

Course title	MUNICIPAL WASTE LANDFILLS - BASIC TECHNOLOGY						
Code	ZSIZ15						
Study							
Semester	II						
ECTS	5						
Course state	General elective						
Professors	Prof. dr. sc. Mensur Mulabdić, full professor						
Collaborators	-						
Entrance conditions	-						
Aim	Basic knowledge about municipal waste landfills, concept and functional parts, materials, design solutions, construction principles, control of construction, environmental protection measures, monitoring of environmental pollution						
Learning outcomes	<ul style="list-style-type: none"> - define and recognise basic concept and functional parts of landfill - understand role and importance of different parts of landfill - define required properties of materials in different functional parts - define interconnections and mutual influence of different functional parts - critical understanding of construction technology - define control measures and activities related to construction of functional parts - characterize methods of monitoring and measuring influence on environment 						
Connections between students activity, learning outcomes and evaluation	Students activity	ECTS	Learning outcomes	Course activity	Evaluation methods	Points*	
						min	max
	Active participation	0,5	1-7	lectures	Presence, discussion	5	10
	Active participation	2,5	1-7	seminar	Checking seminar	35	60
	Preparation for the exam	2	1-7	Final exam	oral	20	30
	Total	5				60	100
	Final note: 60-70 % passing 71-80% good 81-90% very good 91-100% excellent						
Consultations	Individual arrangements						
Teaching form	Lectures		Seminars		Exercises		
No. of hours	10		10				
Content	Landfill as a structure, site investigation, functional parts, materials for liners, materials for drainage, construction process, quality control,						
Compulsory literature	<ol style="list-style-type: none"> 1. Znidarčić,D., Kovačić, D., Kvansička,P.,Mulabdić, M. (1996). Geotehnologija pri odlaganju komunalnog otpada. Građevni godišnjak '96, Hrvatsko društvo građevinskih inženjera, str 161-234. (<i>Geotechnology for municipal waste landfills</i>) 2. M.Mulabdić: Predavanja za predmet , pisani tekst, (<i>Authorised lectures</i>) 3. M.Mulabdić: Predavanja sa stručog seminara DIT-Odlagališta otpada, 2004-2005 4. Milanović, Z. (1992). Deponij - trajno odlaganje otpada, ZGO Zagreb, svibanj 1992, str. 199 (<i>Landfill - permanent deposition of waste</i>) 5. European Directive, 1999/31/EC; 2003/33/EC 						

	6. Pravilnik o načinima i uvjetima odlaganja otpada, kategorijama i uvjetima rada za odlagališta otpada, NN 11415 (National regulator guide for landfills, categories and working conditions for landfills)
Optional literature	<ol style="list-style-type: none"> 1. Bagchi, A. (1990.): Design, Construction and Monitoring of Sanitary Landfills, John Wiley&Sons, pp 284 2. Environmental Geotechnics (1997), Report of the ISSMFE Technical Committee TC5 on Environmental Geotechnics, Bochum, Ruhr - Universität Bochum, 3. Geotechnics of Landfill Design and Remediation Worsk, Technical Recommendations -GLR (1993), Prepared by ETC8 for ISSMFE , edited by Germain Geotechnical Society for the ISSMFE, 2dn edition, Ernst&Sohn Verlag, Berlin
Completion condition	Presence at lectures
Exam form	Oral
Possible teaching languages	Croatian, English
Form of quality monitoring	Inquiry, at the end of lecturing, discussing with students possibilities for improvement of lecturing during semester and at final exam