Modul 2-42: HARDWARE SOFTWARE CODESIGN					**ETIT-402**
Turnus Jährlich zum SS	**Dauer** 1 Semester	**Studienabschnitt** 2. Semester	**LP** 10	**Präsenzanteil** 70 h	**Eigenstudium** 230 h

1 Modulstruktur

Nr.	Element / Lehrveranstaltung	LSF-Nr.	Typ	SWS
1	Hardware Software Codesign (Lecture)	08 0316	V	3
2	Hardware Software Codesign (Tutorial)	08 0317	Ü	1
3	Hardware Software Codesign (Practical Exercise)	08 XXXX	P	2

2 Lehrveranstaltungssprache
English

3 Lehrinhalte

1. Design of mixed Hadrware/Software solutions for embedded systems,
2. Understanding of design components
3. Understanding of system-level design paradigms,
4. HW/SW partitioning
5. Optimization methods
6. Performance analysis measures
7. Evaluation methods
8. Modeling and Performance analysis of safety-critical and real-time embedded systems.

Literatur
[1] „Specification and Design of Embedded Systems", D. Gajski, Prentice Hall 1994,
ISBN 0-13-150731-1
[2] „Digitale Hardware/Software Systeme – Synthese und Optimierung", J. Teich,
Springer Verlag 1997, ISBN 3-540-62433-3

4 Kompetenzen
By attending this course, students will learn the design of complex electronic systems at high level of abstractions. This includes the optimized partitioning, scheduling and evaluation of mixed hardware and software design solutions dedicated to embedded systems. During the Tutorials the students acquire knowledge about advanced related topics in HW/SW codesign and performance analysis for safety-critical and real-time embedded systems.
During the practical exercises to the lecture the students will apply the theoretical knowledge of the lecture considering real-world scenarios to allow a better accessibility to the methods explained. Starting from simple system specification the students will use tools for partitioning, optimization and performance analysis to synthesize the hardware/software system.

5 Prüfungen
Modulprüfung: mündliche Prüfung (max. 40 Minuten) oder Klausur (max. 180 Minuten) *
Studienleistungen:

- All students are required to successfully complete 2 out of 4 special assignments in order to be admitted to the final exam.
- All students are required to successfully complete the lab tasks.

*Die genauen Prüfungsmodalitäten werden spätestens zur 2. Veranstaltung bekannt gegeben.

6 Prüfungsformen und -leistungen
☒ Modulprüfung ☐ Teilleistungen

7 Teilnahmevoraussetzungen
Empfohlene Voraussetzungen:
Basic knowledge of computer architectures, basic knowldge of C programming language.

8 Modultyp und Verwendbarkeit des Moduls
Wahlpflichtmodul im Masterstudiengang "Elektrotechnik und Informationstechnik", Studienschwerpunkt „Informations- und Kommunikationstechnik" und „Mikrosystemtechnik und Mikroelektronik"

9	**Modulbeauftragte/r**	**Zuständige Fakultät**
	Prof. Dr.-Ing. Selma Saidi	Fakultät für Elektrotechnik und Informationstechnik