inf965 - Foundations of STS Eng.: Systems Engineering

Professional competences:
Designing and maintaining complex artefacts are a major challenge of 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 thinking 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:
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

Examination
Final exam of module
Time of examination
At the end of the lecture period
Type of examination
Portfolio

Course type
Comment
Frequency
Workload attendance
Lecture
2.00
SuSe
28 h
Exercises
2.00
SuSe
28 h

Total time of attendance for the module
56 h