Zał. nr 4 do ZW 64/2012

|  |
| --- |
| FACULTY OF COMPUTER SCIENCE AND MANAGEMENT  **SUBJECT CARD**  **Name in Polish: Wprowadzenie do SQL**  **Name in English: Introduction to SQL**  **Main field of study (if applicable): Management**  **Specialization (if applicable): Business Management**  **Level and form of studies: 1st, full-time**  **Kind of subject: optional**  **Subject code: IEZ1182**  **Group of courses: NO** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Lecture | Classes | Laboratory | Project | Seminar |
| Number of hours of organized classes in University (ZZU) | **15** |  | **30** |  |  |
| Number of hours of total student workload (CNPS) | **60** |  | **60** |  |  |
| Form of crediting | **crediting with grade** |  | **crediting with grade** |  |  |
| For group of courses mark (X) final course |  |  |  |  |  |
| Number of ECTS points | **2** |  | **2** |  |  |
| including number of ECTS points for practical (P) classes |  |  | **2** |  |  |
| including number of ECTS points for direct teacher-student contact (BK) classes | **0,5** |  | **1** |  |  |

|  |
| --- |
| **PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES**   1. Knows the functional and hardware structures of computers, the concept and the classification of computer software. 2. Capable of using computers, working in the operation system graphical environment using application programs. |

\

|  |
| --- |
| **SUBJECT OBJECTIVES**  C1 To get knowledge about relational data bases and ways of creating and using them in practice by means of SQL.  C2 To acquire capability to create and use - by means of SQL - of relational database systems for geting information ad hoc for company management purposes.  C3 To acquire social competences specific for the applications of database systems in management information systems. |

|  |
| --- |
| **SUBJECT EDUCATIONAL EFFECTS**  relating to knowledge:  PEK\_W01. Knows the relational data base structure and basic problems of their creating and using.  PEK\_W02. Knows operations of the relational algebra as a basis of the relational database system functioning. in data gathering, memorizing and distributing.  PEK\_W03. Knows the SQL language.  relating to skills:  PEK\_U01 Capable to implement a simple relational data base system.  PEK\_U02 Capable to get information ad hoc from the relational database system by defining in the data base SQL language data retrieval processes.  relating to social competences:  PEK\_K01 Capable unaided to develop her/his knowledge and skills, to collaborate and to work in groups, ready to identify, analyze and solve problems in the area of the application of the database systems in management problems solving.  PEK\_K02. Capable professionally to find and chose problem solving methods, to take the responsibility for them, pass over, convince and defend own views connecting with the application of the database systems in management problems solving. |

|  |  |  |
| --- | --- | --- |
| **PROGRAMME CONTENT** | | |
| **Form of classes - lecture** | | **Number of hours** |
| Lec 1 | Relational database technology. Data base management system. Relational data base and its structure. Update data operations in SQL. Integrity constraints. | 2 |
| Lec 2 | Definition, application and implementation in SQL of operation on tables: selection, projection, equi-join. Superposition of selection, projection and equi-join operations. | 2 |
| Lec 3 | Definition, application and implementation in SQL of operation on tables: set-theoretic operations: union, intersection, unsymmetrical difference, complement. | 2 |
| Lec 4 | Definition, application and implementation in SQL of operation on tables: division and theta-join. | 2 |
| Lec 5 | Interpretation of queries given in a natural language and planning of the data processing process. Optimizing of the data processing process. | 1 |
| Lec 6 | Update anomalies. Table decomposition, schema decomposition. | 2 |
| Lec 7 | Functional dependences between data in tables and their types. Use of the functional dependences in data base schema design. | 3 |
| Lec 8 | Written test (P) | 1 |
|  | Total hours | 15 |

|  |  |  |
| --- | --- | --- |
| **Form of classes - class** | | **Number of hours** |
| Cl 1 |  |  |
| Cl 2 |  |  |
| Cl 3 |  |  |
|  | Total hours |  |

|  |  |  |
| --- | --- | --- |
| **Form of classes - laboratory** | | **Number of hours** |
| Lab 1 | Sample database management system and its functions; creating a data base; defining of the data base table structures in SQL. | 2 |
| Lab 2 | Defining of the data properties, primary and additional keys in SQL. | 2 |
| Lab 3 | Update operations in SQL and verifying the data base management system control functions. | 2 |
| Lab 4 | Practical test (F1). | 2 |
| Lab 5 | Trading company data base case study. Tables and relationships. Primary and additional keys. | 2 |
| Lab 6 | Select and make table queries. Defining queries in SQL. Query properties. | 2 |
| Lab 7 | Defining of the one table search process. Implementation in SQL of the selection and projection operations. | 2 |
| Lab 8 | Defining of the many tables search process. Defining of the virtual columns, data grouping, selecting and aggregating, aggregation functions in SQL. | 2 |
| Lab 9 | Practical test ( (F2). | 2 |
| Lab 10 | Defining of the tables union processes. Append queries. The set-theoretic union operation implementation in SQL. | 2 |
| Lab 11 | Defining of the tables intersection processes. The set-theoretic intersection operation implementation in SQL. | 2 |
| Lab 12 | Defining of the tables difference processes. Delete queries. The set-theoretic difference operation implementation in SQL. | 2 |
| Lab 13 | Implementation of the complement operation in SQL. | 2 |
| Lab 15 | Practical test ( (F3). | 2 |
| Lab 15 | Summary. Credit. | 2 |
|  | Total hours | 30 |

