

Chemical and ecological rescue

profile	general academics
degree	first degree
programme	ERASMUS
semester	1
part time / full time	full time
ECTS	2
coordinator	st. bryg. dr inż. Małgorzata Majder-Łopatka

form of the activity: exercise

hours	30
prerequisites	Knowledge of general principles of rescue tactics, basic knowledge of chemistry, knowledge of the physicochemistry of combustion and explosion, neutralizing and sorbing agents.
objectives	The main goal of teaching the subject is to acquire knowledge about the tactics of conducting chemical and ecological rescue operations. The detailed goals are: - to acquire knowledge about the systematics and classification of hazardous materials and their basic properties, - to learn about the impact of various parameters on basic physico-chemical processes, i.e. evaporation, sorption, permeability, - learning the methods of identifying hazardous substances, methods of their spread, methods of combating chemical and ecological threats, - acquisition of the ability to construct an emergency scenario and use supporting tools.
methods	Initial test, exercise, discussion, report.
own work	Studying literature, working out the indicated issues, preparing for the exercise.
basic literature	1. Instructions for laboratory exercises in the subject of chemical and ecological rescue, 2024. 2. Podstawy ratownictwa chemicznego, Andrzej Wojnarowski, Anna Obolewicz-Pietrusiak, Warszawa, Firex Zakład Wydawnictw i Szkolenia, 2001.
supplementary literature	1. Hazardous Materials Spills Handbook - McGraw-Hill Handbooks by Gary F. Bennett, M.F. Fingas 2. Hazardous Materials Incidents: Surviving the Initial Response by Steven M. DeLisi 3. Hazardous Materials for First Responders 3rd ed., IFSTA, 2004 4. Hazardous Materials for First Responders 3rd ed. Software Study Guide, IFSTA, 2005 5. Hazardous Materials Managing the Incident, 3rd edition, Gregory G. Noll, Michael S. Hildebrand, and James Yvorra, 2005 6. Hazardous Materials Managing the Incident, 3rd ed. Student Workbook, Joanne Hildebrand, 2005 7. Street Smart Haz Mat Response - A Common-Sense Approach To Handling Hazardous Materials Emergencies, Red Hat Publishing 8. Hazardous Materials Incidents, Third Edition by Christopher Hawley 9. Terrorism Handbook for Operational Responders, 2nd ed., Armando Bevelacqua & Richard Stilp, 2004 10. Hazardous Material Chemistry, 2ND Edition, Armando S. Bevelacqua, 2006 11. Haz Mat Response & Operations, Chris Hawley, 2000

contents	hours
Introductory classes. Health and Safety.	2
Evaporation of liquid from the surface of water and the ground.	2
Toxic hazard zone range forecasting using the Aloha program.	2
Effectiveness of sorbents.	2
Determination of soils permeability after leakages of petroleum substances.	2
Determination of pollutants in the aquatic environment.	2
Identification of bacterial cells by gram staining method.	2
Identification of plastics and the hazards they pose in a fire environment.	2
Computer databases of hazardous substances.	2
Neutralization of acids.	2
Equipment for the identification of gaseous chemical hazards.	2
Construction and operation of an oil separator and methods of liquidation of oil spills.	2
Retake classes	4
Final test.	2