SYLLABUS

Course description

Course code	Course	**BEZPIECZEŃSTWO PRACY I ERGONOMIA**		
MB/O/I/ST/B1.5		**WORK SAFETY AND ERGONOMICS**		
Language of instruction		English		
Academic year		2023/2024		
field of study:		Mechanical Engineering		
field of specialisation:		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
		Classes	[h]	
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		0 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 information from the initial occupational health and safety training		
Department		Faculty of Mechanical Engineering		
Coordinator		dr hab. inż. Wojciech Żurowski		
The website of the basic organizational unit		www.wm.uniwersytetradom.pl		
E-mail address, phone number of the coordinator		wojciech.zurowski@uthrad.pl		

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

Learning Objective:	– familiarizing students with the basic legal acts in the field of occupational health and safety, and learning methods of occupational health and safety management; – acquiring the ability to assess the conditions of the working environment and the existing threats to human health and life; – acquiring the ability to model workstations in accordance with the principles of ergonomics.
Curriculum Content:	- Ergonomics (basic concepts, scope and zones of influence, ergonomics as an element of engineering art). Legal labor protection (genesis of the idea of labor protection, international conventions and regulations, labor protection system in Poland. - Obligations of the employer and employee in the field of health and safety, certification of products, machines and devices for meeting safety requirements, statistics of accidents at work and occupational diseases. - Anthropometric and biomechanical factors in the work environment (basic concepts of biomechanics, forces acting on the human body in the work process, experimental and theoretical methods in estimating the impact of the environment on people, modeling of work space - flat and spatial mannequins, mock-ups and functional and computer models , anthropometric measures, standards and databases in the field of anthropometry and biomechanics, designing information and control elements, geometry of selected workstations). - Physiological factors (physiology, hygiene and occupational medicine) in shaping working conditions, energy and physiological costs of dynamic and static work, human biological rhythms and shift work, perception of stimuli in the work environment. - Psychological and social factors. Threats caused by dangerous and harmful factors in the work environment (mechanical factors, static electricity and electricity, noise, mechanical vibrations, electromagnetic field, optical radiation, microclimate, harmful chemical substances, dust, biological factors. - First medical aid, - Evaluation of the workplace in the context of hazards and the level of occupational risk, individual and collective protection. - Diagnostics and design of anthropometric systems (diagnostics, praxeological approach to designing anthropological systems, the subject and scope of designing human - technical object systems, modeling methods in designing human - technical object - environment systems. - Occupational health and safety management (modern concepts and their economic aspects. - Ergonomics (basic concepts, scope and zones of influence, ergonomics as an element of engineering art). Legal labor protection (genesis of the idea of labor protection, international conventions and regulations, labor protection system in Poland. - Obligations of the employer and employee in the field of health and safety, certification of products, machines and devices for meeting safety requirements, statistics of accidents at work and occupational diseases. - Anthropometric and biomechanical factors in the work environment (basic concepts of biomechanics, forces acting on the human body in the work process, experimental and theoretical methods in estimating the impact of the environment on people, modeling of work space - flat and spatial mannequins, mock-ups and functional and computer models , anthropometric measures, standards and databases in the field of anthropometry and biomechanics, designing information and control elements, geometry of selected workstations).

	- Physiological factors (physiology, hygiene and occupational medicine) in shaping working conditions, energy and physiological costs of dynamic and static work, human biological rhythms and shift work, perception of stimuli in the work environment. - Psychological and social factors. Threats caused by dangerous and harmful factors in the work environment (mechanical factors, static electricity and electricity, noise, mechanical vibrations, electromagnetic field, optical radiation, microclimate, harmful chemical substances, dust, biological factors. - First medical aid, - Evaluation of the workplace in the context of hazards and the level of occupational risk, individual and collective protection. - Diagnostics and design of anthropometric systems (diagnostics, praxeological approach to designing anthropological systems, the subject and scope of designing human - technical object systems, modeling methods in designing human - technical object - environment systems. - Occupational health and safety management (modern concepts and their economic aspects.
Didactic (educational) methods:	Multimedia lecture, training videos, exercises on phantoms.
Course assessment type, the criteria for assessing the achieved learning outcomes, and the method of calculating the final grade:	Multiple-choice test, final grade based on the number of errors in the test.

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 (**W**) knows and understands / (**U**) can / (**K**) is ready to:	Field of study learning outcome (KEU)	Types of classes	Form of verification (credits)	Methods of testing and assessment
W1	has basic knowledge of the parameters of devices, facilities and technical systems based on basic legal acts in the field of health and safety and ergonomics	K_WG10	lecture	colloquium	written test
W2	knows the basic methods, techniques, tools and materials used to assess the conditions of the working environment and the existing threats to human health and life.	K_WK20	lecture	colloquium	written test
U1	is able to make a critical analysis of hazards in the work environment and evaluate existing technical solutions, in particular devices, facilities, systems, processes, services in terms of safety and compliance with ergonomic principles.	K_UW07	lecture	colloquium	written test
K1	is aware of the importance and understands the non-technical aspects and effects of engineering activities, including its impact on the environment, and the related responsibility for decisions made	K_O04	lecture	colloquium	written test

Literature and teaching aids
1. Kodeks pracy tekst, ujednolicony ustawy z komentarzem. Tarbonus, 2022 2. Praca zbiorowa: Nauka o pracy - bezpieczeństwo, higiena, ergonomia. Pakiet edukacyjny dla wyższych uczelni, CIOP 2000 (wer. elektroniczna) 3. Górska E., Tytyk E.: Ergonomia w projektowaniu stanowisk pracy. Podstawy teoretyczne. Warszawa, Oficyna Wydawnicza Politechniki Warszawskiej 1998 4. Poradnik służby BHP +płyta DVD. Praca zbiorowa Tarbonus 2022 5. Gałusza M.: Materiały dydaktyczne (do szkoleń w zakresie BHP), Tarbonus, Tarnobrzeg 2005 6. Kędzior K., Roman-Liu D.: Wybrane zagadnienia biomechaniki pracy. Bezpieczeństwo pracy i ergonomia. Red. nauk. D. Koradecka. Warszawa, CIOP 1999 7. ISO 45001 - Systemy zarządzania bezpieczeństwem i higieną pracy. 2022

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 ... 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/classes/.... , 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	25 [h] / 1 ECTS		

Additional information, comments
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. 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).