

## Term Projects for ASEN 6367 - Advanced FE Methods - Spring 2009

### RULES OF THE GAME

1. Each term project should involve two (best) or (at most) three students. Teams of four or more are discouraged because the workload distribution tends to get skewed. A project may also be carried out by a single, bright, hardworking but reclusive individual. Forming teams is primarily the responsibility of the students, but instructor can help. Teams may coordinate work by comparing results in related projects. Project groups need not be same as in homeworks.
2. Projects may be proposed by students or taken from the potential subjects list *posted here*. Project topics should be communicated to instructors by Tuesday class after Spring Break. E-mail submission is OK. The description should name the participating students, project title, and one sentence that identifies the subject. Project rosters will be periodically handed out to class for verification.
3. Projects should be related to the subject matter of the course as a starting point. Subjects involving nonstructural analysis (e.g. heat transfer) nonlinear structural analysis or structural dynamics (e.g. frequency analysis) are acceptable if proposers have had prior or collateral experience with such subjects; for example in ongoing thesis work.
4. Project normally involves some computer work (numeric or symbolic), although purely analytical projects are possible. Instructor can make available some FEM computer programs in *Mathematica*.

Instructor supplied programs may be modified or extended to meet the goals of a project. Use of *Matlab* may be far more effective, however, to get quick answers and produce graphical results. Use of symbolic algebra tools such as *Mathematica* is encouraged as help for analytically oriented projects that involve heavy algebraic manipulations.

5. Instructor is available for project discussion in areas of expertise. Literature that may help with the work will be supplied on request to student or group if available to instructor.
6. Expected workload for a two-student team is 3-5 weeks of work at an average of 8-15 hrs/week per, including report preparation.
7. A project does not have to be successful. However, participants should give a serious try. Negative conclusions may be as valuable as positive ones.
8. Two group presentations are required for each project.
  - A 15-20' progress presentation during the week of classes April 13–16. These may be at class time or outside it, depending on the number of projects. They do not have to be on the same day. A different classroom or conference room might be used off-class-hours if necessary.
  - A 30-40' final presentation during the last week of classes April 27–30. These may be at class time or outside it, depending on the number of projects. A different classroom or conference room might be used off-class-hours if necessary.

Multiperson teams chose a presenter or may time-share presentation.

**OVER**

9. Final progress reports in *PDF file format* are due Wednesday May 6 by noon. They should be emailed to carlos.felippa@colorado.edu by that deadline.
10. The report should describe: objectives, formulation, implementation (if appropriate), results and conclusions. It should contain appropriate references to any literature used. The report should include a listing of key software developed to obtain results (example: an element formation subroutine) but not any “generic” software supplied by instructor or “auxiliary” software such as pre- or postprocessors written as part of the project.