

t.CT1 - Computer Engineering 1

Person responsible for the course: Andreas Rüst, ruan
Responsible OU: InES - Institute of Embedded Systems
ECTS: 4
Valid for: 2012/2013
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Expertise:

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Methodological skills:

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Social skills:

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Personal skills:

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Learning objectives:

After the course the students will be able

- to explain the architecture and the operation of a computer system from a programmer's perspective
 - to comprehend how structures in C are compiled into executable object code and to use this to eliminate programming errors and to optimize program performance
 - to develop basic hardware-related programs in C and in Assembler and to verify them on the target hardware
 - to trace program execution with a debugger and to localize programming errors
 - to explain the concept of interrupts and to implement basic interrupt applications
 - to find their ways in other microprocessor systems
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Course content:

- architecture of a common microprocessor family
 - components and operation of a CPU
 - instruction set: data transfer, arithmetic and logical operations, control
 - addressing modes
 - implementaion of data types
 - machine codes
 - use of assembler, linker and loader/debugger
 - translation of C control structures to assembler
 - function calls and parameter passing
 - interrupts and exceptions
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Previous knowledge:

Basic knowledge of programming in C and of digital logic

Teaching method:

Type of lesson:	Number of lessons per week:
Lecture	14x2L
Tutorial/Practicum	14x2L
Block instruction	

Assessment:

According to the table or as specified in writing by the lecture at the beginning of the semester!

description	type	form	scope	assessment	weighting
Performance records during school hours	test				
Semester end exam					

Language of instruction:

english

Instruction material:

- slides
- lab exercises
- data sheets and user manuals

Additional literature:

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Comments:

Semester end exam (60%):

- written exam
- no electronic equipment
- with an own summary of maximum 12 A4 pages

Two mandatory written exams (each 15%) during the semester; terms according to lecturer

graded labs (10%), terms according to lecturer