# Syllabus: CanSat: Hands-On Satellite Design

**TU Berlin Summer University 2019 Term 3**

**Week 1 July 22nd-26th**

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Welcome Day!</td>
<td>Introduction to electronics design</td>
<td>Introduction to electronics design</td>
<td>No class</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11:00 - 12:30</td>
<td>Introduction to electronics design</td>
<td>Introduction to electronics design</td>
<td>Introduction to soldering and using workshop tools</td>
<td>Cultural Program</td>
</tr>
<tr>
<td></td>
<td>13:30 - 15:30</td>
<td>13:30-15:30: First class session</td>
<td>Project work: Planning the CanSat mission</td>
<td>Introduction to soldering and using workshop tools</td>
<td>Cultural Program</td>
</tr>
<tr>
<td></td>
<td>16:00 +</td>
<td>Cultural Program</td>
<td>Cultural Program</td>
<td>Cultural Program</td>
<td>Cultural Program</td>
</tr>
<tr>
<td></td>
<td>16:15-16:45: Coffee &amp; Cake</td>
<td></td>
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<td></td>
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</table>

**Week 2 July 29th- August 2nd**

<table>
<thead>
<tr>
<th>Week 2</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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</thead>
<tbody>
<tr>
<td>29</td>
<td>Introduction to CAD design</td>
<td>Introduction to programming</td>
<td>Project work: CanSat mission design</td>
<td>No class</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11:00 - 12:30</td>
<td>Introduction to CAD design</td>
<td>Introduction to programming</td>
<td>Introduction to programming</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13:30 - 15:30</td>
<td>Project work: CanSat mission design</td>
<td>Project work: CanSat mission design</td>
<td></td>
<td>Cultural Program</td>
</tr>
<tr>
<td></td>
<td>16:00 +</td>
<td>Cultural Program</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
### Week 3 August 5th-9th

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 - 10:30</td>
<td>Satellite subsystems</td>
<td>Introduction to programming</td>
<td>Project work: CanSat mission design</td>
<td>Project work: CanSat mission design</td>
<td></td>
</tr>
<tr>
<td>11:00 - 12:30</td>
<td>Satellite subsystems</td>
<td>Introduction to programming</td>
<td>Project work: CanSat mission design</td>
<td>Project work: CanSat mission design</td>
<td>No class</td>
</tr>
<tr>
<td>13:30 - 15:30</td>
<td>Project work: CanSat mission design</td>
<td>Project work: CanSat mission design</td>
<td>Cultural Program</td>
<td>Project work: CanSat mission design</td>
<td></td>
</tr>
<tr>
<td>16:00 +</td>
<td>Cultural Program</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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</table>

### Week 4 August 12th-16th

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 - 10:30</td>
<td>TU Berlin Satellites</td>
<td>Project work: CanSat mission design</td>
<td>Test</td>
<td>Launch campaign</td>
<td>No class</td>
</tr>
<tr>
<td>11:00 - 12:30</td>
<td>TU Berlin Satellites</td>
<td>Project work: CanSat mission design</td>
<td>Presentation</td>
<td>Launch campaign</td>
<td>No class</td>
</tr>
<tr>
<td>13:30 - 15:30</td>
<td>Project work: CanSat mission design</td>
<td>Project work: CanSat mission design</td>
<td>Project work: CanSat mission design</td>
<td>Launch campaign</td>
<td>Certificates Ceremony</td>
</tr>
<tr>
<td>16:00 +</td>
<td>Cultural Program</td>
<td></td>
<td></td>
<td></td>
<td>Lichthof, 1st floor, TU Berlin main building</td>
</tr>
</tbody>
</table>

**Key**

- Lecture
- Field Trip or Practical
- Assessment
- Cultural Program activity*

*The cultural program timetable will be emailed to you shortly before your course starts. For more information about the cultural program, and for examples of previous schedules, head here: [https://www.tu-berlin.de/menue/summer_university/cultural_program/](https://www.tu-berlin.de/menue/summer_university/cultural_program/)

**Assessment information**

You will be assessed in the following ways (see yellow sessions in schedule, if applicable):
- Short test on 14.08.19
• Project presentation on 14.08.19
• Project demonstration on 15.08.19

Your assessments will be weighted as follows:
• Test 30% (individual assessment)
• Project presentation 30% (group assessment)
• Project demonstration 40% (group assessment)

Grading information

All participants of the TU Berlin Summer & Winter University are required to select their grading option at the time of registration. The two options available are (i) graded or (ii) pass/fail.

All participants who select option (i) graded, will receive a grade under the German grading system. The following table provides an overview of the grading system and equivalent scores for international credit transfers:

<table>
<thead>
<tr>
<th>Total mark</th>
<th>German grade</th>
<th>English description</th>
</tr>
</thead>
<tbody>
<tr>
<td>More or equal to 95</td>
<td>1.0</td>
<td>Excellent</td>
</tr>
<tr>
<td>More or equal to 90</td>
<td>1.3</td>
<td>Very good</td>
</tr>
<tr>
<td>More or equal to 85</td>
<td>1.7</td>
<td>Good</td>
</tr>
<tr>
<td>More or equal to 80</td>
<td>2.0</td>
<td>Good</td>
</tr>
<tr>
<td>More or equal to 75</td>
<td>2.3</td>
<td>Good</td>
</tr>
<tr>
<td>More or equal to 70</td>
<td>2.7</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>More or equal to 65</td>
<td>3.0</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>More or equal to 60</td>
<td>3.3</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>More or equal to 55</td>
<td>3.7</td>
<td>Sufficient</td>
</tr>
<tr>
<td>More or equal to 50</td>
<td>4.0</td>
<td>Sufficient</td>
</tr>
<tr>
<td>Less than 50</td>
<td>5.0</td>
<td>Failed</td>
</tr>
</tbody>
</table>

Credit Points

ECTS is a point system and European standard developed by the Commission of the European Community. ECTS stands for European Credit Transfer System. The aim is to provide common procedures and guarantee academic recognition of studies abroad. The credit system is based on student workload. All lectures, seminars, excursions and homework count towards the workload. One point is awarded for the equivalent of 25-30 hours of workload.

Reading list

Here are reading materials which will be used or referred to during the course. You are not required to read these in advance – this is for your information and reference. All sources below are available either open source, in the TU Berlin library, or will be provided to you directly by your lecturers, during the course.

To search resources available in the TU Berlin library, check here: [https://www.ub.tu-berlin.de/en/searching-for-resources/](https://www.ub.tu-berlin.de/en/searching-for-resources/)

1. Handbook of Space Technology, W. Ley
2. Make: Electronics, C. Platt
3. Arduino Cookbook, M. Margolis