STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Wireless Networks Standards**		Code **1010831171010813615**
Field of study **Electronics and Telecommunications**	Profile of study (general academic, practical) **general academic**	Year /Semester **4 / 7**
Elective path/specialty **Telecommunication Systems**	Subject offered in: **Polish**	Course (compulsory, elective) **elective**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **full-time**	
No. of hours Lecture: **2** Classes: **-** Laboratory: **1** Project/seminars: **-**		No. of credits **4**
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 %) **4 100%** **4 100%**

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Student has a well ordered knowledge concerning signal theory, signal transmission, wireless channels, digital communication systems and theoty of telecommunications (K1_W06, K1_W14, K1_W15, K1_W17)
2	**Skills**	Student is able to compare and evaluate digital communication systems, knows the system parameters, digital modulations, transmitters and receivers, wireless channels. (K1U01, K1_U05, K1_U17, K1_U21)
3	**Social competencies**	Student understands the necessity of professional approach to engineering problems solving (K1_K01), he feels responsibility for the systems designed by him (K1_K03), he understands the challenges caused by the rising demand for the spectrum (K1_K04)

Assumptions and objectives of the course:

The course objective is to teach a student to understand the wireles networks, to know how to utilize them.

Student is able to study standardz of the wireless networks and can such networks design.

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

Knowledge:

1. Student knows the structure, advantages and disadvantages and the applications of different wireless networks (for example 802.11, 802.15, 802.16, UWB, networks with LEDs, etc.) - [K1_W14]

Skills:

1. Student is able to design and deploy WiFi network, can compare parameters of the different networka - [K1_U25]
2. Student is able to evaluate some standardization processes, for example 802.11ac, cognitive radio, networks with LEDs - [K1_U25]

Social competencies:

1. Student understands the importance of standardization in the field of wireless networks - [K1_K01]
2. Student understands the necessity of cooperation the different professionalists in the standardization process - [K1_K03]
3. Student knows the main challenges standing in front of the wireless networks - [K1-K04]

Assessment methods of study outcomes

Oral examination (about 20 minute discussion with each student) concerning the subjects covered by the course.

Course description

WiFi stanndards (802.11a,b,n,ac,e, ... Physical layer (OFDM), link layer, network layer. MIMO technique. Multiaccess protocols in 802.11ac. Mesh networks (802.11s) WiMAX, OFDMA. Overview of Bluetooth, Zigbee, UWB, H2.
Basic bibliography: 1. Selected parts of the wireless natwork standards available in IEEE e-Library. 2. Papers in scientific journals and available in the internet 3. Any guide to the WiFi network
Additional bibliography:

Result of average student's workload	
Activity	**Time (working hours)**
1. Lectures	30
2. Laboratory	15
3. Student self study	56

Student's workload		
Source of workload	**hours**	**ECTS**
Total workload	100	4
Contact hours	50	2
Practical activities	35	2