

# ENGINEERING PROPOSAL PREPARATION, PROJECT MANAGEMENT AND REPORTING

In this session, we will present some details on proposal preparation, project management and reporting for E90.

## PROPOSAL WRITING

A well-written proposal will convince the client that you have defined a worthwhile project, understand it fully, have a superb plan for accomplishing all objectives and can successfully carry out the project goals. The proposal also includes project costs. If you spend time writing a good proposal, it becomes a "road map" for project development.

### Sample Outline for Proposal

Title of Proposed Project and Author(s) of Proposal

Abstract

This is a concise summary of what you are proposing, the benefits of the proposed work, how it will be accomplished and what it will cost.

Introduction

A brief statement of what you are proposing and how the proposal is organized

Technical Discussion

A complete description of the background material necessary to begin the project. Here you convince the reader that you have done your research and that you fully understand the project requirements. You may also have to explain the relevance of the project and convince the reader that it deserves sponsorship. This section and the project plan are the "heart" of the proposal.

Project Plan

Here you discuss in detail how you will accomplish the project goals in a logical progression. Divide the project into phases and list tasks for each phase. Explain how you will accomplish each task. A suggested methodology is to explain each task using the following format:

- Objective
- Approach
- Output

A timeline, milestones, critical path analysis and management (CPM), and time budgeting are integral parts of project planning.

- A timeline indicates when each task will be completed. Milestones or deliverable items represent important benchmarks in project development. The discussion of the timeline and milestones are integrated into the project plan. Attached is a sample project timeline. Milestones, not shown, would most likely occur after tasks 2,3,5,6,8,11,12,13 and 15.
- Critical path analysis or management (CPM) is used to logically arrange project tasks in the most efficient manner. You must decide the order in which tasks are to be completed. Important factors are:
  - The dependence of each task on preceding and subsequent tasks
  - The amount of time required to finish each task
- In project time budgeting, you estimate the number of hours required each week to complete the project. For E90, this is mainly your time, although it should include any necessary technical assistance.

### Project Qualifications

Here you discuss your qualifications and convince the reader that you should be the one to complete the project successfully. Discuss yourself, your facilities, and any other important resources. Detail manpower and other resource requirements by task.

### Project Cost

Here you will determine the costs by task. In preparing a cost budget, you consider manpower and other requirements. The latter may include many items, e.g., materials, travel and outside resources. Manpower includes wages and overhead or mark-up. Other costs are also "marked up", but usually at a different rate. Preparing an accurate budget and keeping the project within budget is an extremely important part of project management. For E90, we are primarily interested in the cost of equipment and materials. We also need an estimate of the time requirements for technical assistance.

## PROJECT REPORTING

As project manager, you frequently track weekly progress and expenses and compare with timeline and cost projections in-house. The frequency and form of external project reporting depends on project length and the client. Well-documented progress reports can be collated at the end of the project and, along with the project proposal, form a significant contribution to the final report. Below is a suggested outline for a weekly report. Please see your advisor (your client) for their exact requirements.

Suggested Format for Project Reports:

Title of Project

Name

Date report due

Report No. - number sequentially

Project Objective - one or two sentences

Accomplishments to the time of previous report - add to this weekly

Accomplishments not reported in last report

Plans for next week

Major Problems Anticipated

Initial and Current Timeline - see if you can get this on one timeline.

Initial Budgeted Time Projection and Actual Time Completed by week -make this a graph

All final reports will be bound and kept at the Cornell library. Please format your document to allow binding on the left-hand side.