Code	II.1.
Course Title (English)	Biology, Ecology and Environmental Protection I
Course Title (Polish)	Biologia, ekologia i ochrona środowiska I
Credits	5 ECTS

Language of instruction **English**

Compulsory for Profile: Computer Modelling and Simulation (CMS), Intelligent Energy (IE), Biotechnology for Environmental Protection (BI), Bussiness 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
II	15	15	30			5

Learning outcomes The knowledge of basic biological principles common to all living things. Understanding of biological processes in the environment.

Prerequisites The basic knowledge of inorganic and organic chemistry and physics.

Course description

LECTURES and TUTORIALS:

The basic biological principles common to all living things. The Domains Procaryota and Eucaryota. Cell biology: structure and function (both physical and chemical). The life processes of cell. Hetero- and autotrophic nutrition and photosynthesis. Metabolism: catabolism and anabolism. Respiration: oxidative, non-oxidative and fermentation. Basic principles of genetics. Biocatalysts. Role of microorganisms in biogeochemical cycles of carbon, nitrogen, sulfur and iron.

LABORATORY:

Microscope parts and functions. Types of microscopes. Rules for using the microscopes. Procaryota and Eucaryota. Gram staining: Gram-positive and Gram-negative. Bacteria images. Bacterial morphology. Identification of microorganisms. Fungi. Algae. Types of growth media (culture media). Microscope methods for counting bacteria.

Form of assessment	After the semester students pass the test which covers the whole lectured material as well as knowledge required on laboratories.
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. Purves W.K., Sadava D., Orians G.H. and Heller H.C.: "Life. The Science of Biology". Sixth Ed., Sinauer Assoc. Inc., Sunderland, 2001. 5. Villee E.P.: "Biology". Harcourt College Pub. 1998. 6. Lodish H.: "Molecular cell biology". Fourth Ed., W.H. Freeman & Co., New York 2000. 7. Madigan M.T., Martinko J.M., Parker J.: "Brock Biology of Microorganisms". Ninth Ed. Prentice Hall 2000.
Other reference materials	For Polish-speaking students: 1. Villee C. A.: „Biologia". PWRiL, Warszawa 1990. 2. Alberts B.: „Podstawy biologii komórki". PWN, Warszawa 2000. 3. Winter P.C.: „Genetyka". PWN, Warszawa 1999. 4. Kunicki - Goldfinger W.: „Życie bakterii". PWN, Warszawa 2007. 5. Schlegel H.G.: „Mikrobiologia ogólna", PWN, Warszawa 2005. 6. Jurd R.D.: „Biologia zwierząt". PWN, Warszawa 1999. 7. Lack A.J., Evans D.E.: „Biologia roślin". PWN. Warszawa 2003. 8. Boczek J.: „Wybrane działy zoologii". PWN, Warszawa 2001. 9. Szwejkowska A i Szwejkowski J.: „Botanika". Tom I: Morfologia; Tom II: Systematyka. Wydawnictwo Naukowe PWN. Warszawa 2003.

e-mail of the course coordinator and academic teachers	mzabochnicka@is.pcz.czest.pl
Average student workload (teaching hours + individ.)	4 teaching hours + 4 hours of individual work per week.
Remarks:	
Updated on:	*04.04.2012*