Subject: **Logic design using hardware description language**	**Credit: 6**
Type of Subject: **Compulsory professional**	
Measure of theoretical or practical mode of the subject, „character of programme”: 60 (credit%)	
Type and number of Classes: **lec/lab, 28/28** **Language***: **English*** **Additional special methods for transferring knowledges**: None	
Assessment: prac. mark **Special methods in monitoring the learning**: None	
Semester: **2**	
Prerequisites *(if any)*: *Digital technologies*	

Topics

Digital systems design flow from specification to implementation. Hardware description languages. Structural and behavioral design examples. Functional simulation. Complex modules design using Verilog. Serial interface. Video interface. Memories. Embedded test possibilities.

2-5 most important compulsory and recommended literature:

- RichardE. Haskell, Darrin M. Hanna: Advanced Digital Design, LBE Books, Rochester, MI 2009, ISBN 978-0-9801337-5-2,
- Pong P. Chu, FPGA Prototyping By Verilog Examples: Xilinx Spartan-3 Version, ISBN: 978-0-470-18532-2,
- Clive Maxfield, The Design Warrior's Guide to FPGAs. Devices, Tools and Flows, ISBN:0750676043.

Prescribed professional competences or competence elements which the subject significantly contributes to:

a) knowledges
- possess advanced knowledge regarding design using programmable logic devices
- comprehend the newest programmable logic device architecture and programming properties.
- possess thorough theoretical and practical knowledge how to use PLDs for digital systems design, test and implementation

b) abilities
- is able to describe medium complexity systems using a hardware description language and implement it using FPGAs.
- is able to design, test and implement digital systems using self-designed and IP blocks

c) attitude
- perform their development tasks at a high professional level, in a well-planned way, considering the aspects of quality, and ascertain that the emerging systems are error-proof
- consider conveying their profession and knowledge of informatics
- explore the opportunities for setting goals for research, development and innovation, and aim to implement them in the course of performing their tasks.

d) autonomy, responsibility
- hold a position related to informatics independently, perform their duties in a professionally responsible way, taking responsibility for the whole process of work
- be suitable for working in a team as an expert on a particular area and managing the team with responsibility
- Develop and operate mission-critical systems and systems including sensitive information on the basis of their professional competencies.

Responsible : Dr. István Oniga, associate professor, PhD,
Involved tutor(s):