

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet: Baze podatkov in analize podatkov
Course title: Data Bases and Data Analysis

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Uporabne družbene študije UN	/	2.,3.	4.,6.
Advanced Social Studies BA	/	2.,3.	4.,6.

Vrsta predmeta / Course type

Izbirni/Optional

Univerzitetna koda predmeta / University course code:

BPAP

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
20	0	40	0	0	120	6

Nosilec predmeta / Lecturer:

Doc. dr./Ph.D., Assistant Nuša Erman (v postopku)

**Jeziki /
Languages:**

**Predavanja /
Lectures:** Slovensko / Slovenian, Angleško / English

Vaje / Tutorial: Slovensko / Slovenian, Angleško / English

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

Študent/študentka mora pred pristopom k izpitu pripraviti in zagovarjati empirično nalogo.

Prerequisites:

Before entering the exam, student must prepare and defend empirical report.

Vsebina:

1. UVOD:
 - namen in vsebina predmeta,
 - načini ocenjevana,
 - študijska literatura.
2. BAZE PODATKOV:
 - podatek, informacija: opredelitev,
 - vpliv informacijsko komunikacijske tehnologije na dostopnost podatkov,
 - baze podatkov v organizacijah (uporaba, organizacija, upravljanje, shranjevanje, transparentnost),
 - podatkovne baze in integracija.
3. NAČRTOVANJE PODATKOVNE BAZE:
 - življenjski cikel podatkov,
 - vzdrževanje podatkov.
4. ANALIZA UPORABNIKOVIH POTREB:
 - viri zajetja uporabnikovih potreb,
 - grafična predstavitev besednega opisa:
 - diagram pretoka podatkov (Data Flow Diagram),
 - ER model (Entity Relationship Model).
5. ER MODEL:
 - entiteta,
 - atribut,
 - entitetni tip,
 - kandidat za ključ,
 - povezava,
 - kardinalnost povezave.
6. PODATKOVNI MODELI:
 - hierarhični,
 - mrežni,
 - relacijski,
 - večdimenzionalni,
 - objektni model podatkov in procesov.
7. PRETVORBA RELACIJSKE PODATKOVNE BAZE V RELACIJSKO SHEMA:
 - normalne forme,
 - direktna prevedba z upoštevanjem normalizacije.
8. VZPOSTAVITEV RAČUNALNIŠKE BAZE PODATKOV:
 - sistem za upravljanje podatkovnih baz,

Content (Syllabus outline):

1. INTRODUCTION:
 - purpose and content of the course,
 - methods of assessment,
 - main readings.
2. DATA BASES:
 - data, information: definition,
 - impact of information and communication technology on data accessibility,
 - data bases in organizations (usage, organization, management, storage, transparency),
 - data bases and integration.
3. PLANNING A DATA BASE:
 - lifecycle of data,
 - data maintenance.
4. USER NEEDS ANALYSIS:
 - sources for capturing user needs,
 - graphical presentation of verbal description:
 - Data Flow Diagram,
 - Entity Relationship Model (ER model).
5. ER MODEL:
 - entity,
 - attribute,
 - entity type,
 - candidate for key,
 - relation,
 - cardinality of relation.
6. DATA MODELS:
 - hierarchical,
 - network,
 - relational,
 - multidimensional,
 - object data and process model.
7. TRANSFORMATION OF RELATION DATA BASE TO RELATIONAL SCHEME:
 - normal forms,
 - direct transformation with normalization consideration.
8. COMPUTER DATA BASE ESTABLISHMENT:
 - data base management system,

<ul style="list-style-type: none"> • primer: MC Access. <p>9. POIZVEDOVANJE:</p> <ul style="list-style-type: none"> • dostopanje do podatkov (relacijska algebra, jezik SQL, grafični način QBE): <ul style="list-style-type: none"> ○ SQL poizvedbe, ○ QBE poizvedbe <p>10. UPORABA PODATKOV V ORGANIZACIJI:</p> <ul style="list-style-type: none"> • zunanji podatkovni viri, zaščita podatkov, življenjska doba podatkov, vrste uporabnikov podatkovne baze, • obrazci in poročila.

