



Univerza v Mariboru

Fakulteta za naravoslovje
in matematiko

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Teorija množic
Course title:	Set Theory

Študijski program in stopnja

Študijska smer

Letnik

Semester

Study programme and level

Study field

Academic year

Semester

Enovit magistrski študijski program druge stopnje Predmetni učitelj	/	3. ali/or 4.	6. ali/or 8.
Five-year master's degree program Subject Teacher	/		

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
24	0	21	0	0	45	3

Nosilec predmeta / Lecturer:

dr. Uroš Milutinović

Jeziki /

Predavanja / slovenski / Slovenian

Languages:

Lectures:

Vaje / Tutorial: slovenski / Slovenian

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

Ni jih.

Prerequisites:

None.

Vsebina:

Content (Syllabus outline):

Osnovni pojmi matematične logike. Načini zapisovanja množic. Osnovne relacije med množicami, osnovne operacije z množicami ali družinami množic. Relacije. Ekvivalenčne relacije. Funkcije. Posebni tipi funkcij.

Končne in neskončne, števne in neštevne množice.

Osnovno o kardinalnih številih.

The basic notions of mathematical logic. The methods of denoting sets. The basic relations among sets, the basic operations on sets or families of sets. Relations. Equivalence relations. Functions. Special types of functions.

Finite and infinite, countable and uncountable sets.

Fundamentals of cardinal numbers.

Temeljni literatura in viri / Readings:

- N.Prijatelj: Matematične strukture I, Ljubljana, Društvo matematikov, fizikov in astronomov Slovenije, 1996
- R.R.Stoll: Set theory and logic, New York, Dover Publications, 1979
- S.Lipschutz: Schaum's outline of theory and problems of set theory and related topics, New York (etc.), McGraw-Hill, 1998

Cilji in kompetence:

Obvladati osnovne pojme in rezultate iz matematične logike in teorije množic.

Objectives and competences:

Students learn how to use the basic notions and results of mathematical logic and set theory.

Predvideni študijski rezultati:

Znanje in razumevanje:

- Uporaba osnovnih pojmov matematične logike (izjava, predikat, logične operacije, kvantifikatorja)
- Uporaba osnovnih pojmov in rezultatov iz teorije množic (množice, operacije z množicami in družinami množic, relacije, funkcije, kardinalna števila).

- Pridobljena znanja so osnova za vse druge matematične predmete.

Intended learning outcomes:

Knowledge and understanding:

- Be able to use the basic notions of mathematical logic (propositions, predicates, logical operations, quantifiers)
- Be able to use the basic notions and results of set theory (sets, operations on sets and families of sets, relations, functions, cardinal numbers)

- The obtained knowledge forms a foundation for all the other mathematical subjects.

Metode poučevanja in učenja:

- Predavanja
- Seminarske vaje
- Individualno delo

Learning and teaching methods:

Lectures
Tutorial
Individual work

Načini ocenjevanja:

Delež (v %) /

Weight (in %) /

Assessment:

Pisni test – praktični del	50%	Written test – practical part
Izpit (ustni) – teoretični del	50%	Exam (oral) – theoretical part
Vsaka izmed naštetih obveznosti mora biti opravljena s pozitivno oceno.		Each of the mentioned commitments must be assessed with a passing grade.
Pozitivna ocena pri pisnem testu je pogoj za pristop k izpitu.		Passing grade of the written test is required for taking the exam.
Pisni izpit – praktični del se lahko izpelje kot sprotna obveznost.		Written test – practical part can be replaced by one mid-term test.

Reference nosilca / Lecturer's references:

1. BANIČ, Iztok, ČREPŃJAK, MatevŹ, MERHAR, Matej, MILUTINOVIĆ, UroŹ, SOVIĆ, Tina. The closed subset theorem for inverse limits with upper semicontinuous bonding functions. *Bulletin of the Malaysian Mathematical Society*, ISSN 0126-6705, 2019, vol. 42, iss. 3, str. 835-846, doi: [10.1007/s40840-017-0517-5](https://doi.org/10.1007/s40840-017-0517-5). [COBISS.SI-ID [23281928](#)].
2. BANIČ, Iztok, ČREPŃJAK, MatevŹ, MERHAR, Matej, MILUTINOVIĆ, UroŹ. The (weak) full projection property for inverse limits with upper semicontinuous bonding functions. *Mediterranean journal of mathematics*, ISSN 1660-5446, Aug. 2018, vol. 15, iss. 4, str. 1-21, doi: [10.1007/s00009-018-1209-6](https://doi.org/10.1007/s00009-018-1209-6). [COBISS.SI-ID [23960328](#)].
3. BANIČ, Iztok, ČREPŃJAK, MatevŹ, MERHAR, Matej, MILUTINOVIĆ, UroŹ, SOVIĆ, Tina. An Anderson-Choquet-type theorem and a characterization of weakly chainable continua. *Mediterranean journal of mathematics*, ISSN 1660-5446, 2017, vol. 14, iss. 2, str. 1-14, doi: [10.1007/s00009-017-0868-z](https://doi.org/10.1007/s00009-017-0868-z). [COBISS.SI-ID [22997512](#)].
4. BANIČ, Iztok, ČREPŃJAK, MatevŹ, ERCEG, Goran, MERHAR, Matej, MILUTINOVIĆ, UroŹ. Inducing functions between inverse limits with upper semicontinuous bonding functions. *Houston journal of mathematics*, ISSN 0362-1588, 2015, vol. 41, no. 3, str. 1021-1037. [COBISS.SI-ID [21550856](#)].
5. BANIČ, Iztok, ČREPŃJAK, MatevŹ, MERHAR, Matej, MILUTINOVIĆ, UroŹ. Inverse limits, inverse limit hulls and crossovers. *Topology and its Applications*, ISSN 0166-8641. [Print ed.], 2015, vol. 196, str. 155-172, doi: [10.1016/j.topol.2015.09.040](https://doi.org/10.1016/j.topol.2015.09.040). [COBISS.SI-ID [21615112](#)].