

SYLLABUS

Spacecraft Design Project 7.5 credits P7012R

Projektkurs: Rymdfarkostdesign

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2023-02-15**

Spacecraft Design Project 7.5 credits P7012R

Projektkurs: Rymdfarkostdesign

Second cycle, P7012R

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Rymdteknik	Space Technology

Main field of study

Space Technology

Entry requirements

Knowledge about a spacecraft's subsystems, as R7025R Orbit and Attitude Dynamics, R7018R Spacecraft Onboard Datahandling, R7021R Space Communications, R7026R Spacecraft Control, R7023R Propulsion with space applications, E7001R Electronics in Space or E7003R Electronics in Space, R7024R Space Materials and Structures, as well as knowledge about principles for spacecraft design as R7029R Space system Design or the older course R7020R Spacecraft Design.

Knowledge in English equivalent to English 6.

Selection

The selection is based on 30-285 credits

Course Aim

The student shall obtain knowledge and experience on how a smaller spacecraft can be designed as far as possible by specifications and where the subsystems of the spacecraft are integrated to a spacecraft in a computer environment. The student shall acquire an effective work process, including meeting preparations, commitment, planning, initiative and be able to interact with other students in the working form of concurrent engineering. The student's design choice must be based on science and proven experience and the solutions must be sufficiently specified to form a basis for further work with the design process, which must be stated in the report produced as a result of the work.

Contents

Introduction to project work and evaluation of proposed space projects. Design of a spacecraft in a computer environment. Organization of, and preparation of documents for a Preliminary Design Review (PDR). Oral and written presentation of the PDR for clients of the project. The client could in the normal case be a project group with students that work in parallel with the construction of a space instrument, which in principle could be carried by the spacecraft that is designed in this project.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

Students will work in groups. Large groups are to be divided into sub-projects with their own chairman. The minimum number of students in a project is 2 if possible, but it is wished that more than that is participating in the project. If the project is large and there are many students involved, then shall the students be divided in smaller groups, where each group is responsible for different parts or aspects of the spacecraft. Each group shall then interact with the other groups within the framework of concurrent engineering. A student project manager will be appointed who is responsible for implementing the project in its entirety.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. The student should be active in the project work. Examination by written and oral presentation of each student's contribution to the 'Preliminary Design Review' report' (PDR). Each student's performance can be distinguished from other students' achievements and the final results are graded.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Course offered by

Department of Computer Science, Electrical and Space Engineering

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0004	Preliminary Design Review	G U 3 4 5	7.5	Mandatory	A17	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Robert Brännström 2023-02-15

Syllabus established

by Jonny Johansson, HUL SRT 2013-02-13