Embedded Systems

Embedded systems control many things in our daily life. Energy-efficient refrigerators, elevator controls, and advanced driver assistance systems are just some examples. Embedded systems also control processes in industrial environments and are used to detect and prevent system failures. This lecture gives a general introduction to the topic of embedded systems. It introduces basic concepts and points out important differences to "normal" computer systems. This lecture prepares students for advanced lectures of the Embedded Software Laboratory that cover safety, reliability, formal methods and dynamic systems in detail. This lecture is targeted at all students that do not want to limit themselves to understanding PCs but also want to know how, for example, engine control units and production control systems work.

Topics covered in this lecture are:

- Microcontrollers
- Programmable logic controllers (PLCs)
- PLC programming languages
- Data buses
- Real-time requirements
- Real-time operating systems
- Model-based development & Simulink
- Characteristics of embedded software design
- Teasers of advanced lectures of the embedded software laboratory

The course will probably be held in German this year. English video recordings from previous semesters will be available.

News

All news and announcements will be distributed via the Moodle system (replacing the L2P system).

Dates

- lectures and exercises are online only during this semester

The first lecture will be held on Monday, 21th of April, 2020. There will be no lecture held due to the current situation. The lecture will only be accessible by video recordings in the Moodle portal.

Exam dates

The exam is expected to take place on the 28th of July 2020, the re-exam on the 8th of September 2020.

Video recordings

The video recordings can be found in the Moodle portal after each lecture.

Registration

If this course is part of your curriculum, you should be able to register for both the lecture and the exam via RWTHonline. If you have any problems with that, please contact the academic supervisor for your curriculum.

Contact

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