**ME192 Fall, 2014**

**Exam 2 Study guide, 10/22/14**

Exam on 10/29/14 – 70 minutes long

Work sessions

 Chapter Review 10/22/14

Problem solving

2:00 p.m. Sunday 10/26/14

7:00 p.m., Monday 10/27/14

The problems will be on the following topics:

* Lab 3 – The V+ programming sequence and geometric test logic.
* Lab 4 – Locations and location transformations
* Optional on PLC – input/output types, basic ladder logic, scan cycle
* Vision – Dilation, Erosion, Edge extraction
* One problem each from the H/W #4, 5, 6 and 7 - similar problems
* Geometric solution for inverse kinematic solution
* Substitutions for transcendental equations
* Two questions on Pieper’s solution – special cases, sequence of finding θ’s. Assumptions made.
* One question on singularity
* (5.28) and (5.100) relationship. – The effect of position exchange in cross product
* Extraction of the Jacobian from a velocity vector
* Relationship between force and torque
* Force-moment transformation
* Combined linear velocity vector and rotational velocity vector
* One question from Velocity and force-moment transformations
* Two proof and derivation questions such as ****is a skew symmetric matrix
* Study Example 5.3 and Exercise 5.3
* Derivation of ****(Velocity) = (Skew Symmetric matrix)x (Position) (5.24)