

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Operating systems		Code 1010331541010330105
Field of study Information Engineering	Profile of study (general academic, practical) general academic	Year /Semester 2 / 4
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: 15 Classes: - Laboratory: 15 Project/seminars: -		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: dr inż. Krzysztof Bucholc email: krzysztof.bucholc@put.poznan.pl tel. +48 61 665 3531 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań		
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student has an ordered and well-based in theory, knowledge of basic algorithms and their analysis, design techniques, abstract data structures and their implementation, computationally difficult problems - K_W04
2	Skills	Student can by herself/himself acquire knowledge from the literature, databases and other sources; can also integrate the acquired knowledge, interpret it, reason, formulate conclusions and justify them - K_U01 Student is able to use programming environments and platforms to write, perform and test simple programs coded in imperative programming languages - [K_U10]
3	Social competencies	Student understands and is aware of the importance of nontechnical issues related to computer engineer activity. Student understands the responsibility associated to his engineering decisions. - [K_K02]
Assumptions and objectives of the course: The objectives of this course is to understand operating system basic structure and implementation principles from the systems programmer viewpoint.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. Student has organized knowledge with theoretical foundations of computer architecture, principles of operation of operating systems and types of operating systems - [K_W06]		
Skills:		
1. Student is able to do critical analysis of computer hardware operations, operating system and computer networks. - [K_U11]		
2. Student is able to use programming environments and platforms to write, perform and test simple programs coded in imperative programming languages - [K_U10]		
3. Student is able to evaluate the usefulness of routine methods and tools for solving simple tasks typical of engineering informatics and select and apply appropriate technologies - [K_U22]		
Social competencies:		
1. Student understands and is aware of the importance of nontechnical issues related to computer engineer activity. - [K_K02]		
Assessment methods of study outcomes		

Lecture: written exam		
Laboratory: exercises assesment, two tests		
Course description		
Lecture: Architecture of selected operating systems. Real time operating systems. Shell programming. Programming with system functions. Inter process communication. Multithreaded programming. Virtual machines. Computer system administration.		
Laboratory: Basics of Linux. Shell programming. Programming with system functions. Administration and log analysis.		
Basic bibliography:		
1. Glass G., Ables K., Linux dla programistów i użytkowników, Helion, 2007		
2. Matthew N.,Stones R., Linux programowanie, RM, 1999		
3. Mitchell M., Oldham J., Samuel A., Linux Programowanie dla zaawansowanych, RM, Warszawa, 2002		
4. W. Stallings, Systemy operacyjne. Struktura i zasady budowy, PWN, 2006		
Additional bibliography:		
1. Bovet D., Cesati M., Linux kernel, RM, Warszawa,2001		
2. Stallings W., Operating Systems: Internals and Design Principles 6ed, Prentice-Hall, 2009		
Result of average student's workload		
Activity	Time (working hours)	
1. Lecture	15	
2. Laboratory	15	
3. Preparation for laboratory	15	
4. Preparation for exam	25	
5. Consultations and exam	5	
Student's workload		
Source of workload	hours	ECTS
Total workload	75	3
Contact hours	35	1
Practical activities	30	1