

## SYLLABUS

### Course description

Course code	Course	<b>ZARZĄDZANIE ŚRODOWISKIEM I EKOLOGIA</b>		
MB/O/I/ST/B1.4		<b>ENVIRONMENTAL MANAGEMENT AND ECOLOGY</b>		
Language of instruction	English			
Academic year	2023/24			
<b>field of study:</b>	Mechanics and machine construction			
<b>field of specialisation:</b>	All			
Educational level	first-cycle studies			
Education profile	General academic			
Mode of study	Full-time studies			
Semester(s)	1			
Affiliation with a group of classes	Core subjects			
Course status	Obligatory			
Types of classes, instruction hours, ECTS credits	Types of classes	Number of instruction hours	Number of ECTS credits	
	Lecture	15 [h]	1 ECTS	
Linkage of the course	with the education profile	Related to the conducted scientific activity in the discipline to which the field of study is assigned		0 ECTS
	with qualifications	It is used to acquire engineering competences by the student		1 ECTS
	with science discipline	Mechanical engineering		1 ECTS
Form of teaching	Traditional – classes organized at the University /classes conducted using online learning methods and techniques			
Prerequisites	Basic knowledge, skills and competencies in the field of: chemistry, physics, biology			
Department	Faculty of Mechanical Engineering			
Coordinator	prof. dr hab. inż. Danuta Kotnarowska			
The website of the basic organizational unit	www.uniwersytetradom.pl			
E-mail address, phone number of the coordinator	<a href="mailto:d.kotnarowska@uthrad.pl">d.kotnarowska@uthrad.pl</a>		telefon 48 361 76 70	

## LEARNING OUTCOMES, CURRICULUM CONTENT, TEACHING CLASSES, VERIFICATION OF LEARNING OUTCOMES

Learning Objective:	C1 - Introduction of students to basic problems of environmental protection, causes and after-effects of changes in environmental as an effect of economic and civilisation development. C2 - Presentation of possibilities and ways of environment degradation in the light of sustainable development.
Curriculum Content:	<b>LECTURES (15 h)</b> Legal conditions of environmental protection. General ecology. (3 h); Ecology of ambient air, earth and water. Ecological aspects of health. Kinds of environmental pollution (anthropogenic, industrial and natural). (4 h); Environmental pollution as a result of industry and road transportation. Effects of environmental pollution (acid rains, the greenhouse effect, ozone hole, smog) (4 h); Conception of sustainable development. Methods of recycling and waste disposal. Environmental management system (acc. ISO 14001 and EMAS). (4 h)
Didactic (educational) methods:	Informative and problem lecture containing discussion elements, and with the use of exposing methods (movies, ppt presentations).
Course assessment type, the criteria for assessing the achieved learning outcomes, and the method of calculating the final grade:	Achieving of all required educational outcomes of learning are the condition for passing the course. Obtaining of positive grades from all form of classes is equivalent to passing the subjects and obtaining of appropriate number of ECTS credits. The way of final grade calculation is determined by the resolution of the Faculty Council. <u>The way of final grade calculation of individual classes form:</u> Any final grade is made on the basis of written tests from the knowledge obtained at the classes.

Learning outcomes for the course in relation to the field of study learning outcomes and the type of classes				Methods of verifying learning outcomes	
Learning outcome number	Description of the learning outcomes for the course (PEU) A student who has passed the course ( <b>W</b> ) knows and understands / ( <b>U</b> ) can / ( <b>K</b> ) is ready to:	Field of study learning outcome (KEU)	Types of classes	Form of verification (credits)	Methods of testing and assessment
W1	Knows the subject of threats resulting from industrial activities and machines operation, knows international conventions and polish legal acts in the field of environmental protection as well as ecological aspects of machines deigning, using and modernization.	K_W20	Lecture	Graded credit	Written test
W					
U1	Is able – during formulation and solving tasks including designing of mechanical elements and sets and automation systems – to notice their non-technical aspects as well as environmental, economical, and legal aspects in this number. Can to schedule a realisation process of simple mechanical sets as well as automation system.	K_U10	Lecture	Graded credit	Written test
U...					
K1	Is aware of non-technical aspects of mechanical engineer activities, their social consequences and influence on environment state among others.	K_K02	Lecture	Graded credit	Written test
K...					

Literature and teaching aids
Supplementary literature
<ol style="list-style-type: none"> <li>1. Dobrzańska B., Dobrzański G., Kiełczyński D.: Ochrona środowiska przyrodniczego, PWN, Warszawa 2023.</li> <li>2. Eurostat'2022. Environment and energy'2022</li> <li>3. Małachowski K. (red): Gospodarka a środowisko i ekologia. Wydawca CeDeWu, Warszawa 2023.</li> <li>4. Poskrobko B.: Zarządzanie środowiskiem, PWE, Warszawa 2012.</li> <li>5. Environment 2022, Statistics Poland'2022.</li> <li>6. Zalewski M.: Ekohydrologia, PWN, Warszawa 2020.</li> </ol>
Supplementary literature
<ol style="list-style-type: none"> <li>7. Błaszczak M. K.: Biologiczne aspekty oczyszczalni ścieków, PWN, Warszawa 2019.</li> <li>8. Goldstein J. S., Qvist S. A.: Energia dla klimatu, PWN, Warszawa 2020.</li> <li>9. Lewandowski W. M.: Proekologiczne odnawialne źródła energii, PWN, Warszawa 2017.</li> <li>10. Mackenzie A., Ball A. S., Virdee S. R.: Ekologia, Wydawnictwo Naukowe PWN, Warszawa 2015.</li> <li>11. Górski M.: Prawo ochrony środowiska'2021, e-book</li> <li>12. de Forges S.R: Climate Change: A Silent Threat, 2014, e-book</li> </ol>

Student workload required to achieve the assumed learning outcomes – the balance of ECTS credits			
Attendance, participation	Student workload [h].		
	Other contact hours (IGK)	Student's self-study hours Classes without a teacher (ZBN)	Classes
Participation in in. lectures	X	X	15 [h]
Participation in .... classes/laboratory classes	X	X	X
Meeting with teachers during their duty hours	2 [h]	X	X
Preparation for lectures Preparation for ... credit / exam	X	8 [h]	X
Total student workload	2 [h] / 0.1 ECTS	8 [h] / 0.3 ECTS	15 [h] / 0.6 ECTS
ECTS credits for the course	1 ECTS		

Additional information, comments
<p>In the case of students with special needs, including disabilities, and chronic illnesses, the methods and forms of verification of learning outcomes specified above (in the syllabus) are adapted to the individual needs of these students, as appropriate.</p> <p>Detailed rules and forms of support for students with special needs, including those with disabilities and chronically ill, during classes, credits, and exams are specified in: University Regulations (Regulamin Studiów Uniwersytetu Technologiczno-Humanistycznego w Radomiu), Study Regulations (Zasady Studiowania), and Procedure for Ensuring Accessibility of the Educational Process to Students with Special Needs, Including Those with Disabilities and Chronically ill (Procedura dotycząca zapewnienia dostępności procesu kształcenia studentom ze szczególnymi potrzebami, w tym: z niepełnosprawnością, przewlekle chorych).</p>