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# Knowledge FOR Resilient soCiEty

**STUDY VISIT AT DTU + LUND UNIVERSITY**

*University of Tuzla  
Faculty of Mining, Geology and Civil  
Engineering*



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## PRESENTATION OF SYLLABUS

Course: Disaster Risk Management and Fire Safety Engineering								
Predmet	I SEMESTER				II SEMESTER			
	L	A	Lab	ECTS	L	A	Lab	ECTS
<b>COMMON SUBJECT 1 (Natural risk management)</b>	3	0	1	8				
<b>COMMON SUBJECT 2 (Fire safety management)</b>	3	0	1	8				
Assessment of damaged civil engineering structures	2	0	1	7				
Institutional and legislative framework DRM&FSE	2	0	1	7				
Risk management in mining and thermal energy sector					2	0	1	5
Geotechnical hazards					2	0	1	5
Master thesis								20
<b>TOTAL OF OBLIGATORY SUBJECTS</b>	10	0	4	30	4	0	2	30
<b>TOTAL</b>				30				30



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## DRM&FSE MPS CURRICULA MODEL AND COURSE SPECIFICATION

<b>Programme name</b>	Disaster Risk Management and Fire Safety
<b>Higher education institution where the programme is being executed (University/Faculty)</b>	<b>University of Tuzla Faculty of Mining, Geology and Civil Engineering</b>
<b>Educational-scientific field</b>	
<b>Type of studies</b>	Master Academic Studies
<b>Study scope, expressed in ECTS</b>	60
<b>Academic degree, abbreviation</b>	Master in Disaster Risk Management and Fire Safety, <u>M.Dis.Ris.Managem.Fir.Saf.</u>
<b>Study length</b>	1 year
<b>Future course implementation starting year</b>	2018/19
<b>Planned number of students to be enrolled in this programme</b>	20
<b>Programme language</b>	Bosnian, English

### Introduction

The Master's Degree in DRM & FSE represents the upgrading of undergraduate studies at Faculty of Mining, Geology and Civil Engineering in Tuzla, as a specialist in mining engineers, drilling of mineral deposits, geology, civil engineering and security and assistance in the field of risk management in disasters and fire. The study is highly multidisciplinary and seeks to prepare engineers of different profiles to respond to the challenges of designing preventive protection, as well as active and advisory role in accidental events. The curriculum of the study is designed to provide students with the engineering basis of risk management in their related technical and organizational aspects. The study consists of 6 mandatory subjects and the final master's work. Special emphasis was placed on the current and constantly growing risks of floods, landslides, seismic activities in the region, and as a specific feature of BiH, special risks have been dealt with in the mining and thermal energy sectors. Approved knowledge through this master's degree can be applied in different sectors of society and economics and combine with the knowledge acquired by the undergraduate degree.



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### Graduates' Competencies

Competency in assessment of damaged civil engineering structures from aspect of disaster risk management.

- competency in recognition and assessment of risks in mining and thermal energy sector
- assess the hazard and risk related to geotechnical structures
- assess the hazard and risk related to natural phenomenon
- competency in design of fire safety systems and fire risk assessment
- comment on proposed measures to reduce the risk in simpler problems in geotechnics
- participates in teams dealing with assessment and reduction of geotechnical hazard and risk in  
in
- emergency situations
- use literature, legislation, standards and international recommendations to solve problems in this area



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No.	Course Name	S 1/2	CS M/E	Teacher/s	ECTS
01.	COMMON Subject 1 (Natural Risk management)	1	M		8
Course content/structure:					
No.	Course Name	S 1/2	CS M/E	Teacher/s	ECTS
02.	COMMON Subject 1 (Fire Safety engineering)	1	M		8
Course content/structure:					
No.	Course Name	S 1/2	CS M/E	Teacher/s	ECTS
03.	Assessment of damaged civil engineering structures	1	M	PhD <u>DamirZenunovicCiv.Eng.</u>	7
Course content/structure:					
Civil engineering structures, forms, design concept, execution. Loads and structural responses (static and dynamic). Service life of structures. Sources of hazards. Risk analysis. Failures and collapse in civil engineering. Types of structural damage after disaster (fire, earthquake, explosion, flood, overload, landslide etc.). Assessment of damages (methodology, testing methods, equipment, applicability). Case studies.					



