



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 najpogostejše storitve interneta, življenski cikel spletne strani in orodja za razvoj spletnih aplikacij. Razviti matematično orientirano spletno aplikacijo.

### Objectives and competences:

To know the most common internet services, the lifecycle of a Web page and 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
- Računalniške vaje

### Learning and teaching methods:

- Lectures
- 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. ZHU, Enqiang, TARANENKO, Andrej, SHAO, Zehui, XU, Jin. On graphs with the maximum edge metric dimension. *Discrete applied mathematics*, ISSN 0166-218X. [Print ed.], March 2019, vol. 257, str. 317-324. <https://doi.org/10.1016/j.dam.2018.08.031>, doi: 10.1016/j.dam.2018.08.031. [COBISS.SI-ID 18584665]
2. 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*, ISSN 1234-3099, 2018, vol. 38, iss. 3, str. 635-643. <http://www.discuss.wmie.uz.zgora.pl/php/discuss3.php?ip=&url=pdf&nIdA=25507&nIdSesji=-1>, doi: 10.7151/dmgt.2032. [COBISS.SI-ID 18373465]
3. KELENC, Aleksander, KUZIAK, Dorota, TARANENKO, Andrej, YERO, Ismael G. Mixed metric dimension of graphs. *Applied mathematics and computation*, ISSN 0096-3003. [Print ed.], 2017, vol. 314, str. 429-438, doi: 10.1016/j.amc.2017.07.027. [COBISS.SI-ID 23331080]
4. BANIČ, Iztok, TARANENKO, Andrej. Measuring closeness of graphs - the Hausdorff distance. *Bulletin of the Malaysian Mathematical Society*, ISSN 0126-6705, 2017, vol. 40, iss. 1, str. 75-95, doi: 10.1007/s40840-015-0259-1. [COBISS.SI-ID 21722376]
5. KELENC, Aleksander, TARANENKO, Andrej. On the Hausdorff distance between some families of chemical graph. *MATCH Communications in Mathematical and in Computer Chemistry*, ISSN 0340-6253, 2015, vol. 74, no. 2, str. 223-246. [http://match.pmf.kg.ac.rs/electronic\\_versions/Match74/n2/match74n2\\_223-246.pdf](http://match.pmf.kg.ac.rs/electronic_versions/Match74/n2/match74n2_223-246.pdf). [COBISS.SI-ID 21391368]