

# Course Manual FSI

Functional Safety

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## – General information

**Long name** Functional Safety

**Approving CModule** [FSI BaET](#)

**Responsible** Prof. Dr. Jens Onno  
Krah  
Professor Fakultät IME

**Valid from** winter semester  
2022/23

**Level** Bachelor

**Semester in the year** winter semester

**Duration** Semester

**Hours in self-study** 60

**ECTS** 5

**Professors** Prof. Dr. Jens Onno  
Krah  
Professor Fakultät IME

**Requirements** MA1, TI1

**Language** German

**Separate final exam** Yes

### Literature

Skript und einschlägige Normen

### Final exam

**Details** Written module  
examination - similar to  
the exercises

**Minimum standard** -

**Exam Type** EN Klausur

## – Lecture / Exercises

### Learning goals

Goal type	Description
Skills	Process safety, background and regulations Characteristics and evaluation of the Safety Integrity Level (SIL) of safety equipment Similarities and differences to the Performance Levels Design and calculation of redundant circuits Reliability and reliability parameters Terms and characteristics Requirements for fault disclosure Risk and hazard analysis Calculation of safety parameters Reliability models for hardware and software

### Expenditure classroom teaching

Type	Attendance (h/Wk.)
Lecture	2
Exercises (whole course)	2
Exercises (shared course)	0
Tutorial (voluntary)	0

### Special requirements

none

<b>Accompanying material</b>	Script for the lecture, exercise set (pdf)
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<b>Separate exam</b>	Yes
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### Separate exam

<b>Exam Type</b>	EN Übungsaufgabe mit fachlich / methodisch eingeschränktem Fokus lösen
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<b>Details</b>	Presence exercise and self-learning tasks
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<b>Minimum standard</b>	-
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## – Practical training

### Learning goals

Goal type	Description
Skills	Programming of a safety controller Connection of fail-safe process peripherals Use of the SISTEMA software Design and validation of safety controllers

### Special requirements

Safety Controller PNOz Multi

<b>Accompanying material</b>	Experimental documents (pdf)
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<b>Separate exam</b>	Yes
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### Expenditure classroom teaching

Type	Attendance (h/Wk.)
Practical training	1
Tutorial (voluntary)	0

### Separate exam

<b>Exam Type</b>	EN Projektaufgabe im Team bearbeiten (z.B. im Praktikum)
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<b>Details</b>	Validation of the safety circuit with project report
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<b>Minimum standard</b>	-
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