Department: Aerospace Engineering **Division: Flight Mechanics**
Level and Major: Graduate

Course Title: Satellite System Engineering **Number of Credits:** 3
Prerequisite : - **Lecturer:** Kamran Raissi

Course Description:
Conceptual design of a satellite in the form of a system design including layout, interfaces, and technical budgets.

Course Goals and Objectives:

Design a satellite based on the customer definition and requirements to fulfill a specific mission.

Course Topics
- Introduction
- System engineering
- Satellite subsystems:
    - Payload
    - Power
    - Structure
    - Thermal
    - Attitude Determination and Control
    - Command and Data Handling
    - Communication
- Satellite standards
- Mission analysis
- Launch system selection
- Satellite mass and power budget
- Ground coverage design
- Thermal analysis
- Model philosophy
- Satellite AIT process
- Quality assurance

The course aims to:
Educate the students to design a satellite based on the mission definition and requirements as well as standards.

Reading Resources
- J. Wertz, J. Larson, “Space Mission Analysis and Design 3th ed.”, John Wiley and son, 2019.
- NASA Standards.
- ECSS Standards.

Evaluation:
Homework, Midterm Exam, Project, Final exam