Zał. nr 4 do ZW 64/2012

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| WYDZIAŁ INFORMATYKI I ZARZĄDZANIA (COMPUTER SCIENCE AND MANAGEMENT FACULTY)  **SUBJECT CARD**  **Metody i narzędzia podejmowania decyzji**  **Methods and tools of making decisions**  **Main field of study (if applicable): Management**  **Specialization (if applicable): Business Management**  **Level and form of studies: 1st level, full-time**  **Kind of subject: obligatory**  **Subject code ZMZ2114**  **Group of courses NO** |

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|  | Lecture | Classes | Laboratory | Project | Seminar |
| Number of hours of organized classes in University (ZZU) | **15** |  | **15** |  |  |
| Number of hours of total student workload (CNPS) | **30** |  | **60** |  |  |
| Form of crediting | **Crediting with grade** |  | **Crediting with grade** |  |  |
| For group of courses mark (X) final course |  |  |  |  |  |
| Number of ECTS points | **1** |  | **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** |  | **0,5** |  |  |

\*delete as applicable

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| **PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES**  1. Student has a basic knowledge of business management and decision making process. He has a general knowledge of information technics in management.  2. Student knows basic software for solving management problems, specially designed for decision making.  3. Student has a basic practical skills in working with Excel and SQL software. |

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| **SUBJECT OBJECTIVES**  C1. Acquisition of data mining knowledge in business management processes.  C2. Getting skills in choosing and using decision support techniques in practical business problems solving.  C3. Getting social skills in information and communication techniques for management. |

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| **SUBJECT EDUCATIONAL EFFECTS**  relating to knowledge:  PEK\_W01: Student has a basic knowledge in construction and using some quantitative methods and computer technics in data mining useful in business information systems.  PEK\_W02: Student has a basic knowledge in applying software in data mining.  relating to skills:  PEK\_U01: Student can identify and propose ways of solving data mining problems.  PEK\_U02: Student is able to build useful tools for data analysis for business decision processes.  relating to social competences:  PEK\_K01: Student can enlarge his knowledge and abilities, can works in groups for solving management data mining problems.  PEK\_K02: Student can find methods for solving decision problems, held accountable for his works, defend his views of the propose way of solving problems. |

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| **PROGRAMME CONTENT** | | |
| **Form of classes - lecture** | | **Number of hours** |
| Lec 1 | Tools and methods of decision support systems – introduction. | 1 |
| Lec 2 | Decision making methods in business. | 1 |
| Lec 3 | Multivariate analysis in decision making - examples of practical applications in business. | 1 |
| Lec 4 | Multivariate analysis methods in decision making. | 2 |
| Lec 5 | Relational databases OLTP. | 2 |
| Lec 6 | Data warehouse. | 2 |
| Lec 7 | OLAP in relational databases. | 2 |
| Lec 8 | Decision tree – practical application in management | 2 |
| Lec 9 | Written test. | 2 |
|  | Total hours | 15 |

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| **Form of classes - class** | | **Number of hours** |
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| **Form of classes - laboratory** | | **Number of hours** |
| Lab 1 | Get acquainted with data warehouse. | 2 |
| Lab 2 | Star scheme and snowflake scheme in relational data warehouse. | 1 |
| Lab 3 | Using OLAP in statistical sale analysis. | 1 |
| Lab 4 | Using OLAP in solving sale management problems. | 1 |
| Lab 5 | Using OLAP in multivariate client analysis. | 2 |
| Lab 6 | Team work: preparing data for constructing regression tree of sale. | 2 |
| Lab 7 | Team work: construction regression tree of sale. Results presentation. | 2 |
| Lab 8 | Team work: sale analysis - construction association rules. Results presentation. | 2 |
| Lab 9 | Test with computer. | 2 |
|  | Total hours | 15 |

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| **Form of classes - project** | | **Number of hours** |
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| **Form of classes - seminar** | | **Number of hours** |
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| **TEACHING TOOLS USED** |
| N1. Informational- problematical lecture.  N2. Multimedia presentation.  N3. Laboratory instruction.  N4. Briefing during laboratory classes.  N5. Team discussion.  N6. Internet didactic team discussion.  N7. Data mining software.  N8. Result report.  N9. Computer test.  N10. Written test. |

**EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT**

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| **Evaluation** (F – forming (during semester), P – concluding (at semester end) | Educational effect number | Way of evaluating educational effect achievement |
| F1 | PEK\_U01, PEK\_U02 | Computer test. |
| F2 | PEK\_U01, PEK\_U02,  PEK\_K01, PEK\_K02 | Report of team work results. |
| P | PEK\_W01 | Written test. |
| F=2, P=1 | | |

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| **PRIMARY AND SECONDARY LITERATURE** |
| **PRIMARY LITERATURE:**  [1] Todman Ch., Projektowanie hurtowni danych, Wyd. WN-T, 2003.  [2] Januszewski A., Funkcjonalność informatycznych systemów zarządzania. Systemy business intelligence, Wyd. Nauk. PWN, Warszawa 2008  [3] Larose D.T., Odkrywanie wiedzy z danych. Wprowadzenie do eksploracji danych. , Wyd. Nauk. PWN, Warszawa 2006  [4] Poe V., Klauer P., Brobst S., Tworzenie hurtowni danych, WN-T, 2000  [5] Surma J., Business intelligence , PWN, Warszawa, 2009  [6] Knight G., Excel. Analiza danych biznesowych. Wyd. HELION, Gliwice, 2006.  **SECONDARY LITERATURE:**  [1] Czermiński A., Czermiński J., Łatowska A., Teoria i praktyka podejmowania decyzji kierowniczych, Wyd. Tonik, Toruń, 2001.  [2] Konarzewska-Gubała E., Programowanie przy wielorakości celów, Wyd. PWN, 1980.  [3] Kwiatkowska A., Systemy wspomagania decyzji. Jak korzystać z wiedzy I informacji, Wyd. Nauk. PWN, Warszawa 2007.  [4] Misztal M., Wykorzystanie drzew klasyfikacyjnych do wspomagania procesów podejmowania decyzji, Wyd. StatSoft, Kraków, 2000, ss. 31-42.  [5] Radosiński E., Systemy informatyczne w dynamicznej analizie decyzyjnej, Wyd. PWN, 2001.  [6] Sej-Kolasa M., Zielińska A., Excel w statystyce, Wyd.. AE, Wrocław, 2004, ss. 112-141  [7] Sobczyk M., Statystyka, Wyd. Nauk. PWN, Warszawa, 2007.  [8] Twardowska K., Łodyga P., Modele zarządzania wspomagane Excelem, OW Politechniki Warszawskiej, 2003, ss. 19-32  [9] Urban W., Siemieniako D., Lojalność klientów, PWN, Warszawa, 2008. |
| **SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)** |
| Leopold Szczurowski; e-mail: leopold.szczurowski@pwr.wroc.pl |

MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT

**Methods and tools of making decisions**

AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY Management

AND SPECJALIZATION Business Management

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| **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  (knowledge) | K1\_ZARZ\_W24  S1\_ZARZ\_ZP\_W09 | C1 | Lec01, Lec 02, Lec 03, Lec04, Lec05, Lec06, Lec07, Lec09 | N1, N2, N6, N10 |
| PEK\_W02  (knowledge) | K1\_ZARZ\_W24  S1\_ZARZ\_ZP\_W09 | C1 | Lec01, Lec02, Lec08, Lec 09 | N1, N2, N6, N10 |
| PEK\_U01  (skills) | S1\_ZARZ\_ZP\_U09 | C1, C2 | La01, La02, La03, La04, La09 | N2, N3, N4, N5, N6, N7,N9 |
| PEK\_U02  (skills) | S1\_ZARZ\_ZP\_U09 | C1, C2 | La01,La02, La04, La05, La06, La07, La08, La09 | N2, N3, N4, N5, N6, N7, N8,N9 |
| PEK\_K01  (social competencies) | K1\_ZARZ\_K02  K1\_ZARZ\_K03 | C3 | According to each program content | According to each program content teaching tool |
| PEK\_K02  (social competencies) | K1\_ZARZ\_K02  K1\_ZARZ\_K03 | C3 | According to each program content | According to each program content teaching tools |

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

\*\*\* - from table above