

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Databases		Code 1010331541010330220
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: 30 Classes: - Laboratory: 15 Project/seminars: 15		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		ECTS distribution (number and %)
Responsible for subject / lecturer: dr hab. Tadeusz Pankowski email: tadeusz.pankowski@put.poznan.pl tel. 607-033-007 Wydział Elektryczny ul. Piotrowo 3A 60-965 Poznań		Responsible for subject / lecturer: dr hab. Tadeusz Pankowski, email: tadeusz.pankowski@put.poznan.pl tel. 607-033-007 Faculty of Electrical Engineering ul. Piotrowo 3A 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Student has the ground knowledge of mathematics, introduction do logic and algebraic structures as well as foundations of computer science, programming and operation systems.
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.
3	Social competencies	Student knows that she/he is obliged to perform well her/his job and also knows that she/he is obliged to perform well the part of assigned to her/him part of teamwork.
Assumptions and objectives of the course: Fundamental concepts and technologies for designing, using and implementing relational database systems. Conceptual modeling of application domain using ER (EER) model and transforming it to a relational database schema. Database programming in SQL.		
Study outcomes and reference to the educational results for a field of study		
Knowledge: 1. 1. Ma uporządkowaną i podbudowaną teoretycznie wiedzę w zakresie baz danych oraz hurtowni danych. - [[K_W08]]		
Skills: 1. 1. Potrafi pozyskiwać informacje z literatury, baz danych i innych źródeł; potrafi integrować uzyskane informacje, dokonywać ich interpretacji, a także wyciągać wnioski oraz formułować i uzasadniać opinie. - [[K_U01]] 2. 2. Potrafi zaprojektować oraz zrealizować prostą bazę danych lub hurtownię danych oraz posługiwać się prostymi zapytaniami. - [[K_U12]] 3. 3. Potrafi - przy formułowaniu i rozwiązywaniu informatycznych zadań inżynierskich - dostrzegać ich aspekty pozatechniczne, ekonomiczne i prawne. - [[K_U21]]		
Social competencies: 1. 1. Ma świadomość odpowiedzialności za pracę własną oraz gotowość podporządkowania się zasadom pracy w zespole i ponoszenia odpowiedzialności za wspólnie realizowane zadania. - [[K_K04]] 2. 2. Ma świadomość ważności i rozumie pozatechniczne aspekty i skutki działalności inżyniera-informatyka i związaną z tym odpowiedzialność za podejmowane decyzje. - [[K_K02]]		
Assessment methods of study outcomes		

Lecture and classes: writing test (checking the knowledge on the foundation of databases - models, design, languages), minimal score 50,1%		
Laboratory: 3 writing tests which check the skills in modeling databases, normalization, writing SQL queries, scripts and programs; minimal score 50,1%.		
Course description		
Databases in information systems; database system concepts and architecture; objectives and tasks of database management system. The relational data model; foundations; relational algebra and relational calculus; Datalog. Functional dependencies and normalization for relational databases; 3NF and BCNF; relational database schema design. Conceptual modeling using Entity-Relationship (ER) and Enhanced-ER (EER) models; transformation of ER and EER diagrams to the relational data model. Metadata in database systems. SQL - a relational database language; data definition, selection and modification in SQL; using Transact-SQL (TSQL) to create, manipulating and administrating of MS SQL Server databases; database programming in TSQL.		
Basic bibliography:		
Additional bibliography:		
Result of average student's workload		
Activity	Time (working hours)	
1. lecture	30	
2. classes	15	
3. laboratory	15	
4. preparation of classes and laboratories	30	
5. study notes from classes and recommended literature	35	
Student's workload		
Source of workload	hours	ECTS
Total workload	125	4
Contact hours	30	2
Practical activities	30	2