ELE2131 Digital Fundamentals and Microcontrollers - 2010-2011

Course code:
ELE2131

Course name:
Digital Fundamentals and Microcontrollers

Course level:
Bachelor (syklus 1)

ECTS Credits:
10

Duration:
Autumn

Language of instruction:
Norwegian

On the basis of:
IMT1031 - Fundamental Programming

Expected learning outcomes:
After completing the course the student should have knowledge within subjects of digital fundamentals necessary for understanding how programmable circuits and microcontrollers work The student should know about technical principles for modern microcontroller architecture and low-level programming. The student should be able to understand the relation between hardware and software and the relation between low-level and high-level programming.

Topic(s):
Digital Fundamentals: Number systems, codes, Boolean algebra, karnaugh map, logical and combinatory circuits, adders, latches and flip-flops, sequential circuits, synthesis of synchronous circuits, multiplexers, demultiplexers, counters, memory circuits.
Microcontroller Systems: Programming of microcontroller (C-programming and assembly programming), architecture, CPU, busses and internal memory, parallel/serial in/out circuits, interrupt, timers, DMA, numerical processes use of ADC.

Teaching Methods:
Lectures
Laboratory work
Mandatory assignments
Project work

Form(s) of Assessment:
Written exam, 5 hours

Grading Scale:
Alphabetical Scale, A(best) – F (fail)

External/internal examiner:
Graded by course instructor(s).

Re-sit examination:
Ordinary re-sit examination

Tillatte hjelpemidler:

Examination support:
Approved calculator

Coursework Requirements:
3 Projects (must be approved by teacher)

Academic responsibility:
Faculty of Technology, Economy and Management

Course responsibility:
Stipendiat Eskil Skoglund

Teaching Materials:
W Stallings: Computer Organization & Architecture, sixth edition.

V. Johansen: Emnehefte – Digitalteknikk 2009 ISSN: 1503-3708/Kompendium 2009-1

V. Johansen: Emnehefte – Mikrokontrollere 2009 ISSN: 1503-3708/Kompendium 2009-3

Publish:
Yes