

| UČNI NAČRT PREDMETA / COURSE SYLLABUS (leto / year 2016/17) | | | | | | |
|--|---------------------------|--|------------------------------|------------------------------------|--------------------------------------|-------------|
| Predmet: | | Splošna topologija | | | | |
| Course title: | | Point-set topology | | | | |
| Študijski program in stopnja Study programme and level | | Študijska smer Study field | | Letnik Academic year | Semester Semester | |
| Enoviti magistrski študijski program Pedagoška matematika | | ni smeri | | 2 | prvi | |
| Integrated Master's study programme Pedagogical Mathematics | | none | | 2 | first | |
| Vrsta predmeta / Course type | | | | obvezni / compulsory | | |
| Univerzitetna koda predmeta / University course code: | | | | M0512 | | |
| Predavanja Lectures | Seminar Seminar | Vaje Tutorial | Klinične vaje work | Druge oblike študija | Samost. delo Individ. work | ECTS |
| 30 | | 30 | | | 90 | 5 |
| Nosilec predmeta / Lecturer: | | prof. dr. Janez Mrčun, prof. dr. Petar Pavešić, prof. dr. Dušan Repovš | | | | |
| Jeziki / Languages: | | Predavanja / Lectures: | | slovenski / Slovene | | |
| | | Vaje / Tutorial: | | slovenski / Slovene | | |
| Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti: | | | | Prerequisites: | | |
| Vpis v letnik študija. | | | | Enrolment in the programme. | | |
| Opravljen predmet Analiza 1. | | | | Completed course Analysis 1. | | |
| Vsebina: | | | | Content (Syllabus outline): | | |

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| <p>Topologija, baza, podprostori, zvezne preslikave, odprte in zaprte preslikave, homeomorfizmi, separacijske lastnosti.</p> <p>Kompaktni prostori in podprostori, zvezne preslikave na kompaktnih, lokalna kompaktnost, Bairov izrek.</p> <p>Povezani prostori, povezane množice na premici, komponente, lokalna povezanost, povezanost s potmi, popolna nepovezanost, Cantorjeva množica.</p> <p>Urisonova lema, Tietzejev izrek, Stone-Weierstrassov izrek.</p> <p>Končni in neskončni topološki produkti, zvezne preslikave v produkta, multiplikativne lastnosti.</p> | <p>Topology, base, subspaces, continuous maps, open and closed maps, homeomorphisms, separation properties. Compact spaces and subspaces, continuous maps on compact spaces, locally compactness, the Baire theorem. Connected spaces, connected sets on line, components, locally connectedness, path connectedness, totally disconnectedness, the Cantor set. The Urysohn lemma, the Tietze theorem, the Stone-Weierstrass theorem. Finite and infinite topological products, continuous maps on products, multiplicative properties.</p> |
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Temeljni literatura in viri / Readings:

J. Dugundji: Topology, Allyn and Bacon, Boston, 1978.

J. R. Munkres: Topology : A First Course, Prentice Hall, Englewood Cliffs, 1975.

N. Prijatelj: Matematične strukture III : Okolice, DZS, Ljubljana, 1985.

J. Mrčun: Topologija, zapiski predavanj, Fakulteta za matematiko in fiziko, Ljubljana, 2003.

Cilji in kompetence:

Študent spozna osnove splošne topologije, kot so povezanost, kompaktnost, separacijske lastnosti, topologija na produktih in funkcijskih prostorih.

Objectives and competences:

Student gets familiar with basic concepts point-set topology, such as connectedness, compactness, separation properties, topology on products and function spaces.

Predvideni študijski rezultati:

Znanje in razumevanje: Razumevanje pojmov topologije, zvezne preslikave, povezanosti in kompaktnosti. Poznavanje osnovnih prijemov za delo s temi pojmi in povezav z drugimi področji matematike.

Intended learning outcomes:

Knowledge and understanding: Understanding of notions such as topology, continuous map, connectedness and compactness. Knowledge of basic concepts of the above notions and connection with other areas of mathematics.

Uporaba: Splošna topologija sodi med temeljne matematične predmete. Študent spozna osnovne pojme in tehnike dela, na katerih sloni vrsta drugih matematičnih predmetov.

Refleksija: Razumevanje teorije na podlagi primerov in uporabe.

Prenosljive spretnosti – niso vezane le na en predmet: Formulacija problemov v primernem jeziku, reševanje in analiza doseženega na primerih.

