# Foundations of STS Eng.: Systems Engineering

**Module label**
Foundations of STS Eng.: Systems Engineering

**Module code**
inf965

**Credit points**
6.0 KP

**Workload**
180 h

**Used in course of study**
- Master's Programme Engineering of Socio-Technical Systems > Fundamentals/Foundations

**Contact person**
- Axel Hahn
- Martin Georg Fränzle

**Entry requirements**

**Skills to be acquired in this module**

**Professional competences:**
Designing and maintaining complex artefacts are a major challenge for engineering for decades. System Engineering is an approach to handle this complexity. By completing this module, the students are aware of the challenges of complexity. They know how systems engineering can address these while designing complex but reliable, dependable and safe products. A major cornerstone is to know the concept of a system and to describe it using appropriate modelling techniques. The student starts think in systems as an aggregation of components systems that may again be a component of an aggregated system up to the concepts of systems of systems. They are able to understand the effects of single components attributes on the system as a whole including humans a elements of complex systems.

**Methodological competences:**
The students are able to apply system-engineering methodologies and methods to understand requirements, to design, implement and test systems.

**Social competences:**
Usage of engineering tools will provide practical experience.

**Module contents**
The module consists of a lecture and an exercise part:
- Lecture: Introduction to the concepts of systems, methodologies and methods of systems engineering. As special emphasis is put on the usage of SYSML as a modelling approach.
- Exercises: Own design experiences by using engineering methods and tools.

**Reader’s advisory**

**Language of instruction**
English

**Duration (semesters)**
1 Semester

**Module frequency**
Once a year

**Module capacity**
unlimited

**Module level**
BC (Basiccurriculum / Base curriculum)

**Modulart**
Pflicht o. Wahlpflicht / compulsory or optional

**Vorkenntnisse / Previous knowledge**
V+Ü

<table>
<thead>
<tr>
<th>Examination</th>
<th>Time of examination</th>
<th>Type of examination</th>
<th>Portfolio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period</td>
<td>Portfolio</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course type</th>
<th>Comment</th>
<th>Frequency</th>
<th>Workload attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>2.00</td>
<td>SuSe</td>
<td>28 h</td>
</tr>
<tr>
<td>Exercises</td>
<td>2.00</td>
<td>SuSe</td>
<td>28 h</td>
</tr>
</tbody>
</table>

**Total time of attendance for the module**
56 h