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No.	Course Name	S 1/2	CS M/E	Teacher/s	ECTS
04.	Institutional and legislative framework DRM&FSE	1			7
<b>Course content/structure:</b>					
Standardization in international frameworks and the Institute for Standardization in B&H; Law on Standardization and Accreditation of B&H and Institutions in the Field of Standardization; Technical Supervision and Standardization in the Field of Environmental Management; Industry, Geology, Civil Engineering and Mining Regulations; Fire and Fire Protection Regulations; Regulations in the field of civil protection; Regulations concerning demining; The Constitutional basics and Implementation of International Conventions in the Field of Safety and Health of Workers.					
No.	Course Name	S 1/2	CS M/E	Teacher/s	ECTS
05.	Risk management in mining and thermal energy sector	2	M	Dr.sc. <u>Zvezdan Karadžin</u> Dr.sc. <u>Rijad Šišić</u> Dr.sc. <u>Jelena Marković</u>	5
<b>Course content/structure:</b>					
Identification and classification of hazards; preliminary and detailed hazard analyses (Fault tree analysis Event tree analysis; Failure mode and effects analysis, etc); Analysis of withdrawal, evacuation and rescue; International standardization in risk management, Reporting and communication in risk management; Case studies - mining accidents.					
No.	Course Name	S 1/2	CS M/E	Teacher/s	ECTS
06.	Geotechnical hazards	2	M		5
<b>Course content/structure:</b>					
Identification, classification and physical properties of soil and general structural properties of rocks. The mechanical properties of soil and rock Alteration processes in rock as a hazard Water as a hazard in <u>geotechnics</u> Geotechnical research in soil and rock The influence of slope stability and foundation pits on the safety of people and machinery The concept of hazard and risk Estimates of hazard and risk in <u>geotechnics</u> Uncertainties in <u>Geotechnics</u> Emergency geotechnical measures for natural disasters The reduction of risk in slope Factor of safety Geotechnical monitoring					



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<b>Name and surname:</b>	<b>Damir <u>Zenunovic</u></b>
<b>Academic or scientific title:</b>	<b>PhD</b>
<b>Affiliation:</b>	<b>Civil Engineering Structures</b>

### Teaching

No.	List of subjects	Study programme and the level of the study ( <u>BSc</u> , <u>Msc</u> , <u>PhD</u> )
1.	Strength of Materials	BSc
2.	Concrete Structures	BSc
3.	Testing of Structures	BSc
4.	Composite Structures	BSc
5.	Concrete Structures	MSc

No.	Potential subjects in new study programme developed within the K-FORCE project
1.	Assessment of damaged civil engineering structures



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<b>Name and surname:</b>	<b>Kenan Mandžić</b>
<b>Academic or scientific title:</b>	<b>PhD</b>
<b>Affiliation:</b>	<b>Mechanics, <u>Geomechanics</u> and Geotechnics</b>

### Teaching

No.	List of subjects	Study programme and the level of the study ( <u>BSc</u> , <u>Msc</u> , <u>PhD</u> )
1.	Rock mechanics	BSc
2.	Soil Mechanics	BSc
3.	Geotechnics	BSc
4.	Safety in Geotechnics	BSc
5.	Landslide remediation	BSc
6.	Basics of <u>Geomechanics</u>	BSc
7.	Rock and Soil Mechanics	BSc
8.	Engineering Rock and Soil Mechanics	MSc
9.	Geotechnical work in rocks	MSc

No.	Potential subjects in new study programme developed within the K-FORCE project
1.	Geotechnical Hazards



