COURSE DESCRIPTION CARD

Course name	**Introduction to ecological engineering**				
Course type	**optional**	**Course code**	**----**	**ECTS credits**	**1**
Forms and number of hours	**Lecture:10 h**	**Scientificdisci pline**	**environmental engineering, mining and power engineering**		
Courseobjectives	The student learns the principles of solvingenvironmentalproblemsthrough the effectiveuse of naturalresources and ecosystem services.				
Course content	1. Stable ecosystems dominated (designed and controlled) by man 2. Ecosystem services as the basis of environmental management, design, and valuation of ecosystem services 3. Ecological frameworks of ecosystem design; principles of ecosystem' reclamation and restoration 4. Designing water-dependent ecosystems for pollution remediation 5. The blue-green infrastructure for the protection of resources and solving environmental problems in urban areas				
Teachingmethods	Lecture supplemented with discussion with the audience and short student's presentations; analyses of case studies				
Assessmentmethod	Exam				

Symbol oflearningoutcome	**Learning outcomes**	**Reference to thelearning outcomes forthe field of study for the 8th levelof Polish Qualification Framework (PRK)**	**Methods of assessing the learning outcomes**
LO1	The student knows and understands processes shaping the natural environment, basics of resource management, theoretical bases of researchmethods, and techniques	SD_W1	exam
LO2	The student knows the environment's components and understands their relationships on various spatial and temporalscales	SD_W2, SD_W3	exam
LO3	The student understands the environmental and ethical problems of resource and waste management	SD_W6	exam
LO4	The student can gather information from literature, databases, and other sources, integrate and interpret data, interpret it, and formulate and justifyopinions	SD_W3, SD_W4	exam

Student workload (in hours)	
Lecture	10
Consultations	1
The unassisted studentwork	10
Implementation of project tasks and preparation for and participation in exams/tests	5
Total	**26**
ECTS credits	**1**

Basic references	1. W. J.Mitsch, S. E.Joergensen, *Ecological engineering and ecosystem restoration*,Wiley&Sons 2004 2. J. Żelazo, Z. Popek, *Podstawy renaturyzacji rzek*, Wydawnictwo SGGW, Warszawa 2002
Supplementary references	1. M.A. Matlock, R.A. Morgan, *Ecological Engineering Design: Restoring and Conserving Ecosystem Services,*Wiley&Sons 2011 2. *Przyjazne naturze kształtowanie rzek i potoków. Praktyczny podręcznik*. (Tłumaczenie z: Manual of River RestorationTechniques. The River Restoration Centre UK) Polska Sieć Ekologiczna, Wrocław-Kraków 2006
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Date of issuing the programme	10.03.2021