TTK4130 MODELING AND SIMULATION | ASSIGNMENT 3

ODIN ALEKSANDER SEVERINSEN | MTTK

11 Sets up the following state space:

a)

$$x = \begin{bmatrix} p^e \\ q_s^e \\ v^e \\ \omega_{es}^s \end{bmatrix}$$

, where e is earth frame, s is satellite frame.

Uses the following dynamical model:

$$\dot{p}^e = v^e$$

$$\dot{q}_s^e = \frac{1}{2} q_s^e \otimes \begin{bmatrix} 0 \\ \omega_{es}^s \end{bmatrix}$$

$$\dot{v}^e = -\frac{\kappa}{\|p^e\|^2} \cdot \left(\frac{p^e}{\|p^e\|}\right)$$

$$\dot{\omega}_{es}^s = 0 \quad \text{(constant)}$$

See the attached code. Unfortunately, this is all I was able to do...