

Ergänzende Veranstaltung der School of Engineering

Title: Safety and Dependability – PART 1

Kürzel: EVA_SAD1

Umfang in Credits	4 ECTS
Veranstalter	InES, IAMP
Leistungsnachweis	Each of three presentations by students is graded. Final grade is average of these three grades
Startdatum	1 week before start of semester, HS and FS
Art der Durchführung	<p>The EVA is divided into an introduction and three sessions over the entire semester. Each session is completed by a presentation which is graded.</p> <p>A session consists of</p> <ul style="list-style-type: none"> Input lectures and exercises in block-teaching (1 day) Group work on a case study (1.5 day) Presentation of interim results of group work with feedback (0,5 day) Further group work on case study (1 day) Final presentation with discussion and grade (0.5 days) <p>The introduction unit is scheduled in the week before semester begins and consists of two full days of input lectures and exercises.</p> <p>Session activities are scheduled for every Friday during the semester.</p>
Unterrichtssprache	English
Kurzbeschreibung (max. 300 Zeichen)	<p>Every practising engineer will, in the course of his or her career, be confronted with safety and dependability issues. Regardless of actual engineering discipline, for instance electronic, mechanical, avionics or transport, the principles and methodologies behind the specification, development and commissioning of systems with functional safety and dependability aspects are the same.</p> <p>This EVA is designed to instruct engineers of all disciplines in the principles and methodologies of functionally safe and dependable design and implementation and includes introduction to the relevant legal constraints and international specifications, the analytical pre-requisites as well as design and implementation principles for the individual disciplines.</p>
Modulinhalte und Lernziele	After input lectures the students, in groups, will be given an

Ergänzende Veranstaltung der School of Engineering

	<p>assignment based on a case study.</p> <p>Theory / Assignment 1:</p> <ul style="list-style-type: none"> • Introduction, Legal Framework, Concept of Functional Safety, PHA and Safety Requirements <p>Theory/Assignment 2:</p> <ul style="list-style-type: none"> • Reliability Theory Basics, FTA, RBD and Markov Modeling <p>Theory/Assignment 3:</p> <ul style="list-style-type: none"> • Reliability Prediction Basics, FMEA and FMEDA, Demonstration of SIL <p>Theory/Assignment 4:</p> <ul style="list-style-type: none"> • Safety-Critical HW/SW Implementation • System Design Description and System Test Specifications <p>The student will be prepared to undertake safety and dependability related work in an industrial environment The student will be able to refer to the legal framework, EU legislation and international standards pertaining to industrial safe and dependable systems The student will have used safety and dependable related requirements and specification techniques including: Safety Integrity Level assessment, Preliminary Hazard List and Preliminary Hazard Analysis, Reliability Block Diagrams, Markov Modelling, FMEA, FMEDA. The student will gain an insight into the project management techniques and HW/SW techniques necessary to implement a safe and dependable system.</p>
Zulassungsvoraussetzungen	None
Literatur	None
Besondere Regelungen	None – The module is suitable for all engineering disciplines ...
Kontakt und Auskunft	Hans Dermot Doran, donn@zhaw.ch , +41 58 934 76 76