



Univerza v Mariboru

Fakulteta za naravoslovje  
in matematiko

### UČNI NAČRT PREDMETA / COURSE SYLLABUS

**Predmet:** Spletne aplikacije in storitve  
**Course title:** Web Applications and Services

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Matematika, 1. stopnja		3.	6.
Mathematics, 1 <sup>st</sup> cycle		3.	6.

**Vrsta predmeta / Course type**

izbirni / elective

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

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. vaje Laboratory work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
30	15		30		105	6

**Nosilec predmeta / Lecturer:**

Andrej TARANENKO

**Jeziki /**

**Languages:**

**Predavanja /**

**Lectures:**

SLOVENSKO/SLOVENE

**Vaje / Tutorial:**

SLOVENSKO/SLOVENE

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

Računalniški praktikum

**Prerequisites:**

Programming Practicum

**Vsebina:**

Osnove in funkcije interneta.  
Najpomembnejše internetne aplikacije: spletni strežniki, odjemalci in protokol HTTP, FTP strežniki, odjemalci in protokol, strežniki, odjemalci in protokoli za elektronsko pošto.  
Življenjski cikel spletne strani.  
Razvoj spletnih strani: HTML, XHTML, XML, PHP, MySQL.  
CMS sistemi za dinamične spletne strani.

**Content (Syllabus outline):**

Fundamentals and functions of the Internet.  
Common Internet applications: servers, clients and protocols for web pages, FTP and e-mail.  
The lifecycle of a webpage.  
Development of web pages: HTML, XHTML, XML, PHP, MySQL.  
CMC systems for dynamic web pages.  
Development of mathematically oriented web application.

Razvoj matematično orientirane spletne aplikacije.

### Temeljni literatura in viri / Readings:

HTML in CSS standard, <https://www.w3.org/standards/>, dostopno 1. 6. 2019

H. M. Deitel, P. J. Deitel, T. R. Nieto: Internet and World Wide Web: how to program Pearson, 2012.

C. D. Knuckles, D. Yuen, Web applications: concepts & real world design, Hoboken, J.Wiley & Sons, 2005.

G. Schlossnagle, Advanced PHP programming, Sams, 2004.

K. Topley, Java Web services in a nutshell, Sebastopol, O'Reilly, 2003.

### Cilji in kompetence:

Spoznati in uporabiti najpogostejše storitve interneta, opisati življenjski cikel spletne strani in uporabiti orodja za razvoj spletnih aplikacij. Razviti matematično orientirano spletno aplikacijo.

### Objectives and competences:

To know and use the most common internet services, describe the lifecycle of a Web page and use different development tools for Web applications. To develop a mathematically oriented real world Web application.

### Predvideni študijski rezultati:

Znanje in razumevanje:

- Spoznati pristope k razvoju spletnih aplikacij in organizaciji spletne stran
- Spoznati različne protokole, strežnike in odjemalce za spletne strani, prenos datotek in elektronsko pošto.
- Razumeti osnovne konstrukte skriptnih jezikov
- Spoznati orodja za razvoj spletnih aplikacij.
- Razviti matematično orientirano spletno aplikacijo.

Prenosljive/ključne spretnosti in drugi atributi:

- Pridobljena znanja so podlaga za vse predmete, ki lahko izkoristijo internet.

### Intended learning outcomes:

Knowledge and Understanding:

- To know the approaches to Web design and organization of Website content
- To know the protocols, servers and clients for web pages, file transfer and e-mail
- To understand fundamental constructs of scripting languages
- To know the different development tools
- Development of mathematically oriented real world Web application.

Transferable/Key Skills and other attributes:

- The obtained knowledge is a basis for all subjects that can take advantage of Internet.

### Metode poučevanja in učenja:

- Predavanja
- Seminar
- Računalniške vaje

### Learning and teaching methods:

- Lectures
- Seminar
- Computer exercises

**Načini ocenjevanja:****Assessment:**

	Delež (v %) / Weight (in %)	
<u>Sprotno preverjanje:</u>		<u>Mid-term testing:</u>
Pisni testi – teorija (3 do 6 pisnih testov na semester)	30%	Written tests – theory (from 3 to 5 written tests during the semester)
Projekt	40%	Project
<u>Izpit:</u>		<u>Exams:</u>
Pisni izpit – praktični del	30%	Written exam – practical part
Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno.		Each of the mentioned commitments must be assessed with a passing grade.
Opravljene sprotne obveznosti so pogoj za pristop k izpitu.		Passing grades of all mid-term testings are required for taking the exam.

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

1. BANIČ, Iztok, TARANENKO, Andrej. Span of a graph : keeping the safety distance. *Discrete mathematics & theoretical computer science*. 2023, vol. 25, no. 1, 19 str. ISSN 1365-8050. DOI: [10.46298/dmtcs.9859](https://doi.org/10.46298/dmtcs.9859). [COBISS.SI-ID 148408835],
  2. DRAVEC, Tanja, TARANENKO, Andrej. Daisy Hamming graphs. *Discussiones mathematicae. Graph theory*. 2023, vol. 43, no. 2, str. 421-436. ISSN 1234-3099. DOI: [10.7151/dmgt.2373](https://doi.org/10.7151/dmgt.2373). [COBISS.SI-ID 137313795],
  3. TARANENKO, Andrej. Daisy cubes: a characterization and a generalization. *European journal of combinatorics*. March 2020, vol. 85, art. 103058 [10 str.]. ISSN 0195-6698. <https://doi.org/10.1016/j.ejc.2019.103058>, DOI: [10.1016/j.ejc.2019.103058](https://doi.org/10.1016/j.ejc.2019.103058). [COBISS.SI-ID 18934105],
  4. ZHU, Enqiang, TARANENKO, Andrej, SHAO, Zehui, XU, Jin. On graphs with the maximum edge metric dimension. *Discrete applied mathematics*. [Print ed.]. March 2019, vol. 257, str. 317-324. ISSN 0166-218X. <https://doi.org/10.1016/j.dam.2018.08.031>, DOI: [10.1016/j.dam.2018.08.031](https://doi.org/10.1016/j.dam.2018.08.031). [COBISS.SI-ID 18584665],
  5. PETERIN, Iztok, SCHREYER, Jens, FECKOVÁ ŠKRABUL'ÁKOVÁ, Erika, TARANENKO, Andrej. A note on the Thue chromatic number of lexicographic products of graphs. *Discussiones mathematicae. Graph theory*. 2018, vol. 38, iss. 3, str. 635-643. ISSN 1234-3099. <http://www.discuss.wmie.uz.zgora.pl/php/discuss3.php?ip=&url=pdf&nIdA=25507&nIdSesji=-1>, DOI: [10.7151/dmgt.2032](https://doi.org/10.7151/dmgt.2032). [COBISS.SI-ID 18373465],
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