CATALOGUE OF COURSES

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Content

1. University of Nis (UNI - GAF)

1.1 Description of the study program

Name of study program and title

Master Academic Studies - ENGINEERING MANAGEMENT FOR NATURAL DISASTERS RISK
Title: Master Engineer Management

The purpose of the study program

The purpose of the study program Engineering Management for Natural Disasters Risk is to educate master engineers for work in accordance with the needs of the society and for further academic development in line with the contemporary requirements of natural disasters risk management. The curriculum is designed to provide competencies and the development of academic skills in the field of natural disasters risk management. Bearing in mind the social, economic and wider social significance of the security of people, natural and material assets related to the natural disasters risk management, experts in this profile have social and useful competences.

Scientific disciplines and professional subjects at this level of study allow students to master specific theoretical knowledge and applied skills in natural disasters risk management, developing critical thinking, teamwork and co-operative skills, while the variety of elective subjects encourages autonomy and creativity in creating study, both and innovative and multidisciplinary approaches to natural disasters risk management. Master study program provides opportunities for acquiring basic competences of scientific research work and development of professional and methodological culture for continuing education at the doctoral studies.

Objectives of the study program

The basic goal of the study program Engineering Management for Natural Disasters Risk is to educate students for the application of scientific and professional achievements in solving the problems of the safety of people, natural and material goods and developing a system of natural disasters risk management.

The specific objectives of the study program are acquiring the necessary knowledge and skills for:

- the implementation and development of the concept of integrated natural disasters risk management;

- determination of the structure and content of the rehabilitation plans with an overview of the construction measures for the rehabilitation of terrains, facilities and infrastructure;
- building resistance to natural disasters;
- development of strategic and tactical plans for intervention and rescue in emergency situations;
- mastering methods for preventing, mitigating and remedying the onset of instability of terrain and damaging geotechnical structures in different geotechnical conditions;
- assessment of seismic hazard, reduction of seismic risk, and management of such risk;
- mastering methods for preventing, mitigating and remedying the emergence of hydrological hazards such as droughts and floods;
- management of water resources in condition of natural disasters;
- the legal regulation of emergency situations caused by natural disasters and the legal regime of human rights during emergencies;
- innovation activities and team work in emergency management;
- permanent education and development of the knowledge system in the area of natural disasters risk management.

Competencies of graduated students

By mastering the study program of master academic studies Engineering Management for Natural Disasters Risk students acquire competences for applying scientific and professional distortions in natural disasters risk management.

Upon completion of the study program, students acquire general skills for:

- solving complex multidisciplinary problems;
- identification and analysis of problems in the area of risk management;
- critical thinking and strategic thinking;
- developing of communication skills with immediate and wider environments;
- creativity and initiative,
- forecasting solutions and consequences;
- monitoring technology development and improving their knowledge;
- working in a team composed of professionals of different profiles (multidisciplinary team);
- development of professional ethics and professional responsibility.

Upon completion of the study program, the student acquires subject-specific skills, i.e. professional competence for:

- understanding climate change and natural disasters;
- awareness of the complexity of the nature of disasters;

- understanding the causes and consequences of natural disasters;
- mastering methods, procedures and processes of risk identification;
- developing strategies and methodologies and natural disasters risk management methods,
- optimization and management of available resources in the system of natural disasters risk management;
- project management and innovation in the natural disasters risk management system;
- processing statistical data for the purpose of defining and making appropriate conclusions;
- integrated management in situations of natural disasters;
- understanding the civil protection mechanism and the institutional framework for managing natural disasters;
- analysis of natural disasters and risk assessment;
- application of IT in the natural disasters risk management;
- the application of specialized construction areas in the natural disasters risk management;
- protection of critical infrastructure in situations of natural disasters;
- assessment of potential for major and worse natural disasters and needs with a proactive approach to manage natural disasters.

By completing the study program of Master Academic Studies, students acquire the competency for inclusion in specialist academic and doctoral academic study programs in the same or related fields of study.

Quality, contemporary and international compatibility of the study program

The proposed study program Engineering Management for Natural Disasters Risk is based on internationally accepted standards and recommendations for higher education and appreciates contemporary scientific and professional programs in this field at higher education institutions in Europe and the world.

The study program, respecting the specifics of the educational space and the needs for university education in the Republic of Serbia, is harmonized with the European standards regarding the enrollment conditions, the duration of studies, the conditions for transition to next year, the acquisition of a diploma and the manner of studying, especially with the outcome of study programs, with the competencies of master students.

The study program is comparable and harmonized with the study programs of the following scientific and educational institutions:

- The University of Manchester, MSc International Disaster Management http://www.manchester.ac.uk/study/masters/courses/list/09910/msc-international-disaster-management/course-details/
- Kingston University London, Hazards & Disaster Management Masters (MSc) http://www.kingston.ac.uk/postgraduate-course/hazards-disaster-management-msc/
- Bauhaus-Universität Weimar, Natural Hazards and Risks and Structural Engineering (MSc) https://www.uni-weimar.de/en/civil-engineering/studies/master-degree-programmes/natural-hazards-and-risks-in -structural-engineering-master-of-science /
- University of Twente, Netherlands, MSc Applied Earth Sciences- Natural Hazards, Risk and Engineering https://www.utwente.nl/en/education/master/programmes/geo-information-science-earth-observation/specialization/applied-earth-sciences-natural-hazards-risk-engineering/#spatial-information-for-effective-disaster-risk-management
- University of Copenhagen, Master of Disaster Management http://www.mdma.ku.dk/programme_layout/

The proposed study program Engineering Management for Natural Disasters Risk is compatible and comparable with the mentioned study programs plans and programs that are studied in a certain degree. Differences in the thematic and program units of particular subjects have been targeted for the up-to-date, modern and complete education of students from areas that are considered basic, while later direction of students achieves profiling of specific risk management issues from natural disasters through elective subjects.

