

Óbuda University Donát Bánki Faculty of Mechanical and Safety Engineering			Institute for Natural Sciences and Basic Subjects		
Subject name/code: Labor safety and environmental protection, BTXMKE4MNF Credits: 4 English language course 2025/2026 spring semester					
Mechanical Engineering MSc programme					
Subject leader:		Dr. Szabó Gyula		Instructor: Dr. Szabó Gyula	
Prerequisites:		-			
Weekly hours:		Lecture: 1	Group seminar: 1	Lab: 0	Consultation: 0
Requirements:		examination			
Course description					
<p>The course Labor Safety and Environmental Protection provides MSc-level education in occupational safety, health, and environmental protection (EHS) for mechanical engineering students, with a strong project-based approach. The course addresses complex EHS challenges that arise in the design, operation, and management of machines and technical systems.</p> <p>Course content covers advanced occupational safety and environmental protection topics, including hazard identification, risk assessment, prevention strategies, and regulatory compliance. Students work with European Union and national EHS legislation, relevant standards, and sector-specific requirements, and analyze their application at company level. Particular emphasis is placed on the integration of occupational safety and health with environmental protection within a single, coherent engineering solution.</p> <p>Through an independent project, students examine one selected EHS problem in depth. The project includes desk research, analysis of regulatory and technical requirements, identification of occupational and environmental risks, and the evaluation of best practices. Students develop both conceptual and detailed EHS solutions, addressing technical, organizational, and human factors relevant to mechanical engineering.</p> <p>By completing the course, students gain the ability to interpret EHS requirements, apply risk-based thinking, and design integrated safety and environmental measures appropriate for MSc-level engineering practice.</p>					
Schedule					
W	Lecture			Practice	
1	Course introduction, EHS scope at MSc level, project framework			Topic selection, problem definition	
2	EU EHS regulatory framework and standards			Identification of relevant EU legislation	
3	National, sector-specific, and company-level EHS requirements			Mapping legislative constraints	
4	OSH and environmental hazards in mechanical engineering			Hazard identification	
5	Environmental aspects and impacts of engineering systems			Environmental impact analysis	
6	Risk assessment concepts and evaluation tools			Selection and application of assessment methods	
7	Integrated OSH and environmental risk analysis			Combined risk assessment	
8	Best practices and existing technical solutions			Collection and analysis of existing solutions	
9	Conceptual EHS solution development			Design of conceptual preventive measures	
10	Detailed EHS solution and compliance justification			Technical detailing of solutions	
11	Documentation and reporting requirements			Preparation of project documentation	
12	Presentation and evaluation of EHS projects			Project presentation and discussion	
Requirements:					
Active participation in classes is compulsory; a maximum of 30% absence is permitted. Granting of the course signature is conditional upon both regular attendance and the timely submission of complete project documentation, including required interim status reports.					

Students must independently complete a project on a selected EHS topic at MSc level. Continuous progress reporting and structured documentation are mandatory throughout the semester.

Course completion is based on an oral examination consisting of a professional presentation and defence of the submitted project work. The presentation is evaluated equally on content quality, formal and technical quality, and presentation performance, and must be delivered within the prescribed time limit. Failure to present as scheduled results in course failure unless a justified makeup presentation is approved and completed on the final available date.

**Recommended references:**

1. Szabó Gyula: Practice of ergonomics, Obuda University
2. OSHWIKI.EU
3. Guide to application of the Machinery Directive 2006/42/EC

16 January 2026

Dr. Szabó Gyula