ASEN 5010 Homework Assignment No. 2

Due Date February 21, 2013

READ CHAPTERS 1, 2, 3

Note: if you don't attempt to solve a problem or sub-problem, then you'll be deducted the points you would have been given. Yes, it is possible to make negative points. For example, if a problem is worth 15 points, and you chose simply ignore it, then you'll receive -15 points for this part. If everything else is correct in the homework, you'll end up with a 70.

Problem 1: S&J, Problem 3.11,

Problem 2: Analytically solve for the direct 1-2-1 Euler angle addition formula. Sketch out the required spherical triangles and show all steps.

Problem 3: Analytically solve for the direct 1-2-1 Euler angle subtraction formula. Sketch out the required spherical triangles and show all steps.

Problem 4: S&J, Problem 3.12,

Problem 5: S&J, Problem 3.13

Problem 6: S&J, Problem 3.14

Problem 7: S&J, Problem 3.15, Note, verify the form of Eq. (3.82), not (3.81) (you can do this analytically, or numerically)

Problem 8: S&J, Problem 3.17, start with the DCM in Eq. (3.72), not (3.71)

Problem 9: S&J, Problem 3.18, start with Eq. (3.97), and verify Eqs. (3.98) and (3.99)

Problem 10: S&J, Problem 3.19, (once you see a pattern, you can show what this is and present a more compact development. You do need to show relevant steps though!)

Problem 11: S&J, Problem 3.20, verify the transformation in Eq. (3.115), (you should do this analytically)

Problem 12: S&J, Problem 3.24, (you should do this analytically)

Problem 13: S&J, Problem 3.26, (you should do this analytically)