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<b>Name and surname:</b>	Adnan Ibrahimović
<b>Academic or scientific title:</b>	PhD
<b>Affiliation:</b>	Mechanics, <u>Geomechanics</u> and Geotechnics

### Teaching

No.	List of subjects	Study programme and the level of the study (BSc, MSc, PhD)
1.	Strength of Materials	BSc
2.	Foundation	BSc
3.	Slope Stability	BSc
4.	Landslide remediation	BSc
5.	Safety in Geotechnics	BSc
6.	Geotechnics	BSc
7.	Complex Foundation	MSc
8.	Geotechnical underground structures	MSc
9.	Geotechnics in Rocks	MSc

No.	Potential subjects in new study programme developed within the K-FORCE project
1.	Geotechnical Hazards



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<b>Name and surname:</b>	<u>Rijad Šišić</u>
<b>Academic or scientific title:</b>	PhD
<b>Affiliation:</b>	Mining, <u>geoenvironmental engineering, safety</u>

### Teaching

No.	List of subjects	Study programme and the level of the study (BSc, Msc, PhD)
1	Fluid Mechanics, climatology and aerology	BSc
2	Mining thermodynamics	BSc
3	Safety standards and <u>legoslation</u>	BSc
4	Fire and explosion protection	BSc
5	Ergonomics in safety	BSc
6	Fluid mechanics and drilling hydraulics	BSc
7	Mining ventilation design and optimization	<u>Msc</u>
8	<u>Geoenvironmental risk management</u>	<u>Msc</u>

No.	Potential subjects in new study programme developed within the K-FORCE project
1	Natural risk management (Common subject 1, module)
2	Fire safety engineering (Common subject 2, module)
3	Risk management in mining and thermal energy sector





<b>Name and surname:</b>	<u>Jelena Marković</u>
<b>Academic or scientific title:</b>	PhD
<b>Affiliation:</b>	<u>Geoenvironmental engineering</u>

Teaching		
No.	List of subjects	Study programme and the level of the study (BSc, Msc, PhD)
1.	Natural hazards and disasters	BSc
2.	Theory of combustion and explosion	BSc
3.	Natural hazards, fires and explosions	BSc
4.	Chemical and physical measurements in mining	BSc
5.	Fire and explosion expert analysis	MSc

No.	Potential subjects in new study programme developed within the K-FORCE project
1.	Natural risk management (Common subject 1, module)
2.	Fire safety engineering (Common subject 2, module)
3.	<u>Riska management in mining and thermal energy sector</u>



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<b>Name and surname:</b>	<u>Zvezdan Karadžin</u>
<b>Academic or scientific title:</b>	PhD
<b>Affiliation:</b>	Mining, <u>geoenvironmental engineering, safety</u>

### Teaching

No.	List of subjects	Study programme and the level of the study ( <u>BSc,Msc,PhD</u> )
1	Environmental protection	BSc
2	Geo-environmental engineering	BSc
3	Energy resources and energy sector	BSc
4	Safety in mining and energy sector	BSc
5	Occupational safety	BSc
6	Means and equipment for individual and collective protection	BSc
7	Geo-environmental risk management	<u>Msc</u>
8	Contemporary technologies and equipment for fire protection	<u>Msc</u>

No.	Potential subjects in new study programme developed within the K-FORCE project
1	Natural risk management (Common subject 1, module)
2	Fire safety engineering (Common subject 2, module)
3	Risk management in mining and thermal energy sector



<b>Name and surname:</b>	<u>Elvir Babajic</u>
<b>Academic or scientific title:</b>	PhD
<b>Affiliation:</b>	<u>Petrology, Mineralogy, Geochemistry, Metallogeny</u>

