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| Course: | **ADVANCED ОPERATIONS RESEARCH METHODS** |
| Course id: |
| Number of ECTS: 6 |
| Teacher: | **Bojan Srdjevic** |
| Course status | Elective |
| Number of active teaching classes (weekly) |
| Lectures: 2 | Practical classes: 2 | Other teaching types: | Study research work: | Other classes: |
| Precondition courses | None |
| 1. Educational goal

Understanding and an introduction to standard and advanced operations research methods, methodologies and software. |
| 1. Educational outcomes

On successful completion of this subject, the students should: a) have acquired understanding of importance to use advanced operations research methods and software in agriculture and water sector; b) have acquired basic knowledge of a number of methods and tools in linear programming, dynamic programming, networks and else; c) be able to identify suitable methods and tools for solving allocation and selection problems; d) be able to critically assess research results; e) improve skills for independent learning, reporting and presentation; f) improve IT skills. |
| 1. Course content

Introduction. Terminology (Glossary) and classifications. Linear, nonlinear and dynamic programming. Modeling and solving optimization problems. Standrad techniques in operations research. Advanced techniques in operations research. Resources allocation. Network models and algorithms. Software. Global and local search. Evolution genetic) algorithms, tabbo search, simulated annealing.  |
| 1. Teaching methods

Consultations. In case there are sufficient students(4+) lectures and exercises will be organized. Students will accomplish a semester project and present results in oral and in writing. The semster project counts for 60% of the final grade. The final grade is oral and counts for 40%. The lectures are held in English. Retake exams may be oral only. |
| Knowledge evaluation (maximum 100 points) |
| Pre-examination obligations | Mandatory | Points | Final exam | Mandatory | Points |
| Semester project | Yes | 60 | Oral | Yes | 40 |
| Literature  |
| Ord. | Author | Title | Publisher | Year |
| 1. | Srdjevic B. | Systems Analysis Methods in Engineering With Extensions in Environmental Engineering | Federal University of Bahia, Salvador, Brazil. (Lecturing Notes) | 2003 |
| 2. | Matthew Galati | Introduction to Operations Researchhttp://coral.ie.lehigh.edu/~magh/present/stetson01.pdf magh@lehigh.edu | Department of Industrial and Systems Engineering, Lehigh University, Service PartsSolutions, IBM Corporation | Accessed 2015 |
| 3. |  |  | Internet sources (articles, reports, presentations). |  |

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| Znak univerziteta | UNIVERSITY OF NOVI SADFACULTY OF AGRICULTURE 21000 NOVI SAD, TRG DOSITEJA OBRADOVIĆA 8 | Znak fakulteta2 |
| Study Programme AccreditationMASTER ACADEMIC STUDIES WATER MANAGEMENT |
| Table 5.2 Course specification |