ME192 Fall, 2014

Exam 1 Study guide

Work sessions

2:00 p.m. Sunday 9/21/14

7:00 p.m., Monday 9/22/14

The problems will be on the following topics:

. Transformation equation – Construct from a link schematic.

. Distinguishing between link length and link offset

. Interpreting the transformation matrix and the frame set up in Adept robots.

. Simple way(s) of proving that RT = R-1

. Flipped rotations as used in robot frame work and the equivalence (not about equivalent axis)

. How to extract joint by joint T matrix from the compound T matrix using the ROTJOINT program.

. Use of Decompose, TRANS( ), and #PPOINT( ) commands in V+

. Structure and meaning of the T, homogeneous matrix.

. Frame set up for two joints with a 90° twist.

. D-H parameters for the case where two Z axes interest.

. Possibly, one brain teaser extra credit problem.

The problems, totaling 8-10, will not require use of a calculator or a formula sheet. However, if you wish, you may bring both. The test is closed book and closed notes (and open mind). There will be no take-home problems.