inf333 - Sensor Technology in the Automotive Domain

Module label: Sensor Technology in the Automotive Domain
Module code: inf333
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
- Frank Köster
- Die im Modul Lehrenden

Authorized examiners:
- Die im Modul Lehrenden
- Frank Köster

Entry requirements:
This module introduces the principles of sensors and sensor-systems as well as data-fusion in the automotive domain.

Skills to be acquired in this module:
Professional competences:
The students:
- Discuss different levels diverse levels sensor-technologies
- Discuss sensor-data fusion (multi-level fusion)
- Discuss Kalman-Filter
- Discuss in-vehicle data-processing
- Discuss car2cx-technologies
- Design simple multi-sensor systems
- Evaluate multi-sensor systems

Methodological competences:
The students:
- Analyze multi-sensor systems
- Design multi-sensor systems
- Evaluate multi-sensor systems

Social competences:
The students:
- Work in teams
- Discuss their outcomes appropriately

Self-competences:
The students:
- Acknowledge the limits of their ability to cope with pressure during the work on the topics of the module

Module contents:
- Sensor-technologies
- Data fusion (multi-level fusion)
- Kalman-Filter
- In-vehicle data-processing
- Car2cx-technologies (ITS G5 and 5G)
- Multi-sensor and multi-level fusion architectures
### Reader’s advisory

**Suggested reading:**


### Links

<table>
<thead>
<tr>
<th>Language of instruction</th>
<th>Duration (semesters)</th>
<th>Module frequency</th>
<th>Module capacity</th>
<th>Module level</th>
<th>Modulart</th>
<th>Lern-/Lehrform / Type of program</th>
<th>Vorkenntnisse / Previous knowledge</th>
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<tr>
<td>English</td>
<td>1 Semester</td>
<td>once a year</td>
<td>100</td>
<td>AS (Akzentsetzung / Accentuation)</td>
<td>Pflicht o. Wahlpflicht / compulsory or optional</td>
<td>V+Ü</td>
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### Examination

<table>
<thead>
<tr>
<th>Course type</th>
<th>Time of examination</th>
<th>Type of examination</th>
<th>Frequency</th>
<th>Workload attendance</th>
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<tr>
<td>Final exam of module</td>
<td>At the end of the lecture period</td>
<td>Practikal Work and oral exam</td>
<td>SuSe</td>
<td>28 h</td>
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### Course type

- **Lecture**
  - Comment: 2.00
  - Frequency: SuSe
  - Workload attendance: 28 h

- **Exercises**
  - Comment: 2.00
  - Frequency: SuSe
  - Workload attendance: 28 h

### Total time of attendance for the module

- 56 h