Bialystok University of Technology									
Field of study	Computer Science							**Degree level and programme type**	**Engineer's degree full-time programme**
Specialization/ diploma path	---							**Study profile**	academic
Course name	Introduction to Databases							**Course code**	**FCS-00096**
								Course type	obligatory
Forms and number of hours of tuition	L	C	LC	P	SW	FW	S	**Semester**	3
	30				30			**No. of ECTS credits**	**6**
Entry requirements									
Course objectives	Lecture: To acquaint students with the process of creating a relational database. Teaching how to write SQL queries to extract data from tables. Acquainting with the basics of database operation: physical organization of data in a database, indexes, and transactions. SW: Developing the ability to create a relational database and writing SQL queries. Teaching the basics of creating new tables and views, modifying tables structures, and inserting the data.								
Course content	Lecture: Introduction to databases; Relational algebra; Integrity constraints; SQL queries; Stages of designing a relational database. Normalization of relations; Entity-relationship diagrams; Creating the relational database scheme from E/R diagrams; Defining views; The physical organization of data in the database; Indexes. DDL and DML; Query optimization; Transactions. Sw: 1. Normalization of a relational database. 2. SQL queries: simple queries, subqueries, grouping queries, correlated queries, subqueries after FROM and SELECT. 3. Views. 4. DDL and DML commands.								
Teaching methods	informative lecture, lecture problem, programming, subject exercises,								
Assessment method	Lecture – written exam; specialistic workshop – tests, short tests								

Symbol of learning outcome	Learning outcomes	Reference to the learning outcomes for the field of study
LO1	knows the rules and is able to create a relational database schema.	K_W07 K_U07
LO2	can write SQL queries to any relational database.	K_W07 K_U07
LO3	can use the DDL and DML to construct and modify a relational database schema.	K_U07
LO4	describes the basics of relational database systems, mainly indexes, transactions and query optimization.	K_W07

Symbol of learning outcome	Methods of assessing the learning outcomes	Type of tuition during which the outcome is assessed
LO1	Exam, project	L, Sw
LO2	Exam, test	L, Sw
LO3	Test	Sw
LO4	Exam	L

Student workload (in hours)		No. of hours
	1 - Attendance at lectures -	30
	2 - Attendance at specialistic workshops -	30
	3 - Preparation for specialistic workshops -	25
Calculation	4 - Doing homework -	30
	5 - Participation in student-teacher sessions -	5
	7 - Preparation for exam -	8
	8 - Presence during exam -	2
	9 - Preparation for tests -	20
TOTAL:		**150**

Quantitative indicators	HOURS	No. of ECTS credits
Student workload – activities that require direct teacher participation	67 (2)+(1)+(5)+(8)	2.7
Student workload – practical activities	105 (9)+(4)+(3)+(2)	4.2

Basic references	1. T. Connolly., C. Begg, Database Systems: A Practical Approach to Design, Implementation and Management, 4th edition, Addison Wesley, 2005 2. L. Soren, SQL and relational databases, San Marcos: Microtrend Books, 1991.
Supplementary references	1. T. Kyte, Expert Oracle Database Architecture: Oracle Database 9i, 10g, and 11g Programming Techniques and Solutions, 2nd edition, APress 2010

Organisational unit conducting the course	Software Department	**Date of issuing the programme**
Author of the programme	dr hab. inż. Agnieszka Drużdżel,dr hab. inż. Małgorzata Krętowska	Feb. 17, 2022

L – lecture, C – classes, LC – laboratory classes, P – project, SW – specialization workshop, FW – field work,S – seminar