1.2 Subjects

No.	Code	Subjects	Hours L+E+CS	ECTS
FIRST SEMESTER				
1.	M	Integrated natural disasters risk management	2+1+1	5
2.	M	Building resistance to natural disasters	2+1+1	5
3.	M	Protection and rescue system	2+1+1	5
4.	E	Elective subject 1	2+1+1	5
5.	E	Elective subject 2	2+1+1	5
6.	E	Elective subject 3	2+1+1	5
		Seismic risk management		
		Risk management in geotechnical engineering		
		Drought and flood risk management		
		Water resources management in natural disasters' situations		
		Institutional framework for natural disasters risk management		

SECOND SEMESTER				
7.		Practice		2
8.		Research work	0+0+20	16
9.		Master thesis		12
Total			**12+6+26**	**60**

1.3 Link between competencies and subjects

		MANDATORY SUBJECTS			ELECTIVE SUBJECTS				
		MS1	MS2	MS3	ES1	ES2	ES3	ES4	ES5
Generic competencies	communication	x		x				x	x
	critical thinking	x	x	x	x	x	x	x	x
	scenario modeling	x	x		x	x	x	x	
	creativity	x	x	x	x	x	x	x	x
	initiative	x	x	x	x	x	x	x	
	prediction of solutions and consequences	x	x	x	x	x	x	x	
	collaboration	x		x	x	x	x	x	x
	working in multidisciplinary team	x	x	x			x	x	x
	intensive use of ICT in acquiring knowledge and solving problems	x	x		x	x	x	x	
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge	x	x				x	x	
	social and civic responsibility	x	x	x			x	x	x
	development of professional ethics and responsibility	x		x					x
	effective leadership	x		x					x
	strategic thinking	x	x	x			x	x	x
	identification and analysis of problems in NDRM	x	x		x	x	x	x	
	experience-based critical decision making	x	x	x			x	x	
	staying up-to-date with technological development	x	x		x	x	x	x	
	holistic and proactive approach to NDRM situations	x		x			x	x	
	clearly and unambiguously transfer knowledge to the professional and wider public	x		x	x	x	x	x	x
Subject-specific competencies	understanding of climate changes and natural disasters	x	x		x	x	x	x	x
	awareness of the complex and overlapping nature of disaster	x	x		x	x	x	x	x
	mastering of methods, procedures and processes of risk identification	x			x	x	x	x	
	understanding the causes and consequences of disasters	x	x	x	x	x	x	x	x
	devising strategies and developing methodology and methods of emergency as part of NDRM	x	x	x				x	
	optimizing and managing available resources in emergency as part of NDRM systems	x	x	x			x	x	
	statistical data processing in order to define and make adequate conclusions	x	x	x	x	x	x	x	
	integrated management in natural disaster	x	x					x	

	situations								
	understanding of civil protection mechanism and institutional framework in NDRM	x	x	x				x	x
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation	x	x		x	x	x	x	
	natural disasters analysis and risk assessment	x	x		x	x	x	x	
	knowledge about prevention, mitigation, response and recovery operations	x	x	x				x	x
	applying ICT in NDRM	x	x		x	x	x	x	
	development of human resources in NDRM	x		x					x
	applying specialized civil engineering fields in NDRM	x	x	x	x	x	x	x	
	protection of critical infrastructure in natural disaster situations	x		x	x	x	x	x	
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods	x	x				x	x	
	cognizant of the needs of special populations	x	x	x			x	x	x
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management	x	x				x	x	

MS1 - Integrated natural disasters risk management
MS2 - Building resistance to natural disasters
MS3 - Protection and rescue system
ES1 - Seismic risk management
ES2 - Risk management in geotechnical engineering
ES3 - Drought and flood risk management
ES4 - Water resources management in natural disasters' situations
ES5 - Institutional framework for natural disasters risk management

2. University of Nis (UNI - FZNR)

2.1 Description of the study program

Name of study program and title

Master Academic Studies – CATASTROPHIC EVENTS MANAGEMENT
Title: Master engineer for protection from catastrophic events and fire

The purpose of the study program

The purpose of the study program Catastrophic Events Management is to educate master environmental engineers to work in accordance with the needs of society and for further academic development in line with modern safety requirements and emergency management in the future. The study program is designed to provide competencies and develop academic skills in the field of emergency management. Bearing in mind the social, economic and wider social significance of the security of people, natural and material assets related to emergency management, experts in this profile have socially and useful competences. Scientific disciplines and professional subjects at this level of study enable students to master specific theoretical knowledge and applied skills in emergency management, the development of critical thinking, teamwork skills and co-operation, while the variety of elective subjects stimulates both independence and creativity in creating study, as well as innovative and multidisciplinary approaches to managing the security system in emergency situations. Master study program provides opportunities for acquiring basic competences of scientific research work and development of professional and methodological culture for continuing education at doctoral studies.

Objectives of the study program

The main goal of the study program is to educate students for the application of scientific and professional achievements in solving the problems of security of people, natural and material goods and for development of emergency management system.

The specific objectives of the study program are acquiring the necessary knowledge and skills for:

- development of strategies for managing the emergency security system;
- development of plans and programs for response to accidents and for the coordination and management of accident recovery activities;
- development of strategic and tactical plans for intervention and rescue in emergency situations;
- protection of health and behavior in emergency situations;

- implementation and development of project management concept in the field of emergency management;
- acquiring knowledge about information and communication networks and forms of communication in emergency situations;
- informing the public and appropriate structures in emergency situations;
- acquiring basic knowledge about the functions of civil protection;
- human resources management and efficient operation for the development of human resources in the field of emergency management;
- innovation activities and team work in emergency management;
- permanent education and development of the knowledge system in the field of emergency management.

