STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Network Embeded Systems**		Code **1010804171010824244**
Field of study **Electronics and Telecommunications**	Profile of study (general academic, practical) **general academic**	Year /Semester **4 / 7**
Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **elective**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **part-time**	
No. of hours Lecture: **15** Classes: **-** Laboratory: **30** Project/seminars: **-**		No. of credits **6**
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 %) **6 100%** **6 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	1 Student has knowledge of digital circuits and microcontrollers 2 Student has knowledge of programming in C
2	**Skills**	1 Student can obtain information from the literature and other sources in Polish or English, can integrate the information, make their interpretation, draw conclusions and justify opinions. 2 Student can use high-level programming languages ??C, C + +, C #.
3	**Social competencies**	1 Student knows the limits of their own knowledge and skills, understands the need for ongoing education. 2 Student can carry out collaborative projects.

Assumptions and objectives of the course:

Getting to know the functioning of the computer. An understanding of embedded systems operating in a distributed environment. Introduction to the creation of distributed systems such as responsible for control of an intelligent home.

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

Knowledge:

1. He has structured knowledge of operating systems and databases. He has knowledge of the techniques of conservation and management of the computer. - [K1_W22]

Skills:

1. He can obtain information from the literature and databases and other sources in Polish or English; able to integrate the information, make their interpretation, draw conclusions and justify opinions - [K1_U01]

2. Can communicate in English or Polish in professional environments and other environments - [K1_U02]

Social competencies:

1. Knows the limits of their own knowledge and skills, understands the need for ongoing education - [K1_K01]

2. He has feeling of responsibility for the design, electronic and telecommunication systems and is aware of the potential danger to other people or their misuse of the public. Know the rules for storage of information and determine access to databases in order to ensure the security of the information contained therein. - [K1_K03]

3. Student is aware of the impact of systems and telecommunications networks on the development of the information society. - [K1_K04]

Assessment methods of study outcomes

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Individual or group projects (double group) performed in the laboratory. Assessment involving the implementation of the practical tasks of laboratories.

Written test in the field of lecture content. This includes questions of concern and the knowledge and understanding of basic definitions of operating systems and embedded systems.

Course description

The lectures cover the following topics:
Introduction to operating systems and real-time systems.
AVR Programming in C.
FreeRTOS Real Time System.

Basic bibliography:

1. Silberschatz A., Galvin P.B.: ?Operating Systems Essentials?

Additional bibliography:

1. FreeRTOS documentatnion FreeRtos http://www.freertos.org/FreeRTOS-quick-start-guide.html
2. Didactic platform documentation http://www.thinkmind.org/index.php?view=article&articleid=tele_v4_n34_2011_7

Result of average student's workload

Activity	Time (working hours)
1. Participation on lectures and labs	45
2. Preparation to the laboratories and exam	60
3. Exam	2
4. Consultations	3

Student's workload

Source of workload	hours	ECTS
Total workload	150	6
Contact hours	50	3
Practical activities	30	2

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