# Course Syllabus

## 1. Annotation

### Course Description

The main objective of the course is to introduce the concept of space system design and engineering. The course will describe the various subsystems involved in the design of a satellite. It will also describe the techniques of systems engineering that are used to obtain a coherent satellite design.

This class will focus on concept preparation in the V-diagram logic. Further results can be explored either in the Space Sector course, where commercial aspects of the mission can be considered, as well as in the PLM course, where technical details can be worked out in a systematic fashion.

### Course Prerequisites / Recommendations

- Fundamentals of Systems Engineering
- Basic math and physics courses

## 2. Structure and Content
Course Academic Level | Master-level course suitable for PhD students
Number of ECTS credits | 6

3. Assignments

<table>
<thead>
<tr>
<th>Assignment Type</th>
<th>Assignment Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Project</td>
<td>Depends on number of people in the class, individual or team projects will be given.</td>
</tr>
<tr>
<td>Homework</td>
<td>Homework on topics discussed in lectures.</td>
</tr>
</tbody>
</table>

4. Grading

Type of Assessment | Graded

Grade Structure

<table>
<thead>
<tr>
<th>Activity Type</th>
<th>Activity weight, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>10</td>
</tr>
<tr>
<td>Homework Assignments</td>
<td>30</td>
</tr>
<tr>
<td>Projects</td>
<td>30</td>
</tr>
<tr>
<td>Final Exam</td>
<td>56</td>
</tr>
</tbody>
</table>

Grading Scale

A: 86
B: 76
C: 66
D: 56
E: 46
F: 0

Attendance Requirements | Mandatory with Exceptions

5. Basic Information
### Course Stream
Science, Technology and Engineering (STE)

### Course Term (in context of Academic Year)
Term 3

### Course Delivery Frequency
Every year

### Students of Which Programs do You Recommend to Consider this Course as an Elective?

<table>
<thead>
<tr>
<th>Masters Programs</th>
<th>PhD Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space and Engineering Systems</td>
<td>Engineering Systems</td>
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</tbody>
</table>

### Course Tags
Physics
Engineering

### 6. Textbooks and Internet Resources

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>&quot;Space Mission analysis and Design&quot;, by W. Larson and J. Wertz</td>
<td>978-1881883159</td>
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</table>

<table>
<thead>
<tr>
<th>Web-resources</th>
<th>Description</th>
</tr>
</thead>
</table>

### 7. Facilities

#### Equipment
None

#### Software
Matlab
Excel
STK
## 8. Learning Outcomes

### Knowledge
- Structure a space project in development phases
- Formulate the tasks and responsibilities of the system engineer
- Dimension the overall system
- Dimension each satellite subsystem
- Elaborate a coherent and consistent system design
- Design a space mission
- Integrate constraints due to the space environment

### Skill
- Set objectives and design an action plan to reach those objectives.
- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Use a work methodology appropriate to the task.
- Access and evaluate appropriate sources of information.
- Write a scientific or technical report.

### Experience
- Team work and working towards a goal.

## 9. Assessment Criteria

Input or Upload Example(s) of Assignment 1:

Select Assignment 1 Type: Homework

Input or Upload Example(s) of Assignment 2:

Input or Upload Example(s) of Assignment 3:

Input or Upload Example(s) of Assignment 4:

Input or Upload Example(s) of Assignment 5:

## 10. Additional Notes