

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Fundamentals of data communications		Code 1010331561010334968
Field of study Information Engineering	Profile of study (general academic, practical) general academic	Year /Semester 3 / 6
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 30 Classes: - Laboratory: - Project/seminars: 15		No. of credits 3
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 %) 3 100% 3 100%
Responsible for subject / lecturer: prof. Czesław Jędrzejek email: czeslaw.jedrzejek@put.poznan.pl tel. (61)6653532 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	K_W04: possesses ordered and theoretically founded knowledge on the basic algorithms and analytic techniques for designing algorithms, abstract data structures and their implementation, computationally difficult problems; K_W07: student has organized knowledge of theoretical foundations of computer networks. K_W12: has ordered and methodological knowledge of software engineering
2	Skills	K_U02: potrafi pracować indywidualnie i w zespole; umie oszacować czas potrzebny na realizację zleconego zadania; potrafi opracować i zrealizować harmonogram prac zapewniający dotrzymanie terminów K_U03: potrafi opracować dokumentację dotyczącą realizacji zadania inżynierskiego i przygotować tekst zawierający omówienie wyników realizacji tego zadania
3	Social competencies	K_K04: is aware of responsibility for his/her own work and a willingness to comply with the principles of teamwork and shared responsibility for the implementation of tasks
Assumptions and objectives of the course: To acquaint students with the basics of advanced transmission layer network protocols, applications, broadband networks, social networks and security aspects of networks.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student has organized knowledge ofwith theoretical foundations of Internet technologies. - [K_W11] 2. Student has organized knowledge of theoretical foundations of teleinformatics, protocols and services in telecommunication networks. - [K_W15]		
Skills:		
1. Student is able to analyse particular programming platforms, protocols and telecommunication services. - [K_U18] 2. Student is able to evaluate tools and methods usefulness for simple engineering tasks related to computer science. Student is able to choose and to implement proper technologies - [K_U22]		
Social competencies:		
1. Student understands the importance of stringent accomplishment of a given project with proper notation standards, proper language. Student understands the importance of keeping deadlines. - [K_K07]		

Assessment methods of study outcomes		
Lecture: written examination checking basic knowledge of ICT.		
Project: screening of applications using Web services.		
Course description		
<p>Lecture:</p> <ul style="list-style-type: none"> - Authentication and authorization systems in computer networks. - Internet Protocols (SIP, Diameter, OAuth2) - The basics of the game theory (types of games, Prisoner's dilemma, strategy) - Evaluation of the users behaviour and reliability in computer networks. - The basics of the acquisition systems and image processing. Morphology operators. Contour and skeleton finding algorithms. - Biometry and remote monitoring systems. <p>Project.</p> <p>Implementation of the network application on the chosen platforms (Windows, Linux) using the authorization system or users' reliability evaluation algorithms or image processing.</p>		
Basic bibliography:		
<ol style="list-style-type: none"> 1. Krzysztof Wesołowski, Introduction to Digital Communication Systems, Wiley (2009) 2. Materials https://oauth.net/2/ 3. Madjid Nakhjiri, Mahsa Nakhjiri. AAA and network security for mobile access: radius, diameter, EAP, PKI, and IP mobility, Wiley, 2004 		
Additional bibliography:		
<ol style="list-style-type: none"> 1. Lecture notes from Internet 		
Result of average student's workload		
Activity	Time (working hours)	
1. Lectures	30	
2. Preparation to project	15	
3. Executing project	45	
Student's workload		
Source of workload	hours	ECTS
Total workload	75	3
Contact hours	45	2
Practical activities	30	1