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|--|--|--------------------|---------------------|---------------|
| <b>Study programmes:</b> PhD studies - Astronomy and Astrophysics  |  |                    |                     |               |
| <b>Course name:</b> Special Techniques of Astrophysical Observations   |  |                    |                     |               |
| <b>Lecturers:</b> Stevo Šegan  |  |                    |                     |               |
| <b>Status:</b> Optional  |  |                    |                     |               |
| <b>ECTS:</b> 9   |  |                    |                     |               |
| <b>Attendance prerequisites:</b> None  |  |                    |                     |               |
| <b>Course aims:</b> Obtaining advanced and specific knowledge of the modern methods for processing of astronomical data  |  |                    |                     |               |
| <b>Course outcome:</b> After completing the course, student has advanced knowledge in the field of data processing and is capable to do independant scientific research.   |  |                    |                     |               |
| <b>Course content:</b> Schema of general classification of reduction of observational data and methods for their solving with mathematical basics; Numerical methods; Statistical methods; Semi analytical methods; Regression and correlation; Analysis of time series; Dispersion analysis; Covariant analysis; Models of topological regression; Rank correlation; Tables of conjugations; Numerical taxonomy and cluster analysis; Limitations in astronomical practice; Uniform generators of random numbers; Noise generators. |  |                    |                     |               |
| <b>Literature:</b>   |  |                    |                     |               |
| 1. S.A. Aivazyan et al., Applied Statistics - study of relationships, 1985;  |  |                    |                     |               |
| 2. I. A. Fransis, A survey of statistical Software, 1983;  |  |                    |                     |               |
| 3. U. Grenander and M. Rosenblatt, Statistical analysis of stationary time series, 1966; Trumpler and Weaver, Statistical Astronomy, 1953.   |  |                    |                     |               |
| 4. Д. Ђуровић: Математичка обрада астрономских посматрања(1974); С. Шеган: Сет од 15 лекција из Специјаних метода  |  |                    |                     |               |
| <b>Number of hours: 10</b>   |  | <b>Lectures: 4</b> | <b>Tutorials: 6</b> |               |
| <b>Teaching and learning methods:</b>  |  |                    |                     |               |
| Frontal, group, practical work   |  |                    |                     |               |
| <b>Assessment (maximal 100 points)</b>   |  |                    |                     |               |
| <b>Course assignments</b>  |  | <b>points</b>      | <b>Final exam</b>   | <b>points</b> |
| Lectures   |  | 20                 | Written exam        | -             |
| Exercises / Tutorials  |  | 30                 | Oral exam           | 20            |
| Colloquia  |  | -                  | Written-oral exam   | -             |
| Essay / Project  |  | 30                 |                     |               |