PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
COLLEGE OF ENGINEERING
DEPARTMENT OF MECHANICAL AND METALLURGICAL ENGINEERING
ABET COURSE SYLLABI

ICM2122 INTRODUCTION TO ASTRONAUTICS

Credits and contact hours: 10 UC credits / 10 hours (3 hours in lectures and 7 individual work hours per week)

Instructor's name: Cristian Chavez

Course coordinator's name Cristian Chavez

Textbook: Bate R., Mueller D., White J. "Fundamentals of Astrodynamics", Dover Publications, 1971. ISBN: 0486600610

Course Catalog Description: This unit presents the fundamentals of astronautics, from relevant theoretical topics as astronomical coordinates, celestial mechanics and orbit transfers to more descriptive topics as historical space missions, current needs and modern projects of the XXI century space agencies, including the role of the Chilean Space Agency. The course will be addressed from a theoretical perspective of academic excellence but strongly focused on the chilean reality of managing satellites rather than more sophisticated spacerafts.
Students will know the essence of the astronautical project management, related softwares and a clear vision of the relevance of the astronautic engineering for the technological future of Chile.

Prerequisite Courses: FIS1513 Statics and Dynamics

Co-requisite Courses: None

Status in the Curriculum: Required

Course Learning Outcomes:

1. Defining relevant concepts about astronautics and basic ones related to other space sciences.
2. Applying physical concepts for designing and controlling space travels around Earth and interplanetary ones.
3. Knowing basic aspects about satellite control.
4. Appreciating the relevance of Astronautics in the Science and technological development of Chile.

Relation of Course to ABET Criteria:	b. Design and conduct experiments: analyze and interpret data e. Identify, formulate, and solve engineering problems f. Professional and ethical responsibility g. Effective communication j. Knowledge of contemporary issues k. Techniques, skills, and modern tools for engineering practice.
Topics covered:	1. Fundamentals of Space Sciences 2. Introduction to Astrodynamics 3. Fundamentals of Satellite Control 4. The Chilean Space Agency (ACE) 5. USA and USSR historical programs 6. Orbits and trajectories 7. Fundamentals of Launch Vehicles

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