|  |  |  |
| --- | --- | --- |
| **Form of classes - project** | | **Number of hours** |
| Proj 1 |  |  |
| Proj 2 |  |  |
| Proj 3 |  |  |
|  | Total hours |  |

|  |  |  |
| --- | --- | --- |
| **Form of classes - seminar** | | **Number of hours** |
| Sem 1 |  |  |
| Sem 2 |  |  |
| Sem 3 |  |  |
|  | Total hours |  |

|  |
| --- |
| **TEACHING TOOLS USED** |
| N1. Lecture  N2. Multimedia presentation  N3. Laboratory instruction  N4. Instruction during classes  N5. Attitude and behawior of the teacher  N6. Workstation with graphical operation system MS Windows and MS Access  N7. Practical test  N8. Written test |

**EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT**

|  |  |  |
| --- | --- | --- |
| **Evaluation** (F – forming (during semester), P – concluding (at semester end) | Educational effect number | Way of evaluating educational effect achievement |
| F1 | PEK\_W01  PEK\_U01 | Practical test |
| F2 | PEK\_W02  PEK\_W03  PEK\_U01  PEK\_U02 | Practical test |
| F3 | PEK\_W02  PEK\_W03  PEK\_U01  PEK\_U02 | Practical test |
| P | PEK\_W01  PEK\_W02  PEK\_W03  PEK\_K01(partialy)  PEK\_K02(partialy) | Written test |
| P=1, F=3 | | |

|  |
| --- |
| **PRIMARY AND SECONDARY LITERATURE** |
| **PRIMARY LITERATURE:**   1. Ullman J., Widom J.. Podstawowy wykład z systemów baz danych. WNT, 2000. 2. Gruber M., SQL, Helion, 1996.   **SECONDARY LITERATURE:**  [3] Date C. Wprowadzenie do baz danych. WNT, 2000.  [4] Celko J., SQL zaawansowane techniki programowania. Mikom, 1999. |
| **SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)** |
| **Witold Rekuć, witold.rekuc@pwr.wroc.pl** |

MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT

**Introduction to SQL**

AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY Management

AND SPECIALIZATION **Business Management**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Subject educational effect** | **Correlation between subject educational effect and educational effects defined for main field of study and specialization (if applicable)\*\*** | **Subject objectives\*\*\*** | **Programme content\*\*\*** | **Teaching tool number\*\*\*** |
| **PEK\_W01** | K1\_ZARZ\_W24, K1\_ZARZ\_W25, K1\_ZARZ\_W26 | C1, C2 | Wy1, Wy6, Wy7 | N1, N2, N8 |
| **PEK\_W02** | K1\_ZARZ\_W24, K1\_ZARZ\_W25, K1\_ZARZ\_W26 | C1, C2 | Wy2, Wy3, Wy4, Wy5 | N1, N2, N8 |
| **PEK\_W03** | K1\_ZARZ\_W24, K1\_ZARZ\_W25, K1\_ZARZ\_W26 | C1, C2 | Wy1, Wy2, Wy3, Wy4, Wy5 | N1, N2, N8 |
| **PEK\_U01** | K1\_ZARZ\_U12, K1\_ZARZ\_U15,  K1\_ZARZ\_U16, K1\_ZARZ\_U17 | C1, C2 | La1, La2, La3, | N3, N4, N6, N7 |
| **PEK\_U02** | K1\_ZARZ\_U12, K1\_ZARZ\_U15,  K1\_ZARZ\_U16, K1\_ZARZ\_U17 | C1, C2 | La5, La6, La7, La8, La10, La11, La12, La13 | N3, N4, N6, N7 |
| **PEK\_K01** | K1\_ZARZ\_K01, K1\_ZARZ\_K02, K1\_ZARZ\_K04 | C3 | In connection with all programme content | In connection with all teaching tools |
| **PEK\_K02** | K1\_ZARZ\_K03, K1\_ZARZ\_K05, K1\_ZARZ\_K06 | C3 | In connection with all programme content | In connection with all teaching tools |

\*\* - enter symbols for main-field-of-study/specialization educational effects

\*\*\* - from table above