

ASSIGNMENT 3

PROGRESS REPORT ON THE WIND TURBINE PROJECT

The progress report may well be the document you will write most frequently as an engineer. Progress reports are addressed to supervisors, project managers, employers, contractors, funding agencies, and/or government officials and are submitted at regular intervals during the course of a project. Progress reports assure people in oversight positions that milestones are being achieved, deadlines are being met, and costs are being monitored. On the basis of progress reports, adjustments can be made to meet budget, supply, schedule and personnel needs. Progress reports also serve as a record of all project-related decisions and actions, and as such can even become evidence in a court case.

Because of the importance of the “paper trail,” progress reports usually follow a specified template. This progress report is the first formal documentation of work on the wind power project and as such must provide certain information that would be expected at this stage. Include the sections described below in your progress report in the order given. You may want to incorporate subsections and/or subheadings within them, but do not otherwise change the prescribed structure.

Typical Content of a Progress Report

- Project review
- Project personnel and timeline
- Accomplishments and results
- Comparison of progress to expectations
- Problems and/or changes
- Work remaining
- Project status and overall assessment

Purpose

The objectives of this assignment are for you to:

- Understand basic principles of project management and conventions of progress reports
- Continue to practice documentation skills
- Summarize overall progress made by your team
- Document your individual contributions to the project
- Analyze and explain your design process and decisions
- Present technical information and data to support your progress evaluation

Note: This report is collaboratively written. Each team will submit a single report that includes a section with individual contributions, which is described below. This means that the report must include a signature sheet and the grade on this report will be subject to the team weighting factor. **Please refer to the Teamwork and Academic Honesty sections of the syllabus for further information.**

Due Dates

The Progress Report is due at the start of your scheduled writing class meeting on either Tuesday, November 25th or Wednesday, November 26th.

Components

I. Definition of the Design Problem

In this section, summarize the *project goals* and identify key *specifications and constraints*. Note: these are the specifications and constraints given to you by the faculty, not constraints imposed by your design ideas and decisions.

II. Project Management

In this section, describe the strategies your team is using to complete the project. Within this section you should include the following sub-sections:

- Team Members – shown in a table with major and key responsibilities. Since all team members are responsible for documentation, no team member’s key responsibility should be “documentation” or “report writing” or “wiki maintenance.”
- Gantt Chart – computer-generated with key tasks identified and a deadline for each. The Gantt chart should begin on the week the project was assigned, and conclude with the final test of the wind turbine. Examples of key tasks include programming tasks (e.g. incorporating blade element theory into your code), prototype testing (troubleshooting code, developing designs for test day, etc.) and design tasks (selection and parameterization of families, optimization, construction, etc.). Be sure that your Gantt chart notes key deliverables and deadlines (including reports).
- Individual Contributions – **each member of the team** will complete a section with the following information:
 - Name (used as a **subheading**)
 - Description of tasks you, as an individual, performed to date
 - Description of how the results of these tasks were communicated to the rest of the team
 - Description of how each task relates to the overall goal of the project, and to the tasks being performed by other team members
 - Section of the report where the task is described in detail

The Individual Contributions are to be written in **narrative form**, not in list format.

Progress

Use this section of the report to provide information about the technical progress you have made thus far. At the time your progress report is due, your team should have:

- Completed a computer model of a wind turbine
- Taken steps to evaluate the accuracy of the model
- Constructed prototype turbines and conducted two tests
- Brainstormed possible designs for turbine blades and developed strategies for evaluating and optimizing these designs

This section of the report should communicate progress on each of these tasks, providing specific details and examples as follows:

- Present the pseudocode algorithm that was given by the faculty and describe how you implemented it, highlighting and explaining any assumptions or decisions that you made or constraints that you imposed (beyond those given by the faculty). If you enhanced the model by making additions beyond the pseudocode, describe these added features and how they are beneficial.
- Discuss steps taken to evaluate the accuracy of the code. This may include presenting the results of hand calculations and comparing them to output from the program.
- Discuss the two tests that were conducted on test day. This should include dimensioned diagrams of your test turbine(s) and explanations of how they were constructed, an explanation of why the team decided to perform these particular tests, a graphical comparison of the results of the test to predictions, and a discussion of what was learned from the test(s). If the test(s) revealed shortcomings in your model, explain how you have addressed them or plan to address them.
- Present the possible turbine designs your team is considering, explaining the parameters that can be varied and your strategies for evaluation and optimization. Present any results that have been obtained so far.

Next steps

In this section, describe your plans for the rest of the semester in detail. It is not enough to say “we’re going to run a whole bunch of turbines through our model and see which one works best.” Give specific plans and optimization strategies, and explain how these plans were informed by insights learned from simulations and testing. Discuss any particular challenges your team is facing and how you plan to address them.

Relate your completed and planned tasks to the project goals. The reader should not simply know that you intend to do X, Y and Z; the reader should be *convinced* that if you do X, Y and Z, you will have *achieved the goals of the project*.

Appendix

The main text of the report should be self-contained; that is, the reader should not need to refer to the Appendix for any essential information. The Appendix contains supplemental information that is not needed for the reader to understand the thrust of the report.

For example, if you completed two pages of hand calculations, the reader can understand what you did and what you learned from it without seeing the full calculation, so the main body of the report could simply provide the end result of the calculations, compare them to the output from your computer program, and explain what you learned. However, if the reader wished to check the accuracy of your calculations, he or she would need to see them, so it would be appropriate to place the full two pages of calculations in an Appendix and refer to them in the text.

As another example, the full code of your model would make an excellent Appendix, but would probably not be needed in the main body. If, in the main body of your report, you are discussing a unique feature of your model, a figure showing a short, relevant section of the code will likely be more useful to the reader than the full code.

Additional Style and Format Notes

- Use memorandum format for this report and follow the headings provided.
- The length of this report is estimated to be 5-7 pages, not including the Appendix and figures.
- Address the report to the Sophomore Clinic Faculty. The “From” line should have your names and should identify your team by number.
- The tone and style of a progress report should be formal and the level of detail specific. Keep in mind that although reported progress sometimes falls short of expectations in various ways, a progress report is not the place for complaints or blame. Discussions of obstacles or setbacks should be accompanied by proposed solutions to these problems.
- Figures and tables should be included where appropriate. Integrate into the report, or show on a separate page if necessary to preserve readability. Be sure to label and refer to them correctly. A Gantt chart is considered a figure.

General Grading Criteria

This grade will be based on the completeness of your progress report, the quality of your design analyses, and the effectiveness of your presentation of data. The progress report should show a detailed awareness of the document’s purpose and be audience-centered.

Please turn in three copies of this report.