

(faculty stamp)

**COURSE DESCRIPTION**

Z1-PU7

WYDANIE N1

Strona 1 z 2

<b>1. Course title:</b> 802.11 WIRELESS LOCAL AREA NETWORKS		<b>2. Course code</b> WLAN		
<b>3. Validity of course description:</b> 2013/2014				
<b>4. Level of studies:</b> BSc programme				
<b>5. Mode of studies:</b> intramural studies				
<b>6. Field of study:</b> MAKROKIERUNEK		(FACULTY SYMBOL) RAU3		
<b>7. Profile of studies:</b> general				
<b>8. Programme:</b>				
<b>9. Semester:</b>				
<b>10. Faculty teaching the course:</b> Institute of Electronics (RAU3)				
<b>11. Course instructor:</b> Dariusz Wójcik, PhD, Eng				
<b>12. Course classification:</b>				
<b>13. Course status:</b> elective				
<b>14. Language of instruction:</b> English				
<b>15. Pre-requisite qualifications:</b> principles of electric circuits, computer and digital systems fundamentals, fundamentals of information systems security, fundamentals of access control systems; fundamentals of antenna theory.				
<b>16. Course objectives:</b> The aim of this course is to familiarize students with all aspects of 802.11 wireless local area networks: overview of the technology and architecture of WLANs, explanation of services and advanced features. The course gives knowledge needed to design, deploy, manage, and troubleshoot wireless local area networks (WLANs).				
<b>17. Description of learning outcomes:</b>				
Nr	Learning outcomes description	Method of assessment	Teaching methods	Learning outcomes reference code
1.	knowledge of the legal and technical requirements for IEEE 802.11 networks	test	lecture	
2.	knowledge of resource reservation methods used in 802.11 wireless networks.	test	lecture	
3.	can analyze the 802.11 networks using a protocol analyzer	lab work	laboratory	
4.	can configure 802.11 wireless network devices	lab work	laboratory	
<b>18. Teaching modes and hours</b>				
<b>Lecture / BA /MA Seminar / Class / Project / Laboratory</b>				
Lecture: 15 h				
Laboratory: 15 h				
<b>19. Syllabus description:</b>				
<b>Lecture:</b>				
<ol style="list-style-type: none"> <li>1. Fundamentals of wireless local area networks, usage of non-licensed ISM bands, the legal regulations</li> <li>2. The role of IEEE standards 802.11 family of wireless networks against the reference model OSI / ISO and other standards IEEE 802</li> <li>3. Medium access control, resource reservation methods, topology, ad-hoc and infrastructure networks, c</li> <li>4. The physical layer, link layer protocols, the management layer protocols, upper layer protocols.</li> <li>5. The organization of the network, the structure of frames.</li> <li>6. Ad-hoc (IBSS) networks</li> <li>7. Infrastructure networks</li> <li>8. Energy management in 802.11</li> <li>9. Quality of service in 802.11.</li> <li>10. Roaming.</li> <li>11. Security in 802.11 networks.</li> <li>12. Network configuration.</li> <li>13. Design of 802.11 networks</li> </ol>				

**Laboratory:**

1. Configuration of 802.11 networks
2. Ad-hoc networks
3. Wireless gateway configuration
4. Access-point management
5. Network management - network scanning, access control and data encryption
6. 802.11 network design

**20. Examination:** Test

**21. Primary sources:**

1. M. Gast, 802.11 Wireless Networks: The Definitive Guide, O'Reilly, 2002.
2. P. Roshan, J. Leary, 802.11 Wireless LAN Fundamentals, Cisco Press, 2003.

**22. Secondary sources:**

1. IEEE 802.11 standards (<http://www.ieee802.org/11/>)

**23. Total workload required to achieve learning outcomes**

Lp.	Teaching mode :	Contact hours / Student workload hours
1	Lecture	15/5
2	Classes	0/0
3	Laboratory	15/10
4	Project	0/0
5	BA/ MA Seminar	0/0
6	Other	5/10
	Total number of hours	35/25

**24. Total hours:** 60

**25. Number of ECTS credits:** 2

**26. Number of ECTS credits allocated for contact hours:** 1

**27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects):** 1

**26. Comments:**

Approved:

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(date, Instructor's signature)

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(date, the Director of the Faculty Unit signature)