



Guidelines for Engineering Projects

The Engineering Design Process:

1. Define a need: express a goal
2. Establish a design criteria and constraints
3. Evaluate alternative designs
4. Build a prototype of best design
5. Test and evaluate the prototype using design criteria
6. Analyze test results, make design changes, and retest
7. Communicate the design

Judges should look for the following in Engineering projects:

1. Good overall plan
2. Step-by-step test procedures
3. Schematic(s) and/or Drawing(s)
4. Test Results
5. Test Data, which includes the following:
 - a. Date
 - b. Time
 - c. Temperature
 - d. Initial Conditions
 - e. Other conditions (peculiar to test)
 - f. Final Conditions
 - g. Interval between each data point. There should be several data points.
 - h. Repeatability, if practical
 - i. Tests should be scheduled far enough in advance to allow for repeat runs and modifications
6. Photos of test subject(s)/specimen(s) and test setup
7. Recordings if data recorder used or copies of same
8. Test specimen characteristic (Use metric measurements)
 - a. Weight
 - b. Size (dimensions)
9. Site of test(s)
10. Disposition of test specimens
11. Observations, notes, analysis
12. If a continuation project, summary of original project should be included
13. All data should have proper units
14. Summarize data in graphical or bar chart form as well as in written form
15. Final conclusions
16. List of test equipment and materials. Include accuracy of test equipment.

In summary, the report should include:

- Introduction
- Summary
- Objective
- Background data
- Plan
- Procedures
- Description of test item(s)
- Test results & analysis
- Conclusions
- Test data and conditions
- Drawings, schematics
- Photos and/or recordings
- List of materials and test equipment
- Appropriate graphs and/or bar charts