

Finite Element Programming

Guidelines for Term Project Write-ups

The report should be typewritten on one side of the page. You should use a word processor. Hand-printed equations are acceptable when necessary.

The report should contain, as a minimum, the following sections:

- 1) Title Page and Abstract
- 2) Introduction.
- 3) Discuss the methods investigated, approaches evaluated and selected. Present the theory behind methods used include and include appropriate citations to the literature. (Could be more than one section.)
- 4) Code design and algorithms/software used not covered in earlier sections.
- 5) Pseudo code for the software developed.
- 6) Code verification process and verification test results
- 7) Code results on problems of interest.
- 8) Concluding remarks.
- 9) References.
- 10) Appendix containing listing of the code written for project.

The abstract should be in the range of 100-250 words in length and delineate the important points of the report. The introduction should first define the problem and its significance, review briefly the existing knowledge about the problem and outline recent contributions in the literature relating to it, and describe the general approach being taken and methods used.

The section(s) after the introduction must contain appropriate technical detail and depth. The code design section should indicate the specific methods and algorithms selected and give a high level view of how the codes works. The pseudo code section should be sure to give properly documented pseudo code of all code developed including details of interfaces to other components (e.g, a PETSc solver) used and the functions executed by those components.

The code verification section should include specific examples that demonstrate the code does indeed solve the mathematical problem that it is suppose to solve. The results section should demonstrate the application of the code on problems of interest.

The concluding remarks should not only summarize the success and failure of the work performed; it should clearly define what has been achieved and discuss what should be done in future work to fill in any important gaps.

Reference to the existing literature is a critical part of the project write-up. They should be listed in a section entitled References at the end of the report. A standard method of reference citation must be used (see typical journal papers for examples).