

INSTRUCTIONS REGARDING REQUIRED PARTS OF 'DESIGN' REPORTS

In order to satisfy the requirements of the Accreditation Board for Engineering and Technology (ABET), the "design" reports required of seniors must take proper account of the following points. Reports failing to do this will be judged unsatisfactory.

1. The "design" experience must be related to professional practice. It must show evidence of drawing on previous coursework, but not necessarily upon every course taken by the student.
2. Engineering design is the process of devising a system, component, or a process to meet desired needs: i.e., who is it for, what is it for or what is its purpose. These needs must be explained in the introduction of your report. Engineering design is a decision-making process (often iterative), in which the basic sciences, mathematics and engineering science are applied to convert resources optimally to these needs. Resources include materials, manufacturing facilities, time and engineering costs. The steps followed in the process must be listed in the introduction or body of the report.
3. Among the fundamental elements of the design process are:
 - the establishment of a problem statement, objectives, and criteria,
 - synthesis of a solution using intuition, creativity, ingenuity and formal methods,
 - consideration of alternative solutions,
 - feasibility considerations,
 - analysis (for aspects that need it),
 - operator interaction ("user friendliness"),
 - detailed system descriptions,
 - construction including materials and manufacturability,
 - testing,
 - evaluation (including evaluation of uncertain aspects and technical risks).The introduction must mention which of the elements of this list were considered in your project. The most significant of these elements must be discussed in detail in the body of the report.
4. The report must explain your consideration of a variety of realistic constraints such as
 - economic factors,
 - safety,
 - reliability,
 - maintainability,
 - aesthetics (sloppy, shoddy, cheap-looking vs. neat, solid, attractive),
 - ethics,
 - social impact, where applicable.The constraints applicable to your project must be mentioned in the introduction and be discussed in detail in the body of the report.
5. The design report from a team should include a brief description of the process used by the student(s) to interact with the various subgroups that make up the rest of the team. It should also include a description of how the tasks were distributed among the students that make up a subgroup, and how they coordinated their efforts to achieve the overall team objectives.
6. It is expected that covering points 1-5 listed above will comprise a net addition of several pages to the other, more technical parts of your report.
7. Attach a copy of these instructions to your report, and check off the points that have been included.

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