

Laboratory II: Finite Element Analysis

Due Apr. 3, 2009

Objective of this Laboratory:

Use ProE to perform a linear finite element analysis of the component that you created in Lab I. Compute a stress concentration factor, SCF, by finite element methods and compare it with the charts in the text.

Location:

Krieger, the Academic Computing area.

Procedure: (See the attached document for detailed procedures)

1. Conduct a finite element analysis of your chosen component using ProE.
2. Compute the stress concentration factor (SCF) as local maximum von Mises stress divided by appropriate nominal stress.
3. Compare your computed value with that from the chart and discuss the reasons for any differences.

You may work with fellow students, but *each student must submit a separate lab report*. The report is to consist of:

- A neat drawing of the component with dimensions and applied forces
- A color printout of the finite element mesh
- A color printout of the von Mises contours on the surface of the component near the stress concentration
- Items 2 and 3 above
- Comments on your experience with finite element analysis.