Bialystok University of Technology									
Field of study	**Computer Science**							**Degree level and programme type**	**Engineer's degree full-time programme**
Specialization/ diploma path	---							**Study profile**	academic
Course name	**Wireless Networks**							**Course code**	**FCS-00097**
								Course type	obligatory
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	**Semester**	2
	30		15					**No. of ECTS credits**	**6**
Entry requirements	Foundations of Electrotechnics and Electronics (FCS-00053), Computer Networks (FCS-00026), Introduction to Linux (FCS-00057),								
Course objectives	The aim of the course is to prepare the student to work with wireless networks. Students will become familiar with the operation of wireless networks on the basis of physics and computer science. They learn how to configure devices and secure networks against unauthorized access. They will be able to properly use the available antenna.								
Course content	Electromagnetic waves, Maxwell's equations. The spectrum of electromagnetic waves. The propagation of electromagnetic waves. Polarization of electromagnetic waves. Modulation, modulation types, modulation characteristics. Antennas, operational parameters. The units. 802.11 wireless standards. BSS, ESS. Configuration of network devices. Security in wireless networks, WEP, WPA, WPS.								
Teaching methods	lecture problem, case method, situational method, laboratory exercises, manufacturing practice,								
Assessment method	Lecture - written exam laboratory - exercise reports								

Symbol of learning outcome	Learning outcomes	Reference to the learning outcomes for the field of study
LO1	knows the basic principles of physics to understand the phenomena used for wireless transmission	K_W02
LO2	knows the standards used in wireless data transmission	K_W08
LO3	knows the devices used in wireless transmission and can use them to build a network	K_W08 K_U08
LO4	can design and secure a simple wireless network	K_U08

Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed
LO1	written exam	L
LO2	written exam, report on the exercise grade	L,Lab
LO3	report on the exercise grade	Lab
LO4	report on the exercise grade	Lab

Student workload (in hours)		No. of hours
Calculation	1 - Attendance at lectures - 15x2	30
	2 - Attendance at classes - 7x2 + 1	15
	3 - Preparation for laboratories - 7x5	35
	4 - Preparation of reports - 7x8	56
	5 - Preparation for exam and attendance -	12
	6 - Consultations -	2
	TOTAL:	**150**

Quantitative indicators	HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation	47 (2)+(1)+(6)	1.9
Student workload – practical activities	106 (2)+(3)+(4)	4.2

Basic references	1. M. S. Gast, 802.11 Wireless Networks: The Definitive Guide. O'Reilly Media 2005. 2. E. Perahia, R. Stacey, Next Generation Wireless LANs: 802.11n and 802.11ac. Cambridge University Press 2013. 3. J. Geier, Designing and Deploying 802.11n Wireless Networks. Cisco Press 2010.	
Supplementary references	1. IEEE documents (standards.ieee.org). 2. RFC (Request for Comments) documents. 3. S. R. Saunders, Antennas and propagation for wireless communications systems, Wiley, Chichester 2007.	
Organisational unit conducting the course	Department of Information Systems and Computer Networks	**Date of issuing the programme**
Author of the programme	dr inż. Tomasz Grześ	Feb. 17, 2022

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW – field work,S – seminar