inf331 - Automated and Connected Driving

<table>
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<th>Module name</th>
<th>Automated and Connected Driving</th>
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<td>Module code</td>
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<tr>
<td>ECTS credit points</td>
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<td>Workload</td>
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**Used in degree programmes**
- Master's Programme Computing Science > Mastermodule
- 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

**Prerequisites**

**Skills to be acquired in this module**

This module introduces the principles of automated driving.

**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 (eg. 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

Recommended reading

Recommended reading:


Suggested reading:


Links

Language of instruction: English

Duration (semesters): 1 semester

Module frequency: Once a year

Module capacity: Unlimited

Module level: AS (Akzentsetzung / Accentuation)

Modulart: Pflicht o. Wahlpflicht / compulsory or optional

Lern-/Lehrform / Type of program: V+Ü

Vorkenntnisse / Previous knowledge:
- inf201 Technische Informatik,
- inf203 Eingebettete Systeme I,
- inf204 Eingebettete Systeme II

Examination

- Final exam of module: At the end of the lecture period
- Type of examination: Praktical work and oral exam

Course type

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<th>Comment</th>
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<th>Course frequency</th>
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