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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | **Faculty of Sciences and Mathematics****Department of Biology and Ecology** |
| **GENERAL INFORMATION** |
| Study program  | **Biology** |
| Study Module (if applicable) | / |
| Course title | **Basics of Genetic Engineering** |
| Level of study | ☐Bachelor ☒ Master’s ☐ Doctoral |
| Type of course | ☐ Obligatory ☒ Elective |
| Semester  |  ☐ Autumn ☒Spring |
| Year of study  | First |
| Number of ECTS allocated | 6 |
| Name of lecturer/lecturers | Tatjana Mitrović |
| Teaching mode |  ☒Lectures ☐Group tutorials ☐ Individual tutorials ☒Laboratory work ☐ Project work ☐ Seminar ☐Distance learning ☐ Blended learni ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Acquiring of knowledge about the recombinant DNA technology and its applications.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Molecular cloning – recombinant DNA technology. Restriction endonucleases and restriction mapping. Other enzymes in genetic engineering (nucleases, polymerases, alkaline phosphatases, kinases, terminases, ligases). Gene delivery vectors (plasmids, bacteriophage vectors, hybrid plasmid-phage vectors (cosmids, phasmids), yeast plasmids, artificial chromosomes (PACs, BACs, YACs, МACs, HACs)). Expression vectors. Reporter genes. Ligation of plasmid and gene insert. Transformation of E.coli competent cells. Analysis of recombinant bacterial clones. Other gene transfer techniques in bacterial and eukaryotic cells (conjugation, protoplast fusion, transduction, transient transfection, stabel transformation, chemical, physical and biological gene transfer techniques). Genomic and cDNA library. Therapeutic and reproductive cloning. Gene therapy.  |
| **LANGUAGE OF INSTRUCTION** |
| ☒Serbian (complete course) ☐ English (complete course) ☐ Other \_\_\_\_\_\_\_\_\_\_\_\_\_ (complete course)☐Serbian with English mentoring ☐Serbian with other mentoring \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **ASSESSMENT METHODS AND CRITERIA** |
| **Pre exam duties** | **Points** | **Final exam** | **points** |
| **Activity during lectures** | **5+5** | **Written examination** | **/** |
| **Practical teaching** | **20** | **Oral examination** | **40** |
| **Teaching colloquia** | **30** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |