

Name of Module: Embedded Operating Systems		CP (ECTS): 6	Short Name: MINF-SE-EOS
Person Responsible for Module: Heiss	Secretariat: EN 6	e-mail address: heiss@cs.tu-berlin.de	
Module Description			

1. Qualification Aims

Students who have successfully finished this module have an advanced knowledge of operating systems for embedded systems. They are aware of the specific design aspects like realtime behavior, energy consumption, schedulability and fault tolerance and know of their interdependencies. They also have acquired practical training in low level programming of a specific embedded processor.

The course is **principally** designed to impart
technical skills 50 %, method skills 40 % system skills 10 % social skills %

2. Content

Embedded OS: Requirements for embedded systems; example application areas; embedded processor architecture; realtime scheduling; worst case execution time estimation, schedulability analysis;

Dependable Systems: Basic notions and quantities, failure models, fault trees, availability analysis for composition, Byzantine protocols

3. Module Components

Course Name	Course type	Weekly hours per semester	CPs (according to ECTS)	Compulsory(C) / Compulsory Elective (CE)	Semester (WS / SS)
Embedded Operating Systems	L	2	3	C	SS
Dependable Systems	L	2	3	C	WS

4. Description of Teaching and Learning Methods

The lecture conveys the material in traditional form. The tutorial encompasses interactive discussion of issues related to the lecture material. Students may present results of their assignments (homework).

5. Prerequisites for Participation

Basic (undergraduate) course on operating systems is required to follow the lectures.

6. Target Group of Module

Master students of Computer Science and Computer Engineering

7. Work Requirements and Credit Points		
Course Type	Calculation Factor	Hours
Presence in lectures	3*15	45
Presence in tutorials	1*15	15
Pre- and postpreparation of classes	2*15	30
assignments		60
Exam preparation		30

8. Module Examination and Grading Procedures
Oral examination

9. Duration of Module
2 semester

10. Number of Participants

11. Enrolment Procedures
See homepage of module at http://kbs.tu-berlin.de

12. Recommended Reading, Lecture Notes
Lecture notes available in paper form? yes <input type="checkbox"/> no X If yes, where can they be purchased? Lecture notes in paper form are sometimes made available during class. Lecture notes available in electronic form? yes X no <input type="checkbox"/> If yes, please specify web address: http://kbs.tu-berlin.de
<u>Recommended Reading:</u> T. Anderson, P.A. Lee: <i>Fault Tolerance – Principles and Practice</i> , Prentice Hall, 1982 D.K. Pradhan (Hrsg.): <i>Fault Tolerant Computer Systems</i> , Prentice Hall, 1996 D.P. Siewiorek, R.S. Swarz: <i>The Theory and Practice of Reliable Systems Design</i> , Digital Press, 1995 C.M. Krishna, K.G. Shin, <i>Real-Time Systems</i> , McGraw-Hill, 1997 Jane W. S. Lui, <i>Real-Time Systems</i> , Prentice Hall, 2000 Tanenbaum, A.; Woodhull, A.: <i>Operating Systems Design and Implementation</i> , 3 rd ed., Prentice Hall, 2006 Stallings, W.: <i>Operating Systems</i> , 5th ed., Prentice Hall, 2004

13. Other Information
German name of module: „Eingebettete Betriebssysteme“

