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| Course: | **CROP NUTRITION** |
| Course id: 3MЗ1O02 |
| Number of ECTS: 6 |
| Teacher: | Ivana Maksimović, Darinka Bogdanović, Maja Manojlović, Marina Putnik-Delić, Ranko Čabilovski |
| Course status | Mandatory |
| Number of active teaching classes (weekly) |
| Lectures: 45 | Practical classes: 30 | Other teaching types: | Study research work: | Other classes: |
| Precondition courses | Passed exam Plant physiology at the BSc level  |
| 1. Educational goal

Acquisition of advanced knowledge in the field of plant nutrition, with special emphasis on issues which are expected to be applied in research and agricultural practice |
| 1. Educational outcomes

Students who successfully complete the course "Crop nutrition" are qualified to follow the contemporary literature on the subject and to apply new knowledge in their future carrier. |
| 1. Course content

Introduction, Definition and classification of plant nutrients, Mechanisms of ion uptake by individual plant cells and root system as a whole, Influence of environmental factors nutrient uptake. Transport of nutrients by xylem and phloem and regulation of transport processes, Uptake and leaking of mineral elements through leaves and other above-ground plant parts, Yield and source-sink relations with respect to photosynthesis, Mineral nutrition and yield, Role of macronutrients, Role of micronutrients, Role of non-essential elements, Relations between plant mineral nutrition and plant diseases and pests, Diagnosis of deficiencies and toxicities of mineral elements, Effects of environmental and internal factors on root system development, Effect of rhizosphere on plant mineral nutrition, Adaptation of plants to unfavorable soil conditions, Impact of mineral nutrition on disease incidence and development.Practical workDetermination of nitrogen and nitrate content in plants, Determination of nitrate reductase activity in plants with different nitrogen nutrition regimes, Determination of P, S, K and Ca concentrations in plant tissues, Determination of micronutrient content in plant tissues by AAS, Growing plants in semi-controlled conditions, Provoking and observation of deficiency/excess of different elements, Study of the effects of various factors on plant mineral nutrition. Case studies of situations that happen during crop vegetation (crops selected according to projects that students do for their master thesis), discussions. Possibly visits to fields, collecting plant material and analysis of that material – if and to an extent to which this is possible. |
| 1. Teaching methods

Lectures, Practical classes, Consultations, study, research work |
| Knowledge evaluation (maximum 100 points) |
| Pre-examination obligations | Mandatory | Points | Final exam (izabrati) | Mandatory | Points |
| Lecture attendance | Yes | 10 | Oral part of the exam | Yes | 60 |
| Test | Yes | 20 |  |
| Exercise attendance | Yes | 10 |
| Term paper | No |  |
| Literature  |
| Ord. | Author | Title | Publisher | Year |
|  | Barker AV, Pilbeam DJ (eds) | Handbook of Plant Nutrition | Taylor and Francis | 2007 |
|  | Lincoln Taiz and Eduardo Zeiger | Plant Physiology | Sinauer Associates Inc., ISBN 978-0-87893-866-7 | 2010 |
|  | Havlin, J.L. | Soil fertility and fertilizers | Pearson education, Inc. Upper Saddle River, New Jersey | 2005 |
|  | Magdoff, F. and Van Es, H. | Building Soil for Better Crops, 2nd edition | University of Nebraska Press, Lincoln | 2005 |
|  | Westerman R.L. | Soil testing and plant analysis, SSSA Book series 3 | Madison, USA,  | 1990 |

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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 |