Application: Point-set topology is one of the basic mathematical courses. Student gets familiar with basic definitions and techniques that are foundations for several other mathematical courses.

Reflection: Understanding of the theory from the applications.

Transferable skills: The ability to formulate a problem in suitable language, find a solution of the problems and analyse the method on real examples.

Metode poučevanja in učenja:

Predavanja, vaje, domače naloge, konzultacije

Learning and teaching methods:

Lectures, exercises, homework, consultations

Načini ocenjevanja:

Delež (v %) /

Weight (in %)

Assessment:

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

izpit iz vaj,

izpit iz teorije

ocene: 1-5 (negativno), 6-10 (pozitivno) (po Statutu UL)

50%

50%

Type (examination, oral, coursework, project):

written exam

oral exam

grading: 1-5 (fail), 6-10 (pass) (according to the Statute of UL)

Reference nosilca / Lecturer's references:

Janez Mrčun:

KALIŠNIK, Jure, MRČUN, Janez. A Cartier-Gabriel-Kostant structure theorem for Hopf algebroids. *Advances in mathematics*, ISSN 0001-8708, 2013, vol. 232, iss. 1, str. 295-310. [COBISS.SI-ID

16432473]

KALIŠNIK, Jure, MRČUN, Janez. Equivalence between the Morita categories of étale Lie groupoids and locally grouplike Hopf algebroids. *Indagationes mathematicae*, ISSN 0019-3577, 2008, vol. 19, no. 1, str. 73-96. [COBISS.SI-ID 14978393]

MRČUN, Janez. *Topologija*, (Izbrana poglavja iz matematike in računalništva, 44). Ljubljana: DMFA - založništvo, 2008. VI, 147 str., ilustr. ISBN 978-961-212-207-2. [COBISS.SI-ID 243021824]

MOERDIJK, Ieke, MRČUN, Janez. *Introduction to foliations and Lie groupoids*, (Cambridge studies in advanced mathematics, 91). Cambridge, UK: Cambridge University Press, 2003. IX, 173 str., ilustr. ISBN 0-521-83197-0. [COBISS.SI-ID 12683097]

Petar Pavešić:

PAVEŠIĆ, Petar. A note on trivial fibrations. *Glasnik matematički*. Serija 3, ISSN 0017-095X, 2011, vol. 46, no. 2, str. 513-519. [COBISS.SI-ID 16078681]

PAVEŠIĆ, Petar. Decompositions of groups of invertible elements in a ring. *Proceedings. Section A, Mathematics*, ISSN 0308-2105, 2009, vol. 139, iss 6, str. 1275-1287. [COBISS.SI-ID 15505497]

PAVEŠIĆ, Petar. *Splošna topologija*, (Izbrana poglavja iz matematike in računalništva, 43). Ljubljana: DMFA - založništvo, 2008. VI, 89 str., ilustr. ISBN 978-961-212-205-8. [COBISS.SI-ID 240425984]

PAVEŠIĆ, Petar. *Rešene naloge iz topologije*, (Izbrana poglavja iz matematike in računalništva, 32). Ljubljana: Društvo matematikov, fizikov in astronomov Slovenije, 1995. 132 str. ISBN 961-212-042-0. [COBISS.SI-ID 47811328]

Dušan Repovš:

KARIMOV, Umed H., REPOVŠ, Dušan. On generalized 3-manifolds which are not homologically locally connected. *Topology and its Applications*, ISSN 0166-8641. [Print ed.], 2013, vol. 160, iss. 3, str. 445-449. [COBISS.SI-ID 16558681]

CÁRDENAS, Manuel, LASHERAS, Francisco F., QUINTERO, Antonio, REPOVŠ, Dušan. On manifolds with nonhomogeneous factors. *Central European Journal of Mathematics*, ISSN 1895-1074, 2012, vol. 10, no. 3, str. 857-862. [COBISS.SI-ID 16241753]

BANAKH, Taras, REPOVŠ, Dušan. Direct limit topologies in the categories of topological groups and of uniform spaces. *Tohoku mathematical journal*, ISSN 0040-8735, 2012, vol. 64, no. 1, str. 1-24. [COBISS.SI-ID 16215897]

CENCELJ, Matija, REPOVŠ, Dušan. *Topologija*, (Zbirka Pitagora). 1. ponatis. Ljubljana: Pedagoška fakulteta, 2011. XVI, 169 str., ilustr. ISBN 978-86-7735-051-2. [COBISS.SI-ID 254230528]

