Biotechnology (Martin Batič, Ph.D., Assist. Prof.)

Subject code: BT
Academic year: 3.
Lectures: 30
Seminar work: 15
ECTS: 4

Aims of the course:
The aim of the study subject is to present the role of biotechnology to the students, its interdisciplinarity and opportunities for use in the field of protection of environment. The students will become familiar with the use of organisms (microorganisms), organisms acquired through the use of various methods of genetic modifications and its parts as potentials to be embedded in the study of preserving the environment and eco-technologies. They are acquainted with precautionary approach and the risk estimation for the environment and human health.

Subject content:
- Introduction into the biotechnology, its definitions, role and aims of its use in the field of protection of environment.
- Organisms (microorganisms) and metabolisms which are present in the processes like immobilisation, decomposition and monitoring of pollutants from biological resources.
- Biotechnology and waste in terms of type, composition and treatment of waste.
- Use of genetic engineering and genetically modified organisms and the risk for environment related to their use.
- Precautionary principle of biotechnology and protection of environment and experience, taking into consideration/ disregard of the principles from the past with practical cases (f.e. antibiotics, hormones, BSE).
- Integrated use of biotechnology for environmental protection with the production of bioenergy, biofuel and integrated use in agriculture.
- Biotechnology in connection with preservation of environment and eco-technologies and development of bioprocesses (bioreactors, new separation techniques), biosensors, production, waste management, control over pollution and genetically modified organisms.
- Seminar paper work.

Teaching methods:
Lectures, seminar work, active teaching, cooperative learning, discussions

Student's obligations:
- written (oral) exam.
- completed seminar paper (composition, presentation and defence) (prerequisite for admission to the exam)

Literature

1. Gee, D., Guedes Vaz, S. (2004). Pozne lekcije iz zgodnjih svaril: previdnostno načelo 1896-2000 (*Late Lessions from Early Warnings: the Precautionary Principle 1896-2000*). MOPE, Agencija RS za okolje (Agency of the RS for environment and spatial planning)/Evropska agencija za okolje. (European Environmental Agency)
2. Evans, G.M., Furlong, J.C. (2003). Environmental Biotechnology: Theory and Application. Wiley.
Biotechnology - Basic knowledge. (1992 in 1996). Urednik P.Raspor, BIA d.o.o.
OECD. (1994). Biotechnology for Clean Environment – Prevention, Detection,Remediation. OECD.