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**Modulbezeichnung: Seminar: Reliability Analysis in Embedded Systems (RA-SEM) 5 ECTS**

Modulverantwortliche/r: Michael Glaß

Lehrende: Michael Glaß, Hananeh Aliee, Faramarz Khosravi

Startsemester: SS 2014

Dauer: 1 Semester

Turnus: jährlich (SS)

Präsenzzeit: 30 Std.

Eigenstudium: 120 Std.

Sprache: Englisch

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**Lehrveranstaltungen:**

Seminar: Reliability Analysis in Embedded Systems (SS 2014, Seminar, Hananeh Aliee et al.)

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**Lernziele und Kompetenzen:**

Ever shrinking technologies has increased the chance of failure in electronic systems (e.g., a bit flip in a memory cell, a break-down in a transistor, an open/short circuit) which may threat the functionality of the system, for example, by corrupting the outputs.

These malfunctions rise the following questions:

- What are the consequences of unexpected failures in a system? May your laptop lock for a while or may an airplane crash?
- Do you rely on a system in the presence of these failures? Do you rely on your bank when there is a chance of an unexpected change in your account's balance?
- Which systems are more prone and critical to failures? What would happen if brakes in cars fail as often as dropouts in audio players?
- How can prediction and prevention, or detection and recovery from failures be employed in a system to ensure correct output? How much the data measured by medical devices are trustworthy?

The purpose of this seminar is to answer these questions following the study of reliability as a measure to analyze the effects of various failures in electronic systems at different levels of abstraction, e. g., VLSI-, transistor-, gate- and system-level.

Reliability is defined as the probability that a system works properly for a specific period of time in the existence of probable failures. Different reliability analysis and improving techniques have been proposed in the literature. In this seminar, each student will be provided by some scientific publications which should be compared with respect to their challenges and proposed solutions. Then, a talk is given by each student in which she/he should conclude her/his studies, and a discussion about the topic is hold by all participants.

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**Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:**

Das Modul ist im Kontext der folgenden Studienfächer/Vertiefungsrichtungen verwendbar:

**[1] Informatik (Bachelor of Arts (2 Fächer))**

(Po-Vers. 2013 | Bachelorprüfung | Bachelor-Module Informatik | Seminar)

Dieses Modul ist daneben auch in den Studienfächern "Informatik (Bachelor of Science)" verwendbar.

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**Studien-/Prüfungsleistungen:**

Seminar Reliability Analysis in Embedded Systems (Prüfungsnummer: 962562)

Prüfungsleistung, mehrteilige Prüfung, Dauer (in Minuten): 30

Anteil an der Berechnung der Modulnote: 100%

weitere Erläuterungen:

The grade is combined out of 50% from your seminar talk and 50% from your report. The scope of the report should be in the range of 6 to 8 pages.

Erstablingung: SS 2014, 1. Wdh.: keine Angabe

1. Prüfer: Michael Glaß