DOCTORAL (PHD) STUDIES
COURSE DESCRIPTION

Course title	Field of science	Faculty	Institute
Complex Analysis	Mathematics (N 001)	Faculty of Mathematics and Informatics	Institute of Mathematics

Study method	Number of credits	Study method	Number of credits
Lectures	0	Consultations	1
Individual work	4	Seminars	0

Course summary
1. Limit of the complex function, continuity, power series, path integral.
2. Differential calculus, Cauchy theorem and its applications.
3. Residue theorem, its application to integral calculus.
4. Infinite products, Weierstrass products.
5. Dirichlet series, gamma function,
6. Laplace and Mellin transformations.

Main literature
1. S. Lang, Complex analysis, 4th ed., Springer, 1999.
2. E. Freitag, R. Busam, Complex analysis, 2005.
3. L. V. Ahlfors, Complex analysis. An introduction to the theory of analytic functions of one complex variable, McGraw-Hill, 1979.
4. V. Kabaila, P. Rumšas, Kompleksinio kintamojo funkcijų teorija, Mintis, 1971.
5. A. Nagelė, L. Papreckienė, Kompleksinio kintamojo funkcijų teorija, Vilnius, Žara, 1996.

Consulting teacher	Scientific degree	Pedagogical name	Main publications in the field of science of the last 5 year period
Ramūnas Garunkštis	Dr. (HP)	Prof.	1. R. Garunkštis, Zeros of the extended Selberg class zeta-functions and of their derivatives. Turkish J. Math. 43 (2019), no. 6, 2921–2930. 2. P. Drungilas, R. Garunkštis, A. Novikas, On second moment of Selberg zeta-function for σ=1. Results Math. 76 (2021), no. 4, Paper No. 184, 18 pp. 3. R. Garunkštis, Selberg zeta-function associated to compact Riemann surface is prime, Rev. Un. Mat. Argentina 62 (2021), 213–218.
Antanas Laurinčikas	Habil. dr.	Prof.	1. A. Laurinčikas, Discrete universality of the Riemann zeta-function in short intervals. Appl. Anal. Discrete Math. 14 (2020), no. 2, 382–405. 2. A. Laurinčikas, Approximation of analytic functions by an absolutely convergent Dirichlet series. Arch. Math. (Basel) 117 (2021), no. 1, 53–63. 3. A. Laurinčikas, Approximation by generalized shifts of the Riemann zeta-function in short intervals. Ramanujan J. 56 (2021), no. 1, 309–322.

Approved by the Board of Faculty of Mathematics and Informatics 10/12/2021. Resolution No. (1.5 E) 110000-TPN-42
Board Chairman – assoc. prof. dr. Kristina Lapin