Competencies of graduated students

By mastering the study program of master academic studies Catastrophic Events Management, students gain competencies for the application of scientific and professional distortions in solving security problems and development of emergency management systems.

Upon completion of the study program, students acquire general skills for:

- identifying and analyzing problems in the working and living environment and forecasting solutions and consequences;
- mastering procedures, processes and methods of risk identification;
- monitoring technology development and improving their knowledge;
- developing communication skills with immediate and wider environments;
- working in a team composed of professionals of different profiles (multidisciplinary team);
- development of professional ethics and professional responsibility.

Upon completion of the study program, the student acquires subject-specific skills, i.e. professional competence for:

- risk analysis and emergency management,
- analysis of cause-effect relationships and solving problems of security, protection of health, material goods and nature of created values in emergency situations,
- developing methodologies for managing emergency situations,
- developing strategies and methods for managing emergency situations,
- innovative activities and team work in emergency management,
- developing a knowledge management system in the field of emergency management.
- optimization and management of available resources in the emergency management system,
- project management and innovation in the emergency management system.

By completing the study program of Master Academic Studies, students acquire the competency for inclusion in academic and doctoral academic study programs in the same or related fields of study.

Quality, contemporary and international compatibility of the study program

Study program Catastrophic Events Management is the result of real needs for highly educated personnel in the field of security and emergency management. This is supported by the fact that the Emergency Situations Department operates within the Ministry of the Interior of the Republic of Serbia. The study program is designed to ensure the acquisition of competencies and the development of academic skills in the field of emergency management, bearing in mind the social, economic and wider social significance.

The proposed study program is based on internationally accepted standards and recommendations for higher education and appreciates contemporary scientific and professional programs in this field at higher education institutions in Europe and the world.

The study program is realized through a multidisciplinary approach within the applicative content of subjects from the fields of natural, technical, technological, social-humanistic and medical sciences with the aim of achieving competencies, academic knowledge and skills and their application.

The study program, respecting the specifics of the educational space and the needs for university education in the Republic of Serbia, is harmonized with the European standards regarding the enrollment conditions, the duration of studies, the conditions for transition to next year, the acquisition of a diploma and the manner of studying, especially with the outcome of study programs, with the competencies of master students.

The study program of graduate academic studies Catastrophic Events Management provides students adequate basics for continuing education at doctoral study programs at the Faculty or other higher education institutions in the same or related fields of study.

The study program is comparable and harmonized with the study programs of the following scientific and educational institutions:

- University of Copenhagen - Emergency Management,
- University of Newcastle, UK, Master in Disaster and Reconstruction, University of Newcastle, UK, Master of Disaster Preparedness and Reconstruction,
- Metropolitan College in New York - Disaster Management and Emergency Situations,
- University of Copenhagen - Risk management and engineering protection.

2.2 Subjects

No.	Code	Subjects	Hours L+E+CS	ECTS
FIRST SEMESTER				
1.	M	Emergency Management Systems	2+2+0	5
2.	M	Fire dynamics	2+2+0	5
3.	M	The theory of human error	2+2+0	5
4.	M	Risk and recovery of the accident	2+2+0	5
5.	E	Elective subject 1	2+2+0	5
6.	E	Elective subject 2	2+2+0	5
		Project Management		
		Decision making theory		
		Psychology of groups		
		Public relations		
		English language		
SECOND SEMESTER				
7.	M	Civil protection	2+2+0	5
8.	M	Tactics of intervention and rescue	2+2+0	4
9.	E	Elective subject 3	2+2+0	4
10.	E	Elective subject 4	2+2+0	4
		System engineering		
		Human resource management		
		Information systems in protection		
		Information communication networks		
		Fire expertise		
		Health protection		
11.		Practice		3
12.		Master thesis		10
Total			**24+16+0**	**60**

2.3 Link between competencies and subjects

		MANDATORY SUBJECTS					
		MS1	MS2	MS3	MS4	MS5	MS6
Generic competencies	communication	x	x			x	x
	critical thinking	x	x		x	x	x
	scenario modeling	x		x	x		
	creativity	x	x	x		x	x
	initiative	x	x		x	x	x
	prediction of solutions and consequences	x	x	x	x	x	x
	collaboration	x	x			x	x
	working in multidisciplinary team	x		x	x	x	x
	intensive use of ICT in acquiring knowledge and solving problems	x					
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge	x			x	x	x
	social and civic responsibility	x	x	x		x	x
	development of professional ethics and responsibility	x	x	x		x	x
	effective leadership	x	x	x		x	x
	strategic thinking	x	x	x		x	x
	identification and analysis of problems in NDRM	x			x	x	x
	experience-based critical decision making	x	x	x		x	x
	staying up-to-date with technological development	x			x		
	holistic and proactive approach to NDRM situations	x		x			
	clearly and unambiguously transfer knowledge to the professional and wider public	x			x		
Subject-specific competencies	understanding of climate changes and natural disasters	x		x		x	x
	awareness of the complex and overlapping nature of disaster	x			x	x	x
	mastering of methods, procedures and processes of risk identification	x		x			
	understanding the causes and consequences of disasters	x	x	x		x	x
	devising strategies and developing methodology and methods of emergency as part of NDRM	x			x		
	optimizing and managing available resources in emergency as part of NDRM systems	x		x		x	x
	statistical data processing in order to define and make adequate conclusions	x			x	x	x
	integrated management in natural disaster situations	x		x			
	understanding of civil protection mechanism and institutional framework in NDRM	x	x				
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation	x	x	x	x	x	x
	natural disasters analysis and risk assessment	x	x		x		
	knowledge about prevention, mitigation, response and recovery operations	x				x	x

	applying ICT in NDRM	x		x	x		
	development of human resources in NDRM	x	x	x			
	applying specialized civil engineering fields in NDRM	x					
	protection of critical infrastructure in natural disaster situations	x			x		
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods	x					
	cognizant of the needs of special populations	x	x	x		x	x
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management	x			x		

