

Code	III.1.
Course Title (English)	Biology, Ecology and Environmental Protection II
Course Title (Polish)	. Biologia, ekologia i ochrona środowiska II – zarządzanie środowiskowe
Credits	3 ECTS

*Language of instruction*    **English**

*Compulsory for Profile:*    Computer Modelling and Simulation (CMS), Intelligent Energy (IE), Biotechnology for Environmental Protection (BI), Business and Technology (BT)

*Type of studies*                BSc studies

*Unit running the programme*        Faculty of Environmental Protection and Engineering  
Institute of Environmental Engineering

*Course coordinator and academic teachers*    **Magdalena Zabochnicka-Świątek, PhD**  
Magdalena Zabochnicka-Świątek, PhD

*Form of classes and number of hours*

Semester	Lec.	Tut.	Lab.	Proj.	Sem.	Credit points
III	15	30				3

*Learning outcomes*

Understanding of ecological principles in the environment. Understanding of natural and enhanced natural attenuation processes and recultivation of contaminated sites; environmental risk assessment.

*Prerequisites (courses)*

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Biology, Ecology and Environmental Protection I.

The knowledge of basic biological principles common to all living things.

*Course description*

**LECTURES:**

The knowledge of basic ecological principles. Liebig's and Shelford's principles. Ecosystems. Population. Environmental factors. The system of trophic levels. Ecology of inland waters. Degradation in water reservoirs. Biocenoses of forest and cultivated fields. The importance of Earth's atmosphere to living organisms (biosphere). Air pollution. Pathogenic organisms in water and soil. Nutrient and energy flow within an ecosystem.

**TUTORIAL:**

Develop competence in understanding the biological processes within the environment. Population structure. Survival curves.

The process of identifying, evaluating, selecting and implementing actions to reduce risk to human health and ecosystems. Remediation methods of degraded sites. Natural Attenuation (NA) and Enhanced Natural Attenuation (ENA). Environmental risk assessment

*Form of assessment* After the semester students pass the test which covers the whole lectured material as well as knowledge required on tutorials.

- Basic reference materials*
1. J. Sutton: "Biology", Macmillan Publishing Company, 2007.
  2. Alloway & Ayres: "Chemical Principles of Environmental Pollution", Blackie Academic & Professional, 1997.
  3. Dictionary of Environment and Ecology, Bloomsbury, 2004.
  4. Ecology journals.
  5. Turner M.: "Landscape Ecology in Theory & Practice". Springer Verlag 2001.
  6. Kasperson J and R.: „Global Environmental Risk”. United Nations University Press 2000.
  7. Lenschow A.: "Environmental Policy Integration". Earthscan 2001.

- Other reference materials*
- For Polish-speaking students:
1. Odum E.P.: „Podstawy ekologii”. PWRiL, Warszawa 1980.
  2. Trojan P.: „Ekologia ogólna”. Warszawa, PWN, Warszawa 1981.
  3. Więckowski P.: „Podstawy ekologii”. Oficyna wyd. Brauta 1998.4.
  4. Mowszowicz J.: „Zarys systematyki roślin”. PWN, Warszawa 1982
  5. Kornaś J., Medwecka – Kornaś A.: „Geografia roślin”. PWN, Warszawa 2001.
  6. Głowaciński Z.: „Polska czerwona księga zwierząt”. PWRiL, Warszawa 1992.

e-mail of the course coordinator and academic teachers	<a href="mailto:mzabochnicka@is.pcz.czest.pl">mzabochnicka@is.pcz.czest.pl</a>
Average student workload (teaching hours + individ.)	2 teaching hours + 2 hours of individual work per week.
Remarks:	
<i>Updated on:</i>	04.04.2012