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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: SOIL SCIENCE AND PLANT NUTRITION |
| Table 5.2 Course specification |

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| Course: | ***Soil degradation and recultivation*** |
| Course id:3МЗИ1И02 |
| Number of ECTS: 6 |
| Teacher: | prof. dr Milivoj Belić, prof. dr Ljiljana Nešić, prof. dr Maja S., Manojlović; dr Vladimir, I., Ćirić, mr Ranko, R., Čabilovski |
| 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

Acquiring scientific expertise of soil degradation, recultivation and environmental protection. |
| 1. Educational outcomes

Students education and training for professional and scientific work in the field of soil protection from degradation and application of methods for soil recultivation and bioremediation. |
| 1. Course content

*Theoretical instruction*The soil as a natural resource. The basic functions of soil. Types of degradation: Degradation of the soil by erosion. Soil degradation *in-situ*. Degradation of chemical, physical and biological processes in soil. Global climate change and soil degradation. The cycle of carbon (C) in the environment. Factors that affect the content of organic matter. Measures for increasing the content of organic matter in the soil. Legislation and directives for the prevention of soil degradation (Kyoto Protocol, maximum allowed concentrations of heavy metals in the soil, the Law on Agricultural Land, the Law on Organic Production). The impact of technological progress on soil degradation process. Measures for soil protection. Remediation and recultivation of contaminated and degraded soils. Soil properties that affect the transport of metal ions in plants. Plants indicators of soil pollution with heavy metals. Detoxification - fitovolatilization, chelation, compartmentalization . Advantages and disadvantages of phytoremediation.*Practical instruction*1. Field research 2. Laboratory analysis: active and potential soil acidity, salinity and alkalinity of soil. 3. Fractionation of soil organic matter. 4. Methods for the determination of heavy metals, pesticides and polycyclic aromatic hydrocarbons in soil. 5. The parameters related to the assessment of soil contamination. |
| 1. Teaching methods

Lectures, practical classes, consultations, research work. |
| Knowledge evaluation (maximum 100 points) |
| Pre-examination obligations | Mandatory | Points | Final exam (izabrati) | Mandatory | Points |
| Lecture attendance | Yes/No |  | *Oral part of the exam* | Yes | 50 |
| Field research | Yes | 10 |  |
| Laboratory research | Yes | 10 |
| *Term paper* | Yes | 30 |
| Literature  |
| Ord. | Author | Title | Publisher | Year |
|  | Sekulić P., Kastori R., Hadžić V | Zaštita zemljišta od degradacije | Naučni institut za ratarstvo i povrtarstvo Novi Sad | 2003 |
|  | Kastori R., Bogdanović D., Kadar I., Milošević N., Sekulić P., Pucarević M. | Uzorkovanje zemljišta i biljaka nezagađenih i zagađenih staništa | Naučni institut za ratarstvo i povrtarstvo Novi Sad | 2006 |
|  | Tot G., Montanarela L., Rusco, E. | Threts to Soil Quality in Europe | European Commission JRC Scientific and Technical Reports | 2008 |
|  | European Environment Agency | Down to earth: Soil degradation and sustainable development in Europe. Environmental issue series No 16 | European Environment Agency EEA, Copenhagen | 2000 |
|  | Hillel, D. | Introduction to Environmental Soil Physics | Elsevier, Amsterdam, Netherlands. | 2004 |
|  | Robert E. White | Principles and Practice of Soil Science | Blackwell publishing, Fourth edition | 2006 |