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

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Course Type</th>
<th>Weekly hours per semester</th>
<th>CPs (according to ECTS)</th>
<th>Compulsory (C) / Compulsory Elective (CE)</th>
<th>Semester (WS / SS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embedded Operating Systems</td>
<td>L</td>
<td>2</td>
<td>3</td>
<td>C</td>
<td>SS</td>
</tr>
<tr>
<td>Dependable Systems</td>
<td>L</td>
<td>2</td>
<td>3</td>
<td>C</td>
<td>WS</td>
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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

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Calculation Factor</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence in lectures</td>
<td>3*15</td>
<td>45</td>
</tr>
<tr>
<td>Presence in tutorials</td>
<td>1*15</td>
<td>15</td>
</tr>
<tr>
<td>Pre- and postpreparation of classes</td>
<td>2*15</td>
<td>30</td>
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<tr>
<td>assignments</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Exam preparation</td>
<td></td>
<td>30</td>
</tr>
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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 ☐ no X
If yes, where can they be purchased?
Lecture notes available in electronic form? yes X no ☐
If yes, please specify web address: http://kbs.tu-berlin.de

Recommended Reading:


13. Other Information

German name of module: „Eingebettete Betriebssysteme“