<ul style="list-style-type: none"> • example: MS Access. <p>9. QUERY:</p> <ul style="list-style-type: none"> • access to data (relational algebra, SQL language, graphical mode QBE): <ul style="list-style-type: none"> ○ SQL queries, ○ QBE queries. <p>10. USAGE OF DATA IN ORGANIZATION:</p> <ul style="list-style-type: none"> • external data sources, data protection, data life period, types of data base users, • forms and reports.

Temeljni literatura in viri / Readings:

<ul style="list-style-type: none"> • JAKLIČ, J. (2002): <i>Upravljanje in uporaba podatkov</i>. Ljubljana: Ekonomska fakulteta. • KROENKE, D. in D.J. AUER (2010): <i>Database processing</i>. Harlow: Prentice Hall. • INMON, W.H. (2005): <i>Building the data warehouse</i>. Indianapolis, Wiley. • Dodatna literatura s strani nosilca / additional literature proposed by lecturer.
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Cilji in kompetence:

<p>SPLOŠNE KOMPETENCE:</p> <ul style="list-style-type: none"> • poznavanje in razumevanje družbenih procesov ter sposobnost za njihovo analizo, sintezo in predvidevanje rešitev in njihovih posledic • seznanjenost z raziskovalnimi metodami, postopki in procesi, sposobnost zbiranja in interpretiranja podatkov ter rezultatov raziskav • sposobnost fleksibilne uporabe znanja v praksi • sposobnost divergentnega mišljenja, kritičnega presojanja, ustvarjalnosti in premagovanja problemov <p>PREDMETNO SPECIFIČNE KOMPETENCE</p> <ul style="list-style-type: none"> • sposobnost povezovanja koherentno obvladanega temeljnega znanja, pridobljenega pri obveznih predmetih, ter njegova uporaba v praksi • razvoj veščin in spretnosti pri uporabi znanja na področju družbenih ved s pomočjo reševanja teoretičnih ali empiričnih problemov

Objectives and competences:

<p>GENERAL COMPETENCES:</p> <ul style="list-style-type: none"> • knowledge and understanding of social processes and the ability for their analysis, synthesis, foreseeing solutions and their consequences • familiarity with research methods, procedures and processes, the capability of collecting and interpreting data and research results • the ability of the flexible use of knowledge in practice • the ability of divergent thinking, critical judgement, creativity and overcoming problems <p>COURSE SPECIFIC COMPETENCES</p> <ul style="list-style-type: none"> • the ability to connect coherently collected knowledge attained from the mandatory courses and its application in practice • the development of skills and abilities to apply knowledge in the field of social sciences by solving theoretical and empirical problems • ability to use information and
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- sposobnost uporabe informacijsko-komunikacijske tehnologije in sistemov na področju družboslovja
- razumevanje odnosov med posamezniki, organizacijami in družbenim okoljem, zmožnost za kompleksno sistemsko gledanje in delovanje.

communications technologies and systems in the field of social sciences

- understanding of the relations between individuals, organisations and social environment, the ability of complex systems thinking and action.

Predvideni študijski rezultati:

Znanje in razumevanje:

- poznavanje osnovnih pojmov na področju baz podatkov,
- razumevanje dejavnikov, ki so vplivali na razvoj baz podatkov,
- poznavanje in razumevanje vloge baz podatkov v organizacijah,
- poznavanje procesa načrtovanja baz podatkov,
- razumevanje in poznavanje analitičnega pristopa k analizi podatkovnih baz, predvsem s pomočjo ER modela,
- razumevanje izgradnje relacijske sheme za vzpostavitev podatkovne baze,
- razumevanje in poznavanje pojma poizvedba ter njena uporaba pri analizi podatkov,
- poznavanje praktičnih vidikov uporabe podatkovnih baz v organizacijah.

