The success or failure of many projects stems from the success or failure with communications. Know your audience.

- External vs. Internal
- Be prepared
- Know your project
- Know your contribution
- Be confident

External communications are usually direct toward an audience of people trained or experienced in business, management or government, and emphasize benefits and costs. Most of the support for the project and acceptance of its results depend on external communications.

Internal communications are directed toward people trained in engineering and technology and are more technical and specific in nature. Most of the significance of a project and overall success of the project depend on internal communications.

Communications in the Design Project

Communications
- Meetings
- Memos/Executive Summaries
- Deliverables
  - Project Reports
  - Drawings/Specifications/Documentation
- Presentations

Reports
- Pre-proposal
- Proposal
- Progress Reports
- Project (Final) Report
The idea behind a proposal is to sell the merits of the concept project, so that resource are made available.

- The proposal must be technically correct and must show some promise of solving a real problem.

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Proposal Format

1. Title page
2. Executive summary
3. Objectives
4. Introduction to the problem
5. Previous work
6. Proposed work
7. Resources need
   a) people
   b) time
   c) money
   d) special facilities

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Pre-proposal

- Is a tool is used to sell the most useful/innovative merits of the concept project.
  - Typically, the pre-proposal is of the same scope of a proposal, just presented in far less detail.

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Every Proposal Should Demonstrate

- Grasp of the problem
- Impacts of the problem and of the potential solutions
- Innovative/creative aspects
- Engineering prowess

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Proposal Presentation

- Know your audience
- Be prepared
- Be confident

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Progress Reports

- Brief, concise but complete
  - Scale and scope dependent
- Frequency
  - Scale and scope dependent
- Summary of progress
  - Audience dependent
Design Project Reports

1. Statement of the Problem
   a) Design objectives
   b) Design criteria

2. Previous Work
   a) Literature review
   b) Regulation review

3. Alternative Solutions

4. Selected Solution

5. Design Details
   a) Applications of basic and engineering sciences
   b) Drawings
   c) Bill of materials
   d) Construction instructions
   e) Operating instructions

6. Results of Model/Prototype Testing

Documentation

- Bound project notebook, written in ink, dated, signed, with page numbers.
- Information of legal significance, should be reviewed, signed and date by team members.
- Electronic files. Use backup copies/show tracking changes.

Drawings

- Sketches – Project Notebook
- Instrument drawings
  - Gross to fine scale
- CAD Files

Drawing Elements

- Title Block
- Dimensions
- Details
- Assembly Instructions
- Assembly/Parts List

Assembly List

- Assembly lists list every component that goes into a product and are organized in outline form by assemblies.
- A product is made up of assemblies are made up of sub-assemblies are made up of components are made up of parts, ad infinitum.

Bill of Materials

- Bills of materials are similar to assembly lists and are often derived from them.
- Bills of materials should be organized so that purchasing can more easily acquire the materials.
- Bills of materials may include suggested suppliers.