

FACULTY OF CHEMISTRY					
SUBJECT CARD					
Name of subject in Polish:	Eksploracja danych w technologii chemicznej				
Name of subject in English:	Data mining in chemical technology				
Main field of study:	Chemical Technology				
Specialization:	Technology of Fine Chemicals				
Profile:	academic				
Level and form of studies:	2nd level, full-time				
Kind of subject:	obligatory				
Subject code:	TCC024012				
Group of courses:	NO				
	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)			30		
Number of hours of total student workload (CNPS)			90		
Form of crediting			Crediting with grade		
For group of courses mark (X) final course					
Number of ECTS points			3		
including number of ECTS points for practical (P) classes			3		
including number of ECTS points for direct teacher-student contact (BK) classes			1		
PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES					
1. Knowledge of operating system environment					
2. Basic usage of spreadsheet software					
SUBJECT OBJECTIVES					
C1 To familiarize students with storage of data in tables					
C2 To familiarize students with relations between the tables and data					
C3 Learning how to extract desired data from the tables					
SUBJECT LEARNING OUTCOMES					
relating to knowledge:					
The person who passed the course					
PEK_W01 - has a basic knowledge of the form of data storage					
PEK_W02 - knows the existing relations between the data					
PEK_W03 - knows the most important databases in the field of chemical technology					
relating to skills:					
PEK_U01 - is able to create the databases and tables and alter them according to the needs					
PEK_U02 - is able to extract the desired data from one or more tables					
PEK_U03 - is able to modify the data in the table in the specified locations					
PEK_U04 - is able to extract the data from existing chemical databases					
PROGRAMME CONTENT					
Laboratory					Number of hours
Lab 1	Databases: purpose and structure. Relations in databases. Database software.				2
Lab 2	Basic usage of SQL.				2

Lab 3	Creating and altering tables.	2
Lab 4	Queries: formulation, modification, analysis of the results.	2
Lab 5	Forms: creation, usage and modification.	2
Lab 6	Design and modification of reports. Structure of the reports. Printouts.	2
Lab 7	Programming of macros.	2
Lab 8	Relations between tables. Extracting data from multiple tables.	2
Lab 9	Integration with other software packages. Import and export of data.	2
Lab 10	PubChem database of chemical compounds.	2
Lab 11	Extraction and visualization of structures from Protein Data Bank	2
Lab 12	Searching the Catalysts and Catalyzed Reaction database	2
Lab 13	Searching the Database of Zeolite Structures	2
Lab 14	Searching scholar manuscripts online.	2
Lab 15	Credit	2
	Total hours	30
TEACHING TOOLS USED		
N1. Online chemistry databases N2. SQL standard database package N3. Spreadsheet		
EVALUATION OF SUBJECT LEARNING OUTCOMES ACHIEVEMENT		
Evaluation (F – forming (during semester), P – concluding (at semester end))	Learning outcomes number	Way of evaluating learning outcomes achievement
P	PEK_W01..W03	Written credit
F	PEK_U01..U04	Assignments
PRIMARY AND SECONDARY LITERATURE		
<u>PRIMARY LITERATURE:</u>		
[1] Data analysis using SQL and Excel, Gordon S. Linoff, John Wiley & Sons, 2007 [2] SQL Queries for Mere Mortals: A Hands-on Guide to Data Manipulation in SQL, John Viescas, Addison Wesley, 2014		
<u>SECONDARY LITERATURE:</u>		
[1] On-line resources		
SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)		
Dr. Bartłomiej M. Szyja, PhD, Eng. b.m.szyja@pwr.edu.pl		