Inf965 - 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 modeling 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.

Professional competences:
Usage of engineering tools will provide practical experience.

Social competences:
They are aware of the role complex systems play in our society and got and understanding of complexity management as a Self-competences in engineering.

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

Links
Language of instruction: English
Duration (semesters): 2 Semester
Module frequency: each term
Module capacity: unlimited
Module level: BC (Basiscurriculum / Base curriculum)
Module art: Pflicht o. Wahlpflicht / compulsory or optional
Lern-/Lehrform / Type of program: V+Ü
Vorkenntnisse / Previous knowledge:

Examination
Final exam of module: At the end of the lecture period

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

Total time of attendance for the module: 56 h