Course Syllabus

I.   General Information

Course name	Databases I
Programme	Informatics
Level of studies (BA, BSc, MA, MSc, long-cycle MA)	BSc
Form of studies (full-time, part-time)	full-time
Discipline	Informatics
Language of instruction	english

Course coordinator/person responsible	Dr Joanna Kapusta

Type of class *(use only the types mentioned below)*	Number of teaching hours	Semester	ECTS Points
lecture	30	III	5
tutorial			
classes			
laboratory classes	30	III	
workshops			
seminar			
introductory seminar			
foreign language classes			
practical placement			
field work			
diploma laboratory			
translation classes			
study visit			

Course pre-requisites	Basic computer science knowledge. Basic mathematical knowledge in the area of relational algebra.

II.   Course Objectives

The aim of the course is to familiarize students with basic ideas and concepts of database systems technology, Structured Query Language (SQL) and the basic principles of database design.

III.   Course learning outcomes with reference to programme learning outcomes

Symbol	Description of course learning outcome	Reference to programme learning outcome
KNOWLEDGE		
W_01	Students acquire knowledge of basic concepts and principles of relational databases, SQL and database modelling.	K_W01, K_W04, K_W10
SKILLS		
U_01	Students have ability to design relational databases.	K_U02, K_U04, K_U14, K_U17, K_U22, K_U23, K_U26, K_U27, K_U30
U_02	Students have skills to create and work with databases using SQL.	K_U02, K_U04, K_U14, K_U17, K_U22, K_U23, K_U26, K_U27, K_U30
SOCIAL COMPETENCIES		
K_01	Students are able to formulate an opinion regarding database issue and verify their knowledge in the mentioned area.	K_K01
K_02	Students can work on his/her own and in a team designing and creating databases.	K_K02

IV.   Course Content

1. Relational data model. Relationships. Primary keys and foreign keys. Data integrity in the relational model.
2. SQL. Retrieving data. Restricting data. Joins. Sorting and grouping data. Aggregate functions. Subqueries.
3. SQL. Creating objects.
4. Managing objects using DML statements.
5. Database designing. Entity relationship diagrams.
6. Transactions and their properties.
7. Views.
8. Simple stored functions and procedures.

V.   Didactic methods used and forms of assessment of learning outcomes

Symbol	Didactic methods *(choose from the list)*	Forms of assessment *(choose from the list)*	Documentation type *(choose from the list)*
KNOWLEDGE			
W_01	Lecture	Exam, colloquium	Test
SKILLS			
U_01	Practical classes design thinking	Exam, colloquium, preparation for classes, work and activity during classes	Test
U_02	Practical classes design thinking	Exam, colloquium, preparation for classes,	Test

		work and activity during classes	
SOCIAL COMPETENCIES			
K_01	Group work design thinking	work and activity in classes	
K_02	Group work design thinking	work and activity in classes	

VI. Grading criteria, weighting factors.....

Pass of classes: based on 2 tests - 75% and student's activity – 25%.

Exam in computer lab (for those who have completed the classes).

Detailed assessment rules are given to students with each subject edition.

VII. Student workload

Form of activity	Number of hours
Number of contact hours (with the teacher)	Lecture 30 Exercises 30 Consultations 20
Number of hours of individual student work	Preparation for classes 15 Studying literature 15 Preparation for tests and exam 30

VIII. Literature

Basic literature
R. Elmasri, S.B. Navathe: Fundamentals of Database Systems, Addison Wesley 2016. C. J. Date: An Introduction to Database Systems, Addison Wesley 2003. T. M. Connolly, C. E. Begg: Database Systems: A Practical Approach to Design, Implementation and Management, Addison Wesley 2009. J. Price, Oracle Database 12c. SQL. McGraw-Hill Education 2015.
Additional literature
P. Beynon-Davies: Database Systems, Palgrave Macmillan 2003. J. S. Bowman, S. L. Emerson, M. Darnovsky: The practical SQL handbook, Addison-Wesley Professional 2001 B. Bryla, K. Loney, Oracle Database 11g. DBA Handbook. McGraw-Hill Education, 2007. H. Garcia-Molina, J. D. Ullman, J. Widom: Database Systems: The Complete Book, Prentice Hall 2008. H. Ladanyi: SQL Unleashed, Sams 1997. docs.oracle.com/database