

ME 354 Homework #8

Due: March 3th, 2010 before class.

- 1) What are the safety factors in stress and life for a part made from AISI 1045 steel that is designed to be subjected to cyclic stress from -150 MPa to 150 MPa for 1500 times? AISI 1045 steel has fatigue constants $A = 881 \text{ MPa}$ and $B = -0.0916$.
- 2) Dowling, Problem 9.42. Estimate number of repetitions necessary to cause fatigue failure using (a) SWT equation, (b) Morrow equation, and (c) Walker equation with $\gamma = 0.65$.