

UČNI NAČRT PREDMETA / COURSE SYLLABUS	
Predmet:	Osnove biometrije
Course title:	Biometrics

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Informatika v sodobni družbi, magistrski študijski program druge stopnje	-	Prvi ali drugi	Drugi ali četrty
Informatics in Contemporary Society, second cycle Masters Study Programme	-	First or second	Second or fourth

Vrsta predmeta / Course type

Izbirni / Elective

Univerzitetna koda predmeta / University course code:

1-ISD-MAG-IP-OB-2016-10-01

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work	ECTS
30	-	10	-	10	100	5

Nosilec predmeta / Lecturer:

Jeziki / Languages:

Predavanja / Lectures:

Slovenski, angleški / Slovene, English

Vaje / Tutorial:

Slovenski, angleški / Slovene, English

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

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

Prerequisites:

Prior to the exam, the student has to prepare and present seminar work.

Vsebina:

- uvodne ugotovitve o biometriji
- zakonodaja
- osnove prepoznavanja in priznavanja vzorcev
- fizične biometrične lastnosti
- vedenjske biometrične lastnosti
- kontaktne biometrične lastnosti
- nekontaktne biometrične lastnosti
- nove biometrične lastnosti in njihov razvoj
- multimodalni biometrični sistemi
- specifikacije in protokoli preverjanja

Content (Syllabus outline):

- introduction to biometrics
- legislation
- fundamentals of recognition and validation of samples
- physical biometric features
- behavioral biometric features
- contact biometric features
- non-contact biometric features
- new biometric features and their development
- multimodal biometric systems
- specifications and verification

- zanesljivost biometričnih sistemov
- novosti v razvoju biometrije
- zaključna razmišljanja

- protocols
- reliability of biometric systems
- new developments in biometrics
- concluding thoughts

Temeljni literatura in viri / Readings:

- Springer: Ratha et al *Guide to Biometrics*, 2003.
- Springer: Wayman et al *Biometric Systems*, 2005.
- Taylor&Francis: Yabushkevich et al *Biometric Inverse Problems*, 2005.
- Idea Group Publishing: Zhang et al *Biometric Image Discrimination Technologies*, 2006.

Cilji in kompetence:

Učna enota prispeva k razvoju naslednjih splošnih in predmetno specifičnih kompetenc:

- osnovna IT znanja in spretnosti, potrebne za delo z biometričnimi lastnostmi, izvajanje in gradnjo biometričnih sistemov, varnosti, zlasti v omrežnih okoljih
- osnovne značilnosti biometričnih metod zbiranja, predelave, shranjevanja in primerjave podatkov ter njihovo združevanje v celovit sistem varnosti
- celovit pregled najpomembnejših lastnosti biometričnih sistemov
- razvoj računalniških omrežij je omejen s pogoji za razvoj, razvojem samim in povezljivostjo v Internet, kar predstavlja en vidik tega predmeta, v povezavi z izvajanjem biometričnih lastnosti glede računalniške varnosti v omrežju; večina podjetij je še vedno slabo obveščenih o delovanju biometričnih sistemov in njihovih prednostih, kar pomeni, da izobraževanje o tematiki pomeni tako dvig ravni znanja kot tudi dvig splošne ozaveščenosti o biometričnih podatkih
- predmet je usmerjen h končnemu uporabniku v omrežnem okolju

Objectives and competences:

The instructional unit contributes to the development of the following general and subject-specific competences:

- basic ICT knowledge and skills needed to work with biometric characteristics, implementation and construction of biometric systems, security, especially in network environments
- basic characteristics of biometric methods for collecting, processing, storage and comparison of data and their integration into a comprehensive system of safety
- a comprehensive overview of the most important features of biometric systems
- development of computer networks is limited by the conditions for development, by the development itself and connectivity to the Internet, which is one aspect of this course, in connection with the implementation of biometric features in respect to the computer network security; most companies are still poorly informed about the functioning of biometric systems and their advantages, which means that the education about it represents the raising of knowledge as well as raising the general awareness of biometrics
- the subject is directed to the end user in a networked environment

Predvideni študijski rezultati:

Znanje in razumevanje:

- poznati in razumeti razlike med različnimi biometričnimi lastnostmi
- razlikovanje med kontaktnimi in nekontaktnimi biometričnimi sistemi
- razumevanje sistemov za izključitve vzorcev
- izbrati najprimernejšo biometrično lastnost nekega delovnega mesta
- razumevanje modelov gradnje unimodalnih in multimodalnih biometričnih sistemov
- ocenjevanje biometričnih sistemov
- analiziranje in predstavitev dela biometričnega sistema

Intended learning outcomes:

Knowledge and understanding:

- know and understand the differences between various biometric features
- distinction between contact and non-contact biometric systems
- understanding of systems for the exclusion of samples
- select the most appropriate biometric features of a specific working place
- understanding the models for construction of unimodal and multimodal biometric systems
- evaluation of biometric systems
- analysing and presentation of functions of a biometric system

Metode poučevanja in učenja:

- *predavanja* z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje primerov)
- *vaje in laboratorijske vaje*
- individualne in skupinske *konzultacije* (diskusija, dodatna razlaga, obravnava specifičnih vprašanj)

Learning and teaching methods:

- lectures with active participation of students (explanation, discussion, questions, examples, problem solving)
- exercises and lab work
- individual and group consultations (discussion, additional explanation, consideration of specific issues)

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

Način (pisni izpit, ustno izpraševanje, naloge, projekt):

- pisni/ustni izpit
- seminarska naloga

50

50

Type (examination, oral, coursework, project):

- written/oral exam
- seminar paper