

Title Programmable Digital Systems	Code POZ04WTS2ICC22
Field Electronics and Telecommunications	Year / Semester 2 / autumn
Specialty Multimedia and consumer electronics	Course core
Hours Lectures: 1 Classes: - Laboratory: 2 Projects / seminars: -	Number of credits 4

Lecturer:

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Status of the course in the study program:

Obligatory course for students of Electronics and Telecommunications.

Objectives of the course:

The main purpose of the course is to show various design technics for digital systems that can be suitable for FPGA devices. As hardware description language the Verilog will be used. A lot of examples will show how to efficiently use all basic and generic FPGA blocks (like RAM, DSP, etc.). Laboratory work will be performed with exploiting XILINX FPGA boards.

Course description:

Introduction to digital programmable devices. FPGA devices (especially XILINX and ALTERA devices). Basic embedded blocks (RAM, PLL, FIFO, etc.) Inter-domain communication (source-synchronous interface). System-onChip (SoC). Communications interfaces and buses (AMBA, CoreConnect, etc.). Network-on-Chip (NoC). Design and synthesis methods for FPGA devices.

Initial knowledge:

Basic knowledge of Digital Systems Design.

Teaching methods:

Lecture and laboratory work.

Assessment methods:

Individual projects, written exam.

Bibliography:

1. VHDL language, Kelvin Skahill,
2. The Verilog Hardware Description Language, D. E. Thomas, Philip R .
3. A Verilog HDL Primer, J. Bhasker, Star Galaxy Press.
4. Verilog HDL : A Guide to Digital Design and Synthesis, S. Palnitkar, Published by Prentice Hall.