MSc in "Civil Engineering for Mitigation of Risk from Natural Hazards"

Courses offered (general structure) 2022-2023

Reduction Of Seismic Risk		**First semester**					**Second semester**				
		Month 1	Month 2	Month 3	Month 4	Month 5	Month 1	Month 2	Month 3	Month 4	Month 5
1st year	*Series*	Dynamics of Structures (H.Sucuoglu- METU Ankara **)	Reinforced Concrete Structures (P.Calvi, U.of Washington. ** – G. Guerrini)	Applied Mathematics (M.Martinelli – IMATI – CNR**)	Computational Mechanics (A.Reali)	Probability and Statistics for Eng Appl (P.Bazzurro + P.Venini)	Seismic Hazard and Applied Seismology (V.Poggi – OGS Trieste**)	Foundation engineering and Earth Retaining Structures (V.Sheshov - IEEES Skopje)**	Nonlinear Response Analysis (J.Almeida U.Louvain & A.Correia LNEC Lisbon **)	Fundamentals of Seismic Design (R.Monteiro+ G. Gabbianelli)	
	Parallel	-					Geotechnical Earthquake Engineering (C.G..Lai)				
2ndyear	*Series*	Seismic Risk (Bazzurro + D.Vamvatsikos NTU Athens **)	1 choice ■	Bridge structures (G.M. Calvi)	Masonry structures (G.Magenes, F.Graziotti)	1 choice ■■	Thesis				
	Parallel	-									
Choices			Steel Structures (R.Nascimbene) ■			Seismic Isolation and Dissipation (A.Filiatrault) ■■				Geomatics and GIS –b (A.Taramellli) ■	
			Geomatics and GIS a – (A.Taramelli) ■			Risk Emergency Management and Legislation (Monti at al.) ■■					

Mathematics and statistics	
Solid and structural mechanics	
Structural/geotechnical design, assessment and retrofit	
Hazard and risk analysis	
Complementary	

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Courses offered (general structure) 2022-2023

Hydrogeological Risk Assessment & Mitigation

		First semester					Second semester				
		Month 1	Month 2	Month 3	Month 4	Month 5	Month 1	Month 2	Month 3	Month 4	Month 5
1st year	*Series*	Continuum Mechanics (S.Manenti)	Continuum Mechanics Geomatics and GIS –a (A.Taramelli)	Applied Mathematics (M.Martinelli – IMATI – CNR**)	Engineering Geology (C.Meisina)	Probability and Statistics for Eng Appl (Bazzurro + Venini	Hydro morphology (C.Armaroli-M.Righini)	Computational Fluid Dynamics (Sibilla + Fenocchi)	1 Choice ■	Geomatics and GIS –b (A.Taramelli)	
	Parallel	Fluvial Hydraulics (P.Ghilardi + A.Fenocchi)					Landslides Hazard and Risk (Meisina + Bordoni)				
2ndyear	*Series*	Hydrological Risks (M.Martina)	Reliable Design and Management of Urban Hydraulic infrastructures (E.Creaco)		Structural measures for flood risk mitigation (P.Ghilardi-A.Fenocchi)	1 Choice ■■	Thesis				
	Parallel	Flood Propagation (G.Petaccia)									

Choices					Landslide modeling and mitigation strategies (D.Gioffré) ■■		Foundation Engineering and Earth Retaining Structures ■■	Snow Avalanches and Related Mountain Natural Hazards (Barbolini **-Pasian) ■		
					Risk Emergency Management and Legislation (A.Monti et al) ■■					
						Earth Surface and Processes (t.b.a.) ■■				

Mathematics and statistics	
Fluid and continuum mechanics	
Hazard and exposure; definition and modeling	
Risk analysis	
Measures for risk mitigation	