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| Course: | ***Analytic hierarchy process*** |
| Course id: 2МРР2И31 |
| Number of ECTS: 4 |
| Teacher: | Prof. dr Zorica Srđević, prof. dr Bojan Srđević |
| Course status | Elective |
| Number of active teaching classes (weekly) |
| Lectures:2 | Tutorials :2 | Other teaching types: | Study research work: | Other classes: |
| Precondition courses | Basics of mathematics; IT |
| 1. Educational goal: Introduction to the principles, methodologies, methods and tools for hierarchically structured decision-making problems in the field of rural development and agro-tourism
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| 1. Educational outcomes: After passing the exam, it is expected that the student: a) receive a basic knowledge of methods and tools for decision-making, with emphasis on AHP; b) capable of critical uses AHP method; c) capable of analyzing the results obtained; d) improve the ability of independent learning and presentation skills acquired.
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| 1. Course content

*Theoretical instruction**-* Introduction. Hierarchical decision-making processes. Horizontal and vertical structure.- Multi-criteria analysis. Elements of decision-making: the objectives, criteria, sub-criteria, alternatives. Methods of analysis.- Decision making under conditions of uncertainty, complete and incomplete information, etc.- Method of Analytic Hierarchy Process (AHP) concept, mathematical basis, hierarchies, methods of prioritization, synthesis weight, consistency.- Individual and group decision making with the AHP.*Practical classes*- Creating a hierarchy for typical problems of decision making.- Examples of making models of decision-making- Scenarios decision-making in well and poorly structured problems. Examples of the application of AHP method.- Examples of individual and group decisions and methodology for decision making. |
| 1. Teaching methods: Lectures and exercises. Students will have less specialized projects and will display the results in writing and orally. The work represents 25% of the final grade. Retaking the only orally.
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| Knowledge evaluation (maximum 100 points) |
| Pre-examination obligations | Mandatory | Points | Final exam  | Mandatory | Points |
|  |  |  | *Oral exam* | Yes | 50 |
| Test | Yes |  |  |
| Seminar paper | Yes | 50 |
| *Term paper* | Yes |  |
| Literature  |
| Ord. | Author | Title | Publisher | Year |
|  | Srdjevic B., Srdjevic Z. | Bi-criteria evolution strategy in estimating weights from the AHP ratio-scale matrices | Applied Mathematics and Computation 218, 1254–1266. | 2011 |
|  | Saaty T. | The Analytic Hierarchy Process | McGraw Hill | 1980 |
|  | Zelenovic Vasiljevic T., Srdjevic Z., Bajcetic R., Vojinovic Miloradov M | GIS and the Analytic Hierarchy Process for regional landfill site selection in transitional countries: a case study from Serbia | Environmental Management |  |
|  | Srdjevic Z., Kolarov V., Srdjevic B | Finding the Best Location for Pumping Stations in the Galovica Drainage Area of Serbia: The AHP Approach for Sustainable Development, , Bussines Strategy and Environment |  | 2007 |