		ELECTIVE SUBJECTS										
		ES1	ES2	ES3	ES4	ES5	ES6	ES7	ES8	ES9	ES10	ES11
Generic competencies	communication	x		x	x	x		x	x	x		x
	critical thinking	x	x				x		x	x	x	
	scenario modeling	x	x				x					
	creativity	x						x	x	x	x	
	initiative		x				x	x				x
	prediction of solutions and consequences	x							x	x		
	collaboration		x	x	x	x	x	x			x	
	working in multidisciplinary team	x	x				x	x				x
	intensive use of ICT in acquiring knowledge and solving problems								x	x		
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge	x					x		x	x		x
	social and civic responsibility		x	x	x			x				x
	development of professional ethics and responsibility	x	x	x	x	x	x	x	x		x	x
	effective leadership	x						x				
	strategic thinking	x	x				x		x	x		x
	identification and analysis of problems in NDRM		x									x
	experience-based critical decision making	x					x					
	staying up-to-date with technological development	x							x	x	x	
	holistic and proactive approach to NDRM situations						x		x	x	x	
	clearly and unambiguously transfer knowledge to the professional and wider public	x		x	x	x	x	x	x		x	x
Subject-specific competencies	understanding of climate changes and natural disasters						x					x
	awareness of the complex and overlapping nature of disaster											x
	mastering of methods, procedures and processes of risk identification						x					x
	understanding the causes and consequences of disasters											x
	devising strategies and developing						x					

	methodology and methods of emergency as part of NDRM											
	optimizing and managing available resources in emergency as part of NDRM systems											
	statistical data processing in order to define and make adequate conclusions						x					
	integrated management in natural disaster situations											
	understanding of civil protection mechanism and institutional framework in NDRM						x					x
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation		x				x					
	natural disasters analysis and risk assessment											
	knowledge about prevention, mitigation, response and recovery operations	x					x					
	applying ICT in NDRM								x	x		
	development of human resources in NDRM			x	x		x	x				x
	applying specialized civil engineering fields in NDRM											
	protection of critical infrastructure in natural disaster situations											
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods		x				x					
	cognizant of the needs of special populations							x				x
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management											

MS1 - Emergency Management Systems
MS2 - Fire dynamics
MS3 - The theory of human error
MS4 - Risk and recovery of the accident
MS5 - Civil protection
MS6 - Tactics of intervention and rescue
ES1 - Project Management
ES2 - Decision making theory
ES3 - Psychology of groups
ES4 - Public relations
ES5 – English language
ES6 – System engineering
ES7 – Human resource management

ES8 – Information systems in protection
ES9 – Information communication networks
ES10 – Fire expertise
ES11 – Health protection

3. Academy of criminalistics and police studies (KPA)

3.1 Description of the study program

Name of study program and title

Master Academic Studies – NATURAL DISASTERS SECURITY RISK MANAGEMENT

Title: Master Security Manager

The purpose of the study program

The natural disasters security risk management is a problem that the world's public is faced frequently and the governments, specialized non-governmental agencies and intergovernmental organizations are dealt with seriously. In countries where occurr frequently, natural disasters slow down sustainable development, reduce quality of life, but also create risks for developing new threats (poverty, unemployment, crime, gray economy, conflicts, terrorism, etc.). Natural disasters are not everyday events, and they require unusual reaction. Therefore, the routine methods of government institutions, businesses, NGOs and citizens are no longer sufficient in conditions of natural disasters. These entities must acquire specialized knowledge and skills in researching natural disasters, risk assessment, modeling and simulation of natural disasters, the use of modern information and communication technologies in natural disasters risk management, all within the national and international legal framework and the framework of the protection and rescue system. These knowledge and skills are just offered by the proposed study program Master of Academic Studies - Natural Disasters Security Risk Management. Therefore, the purpose of this study program is to acquire academic knowledge and skills to manage the security risks of natural disasters, as well as to gain the academic title Master Security Manager - ("Masters Management of the 1st year").

The content of this study program relates to the methodology of scientific research of security phenomena, risk management, natural disasters, protection and rescue system in natural disasters, modeling and simulation of security risks of natural disasters, information and communication technologies in natural disasters security risk management and the right to emergency situations caused by natural disasters. These contents are in line with the highest scientific achievements and standards of security practice in the context of natural disasters. The Master Security Manager is qualified to perform complex tasks of the police and civil servants in the competent state authorities in the Republic of Serbia and in local government units, in economic and other legal entities and in the non-governmental sector, in opposing the security risks of natural disasters. The Master Security Manager can be involved in the educational process and in the scientific research of primary higher education and research institutions (high police schools, security faculties, occupational safety faculties, etc.). This study program allows continuation of further specialization, i.e., enrollment in doctoral studies.

Objectives of the study program

The main goal of the study program is to educate students for the application of scientific and professional achievements in solving problems of security protection, protection of human health, material goods and natural values, development of risk management systems for emergencies arising from natural disasters, as well as for the application of acquired knowledge.

