KARTA PRZEDMIOTU

I. Dane podstawowe

Nazwa przedmiotu	Data mining in business management
Nazwa przedmiotu w języku angielskim	Data mining in business management
Kierunek studiów	Matematyka (Mathematics)
Poziom studiów (I, II, jednolite magisterskie)	I
Forma studiów (stacjonarne, niestacjonarne)	Stacjonarne (Full-time studies)
Dyscyplina	Matematyka(Mathematics)
Język wykładowy	Angielski (English)

Koordynator przedmiotu/osoba odpowiedzialna	dr Andrzej Michalski

Forma zajęć *(katalog zamknięty ze słownika)*	Liczba godzin	semestr	Punkty ECTS
wykład	30	III or V	5
konwersatorium			
ćwiczenia	30	III or V	
laboratorium			
warsztaty			
seminarium			
proseminarium			
lektorat			
praktyki			
zajęcia terenowe			
pracownia dyplomowa			
translatorium			
wizyta studyjna			

Wymagania wstępne	Basic knowledge of relational databases.

II. Cele kształcenia dla przedmiotu

C1. To present the basic concepts and techniques related to data collecting and handling of collected data.
C2. To discuss the data usage in business to manage customer relationships, to monitor current business processes and to make strategic business decisions.

III. Efekty uczenia się dla przedmiotu wraz z odniesieniem do efektów kierunkowych

Symbol	Opis efektu przedmiotowego	Odniesienie do efektu kierunkowego
WIEDZA: Student knows and understands		
W_01	Relational data model as the most commonly used in on-line transactional processing (K_W01)	K_W01
W_02	Multidimensional data model as the most commonly used in on-line analytical processing (K_W01).	K_W01
W_03	The role of collecting and on-line data processing in business (K_W01).	K_W01
W_04	Basic types and techniques of data mining (K_W01).	K_W01
W_05	The role of data mining as an important tool supporting business decision making (K_W01).	K_W01
UMIEJĘTNOŚCI: Student has ability to		
U_01	Distinguish the operational database from the data warehouse (K_U29).	K_U29
U_02	Create basic SQL queries (K_U29).	K_U29
U_03	Assess the usefulness of data in contacts with clients (K_U29).	K_U29
U_04	Propose a method of data mining supporting the solution of a given business problem (K_U29).	K_U29
U_05	Use the basic Business Intelligence tools of a given IT system (K_U29).	K_U29
KOMPETENCJE SPOŁECZNE: Student is able to		
K_01	Formulate opinions on the possible use of data mining methods in business management taking into account own knowledge and skills (K_K01, K_K02).	K_K01, K_K02

IV. Opis przedmiotu/ treści programowe

Database definition. Introduction to the relational data model. Basic SQL commands for data management. On-line transaction processing. Operational database. The role of raw data in business management.
Introduction to the multidimensional data model. Basic operations supporting multidimensional data analysis. On-line analytical processing. Data Warehouse. Data mining as a part of knowledge discovery in data sets. The role of statistics in data mining. Data mining methods supporting business decision making. Business Intelligence tools.

V. Metody realizacji i weryfikacji efektów uczenia się

Symbol efektu	Metody dydaktyczne *(lista wyboru)*	Metody weryfikacji *(lista wyboru)*	Sposoby dokumentacji *(lista wyboru)*
WIEDZA			
W_01	conventional lecture, discussion, practical classes	test, written exam, oral exam	evaluated test, protocol
W_02	conventional lecture,	test, written exam, oral	evaluated test, protocol

	discussion, practical classes	exam	
W_03	conventional lecture, discussion, practical classes	test, written exam, oral exam	evaluated test, protocol
W_04	conventional lecture, discussion, practical classes	test, written exam, oral exam	evaluated test, protocol
W_05	conventional lecture, discussion, practical classes	test, written exam, oral exam	evaluated test, protocol
UMIEJĘTNOŚCI			
U_01	conventional lecture, discussion, practical classes	test, written exam, oral exam	evaluated test, protocol
U_02	conventional lecture, discussion, practical classes	test, written exam, oral exam	evaluated test, protocol
U_03	conventional lecture, discussion, practical classes	test, written exam, oral exam	evaluated test, protocol
U_04	conventional lecture, discussion, practical classes	test, written exam, oral exam	evaluated test, protocol
U_05	conventional lecture, discussion, practical classes	test, written exam, oral exam	evaluated test, protocol
KOMPETENCJE SPOŁECZNE			
K_01	conventional lecture, discussion, practical classes	test, written exam, oral exam	evaluated test, protocol

VI. Kryteria oceny, wagi…

LECTURE:
The completion of classes is required. Written and oral exam together constitute the final grade:
91 – 100% excellent
81 – 90% very good
71 – 80% good
61 – 70% satisfactory
51 – 60% sufficient
less than 51% fail
CLASSES:
At least 80% of attendance is required. Two tests together constitute the final grade:
91 – 100% excellent
81 – 90% very good
71 – 80% good
61 – 70% satisfactory
51 – 60% sufficient
less than 51% fail

Detailed assessment rules are given during lectures and classes.

VII. Obciążenie pracą studenta

Forma aktywności studenta	Liczba godzin
Liczba godzin kontaktowych z nauczycielem	Lecture: 30 hrs. Classes: 30 hrs. Individual consultations: 30 hrs. In total: 90 hrs.
Liczba godzin indywidualnej pracy studenta	Preparation for classes: 20 hrs. Studying books: 20 hrs. Preparation for tests and exams: 20 hrs In total: 60 hrs.

VIII. Literatura

Literatura podstawowa
Lecture notes. Worksheets.
Literatura uzupełniająca
In English: G. Curtis, D. Cobham: Business Information systems, Pearson Education, 2008, B. Inmon: Building the Data Warehouse. Third edition, Wiley, New York 2002, R. Kimball, M. Ross: The data warehouse toolkit. The complete guide to dimensional model-ing. Second edition, Wiley, New York 2002. In Polish: D. Hand, S. Mannila, P. Smyth: Eksploracja danych, WNT, Warszawa 2005, R.K. Stephens, R.R. Plew, B. Morgan, J. Perkins: SQL w 3 tygodnie, Oficyna Wydawnicza LT&P, Warszawa, 1999, C. Todman: Projektowanie hurtowni danych. Zarządzanie kontaktami z klientami (CRM), WNT, Warszawa 2003. K. Delaney: Microsoft SQL Server 2005 Podstawy baz danych krok po kroku, Microsoft Press, Warszawa 2006, R. Jacobson, S. Misner: Microsoft SQL Server 2005 Analysis Services krok po kroku, Microsoft Press, Warszawa 2006, J. Sturm: Hurtownie danych MS SQL Server 7.0. Przewodnik Techniczny, APN Promise, 2004.