

Safety Related Embedded Systems

Terms, basics and application specific characteristics of safety related embedded systems

Target group(s):	7. Semester KTB 7. Semester SWB 7. Semester TIB	Module number	IT 701-08
Workload:	2 Credits		60 Hours
therefrom	Contact hours		30 Hours
	Self study		15 Hours
	Exam preparation		15 Hours
Language of instruction:	English		
Module owner:	Prof. Reinhard Keller		
Date:	01. 10. 2011		

Prerequisites:

Knowledge of courses from the basic study period

Knowledge of courses

- Computer Architecture 3
- Real-Time Systems
- Computer Science 3
- System Technics 1

Total Target:

Introduction to the technology of safety related systems

Basic knowledge of safety related functions of embedded systems

Module content:

- Terms and Definitions in safety and related standards
- Risk Analysis
- Life Cycle Management of safety related systems
- Measures taken to ensure the required safety level (Hardware, Software, Application Directives)
- Implementation and test of safety related products
- Related branch specific approaches (Aviation, Railway, Automation, Automotive)
- Practical training: Project planning and approval of a safety related Application

Reference material:

- Reinert, D., Schäfer, M. (Hrsg.): Sichere Bussysteme in der Automation. Hüthig-Verlag, Heidelberg, 2001; ISBN 3-7785-2797-5.
- IEC 61508: Functional safety of electrical/electronic/programmable electronic safety-related systems.
- ISO 26262: Road Vehicles – Functional Safety.
- EN ISO 13849: Safety of machinery - Safety-related parts of control systems

Offered:

Winter semester

Submodules and assessment:

Type of instruction:	Lectures with follow-up work and preparation for examination
Type of assessment:	Oral examination, 20 minutes
Semester periods per week:	2 SWS
Estimated student workload:	60 hours
Aims, learning outcomes:	
	<ul style="list-style-type: none">• Knowledge of important safety related terms and definitions• Basic understanding of safety related functions• Basic understanding of the life cycle of safety related products• Overview on safety standards