

ASE387P.2 Mission Analysis and Design

Homework 4: Orbit Design

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Problem 1: ISS Ground Tracks

A

B

C

Problem 2: Orbit Design

For a sun-synchronous orbit, the Ω nodal rate needs to match the average rate of the Sun's motion projected onto the Earth's equator.

$$\frac{d\Omega}{dt} = \dot{\Omega} = \frac{360^\circ}{365.242 \text{ days/year}} = 0.9856^\circ/\text{day} \quad (1)$$

B

Problem 3

A

B

C

Problem 4

A

B

Appendix

MATLAB code

```
1  
2 %% HW 4  
3 %% Junette Hsin
```