

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Ime predmeta: OSNOVE MATEMATIČNIH METOD 1
Course title: FUNDAMENTALS OF MATHEMATICAL METHODS 1

Študijski program in stopnja Study programme and cycle	Študijska smer Study option	Letnik Year of study	Semester Semester
GOSPODARSKA IN TEHNIŠKA LOGISTIKA 1. stopnja		1.	1.
PROFESSIONAL HIGHER EDUCATION STUDY PROGRAMME ECONOMIC AND TECHNICAL LOGISTICS 1 st degree		1.	1.

**Vrsta predmeta (obvezni ali izbirni) /
Course type (compulsory or elective)**

OBVEZNI
COMPULSORY

Univerzitetna koda predmeta / University course code:

VS

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje Clinical training	Druge oblike študija Other forms of study	Samost. delo Individual work	ECTS
33 a-P 27 e-P		21 a-V 9 e-V			90	6

**Nosilec predmeta / Course
coordinator:**

MAJA FOŠNER

Jeziki /Languages:

Predavanja / Lectures: SLOVENSKI/SLOVENE
Vaje / Tutorial: SLOVENSKI/SLOVENE

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

Ni pogojev.

**Prerequisites for enrolling in the course or for
performing study obligations:**

None.

Vsebina (kratek pregled učnega načrta):

- Uvod: množice, številske množice, primeri
- Reševanje enačb, neenačb
- Premo, obratno sorazmerje
- Procentni in obrestni račun
- Matrična algebra: matrike, računanje z matrikami, determinante, inverzna matrika, računanje inverzne matrike, matrične enačbe, sistemi linearnih enačb.
- Vektorska algebra: vektorji, seštevanje in odštevanje vektorjev, množenje vektorja s skalarjem, skalarni produkt, vektorski produkt, mešani produkt, primeri.

Content (syllabus outline):

- Introduction: sets, number sets, examples
- Solving equations, inequalities
- Direct Proportion and Inverse Proportion
- Ratios, rates, & percentages
- Matrix algebra: matrices, calculating with matrices, determinants, inverse matrix, calculating inverse matrices, matrix equations, systems of linear equations, examples
- Vector algebra: vectors, addition and subtraction of vectors, multiplication of a vector by a scalar, the scalar product, the vector product, the mixed product, examples

<ul style="list-style-type: none"> • Zaporedja in vrste: zaporedja, limita, stekališče, vrste, geometrijska vrsta. • Funkcije ene spremenljivke: osnovni pojmi, zveznost funkcije, limita funkcije, lastnosti zveznih funkcij, pregled elementarnih funkcij, načrtovanje funkcij, primeri. 	<ul style="list-style-type: none"> • Sequences and series: sequences, limit, accumulation point, series, geometric series • Functions of one variable: basic terminology, continuity of a function, function limit, characteristics of continuous functions, overview of elementary functions, function planning, examples.
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Temeljni literatura in viri / Reading materials:

E-gradivo predmeta.

FOŠNER, Maja. *Matematične metode: elektronski učbenik*. Celje: Fakulteta za logistiko, 2009. 1 optični disk (CD-ROM). ISBN 978-961-6562-29-4.

FOŠNER, Maja, ZALAR, Bojana. *Zbirka nalog iz uporabe matematičnih metod v logistiki I*. Celje: Fakulteta za logistiko, 2008. ISBN 978-961-6562-21-8. http://fl.uni-mb.si/eknjige/zbirka_UMML1.pdf.

FOŠNER, Maja, MARCEN, Benjamin. *Zbirka nalog iz matematičnih metod I*. Celje: Fakulteta za logistiko, 2010. 125 str., graf. prikazi. ISBN 978-961-6562-47-8. http://fl.uni-mb.si/wp-content/uploads/2011/04/Prirocnik_Zbirka_nalog_MM1.pdf.

Dodatna literatura:

Jamnik J.: *Matematika*, Ljubljana, Društvo matematikov, fizikov in astronomov, Ljubljana, 1990 ISBN 961-212-034-X, COBISS.SI-ID 43443968. Vidav, I.: *Višja matematika I*, Ljubljana: Društvo matematikov, fizikov in astronomov Slovenije, 1994 ISBN: 961-212-031-5 COBISS.SI-ID:40515072.