The specific objectives of the study program are acquiring the necessary knowledge and skills for:

- analysis of security risks and management of emergencies occurring in natural disasters;
- analysis of cause-effect relationships and solving problems of security risks, protection of human health, environment and material goods in natural disasters;
- development methodology of research and methods for managing the risks of natural disasters;
- development strategies, design and management the security system in risk assessment, preparation, response and recovery from natural disasters;
- innovation activities and team work in emergency management arising from natural disasters;
- permanent education and development of the knowledge management system in the field of managing the security risks in the conditions of natural disasters.

Competencies of graduated students

A student who passes all the exams established by the master's study program and defended master thesis is a higher education and academic title Master Security Manager - ("Master Management of the 1st year"). Student acquires competencies for:

- application of basic knowledge on harmful effects of natural hazards and disasters;
- assessment of the risks of natural disasters and other security risks in conditions of natural disasters;
- understanding the complex measures to prevent the security risks of natural disasters, as well as the component planning of economic and social development;
- preparation of documents on vulnerability assessment and protection and rescue plans;
- optimization, management and coordinatation of available resources of emergency headquarters;
- investigation the cause of the events and determination the facts, responsibilities and crimes in the resulting natural disasters;
- applying specific knowledge of psychology in extreme situations;
- reporting on the state of security in natural disasters;
- informing and communicating with the public;

- assessment and forecasting the consequences of security risks of natural disasters on the basis of modern information and communication technologies;
- assessing and forecasting the situation and changing the safety risks of the working environment using modeling and simulation;
- developing metrics and methods for assessing the effectiveness and efficiency of the natural disasters management system ;
- knowledge and implementation of the legal framework of the European Union and the Republic of Serbia in the field of natural disasters risk management.

Outcomes of the learning process are:

- more effective and efficient natural disasters risk management;
- more favorable state of security against natural disasters and in conditions of natural disasters;
- good security culture, organizational culture and behavior regarding the risk of natural disasters;
- valid standardization in the field of natural disasters risk management;
- higher impact in the prevention and response to the risks of natural disasters, as a result of a higher level of performance, competence and cooperation between the subjects of protection and rescue;
- more valid legal framework for natural disasters risk management.

Quality, contemporary and international compatibility of the study program

The study program "Natural Disasters Security Risk Management" meets all the standards, requirements and needs for scientific knowledge on the natural disasters risk management foreseen in international documents (International Strategy for Disaster Reduction - UNISDR; Global Platform for Risk Reduction from Disaster - Global Platform for Disaster Risk Reduction; Disaster Reduction Disaster Reduction Framework 2015-2030 - Sendai Feramework for Disaster Risk Reduction 2015-2030; Working Paper of the EU Commission - Action Plan for the Sendai Disaster Risk Reduction Framework 2015-2030 Access to the method of risk and disaster information for all EU policies); international standards (standards in the field of "social security" - Societal Security ISO 223, standards in the field of risk management - Risk Management ISO 31000), national laws (Law on Emergency Situations (2009), Law on Restoration after Elementar and Other Disasters (2015) , Law on Planning and Building (2014), Law on Fire Protection (2009), Law on Hydrological and Meteorological Activities (2010), Law on Waters (2010)), national strategies, programs and plans (National Strategy for Protection and Rescue, Fire Protection Strategy, National Program for Natural Disasters Risk Management, Action Plan for Implementation of National Program for Natural Disasters Risk Management (2017-2020) and national standards (National Social Security Standards (SRPS ISO 223)). This includes managerial, legal, technical and engineering component of natural disasters risk

management through successful monitoring which is the result of harmful events, response and recovery from harmful events.

Also, this study program is compatible with contemporary and accredited study programs abroad, and above all with the Master of Science in Environmental and Civil Protection of Marche Polytechnic University, in Ancona (Italy) (http://www.univpm.it/Entra/Offerta_formativa_2/Master_Degree_in_Environmental_Risk_and_Civil_Protection/L/0), master study program of Risk, Crisis and Disaster Management, University of Leicester in the United Kingdom (https://le.ac.uk/courses/risk-crisis-and-disaster-management-msc-dl).

3.2 Subjects

No.	Code	Subjects	Hours L+E+CS	ECTS
FIRST SEMESTER				
1.	M	Methodology of research of security phenomena	2+1+1	5
2.	M	Risk management	2+1+1	5
3.	M	Natural disasters	2+1+1	5
4.	E	Elective subject 1	2+1+1	5
5.	E	Elective subject 2	2+1+1	5
6.	E	Elective subject 3	2+1+1	5
		Protection and rescue system in natural disasters		
		Modeling and simulation of security risks from natural disasters		
		Information and communication support to the natural disasters security risks management		
		Right to emergency situations caused by natural disasters		
SECOND SEMESTER				
7.		Research work	0+0+20	20
8.		Master thesis		10
Total			**12+6+26**	**60**