### Teaching

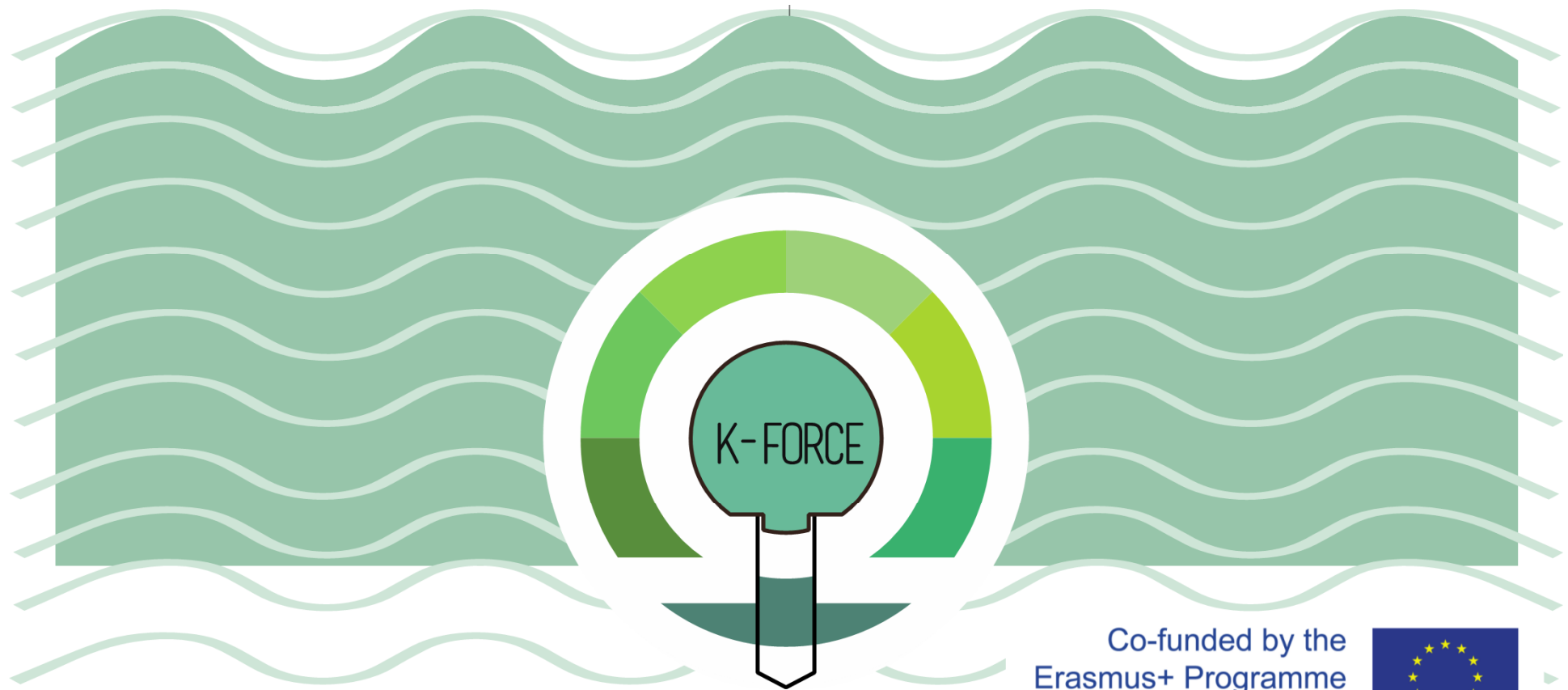
No.	List of subjects	Study programme and the level of the study (BSc, Msc, PhD)
1.	Basic Petrography	<u>BSc</u>
3.	<u>Petrology of igneous and metamorphic rocks</u>	<u>Bsc</u>
4.	<u>Sedimentology</u>	<u>BSc</u>
5.	Test methods of mineral resources	BSS
6.	Petrology and geochemistry of Bosnia and Herzegovina rocks	PhD

No.	Potential subjects in new study programme developed within the K-FORCE project
1.	Geotechnical hazards



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Thank you  
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