inf331 - Automated and Connected Driving

Module label: Automated and Connected Driving
Module code: inf331
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

Contact person:
- Module responsibility
  - Frank Köster
  - Die im Modul Lehrenden

Authorized examiners:
- Frank Köster
- Die im Modul Lehrenden

Entry requirements:

Skills to be acquired in this module:

Professional competences:
The students:
- Discuss different levels of automated driving (e.g., SAE-Level) and the differences
- Discuss different levels of connected driving and the differences
- Discuss core-domains of automated vehicles
- Discuss important technological pillars in the areas sense, plan, and act
- Discuss transition between different levels of automation
- Discuss the impact of connected vehicle functions on automated driving
- Discuss the impact of automated vehicle functions on connected driving
- Characterise the impact of automated and connected driving on road traffic
- Characterise the interaction of humans and automated and connected vehicles
- Design an abstract procedure for the change of different levels of automation
- Design a rough vehicle architecture for automated and connected driving

Methodological competences:
The students:
- Analyze complex automated and connected vehicles (→ domains)
- Analyze core-functions of automated and connected vehicles (→ functions)

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 analysis of complex (automated and connected) socio-technical systems

Module contents:
- Levels of automated driving (e.g., SAE-Level)
- Levels of connected driving
- Core-domains of automated vehicles
- Sense, plan, and act in the context of automated and connected vehicles
- Transition between different levels of automation
- Selected connected vehicle functions
- Selected automated vehicle functions
- human factors and socio-technical systems
- vehicle architectures

Reader's advisory  Suggested reading:


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<tr>
<td>Language of instruction</td>
<td>English</td>
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<tr>
<td>Duration (semesters)</td>
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<tr>
<td>Module frequency</td>
<td>Once a year</td>
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<td>Module capacity</td>
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<td>Modullevel</td>
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<td>Modulart</td>
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<td>Lern-Lehrform / Type of program</td>
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<tr>
<td>Vorkenntnisse / Previous knowledge</td>
<td>- inf201 Technische Informatik,</td>
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<td>- inf203 Eingebettete Systeme I,</td>
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<td>- inf204 Eingebettete Systeme II</td>
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<th>Praktical work and oral exam</th>
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Total time of attendance for the module