Intended learning outcomes:

Knowledge and understanding:

- knowledge of fundamental concepts in data bases domain,
- understanding of factors which have influenced the development of data bases,
- knowledge and understanding of the role of databases in organizations,
- knowledge of the process of data base planning,
- understanding and knowledge of analytical approach to data base analysis, especially using ER model,
- understanding of relational scheme building to establish a data base,
- understanding and knowledge of the concept inquiry and its usage in data analysis,
- knowledge of practical views of data bases application in organizations.

Metode poučevanja in učenja:

- Predavanja z aktivno udeležbo študentov (razlaga snovi, pogovori, vprašanja, primeri, reševanje problemov),
- Vaje (delo na osebni računalniku, prenos teorije v prakso, delo s programom MS Access),
- Konzultacije (pogovori, dodatna razlaga, obravnava specifičnih vprašanj).

Learning and teaching methods:

- Lectures with active participation of students (explanation, discussion, questions, examples, problem solving),
- Tutorial (work on personal computers, transfer of theory to practice, work with program MS Access),
- Consultation (discussion, additional explanation, dealing with specific issues).

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

<ul style="list-style-type: none"> • Pisni/ustni izpit • Empirična seminarska naloga s poročili seminarskega dela in vaj ter predstavitev naloge 	<p>60%</p> <p>40%</p>	<ul style="list-style-type: none"> • Written/oral examination • Empirical seminar report with reports of seminar work and tutorials, and presentation of tasks
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Reference nosilca / Lecturer's references:

- ERMAN, Nuša, TODOROVSKI, Ljupčo. Analyzing the structure of the EGOV conference community. V: WIMMER, Maria A. (ur.). Electronic government : proceedings, (Lecture notes in computer science, ISSN 0302-9743, 6228). [Berlin]: Springer, cop. 2010, str. 75-84.
- ERMAN, Nuša, TODOROVSKI, Ljupčo, JEREB, Berta. Late somatic sequelae after treatment of childhood cancer in Slovenia. BMC research notes, ISSN 1756-0500, May 2012, vol. 5, no. 254, str. [1-19].
- ERMAN, Nuša, TODOROVSKI, Ljupčo. The effects of measurement error on the structural properties of the citation networks. European Survey Research Association.
- ERMAN, Nuša. Citation analysis for e-government research. V: CHUN, Soon Ae (ur.), REGAN, Priscilla M. (ur.), SANDOVAL, Rodrigo (ur.). The Proceedings of the 10th Annual international digital government research conference : social networks: making connections between citizens, data and government, The Universidad de las Americas Puebla (UDLA), Puebla, Mexico, May 17-20, 2009.
- BLAGUS, Rok, ERMAN, Nuša, POLAJNAR, Emil. Simulated data structures. V: International Conference Applied Statistics 2008, September 21-24, 2008, Ribno. LUSA, Lara (ur.), STARE, Janez (ur.). Program and abstracts. Ljubljana: Statistical Society of Slovenia, 2008, str. 73.
- OSTREŽ, Tina, ERMAN, Nuša, KOROŠEC, Aleš, BREZNIK, Kristijan, POLAJNAR, Emil, SUKLAN, Jana, BLAGUS, Rok, FILIPIČ, Sanja, GOLOB, Branka, ČIŽEK-SAJKO, Mojca, et al. Performance of some hierarchical agglomerative methods. V: Thirteenth Austrian, Croatian, Hungarian, Italian and Slovenian meeting of young statisticians : Balatonfüred, Hungary, Friday, October 17-Sunday, October 19, 2008. Balatonfüred: YSM, 2008, str. 1.
- BOGDANOSKA-JOVANOVSKA, Mimoza, ERMAN, Nuša, TODOROVSKI, Ljupčo. Indicators of the intensity and development of e-government back office. V: VINTAR, Mirko (ur.), ARISTOVNIK, Aleksander (ur.), TODOROVSKI, Ljupčo (ur.). Sodobni pristopi, metrike in kazalniki za spremljanje in vrednotenje javnih politik = Modern approaches, metrics and indicators for monitoring and evaluating public policies, (Zbirka znanstvenih monografij Upravna misel). 1. natis. Ljubljana: Fakulteta za upravo, 2013, str. 203-228.