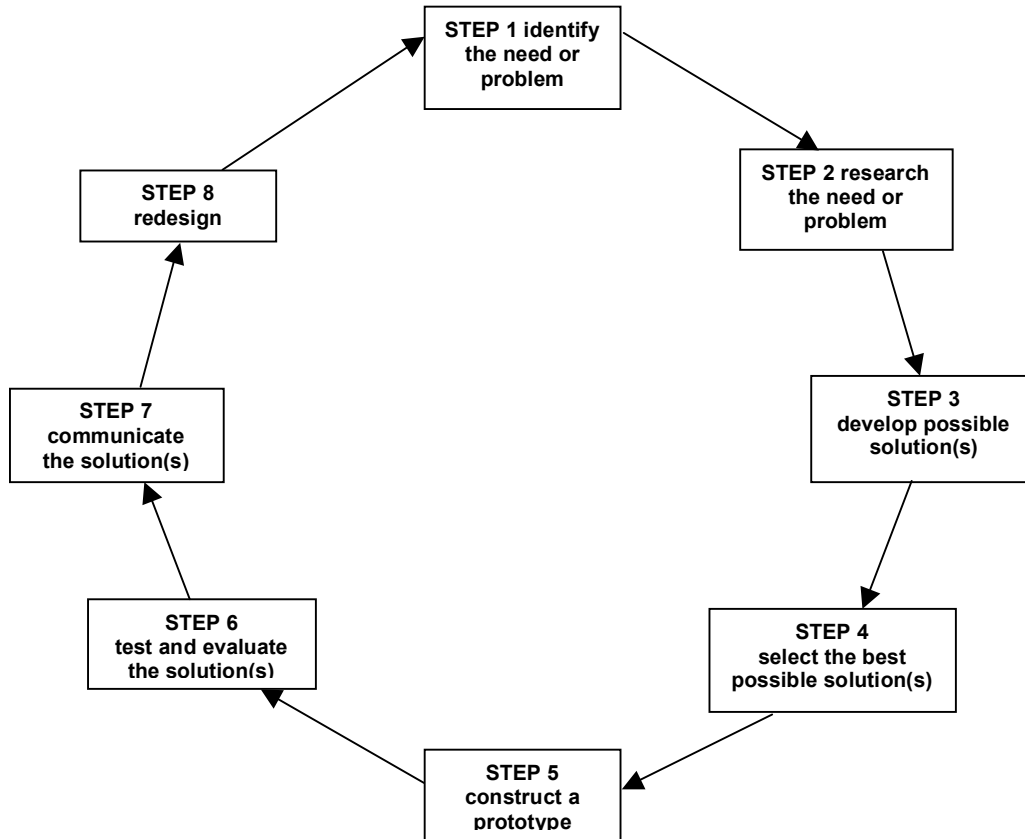


The Engineering Design Process

This representation of the engineering process is a first order approximation of what actually happens in an engineering task. The actual process is much less linear, often going from later steps in the cycle back to earlier steps as new information is gathered.



1. Identify the need or problem
 - Specify and prioritize requirements and constraints to better define the need or problem
2. Research the need or problem
 - Examine current state of the issue and current solutions
 - Explore other options via the internet, library, interviews, etc.
3. Develop possible solution(s)
 - Brainstorm possible solutions
 - Draw on mathematics and science
 - Articulate the possible solutions in two and three dimensions
 - Refine the possible solutions
4. Select the best possible solution(s)
 - Determine, using simple analysis, which solution(s) best meet(s) the original requirements
5. Construct a prototype
 - Model the selected solution(s) in two and three dimensions
6. Test and evaluate the solution(s)
 - Does it work?
 - Does it meet the original design constraints?
7. Communicate the solution(s)
 - Make an engineering presentation that includes a discussion of how the solution(s) best meet(s) the needs of the initial problem, opportunity, or need
 - Discuss societal impact and tradeoffs of the solution(s)
8. Redesign
 - Overhaul the solution(s) based on information gathered during the tests and presentation