Usenik, J.: *Matematične metode v prometu*, UL FPP, 1998, ISBN 961-6044-31-1 COBISS.SI-ID:

FOŠNER, Maja, ZMAZEK, Blaž, ŽEROVNIK, Janez. *Matematične metode v logistiki : zapiski predavanj*. Celje: Fakulteta za logistiko, 2008. 259 str., ilustr. ISBN 978-961-6562-25-6. [COBISS.SI-ID 242349824]

POVH, Janez, PUSTAVRH, Simona, FOŠNER, Maja, GORŠE PIHLER, Melita, ZALAR, Bojana. *Matematične metode v uporabi*, (Izbrana poglavja iz matematike in računalništva, 42). 1. natis. Ljubljana: DMFA - založništvo, 2010. 269 str., ilustr. ISBN 978-961-212-200-3. [COBISS.SI-ID 235459328].

Cilji in kompetence:

Študenti spoznajo in osvojijo osnovne pojme linearne algebre ter matematične analize, se naučijo natančnosti izražanja, pisanja in razmišljanja in se usposobijo uporabljati teoretično znanje v konkretnih primerih na področju logistike.

Objectives and competences:

Students are familiarised with and grasp the basic concepts of algebra and mathematical analysis. They learn to write, think and express themselves accurately and they gain the ability to apply their theoretical knowledge in practice in the field of logistics.

Predvideni študijski rezultati:

Znanje in razumevanje:

- Sposobnost obvladanja osnovnih standardnih metod in postopkov matematične analize.
- Sposobnost uporabe pridobljenega osnovnega teoretičnega znanja v praksi.
- Avtonomnost v svojem strokovnem delu.

Intended learning outcomes:

Knowledge and understanding:

- Ability to master standard methods and procedures of mathematical analysis.
- Ability to use the basic acquired knowledge in practice.
- Independence in professional work.

Metode poučevanja in učenja:

Predavanja: pri predavanjih študent spozna teoretične vsebine predmeta. Del predavanj se izvaja na klasični način v predavalnici, del pa v obliki e-predavanj (e-predavanja se lahko izvajajo na videokonferenčni način ali s pomočjo posebej v ta

Learning and teaching methods:

Lectures: students understand the theoretical frameworks of the course. Part of the lecture course is in a classroom while the rest is in the form of e-learning (e-lectures may be given via video-conferencing or with the help of specially designed e-

namen didaktično pripravljenih e-gradiv v virtualnem elektronskem učnem okolju).	material in a virtual electronic learning environment).
Vaje: pri vajah študent utrdi teoretično znanje in spozna aplikativne možnosti. Del vaj se izvaja na klasični način v predavalnici, del pa v obliki e-vaj (e-vaje se lahko izvajajo na videokonferenčni način ali s pomočjo posebej v ta namen didaktično pripravljenih e-gradiv v virtualnem elektronskem učnem okolju).	Tutorials: Students enhance their theoretical knowledge and are able to apply it. Part of the seminar is in a classroom while the rest is in the form of e-learning (e-tutorials may be given via video-conferencing or with the help of specially designed e-material in a virtual electronic learning environment).

Načini ocenjevanja:	Delež (v %) / Share (in %)	Assessment methods:
Opravljenosti obveznosti e-predavanj in e-vaj so pogoj za pristop k izpitu.		Successful completion of e-lectures and e-tutorials is a prerequisite for entering the exam.
Pisni izpit (računski del).	80%	Written examination (calculation part).
Pisni del (teorija).	20%	Oral examination (theory).

Reference nosilca / Course coordinator's references:

1. FOŠNER, Maja, MARCEN, Benjamin, VUKMAN, Joso. On functional equation related to (m, n) -Jordan centralizers in prime rings. *Bulletin of the Malaysian mathematical sciences society*, ISSN 2180-4206, 2018, str. [1-17]. https://link.springer.com/article/10.1007/s40840-018-0650-9?wt_mc=Internal.Event.1.SEM.ArticleAuthorOnlineFirst, doi: [10.1007/2Fs40840-018-0650-9](https://doi.org/10.1007/2Fs40840-018-0650-9). [COBISS.SI-ID [512927037](https://doi.org/10.1007/2Fs40840-018-0650-9)].
2. FOŠNER, Maja, MARCEN, Benjamin, VUKMAN, Joso. On functional equation related to a class of generalized inner derivations in prime rings. *Bulletin of the Malaysian Mathematical Society*, ISSN 0126-6705, 2018, vol. 41, iss. 2, str. 687-707, doi: [10.1007/s40840-016-0341-3](https://doi.org/10.1007/s40840-016-0341-3). [COBISS.SI-ID [22067208](https://doi.org/10.1007/s40840-016-0341-3)].
3. FOŠNER, Maja, MARCEN, Benjamin, VUKMAN, Joso. A result in the spirit of Herstein theorem. *Glasnik matematički. Serija 3*, ISSN 0017-095X, 2018, vol. 53, no. 1, str. 73-95. <http://dx.doi.org/10.3336/gm.53.1.06>, doi: [10.3336/gm.53.1.06](https://doi.org/10.3336/gm.53.1.06). [COBISS.SI-ID [18389081](https://doi.org/10.3336/gm.53.1.06)].
4. FOŠNER, Maja, MARCEN, Benjamin, VUKMAN, Joso. A result in the spirit of Herstein theorem. *Glasnik matematički*, ISSN 1846-7989, 2018, vol. 53, no. 1, str. 73-95. [https://web.math.pmf.unizg.hr/glasnik/53.1/53\(1\)-06.pdf](https://web.math.pmf.unizg.hr/glasnik/53.1/53(1)-06.pdf). [COBISS.SI-ID [512926525](https://doi.org/10.3336/gm.53.1.06)].
5. FOŠNER, Maja, MARCEN, Benjamin, VUKMAN, Joso. On some functional equation arising from (m, n) -Jordan derivations of prime rings. *Publicationes mathematicae*, ISSN 2064-2849. [Online ed.], 2018, vol. 92, iss. 1/2, str. 133-146. http://publi.math.unideb.hu/load_jpg.php?p=2198, doi: [10.5486/PMD.2018.7780](https://doi.org/10.5486/PMD.2018.7780). [COBISS.SI-ID [512895549](https://doi.org/10.5486/PMD.2018.7780)].
6. FOŠNER, Maja, REHMAN, Nadeem Ur, BANO, Tarannum. A note on generalized derivations on prime rings. *Arabian journal of mathematics*, ISSN 2193-5351, 2017, str. [1-5]. <https://link.springer.com/content/pdf/10.1007/2Fs40065-017-0193-1.pdf>, doi: [10.1007/s40065-017-0193-1](https://doi.org/10.1007/s40065-017-0193-1). [COBISS.SI-ID [512895293](https://doi.org/10.1007/s40065-017-0193-1)].
7. FOŠNER, Maja, ŠIROVNIK, Nejc, VUKMAN, Joso. A result related to Herstein theorem. *Bulletin of the Malaysian Mathematical Society*, ISSN 0126-6705, Jul. 2016, vol. 39, iss. 3, 885-899 str. <http://link.springer.com/article/10.1007/s40840-015-0196-z>, doi: [10.1007/s40840-015-0196-z](https://doi.org/10.1007/s40840-015-0196-z). [COBISS.SI-ID [512695869](https://doi.org/10.1007/s40840-015-0196-z)].
8. FOŠNER, Maja, MARCEN, Benjamin, REHMAN, Nadeem Ur. On skew-commuting mappings in semiprime rings. *Mathematica slovacica*, ISSN 1337-2211, Avg. 2016, vol. 66, iss. 4, str. 811-814. <https://doi.org/10.1515/ms-2015-0183>, doi: [10.1515/ms-2015-0183](https://doi.org/10.1515/ms-2015-0183). [COBISS.SI-ID [512822589](https://doi.org/10.1515/ms-2015-0183)].

9. FOŠNER, Maja. A result concerning additive mappings in semiprime rings. *Mathematica slovacca*, ISSN 0139-9918, Dec. 2015, vol. 65, iss. 6, str. 1271-1276. <http://www.degruyter.com/view/j/ms.2015.65.issue-6/ms-2015-0088/ms-2015-0088.xml?format=INT>, doi: [10.1515/ms-2015-0088](https://doi.org/10.1515/ms-2015-0088). [COBISS.SI-ID 512753213].