

| | | | |
|--|--------------------|--------------------|---------------|
| Study programmes: PhD studies – Mathematics – Analysis and differential equations | | | |
| Course name: 3M141 Differential operators | | | |
| Lecturers: Nebojša Lažetić | | | |
| Status: Optional | | | |
| ECTS: 9 | | | |
| Attendance prerequisites: Spectral theory | | | |
| Course aims: Mastering of notions and methods of differential operators. | | | |
| Course outcome: Student should understand and be able to apply notions and techniques of differential operators. | | | |
| Course content: Elementary theory of ordinary linear differential operators. Ordinary linear differential operators in Hilbert space. Spectral theory of self-conjugate elliptic operators. Linear differential operators in commutative algebras. Nonlinear differential operators. Evolution and linearization. Nonlinear differential equations, their solutions, symbols and symmetries. Some applications of theory of symmetries of PDE's. | | | |
| Literature: | | | |
| <ol style="list-style-type: none"> 1. M.A. Naimark, Linear Differential Operators (на русском), Наука, 1969. 2. V.A. Iljin, Spectral Theory of Differential operators (на русском), Наука 1991. 3. A.M. Vinogradov, I.S. Krasilscik, V.V. Lychagin, An introduction to geometry of nonlinear differential equations. 4. M. Altman, A unified theory of nonlinear operator and evolution equations with applications. | | | |
| Number of hours: 10 | Lectures: 4 | Research: 6 | |
| Teaching and learning methods: Frontal / Individual / Research | | | |
| Assessment (maximal 100 points) | | | |
| Course assignments | Points | Final exam | points |
| Lectures | | Written exam | |
| Exercises / Tutorials | 50 | Oral exam | 50 |
| Colloquia | | Written-oral exam | |
| Essay / Project | | | |