

AA 420-421 COURSE DETAILS

TITLE:	Spacecraft and Space Systems Design I-II
CREDITS:	8 (4 + 4)
FORMAT & SCHEDULE:	Lecture & Individual Team Meetings, TBA
FACULTY CONTACT:	Kristi Morgansen

COURSE DESCRIPTION (Catalog Short Form, 50 words Max):

420: Design of space systems and spacecraft for advanced near-Earth and interplanetary missions. Astrodynamics, space environment, space systems engineering. Mission design and analysis, space vehicle propulsion, flight mechanics, atmospheric entry, aerobraking, configuration, structural design, power systems. thermal management, systems integration. Oral presentations and report writing. Design topics vary.

421: A continuation of A A 420. Course content varies from year to year and is dependent on the design topic chosen for A A 420. Prerequisite: A A 420.

COURSE OVERVIEW & LEARNING OBJECTIVES:

The purpose of this two-quarter design course sequence is to integrate the material and techniques from traditional engineering science lecture and examination classes into a holistic “project-oriented” work environment that is typical in the engineering design industry.

Course Objectives:

1. Students will understand the function of spacecraft subsystems and how they might be designed.
2. Students will understand the state of the art in spacecraft system and subsystem design and the trade-offs between them.
3. Students will experience choosing and narrowing high-level mission goals and requirements into specific tasks for design.
4. Students will experience self-organization, delegation, teamwork, communication to peers and visitors, fiscal and schedule maintenance.
5. Students will experience hands-on prototyping and testing of their chosen.

COURSE REQUIREMENTS

PREREQUISITES: 1) A A 301
2) A A 310
3) A A 332
4) A A 460

REQUIRED TEXTBOOK: None

COURSE SCHEDULE

Milestones

WINTER

Intro / Prep Lectures

Systems Requirement Review (SRR)

Preliminary Design Review (PDR)

SPRING

Critical Design Review (CDR)

Final Design Review (FDR)

Final Poster Session