UČNI NAČRT PREDMETA / COURSE SYLLABUS (leto / year 2017/18)

Predmet:	Preddoktorski izpit
Course title:	Predoctoral exam

Študijski program in stopnja **Study programme and level**	Študijska smer **Study field**	Letnik **Academic year**	Semester **Semester**
Doktorski študijski program Matematika in fizika	Matematika	1	prvi ali drugi
Doctoral study programme Mathematics and Physics	Mathematics	1	first or second

Vrsta predmeta / Course type	obvezni / compulsory

Univerzitetna koda predmeta / University course code: M3126

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. delo Individ. work		ECTS
					180		6

Nosilec predmeta / Lecturer:	prof. dr. Matej Brešar, prof. dr. Miran Černe, prof. dr. Primož Potočnik

Jeziki / **Languages:**	**Predavanja /** **Lectures:**	slovenski / Slovene, angleški / English
	Vaje / Tutorial:	slovenski / Slovene, angleški / English

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:	**Prerequisites:**
Vpis v letnik študija.	Enrolment in the programme.

Vsebina:	**Content (Syllabus outline):**

Obnovitev temeljnih matematičnih pojmov s področij analize, algebre, diskretna matematika, teoretičnega računalništva in verjetnosti.	Revision of basic mathematical notions from the fields of analysis, algebra, discrete mathematics, theoretical computer science and probability.

Temeljni literatura in viri / Readings:

S. Lang, "Undergraduate Algebra", Springer, New York, 2005.

S. Lang, "Undergraduate Analysis, 2nd edition", Springer, New York, 1997.

W. Rudin, "Principles of Mathematical Analysis, 3rd edition", McGraw-Hill, New York-Auckland-Düsseldorf, 1976.

J. H. van Lindt, R.M. Wilson, "A course in combinatorics", Cambridge University Press, Cambridge, 1992.

D. Stirzaker, "Probability and Random Variables, A beginner's guide", Cambridge University Press, 1999.

Michael Sipser, Introduction to the Theory of Computation, Cengage Learning (2013).

Cilji in kompetence: Objectives and competences:

Cilj predmeta je študentom priskrbeti temeljno znanje, ki je potrebno za spremljanje naprednejših predmetov in za raziskovalno delo.	The goal of the course is to provide the students with the background material needed for following the advanced classes and for mathematical research.

Predvideni študijski rezultati: Intended learning outcomes:

Študenti obnovijo osnovno matematično znanje, potrebno za njihovo nadaljne delo.	The students revise some basic background material needed for their future work.

Metode poučevanja in učenja: Learning and teaching methods:

Samostojni študij in konzultacije.	Individual learning and concultations.

Načini ocenjevanja:	Delež (v %) / Weight (in %)	Assessment:
Pisni izpit; ocene: opravil, ni opravil.	100%	Written exam; grades: pass, fail.

Reference nosilca / Lecturer's references:

Matej Brešar:
BREŠAR, Matej. Functional identities on tensor products of algebras. Journal of algebra, ISSN 0021-8693, 2016, vol. 455, str. 108-136. [COBISS.SI-ID 17625945]
BREŠAR, Matej. Algebras in which non-scalar elements have small centralizers. Linear and Multilinear Algebra, ISSN 0308-1087, 2015, vol. 63, no. 9, str. 1864-1871. [COBISS.SI-ID 17160537]
BREŠAR, Matej, ŠPENKO, Špela. Functional identities of one variable. Journal of algebra, ISSN 0021-8693, 2014, vol. 401, str. 234-244.[COBISS.SI-ID 16842329]

Miran Černe:
ČERNE, Miran, ZAJEC, Matej. Boundary differential relations for holomorphic functions on the disc. Proceedings of the American Mathematical Society, ISSN 0002-9939, 2011, vol. 139, no. 2, str. 473-484. [COBISS.SI-ID 15710553]
ČERNE, Miran, FLORES, Manuel. On Beurling's boundary differential relation. Israel journal of mathematics, ISSN 0021-2172, 2014, vol. 199, iss. 2, str. 831-840. [COBISS.SI-ID 17144153]
ČERNE, Miran. Beurling's boundary differential relations on multiply connected domains. Journal of mathematical analysis and applications, ISSN 0022-247X. [Print ed.], 2015, vol. 428, iss. 1, str. 544-562. [COBISS.SI-ID 17270873]

Primož Potočnik:
BERČIČ, Katja, POTOČNIK, Primož. Two-arc-transitive two-valent digraphs of certain orders. Ars mathematica contemporanea, ISSN 1855-3966. [Tiskana izd.], 2016, vol. 11, no. 1, str. 127-146. [COBISS.SI-ID 1538308036]
POTOČNIK, Primož, WILSON, Stephen. Linking rings structures and semisymmetric graphs: Cayley constructions. European journal of combinatorics, ISSN 0195-6698, 2016, vol. 51, str. 84-98. [COBISS.SI-ID 17462361]
POTOČNIK, Primož, SPIGA, Pablo, VERRET, Gabriel. Bounding the order of the vertex-stabiliser in 3-valent vertex-transitive and 4-valent arc-transitive graphs. Journal of combinatorial theory. Series B, ISSN 0095-8956, 2015, vol. 111, str. 148-180. [COBISS.SI-ID 1537132228]