inf338 - Design of Autonomous Systems

Module label: Design of Autonomous Systems
Module code: inf338
Credit points: 6.0 KP
Workload: 180 h

Used in course of study:
- Master's Programme Computing Science > Technische Informatik
- Master's Programme Engineering of Socio-Technical Systems > Embedded Brain Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems > Human-Computer Interaction
- Master's Programme Engineering of Socio-Technical Systems > Systems Engineering

Contact person:
Module responsibility:
- Martin Georg Fränzle
- Die im Modul Lehrenden

Authorized examiners:
- Die im Modul Lehrenden
- Martin Georg Fränzle

Entry requirements:
Skills to be acquired in this module:
Professional competences:
The students are enabled to analyze and build autonomous systems.

Methodological competences:
The students know examples of existing autonomous systems, understand the elements involved in their architectural design and the rationale behind decomposing the problem into obligations for the respective system components. The module furthermore enables the students to analyze existing architectures for autonomous systems with respect to their performance and safety. The students learn how to decompose a problem of designing an autonomous system into an architecture, are able to derive design obligations for its components, and can structure a pertinent safety case. They understand the software and hardware components necessary for achieving system autonomy and are able to design or instantiate these.

Social competences:
The students acquire hands-on experience in designing components for autonomous systems in small teams and present the underlying theory, their particular design decisions, and their personal evaluation to fellow students.

Self-competences:
The students can judge adequacy of their methodological skills for designing particular autonomous solutions. They are able to assess the safety impact of such a solution and are therefore able to develop a personal ethical stance towards its realization.

Module contents:
The module consists of a lecture and an exercise part

Reader's advisory:

Links:

Language of instruction: English
Duration (semesters): 1 Semester
Module frequency: once a year
Module capacity: unlimited
Modullevel: AS (Akzentsetzung / Accentuation)
Modulart: Pflicht o. Wahlpflicht / compulsory or optional
Lern-/Lehrform / Type of program: V+Ü
Vorkenntnisse / Previous knowledge:

Examination:
Time of examination: Second half of semester
Type of examination: Presentation

Course type:
Comment  SWS  Frequency  Workload attendance
Lecture  2.00  SuSe and WiSe  28 h
Exercises  2.00  SuSe and WiSe  28 h

Total time of attendance for the module: 56 h