3.3 Link between competencies and subjects

		MANDATORY SUBJECTS			ELECTIVE SUBJECTS			
		MS1	MS2	MS3	ES1	ES2	ES3	ES4
Generic competencies	communication	x	x	x				x
	critical thinking	x	x	x	x	x	x	x
	scenario modeling	x	x		x	x	x	
	creativity	x	x	x	x	x	x	x
	initiative	x	x	x	x	x	x	
	prediction of solutions and consequences	x	x	x	x	x	x	
	collaboration		x	x	x	x	x	x
	working in multidisciplinary team	x	x	x			x	x
	intensive use of ICT in acquiring knowledge and solving problems	x	x		x	x	x	
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge	x	x				x	
	social and civic responsibility		x	x			x	x
	development of professional ethics and responsibility	x	x	x				x
	effective leadership	x	x	x				x
	strategic thinking	x	x	x			x	x
	identification and analysis of problems in NDRM	x	x		x	x	x	
	experience-based critical decision making	x	x	x			x	
	staying up-to-date with technological development	x	x		x	x	x	
	holistic and proactive approach to NDRM situations			x			x	
	clearly and unambiguously transfer knowledge to the professional and wider public	x	x	x	x	x	x	x
Subject-specific competencies	understanding of climate changes and natural disasters	x	x		x	x	x	x
	awareness of the complex and overlapping nature of disaster		x		x	x	x	x
	mastering of methods, procedures and processes of risk identification	x			x	x	x	
	understanding the causes and consequences of disasters	x	x	x	x	x	x	x
	devising strategies and developing methodology and methods of emergency as part of NDRM	x	x	x				
	optimizing and managing available resources in emergency as part of NDRM systems		x	x			x	
	statistical data processing in order to define and make adequate conclusions	x	x	x	x	x	x	
	integrated management in natural disaster situations		x					
	understanding of civil protection mechanism and institutional framework in NDRM		x	x				x
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation	x	x		x	x	x	
	natural disasters analysis and risk assessment	x	x		x	x	x	
	knowledge about prevention, mitigation, response and recovery operations	x	x	x				x
	applying ICT in NDRM	x	x		x	x	x	

	development of human resources in NDRM	x		x				x
	applying specialized civil engineering fields in NDRM	x	x	x	x	x	x	
	protection of critical infrastructure in natural disaster situations			x	x	x	x	
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods	x	x				x	
	cognizant of the needs of special populations		x	x			x	x
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management	x	x				x	

MS1 - Methodology of research of security phenomena
MS2 - Risk management
MS3 - Natural disasters
ES1 - Protection and rescue system in natural disasters
ES2 - Modeling and simulation of security risks from natural disasters
ES3 - Information and communication support to the natural disasters security risks management
ES4 - Right to emergency situations caused by natural disasters

4. University of Pristina settled in Kosovska Mitrovica (UPKM)

4.1 Description of the study program

Name of study program and title

Master Academic Studies – NATURAL DISASTER RISK MANAGEMENT
Title: Master engineer for protection from catastrophic events and fire

The purpose of the study program

The purpose of the study program is to educate Masters in the field of Natural Disaster Risk Management, in line with basic needs of the society. This study program is conceptualized to provide acquisition of competencies and qualifications which are socially justified and useful. Natural Disaster Risk Management Master program will provide experts in the managing natural disasters, by interdisciplinary and multi disciplinary approach to the problem of natural disasters, technical solutions and social responses to the disaster situations. It is based on the modern curriculum and modern syllabi that follow the trends and directions in the field of disaster risk management.

The Study program is based on adopted principles of national policy and strategy in the field of environmental protection, international, European and national regulations and standards and modern trends for the development of the system of protection from catastrophic events.

In accordance with the University Mission, the Study program provides available and modern, high-quality education which shall fulfill the expectations of students and requirements of the public, private and civil sector. The Study program organized in such way aims to educate Master engineers in the field of Natural Disaster Risk Management who are competent, comparable and competitive in the national and international context.

Objectives of the study program

As Natural disasters occurrence frequency increases in the last decade, the understanding of the roots and complexness of natural disasters is crucial for the study program. This topic is complex and should provide knowledge and deeper understanding of science behind the natural risks along with empowering the applied and practical skills. Theoretical part will critically review the scientific basis of the natural disaster risk management in technical domain. As the engineering and managing processes are rapidly innovated, the theory will provide deep understanding of the disasters, engineering principles of the activities on prevention and mitigation, but not suggest the solutions. Complex interconnections between nature, technology and society will be part of the planning process in prevention, managing and mitigation of the natural disasters. As the Faculty of Technical Sciences has common ground for all departments in fundamental sciences on the Bachelor level, with in deep knowledge of Mathematics, Physics,

Chemistry, Mechanics, and educate engineers, the emphasize will be put on holistic and interdisciplinary approach of using engineering solutions in managing Natural Disasters. Graduates should be aware that measures for dealing with natural disasters are part of wider scope and have to consider that in planning processes. Their actions must be incorporated into neighbourhood and regional plans and be part of sustainable and environmental-friendly solutions, but also in line with actual national and international legislation.

Competencies of graduated students

Master program introduces students into Natural Disaster Risk Management problems and solutions on a deeper level. Since at the Faculty of Technical Sciences of UPKM, there is Graduate programme on Environmental Engineering, the Bachelors have knowledge, skills and competences to recognize a situation in nature, discuss possible solutions and implement some parts of a strategy, in order to solve engineering problems, NDRM Master graduates will be able to recognize a problem, understand its roots, define natural and manmade mechanisms of defined processes, propose a strategy to deal with a problem and develop the necessary protocols and methods to implement a strategy, in order to achieve a goal, instead of objectives.
The Graduates will have the following competencies:
Knowledge
The graduate will:

- have knowledge and understanding of practice, applied theory and methods in Natural Disaster Risk Management in a local and international context;
- have knowledge of social communication, consulting and models for project management;
- have knowledge and understanding of the relationship between consulting, management, leadership, communication in general and teaching;
- be able to reflect on analysis, methods and theories in relation to Natural Disaster Risk management;
- have knowledge on relevant legislation and legal practice in relation to Natural Disaster Risk management in an local and international context.

Skills
The graduate will:

- be able to collect and process and data as foundation for choosing the best methods or tools for solving tasks and problems in relation to Natural Disaster Risk management;
- be able to manage projects and control resources within the subjects;
- be able to analyse and assess theoretical and practical problems in relation to planning, strategy and development, and present proposal for future strategy and solutions;
- be able to communicate knowledge and carry out consulting in NDRM in relation to partners and other stakeholders;
- be able to use mathematical and statistical methods on analytic results and relate to the results in practice;

Competencies

The graduate will:

- be able to handle complex and developing tasks and situations in relation to NDRM and also document and communicate tasks, projects and solutions;
- be able to convert practical experience, knowledge and research results in to solutions;
- be able to form part of multidisciplinary teams and be able to independently plan and implement assignments related to natural disasters;
- be able to identify personal need for development of further competencies and for further education;
- develop independence, the ability to co-operate and the ability to create something new;
- develop an interest in and ability to actively co-operate in a democratic society.

