



Univerza v Mariboru
University of Maribor

Fakulteta za naravoslovje in
matematiko / Faculty of Natural
Sciences and Mathematics



OPIS PREDMETA / SUBJECT SPECIFICATION

Predmet:	Teorija kontinuumov
Subject Title:	Continuum Theory

Študijski program Study programme	Študijska smer Study field	Letnik Year	Semester Semester
Matematika / Mathematics	Računalniška matematika / Computer Mathematics	1. ali 2.	1., 2. ali 3.

Univerzitetna koda predmeta / University subject code:

Predavanja Lectures	Seminar Seminar	Sem. vaje Tutorial	Lab. Vaje Lab. Work	Teren. vaje Field work	Samost. delo Individ. work	ECTS
45	-	30	-	-	135	7

Nosilec predmeta / Lecturer:

Iztok BANIČ

Jeziki /

Predavanja / Lecture:

slovenski / Slovenian

Languages:

Vaje / Tutorial:

slovenski / Slovenian

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

Prerequisites:

Poznavanje splošne topologije.

Knowledge of general topology..

Vsebina:

Contents (Syllabus outline):

Kontinuumi. Zgledi kontinuumov. Vgnezdeni preseki.
Verige.

Continua. Examples of continua. Nested intersections.
Chains.

Osnovne lastnosti. Nerazcepnost, dedna ekvivalenca,
uverljivost, homogenost, unikoherentnost,
ireducibilnost. Kompozanti.

Basic properties. Indecomposability, hereditary
equivalence, homogeneity, unicoherence, irreducibility.
Composants.

Inverzna zaporedja kontinuumov. Inverzne limite
kontinuumov. Nerazcepna inverzna zaporedja. Anderson
- Chocquejev vložitveni izrek in njegova uporaba.

Inverse sequences of continua. Inverse limits of
continua. Indecomposable inverse sequences.
Anderson - Choquet embedding theorem and its
applications.

Posebni primeri kontinuumov. Knasterjev
kontinuum, psevdolok, pahljače, grafi.

Special examples. Knaster continuum, pseudoarc,
fans, graphs.

Hiperprostor. Konvergenca množic.

Hyperspaces. Convergence of sets.

Temeljni študijski viri / Textbooks:

S .B. Nadler: Continuum theory: an introduction, Marcel Dekker, New York, 1992

A. Illanes, S. B. Nadler: Hyperspaces. Fundamentals and recent advances, Marcel Dekker, Inc., New York, 1999

J.R.Munkres: Topology: a first course, Englewood Cliffs, NJ, Prentice-Hall, 1975

S.Lipschutz: Schaum's outline of theory and problems of general topology, New York (etc.), McGraw-Hill, 1965

J. Vrabec: Metrični prostori. Ljubljana: DMFA, 1993.

Cilji:

Temeljito spoznati kontinuum in njihove lastnosti.

Temeljito spoznati inverzna zaporedja in inverzne limite kontinuumov.

Objectives:

To know thoroughly about continua and their properties.

To know thoroughly about inverse sequences and inverse limits of continua.

Predvideni študijski rezultati:

Znanje in razumevanje:

Razumevanje in uporaba osnovnih lastnosti kontinuumov.

Razumevanje in uporaba konstrukcijskih metod za konstrukcijo novih primerov kontinuumov.

Prenesljive/ključne spretnosti in drugi atributi:

Prenos znanja v zvezi s kontinuumi na druga matematična (teorija grafov, analiza, geometrija) in nematematična področja (astronomija, fizika, mehanika tekočin, ekonomija)

Intended learning outcomes:

Knowledge and Understanding:

Be able to understand and implement basic properties of continua.

Be able to understand and implement construction methods for constructions of new examples of continua.

Transferable/Key Skills and other attributes:

Knowledge transfer of the concepts, connected with continua into other mathematical (graph theory, analysis, geometry) and nonmathematical fields (astronomy, physics, mechanics of fluids, economics).

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 izpit
Ustni izpit

50%, 50%

Written exam –problems
Oral exam

Materialni pogoji za izvedbo predmeta :

- Predavalnica

Material conditions for subject realization

- Lecture hall

Obveznosti študentov:

(pisni, ustni izpit, naloge, projekti)

Pisni izpit
Ustni izpit

Students' commitments:

(written, oral examination, coursework, projects):

Written exam
Oral exam