

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Wireless networks (LANs, PANs, WANs)		Code 1010821171010813614
Field of study Electronics and Telecommunications	Profile of study (general academic, practical) general academic	Year /Semester 4 / 7
Elective path/specialty Computer Networks and Internet	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: dr hab. inż. Paweł Szulakiewicz, prof. nadzw. email: szulak@et.put.poznan.pl tel. 61 6653870 Faculty of Electronics and Telecommunications ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Students has well ordered knowledge concerning signal theory, radiocommunications, wireless channels, digital communication systems and theory of telecommunications (K1_W06, K1_W14, K1_W15, K1_W17)
2	Skills	Student is able to compare and evaluate digital communication systems, is able to compare system parameters, digital modulations, methods of signal transmission, receivers, different wireless channels. (K1_U05, K1_U10, K1_U17, K1_U21)
3	Social competencies	Student understands the necessity of professional approach to engineering problems solving (K1_K01) Student feels responsibility for the designed systems (K1_K03) Student is up to the challenges coming from the rising demand for the spectrum (K1_K04)
Assumptions and objectives of the course: The objective of the course is to teach a student the wireless network structures and enable him to understand how such networks operate. A student should be able to utilize, compare and evaluate wireless networks, which are available at the market or are in the standardization process.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. Student knows the structure, parameters, advantages and disadvantages of the wireless networks such as 802.11, 802.15, 802.16 UWB, H2, ... - [K1_U25]		
Skills: 1. Student is able to explain, develop, deploy and apply Wi Fi (IEEE 802.11) network - [K1_U25] 2. Student is able to compare the parameters of different wireless networks - [K1_U25] 3. Student is able to participate in the development of new networks which are in the standardization process - [K1_U25]		
Social competencies: 1. Student understands the necessity to learn the new wireless networks and to keep up with the new standards - [K1_K01] 2. Student understands the necessity for cooperation of the different groups of professionals - [K1_K03] 3. Student is able to participate in the wireless networks development - [K1_K04]		
Assessment methods of study outcomes		

<p>Oral examination (20 minutes per student) which concerns the selected subjects covered during the lectures and studied by the student in the literature. Evaluation of the problem solving by the student in the laboratory .</p>		
Course description		
<p>The Wi Fi network (802.11 b,a g,n,ac,e,...) Physical (OFDM), link and network layers. MIMO technique Multiaccess methods. Mesh networks ICI cancelling WiMAX, OFDMA. H2, Bluetooth, ZigBee, UWB, nnetworks utilizing LEDs</p>		
Basic bibliography:		
<p>1. Selected parts of the network standards available in the IEEE digital eLibrary 2. Papers taken from the scientific journals and available in the internet. 3. Any guide concerning the WiFi network</p>		
Additional bibliography:		
Result of average student's workload		
Activity	Time (working hours)	
1. Lectures	32	
2. Laboratory	17	
3. Studying the literature, preparation to the laboratory and examination	56	
Student's workload		
Source of workload	hours	ECTS
Total workload	100	4
Contact hours	50	2
Practical activities	35	2