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

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

Language of instruction: English
Duration (semesters): 1 Semester
Module frequency: once a year
Module capacity: 100
Module level: AS (Akzentsetzung / Accentuation)
Modulart: Pflicht o. Wahlpflicht / compulsory or optional
Lern-/Lehrform / Type of program: V+Ü

Vorkenntnisse / Previous knowledge

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

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

Total time of attendance for the module: 56 h