STUDY MODULE DESCRIPTION FORM		
Name of the module/subject **Programmable logic controllers**		Code **1010324391010321903**
Field of study **Electrical Engineering**	Profile of study (general academic, practical) **general academic**	Year /Semester **5 / 9**
Elective path/specialty **Microprocessor Control Systems in**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **part-time**	

No. of hours				No. of credits
Lecture: **9** Classes: **-** Laboratory: **9**		Project/seminars: **9**		**3**

Status of the course in the study program (Basic, major, other) **other**	(university-wide, from another field) **university-wide**

Education areas and fields of science and art **technical sciences** 　　　　　**Technical sciences**	ECTS distribution (number and %**)** **5 100%** 　　　**5 100%**

Responsible for subject / lecturer: dr inż. Michał Krystkowiak email: Michal.Krystkowiak@put.poznan.pl tel. 061 665 2388 Electrical ul. Piotrowo 3A, 60-965 Poznań	Responsible for subject / lecturer: dr inż. Michał Krystkowiak email: Michal.Krystkowiak@put.poznan.pl tel. 061 665 2388 Electrical ul. Piotrowo 3A, 60-965 Poznań

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	He knows the rules and parameters of basic electronic components. He knows the rules of operation and parameters of PLD programmable logic circuits. He knows the tools and runtime systems selected programming languages PLD.
2	**Skills**	He can use the knowledge of the electronics for the analysis of digital electronics in the base. Put the program on a general level PLD programmable logic circuits.
3	**Social competencies**	He can think and act in an entrepreneurial manner in the area of electronic design.

Assumptions and objectives of the course:

Getting to know the principles of operation of complex digital electronic circuits. Acquisition of digital design skills of electronic systems at primary level. Getting familiar with the operation and programming of programmable logic chips PLD.

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. You should be able to: describe the basic criteria for the design of digital electronic systems   - [[K_W04 +, K_W014+++]]

2. . Should be able to: describe the principle of the PLD programmable logic circuits, characterized by their construction and use - [[K_W02++, K_W04+]]]

3. be able to: offer PLD programming languages and simulation tools to support the design of digital circuits - [[K_W02++, K_W14+++]]]

Skills:

1. Will be able to: apply knowledge of electronics to design digital electronic systems   - [[K_U03 ++. K_U17 ++]]

2. Will be able to: identify the criteria necessary for the proper design of digital electronic system at a basic level, use the selected simulation tools to support the design of electronic circuits, use a runtime tool PLD programmable logic circuits   - [[K_U03 ++, K_U07 ++, K_U13+++]]

Social competencies:

1. He can think and act in an entrepreneurial manner in the design of electronic systems - [[K_K02 ++]]

Assessment methods of study outcomes

Lecture:

- continuous evaluation for each course (rewarding activity and quality perception)

Design classes and laboratory exercises:

- test and favoring knowledge necessary for the accomplishment of problems in the area of tasks in the laboratory,

- continuous evaluation, rewarding gain skills they met the principles and methods

- assess the knowledge and skills related to the implementation of laboratory exercises, the evaluation report made ??exercise.

Get extra points for the activity in the classroom, and in particular for:

- propose to discuss further aspects of the subject,

- the effectiveness of the application of the knowledge gained during solving the given problem,

- ability to work within a team performing a task specific practice in the laboratory.

Course description

Update 2017: principles of design of digital electronic circuits, the software package ORCAD / PSpice and use of electronic library created by the producers, the concept of programmable electronic systems PLD, PLD programming languages ??and runtime environments, applications of programmable electronic systems.

Basic bibliography:

1. Piotr Zbysiński, Jerzy Pasierbiński: Układy programowalne, pierwsze kroki, BTC, Warszawa 2004

2. Andrzej Pawluczuk: Układy programowalne dla początkujących, BTC, Warszawa 2007

Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
1. Lectures, labs, design classes, consultations	48
2. Laboratory classes, preparation for laboratory classes, preparation of reports, project activities, the project	35

Student's workload

Source of workload	hours	ECTS
Total workload	70	5
Contact hours	48	3
Practical activities	35	3