Quality, contemporary and international compatibility of the study program

The Study program is in compliance with contemporary world trends and state of the profession, science and arts in the appropriate educational and scientific field and is comparable with similar programs at the foreign higher education institutions, especially within the European education area.

By mastering the study program, the student acquires knowledge, skills and abilities that provide realization of competencies and learning outcomes needed by the society as a whole.

The study program is harmonized with the contemporary and current scientific and professional knowledge, and is comparable with the study programs of protection against disasters and fire which exist at colleges and faculties in our vicinity. The fundamental principles of harmonization are:

- each course lasts one semester,
- credit system,
- elective courses,
- independent semester projects,
- objectives and outcomes of studying, that is, the knowledge and skills that student acquires after the completed studies are clearly defined.

Taking into account the specific characteristic of the Natural Disasters risk management and in Serbia, respecting the experiences of relevant world university institutions which are engaged in the education of experts in this field, the study program Natural Disasters risk management has been established and defined and its profile is recognized as sublimation of study programs of the following university institutions:

- Middlesex University, (OHS), London (www.mdx.ac.uk);
- University of Natural Resources and Life Sciences, Vienna (www.boku.ac.at/en/);
- The University of Edinburgh, GB (www.see.ed.ac.uk/postgraduate/taughtdeg/SFSE/);

- Faculty of Technical Sciences, Novi Sad (www.ftn.uns.ac.rs);
- Faculty of Ocupational Safety Nis (http://www.znrfak.ni.ac.rs/);

4.2 Subjects

No.	Code	Subjects	Hours L+E+CS	ECTS
FIRST SEMESTER				
1.	M	Natural disasters	3+2+0	6
2.	M	Natural disasters risk assesment	2+1+30	5
3.	M	Transportation Systems in Natural disasters	3+3+0	5
4.	M	Institutional Framework in NDRM	2+1+20	4
5.	E	Elective subject 1	2+2+0	5
6.	E	Elective subject 2	3+3+0	5
		Monitoring in prevention, recording and estimation of Natural disasters		
		Information technologies in Natural Disasters Management		
		Natural disasters with participation of chemical agents		
		Urban Design for Disaster Mitigation		
SECOND SEMESTER				
7.	M	Natural disasters risk management	4+3+0	5
8.	M	Power suppply in Post Disaster Period	2+2+0	5
9.	E	Elective subject 3	2+2+0	5
		Post disaster measures in waste, water and sewer management		
		Water Resources Management in Natural Disaster Situations		
10.		Master thesis		15
Total			**23+19+50**	**60**

4.3 Link between competencies and subjects

		MANDATORY SUBJECTS					
		MS1	MS2	MS3	MS4	MS5	MS6
Generic competencies	communication		x		x	x	x
	critical thinking	x	x	x		x	x
	scenario modeling		x	x		x	x
	creativity		x	x	x	x	x
	initiative		x	x		x	x
	prediction of solutions and consequences		x	x	x	x	x
	collaboration		x	x	x	x	x
	working in multidisciplinary team		x		x	x	x
	intensive use of ICT in acquiring knowledge and solving problems		x	x			x
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge	x	x		x	x	x
	social and civic responsibility	x	x		x	x	x
	development of professional ethics and responsibility	x	x		x	x	x
	effective leadership		x		x	x	x
	strategic thinking		x		x	x	x
	identification and analysis of problems in NDRM		x	x			x
	experience-based critical decision making	x	x		x	x	x
	staying up-to-date with technological development	x	x	x		x	x
	holistic and proactive approach to NDRM situations	x	x				x
	clearly and unambiguously transfer knowledge to the professional and wider public		x	x	x		x
Subject-specific competencies	understanding of climate changes and natural disasters	x	x	x		x	x
	awareness of the complex and overlapping nature of disaster	x	x	x		x	x
	mastering of methods, procedures and processes of risk identification	x	x	x	x	x	x
	understanding the causes and consequences of disasters	x	x	x			x
	devising strategies and developing methodology and methods of emergency as part of NDRM				x	x	x
	optimizing and managing available resources in emergency as part of NDRM systems			x	x	x	x
	statistical data processing in order to define and make adequate conclusions		x	x		x	x
	integrated management in natural disaster situations			x		x	x
	understanding of civil protection mechanism and institutional framework in NDRM			x	x	x	x
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation	x	x	x	x	x	x
	natural disasters analysis and risk assessment		x			x	
	knowledge about prevention, mitigation, response and recovery operations		x	x	x	x	x
	applying ICT in NDRM		x	x		x	x
	development of human resources in NDRM		x		x	x	

	applying specialized civil engineering fields in NDRM		x	x	x	x	x
	protection of critical infrastructure in natural disaster situations	x	x	x		x	x
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods		x	x		x	x
	cognizant of the needs of special populations	x	x		x	x	x
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management	x	x	x		x	x

