<table>
<thead>
<tr>
<th><strong>Title:</strong></th>
<th>Safety and Systems Engineering</th>
</tr>
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<tbody>
<tr>
<td><strong>Short Code:</strong></td>
<td>EVA_SSE</td>
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<tr>
<td><strong>ECTS Credits:</strong></td>
<td>2</td>
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<td><strong>UAS:</strong></td>
<td>ZHAW</td>
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<td><strong>Organizer Details:</strong></td>
<td>MRU IAMP</td>
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<tr>
<td><strong>Evaluation:</strong></td>
<td>Oral Presentation</td>
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<tr>
<td><strong>Decision Date:</strong></td>
<td>21 August 2020</td>
</tr>
<tr>
<td><strong>Start Date:</strong></td>
<td>17 September 2020</td>
</tr>
<tr>
<td><strong>End Date:</strong></td>
<td>31 December 2020</td>
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<td><strong>Language(s):</strong></td>
<td>English by default</td>
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**Description (max. 300 characters):**
As more and more mechanical systems are being replaced by electronic systems, different procedures are needed to continue to develop safe systems. In this module, students learn how to develop and assess safety-related systems using systems engineering approaches. This module provides the basic knowledge for the more specialized modules.

**Contents and Learning Objectives:**
This course introduces the most important concepts and methods of systems engineering with a special focus on safety-related systems.

**Contents:**
- complete safety life cycle
  - concept
  - risk analysis
  - system Architecture
  - requirements for system components
  - implementation (HW/SW)
  - verification and validation
  - commissioning, operation, and decommissioning
- various aspects of system development in general and the development of safe systems in particular
- requirements, standards, laws
- overview on verification techniques and methods
- development processes
- technical solutions
- application of what has been learned within a comprehensive case study
### Learning Objectives:

- students can identify the hazards for a socio-technical system and assess the associated risk
- students know the role of standards for the approval of systems and can work with them
- students know the basics of systems engineering
- students know the steps of the safety lifecycle, are familiar with the respective work packages, and can work on parts of them
- students know different methods and techniques of verification and validation of systems and can apply them
- students understand that safety is a system property that is achieved by an interdisciplinary team during the development phase based on a case study

### Admission:

Electrical and Mechatronic Engineers, Computer and Data Scientists, Mechanical Engineers, Systems Engineers

### Literature:

Literature list will be provided

### Conditions:

50% theory / discussion, 50% labs / work in teams

### Contact:

Dr. Monika Reif

### Contact Person E-Mail:

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### Status:

registration open

### Specialization:

Aviation (Avi)

Computer Science (CS)

Data Science (DS)

Electrical Engineering (EIE)

Mechanical Engineering (ME)

Mechatronics & Automation (MA)

Medical Engineering (Med)