

**UČNI NAČRT PREDMETA / COURSE SYLLABUS**

**Predmet:** Poslovna inteligenca II  
**Course title:** Business intelligence II

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Upravljanje in vodenje sistemov	/	1.	Letni
Control of Management of Systems	/	1.	Letni

**Vrsta predmeta / Course type**

obvezni

**Univerzitetna koda predmeta / University course code:**

PI2

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
45	0	30	0	0	105	6

**Nosilec predmeta / Lecturer:**

prof. dr. Matjaž Gams, akademik IAS

**Jeziki /  
Languages:**

**Predavanja /  
Lectures:** prof. dr. Matjaž Gams  
**Vaje / Tutorial:** dr. Boštjan Kaluža

**Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:**

- osnove računalništva in informatike,  
 - osnove poslovne inteligenca.

**Prerequisites:**

- basics in computer science and informatics,  
 - basics of business intelligence.

**Vsebina:**

Uvod v poslovno inteligenca:  
 - pregled poslovne inteligenca,  
 - osnove strokovnosti, inteligenca in poslovanja,  
 - osnovni kriteriji BI,  
 - poslovni arhitekturni in tehnološki pregled.

Upravljanje s podatki:  
 - podatkovna skladišča,  
 - veliki podatki,  
 - priprava, migracija, in posredovanje

**Content (Syllabus outline):**

Introduction to business intelligence (BI):  
 - overview of business intelligence,  
 - basics of scientific approach, intelligence and business,  
 - basic utility functions in BI,  
 - enterprise BI architecture and technology.

Data handling:  
 - data warehousing,  
 - big data,  
 - data preparation, migration and mediation,

podatkov,

- vizualizacija podatkov,
- kakovost in oplemenitenje podatkov,
- primeri največjih nevarnosti in napak.

Poslovna analitika:

- odkrivanje, analiza in definiranje poslovnih problemov,
- kvalitativno in kvantitativno modeliranje,
- ovrednotenje in prenos rezultatov v poslovno prakso,
- pregled tipičnih poslovnih problemov in pristopi reševanja.

Strategije trženja:

- poslovne strategije, planiranje in razvoj strategij,
- analiza trženjskih priložnosti in okolja
- strategije neposrednega trženja,
- kontaktne strategije.

Avtomatizacija trženja:

- tržni kanali in personalizacija tržnih vsebin,
- spremljanje aktivnosti strank in upravljanje tržne učinkovitosti,
- trženje na osnovi dogodkov in v realnem času,
- tipični primeri po različnih industrijah.

Orodja in rešitve:

- pregled orodij in rešitev na trgu,
- vpogled v prihajajoče tehnologije.

- data visualization,
- data quality and enhancement,
- examples of major pitfalls.

Predictive business analytics:

- business problem detection, analysis, and definition,
- descriptive and predictive modeling,
- modelling result evaluation and business adoption,
- overview of various industry examples with solution approaches.

Marketing strategies:

- business strategies, planning and development,
- analysis of marketing opportunities,
- direct marketing strategies,
- contact strategies.

Marketing automation:

- marketing channels, creative tactics and content personalization,
- response tracking and marketing performance management,
- event-driven and real-time marketing,
- best practice examples in various industries.

Tools and solutions:

- overview of best-of-breed tools and solutions,
- insight into emerging technologies.

### **Temeljni literatura in viri / Readings:**

Business Intelligence:

- Sharda R., Delen D., Turban E.: Business Intelligence and Analytics: Systems for Decision Support (10th Edition), 2014.
- Maheshwari A.: Business Intelligence and Data Mining Made Accessible, 2014.
- Sherman R.: Business Intelligence Guidebook: From Data Integration to Analytics, 2014.
- Provost F., Fawcett T.: Data Science for Business: What you need to know about data mining and data-analytic thinking, 2013.
- Kolb J.: Business Intelligence in Plain Language: A practical guide to Data Mining and Business Analytics, 2012.
- Rud O.: Business Intelligence Success Factors: Tools for Aligning Your Business in the Global Economy. Hoboken, N.J: Wiley & Sons, 2009.

- Turban E., Aronson J.E., Liang T.P.: Decision Support Systems and Intelligent Systems, Pearson Prentice Hall, 2005.

AI, ML, DM:

- Bratko I.; Prolog Programming for Artificial Intelligence (4th Edition) (International Computer Science Series), 2011.

- Russel S., Norvig P.: Artificial Intelligence: A Modern Approach (3rd Edition), 2009.

- Kononenko I: Strojno učenje, založba FE in FRI, Ljubljana, 2005.

- Guid N., Strnad D.: Umetna inteligenca, Univerza v Mariboru, Fakulteta za elektrotehniko, računalništvo in informatiko, 2007.

Older:

Goonatilake S., Treleaven P.: Intelligent System for Finance and Business, Wiley, 1996.

Hopgood A.: Intelligent Systems for Engineers and Scientists, CRC Press, 2001.

Gams, M.: Weak intelligence, 2001.

#### **Cilji in kompetence:**

- spoznati storitvene in inteligentne osnove informacijske družbe,  
- osvojiti znanja o inteligentnih poslovnih sistemih,  
- seznaniti študente z osnovnimi tehnikami in metodami inteligentnih sistemov,  
- prikazati uporabe metod na poslovnih primerih,  
- omogočiti študentom, da spoznajo praktično delo z metodami in orodji inteligentnih sistemov, predvsem strojnega učenja s praktično uporabo na sistemu Orange.

#### **Objectives and competences:**

- introduce intelligent services of information society,  
- get familiar with basic knowledge about intelligent business systems,  
- comprehend basic methods and techniques of intelligent systems,  
- demonstrate practical use of methods on real-life examples,  
- enable students to experience with intelligent systems and tools, primarily data mining and practical use of Orange.

#### **Predvideni študijski rezultati:**

Znanje in razumevanje:

- poznavanje najpomembnejših metod, tehnik in algoritmov inteligentnih sistemov,  
- osnovna teoretična podlaga metod za boljše razumevanje,  
- poznavanje možnosti uporabe strokovnih metod v poslovanju.

Prenesljive/ključne spretnosti in drugi atributi:

- izbira ustrezne metode inteligentnih sistemov za izbrane poslovne naloge,  
- implementacija nekaterih metod s področja inteligentnih sistemov,

#### **Intended learning outcomes:**

Knowledge and Understanding:

- familiarity with the most important intelligent system methods, techniques and algorithms,  
- basic theoretical background of the methods for better understanding,  
- knowledge of the scope of the business methods.

Transferable/key skills and other attributes:

- selection of the suitable intelligent systems method for a given business problem,  
- implementation of some methods from the area of intelligent systems,

- uporaba programskih orodij in inteligentnih storitev, predvsem paketa Orange.

- use of software tools and intelligent services, primarily Orange.

**Metode poučevanja in učenja:**

predavanja,  
predstavitve seminarjev,  
laboratorijske vaje na osebem računalniku.

**Learning and teaching methods:**

lectures,  
presentation of seminar assignments,  
laboratory work on personal computer.

**Načini ocenjevanja:**

Delež (v %) / **Assessment:**  
Weight (in %)

Pisni izpit	20 %	Written examination
Seminarska naloga	80 %	Seminar assignment

**Reference nosilca / Lecturer's references:**

Among 10 best in computer science and information society

VIDULIN, Vedrana, BOHANEK, Marko, GAMS, Matjaž. Combining human analysis and machine data mining to obtain credible data relations. *Information sciences*, ISSN 0020-0255. [Print ed.], dec. 2014, vol. 288, str. 254-278.