		ELECTIVE SUBJECTS					
		ES1	ES2	ES3	ES4	ES5	ES6
Generic competencies	communication	x			x	x	x
	critical thinking	x		x	x	x	x
	scenario modeling		x	x	x		
	creativity		x		x	x	x
	initiative	x			x		
	prediction of solutions and consequences	x	x	x	x		
	collaboration	x	x	x	x	x	x
	working in multidisciplinary team	x	x	x	x	x	x
	intensive use of ICT in acquiring knowledge and solving problems	x	x		x		
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge	x		x	x	x	x
	social and civic responsibility	x	x		x	x	x
	development of professional ethics and responsibility	x		x	x	x	x
	effective leadership					x	x
	strategic thinking				x	x	x
	identification and analysis of problems in NDRM	x	x	x	x	x	x
	experience-based critical decision making				x		
	staying up-to-date with technological development	x	x	x			
	holistic and proactive approach to NDRM situations	x	x	x	x	x	x
	clearly and unambiguously transfer knowledge to the professional and wider public	x	x	x		x	x
Subject-specific competencies	understanding of climate changes and natural disasters	x	x	x	x	x	x
	awareness of the complex and overlapping nature of disaster	x	x	x	x	x	x
	mastering of methods, procedures and processes of risk identification	x	x	x		x	x
	understanding the causes and consequences of disasters	x		x	x	x	
	devising strategies and developing methodology and methods of emergency as part of NDRM	x			x		
	optimizing and managing available resources in emergency as part of NDRM systems				x		x
	statistical data processing in order to define and	x	x		x	x	x

	make adequate conclusions						
	integrated management in natural disaster situations				x		
	understanding of civil protection mechanism and institutional framework in NDRM	x			x		
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation	x	x		x	x	x
	natural disasters analysis and risk assessment	x	x			x	
	knowledge about prevention, mitigation, response and recovery operations				x		x
	applying ICT in NDRM	x	x		x	x	x
	development of human resources in NDRM						
	applying specialized civil engineering fields in NDRM				x	x	x
	protection of critical infrastructure in natural disaster situations			x	x	x	
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods	x	x	x	x		x
	cognizant of the needs of special populations	x			x		
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management	x	x		x		x

MS1 - Natural disasters
MS2 - Natural disasters risk assesment
MS3 - Transportation Systems in Natural disasters
MS4 - Institutional Framework in NDRM
MS5 - Natural disasters risk management
MS6 - Power suppply in Post Disaster Period
ES1 - Monitoring in prevention, recording and estimation of Natural disasters
ES2 - Information technologies in Natural Disasters Management
ES3 - Natural disasters with participation of chemical agents
ES4 - Urban Design for Disaster Mitigation
ES5 - Post disaster measures in waste, water and sewer management
ES6 - Water Resources Management in Natural Disaster Situations

5. University of Sarajevo (UNSA - CIS)

5.1 Description of the study program

Name of study program and title

Master Academic Studies – NATURAL DISASTERS RISK MANAGEMENT
Title: Master engineer manager

The purpose of the study program

Frequent occurrences of natural disasters, both in the world and in our area, are becoming one of the most important world problem and factor of the further sustainable development of human civilization. Natural disasters have become a source of permanent threat to the community and the environment in a whole. The damage they cause exceeds all acceptable measures. We are witness that exposure to the effects of natural disasters (droughts, floods, landslides, earthquakes) has been greatly increased due to the low level of knowledge of the cause of the occurrence, mechanisms of action and protection.

Risk management means thinking ahead of time about potential events that can occur, the effects and consequences that institutions can face in the future, and take timely measures to minimize risks, thereby avoiding or reducing adverse effects. Effective risk management allows making better decisions, better planning and optimizing available funds, addressing priorities, and avoiding future problems that can occur in the operation of public sector institutions. To notice key risks and take appropriate measures in a timely manner, it is also important to avoid all financial effects that will necessarily arise in order to solve problems or consequences of the activated risks.

The special problem of countries in transition, uneven economic growth, the need for sustainable development, are imperatively looking for educated experts who will be ready and educated in economic and industrial systems, public enterprises and state institutions to solve complex problems in the field of natural disasters risk management, primarily on the basis of preventive action in order to achieve an acceptable level of risk in case of unwanted events.

The purpose of master studies in the field of natural disasters risk management is the education of experts in the prevention and management of natural disasters. Master students with advanced knowledge will be directly involved and, more importantly, will enhance the process of identification, analysis and risk assessment, as well as developing strategies to prevent and mitigate current and future risks by aligning them with best EU practices. Modernized laboratories with the latest equipment, simulation and evaluation software for natural disasters and literature, will enable students to acquire practical knowledge that can be immediately applied. The realization of this conceptual program is education of master specialists (managers) who will have competences, comparability and competitiveness in the European and world frames.

Master academic studies "Natural Disasters Risk Management" should enable students to concretize and expand their knowledge based on understanding the basic principles in the field of natural disasters risk management, expanding additional expert knowledge for the implementation of modern technical systems, gaining the ability to integrate knowledge that in each case, they should implement during the realization of the study program and introduce into creative research work.

Master academic studies "Natural Disasters Risk Management" lasts one year (two semesters). The title of master degree is Master engineer manager. The total number of hours of active teaching differs in relation to the mandate and elective subjects. All elective subjects are defined within this study program and selected from the list of offered electives.

The credit value of each subject is shown in the table of course schedules by semesters and years of study, as well as in the specification tables of the subject (Book of the course). The credit worthiness of the study program "Natural Disasters Risk Management" is minimum 60 ECTS. The study program foresees the final work. The final grade for the master's academic study is 30 ECTS.

Objectives of the study program

Master academic studies "Natural Disasters Risk Management" is accentuated on earthquakes, floods and landslides, which are most often natural disasters in our area. In order to plan and perform successful rescue activities, knowledge in the field of civil engineering is required for damage to objects during demolition (earthquakes, floods, landslides), and for the rehabilitation of the environment, knowledge of testing and monitoring of environmental parameters and remedial measures is necessary. The master program is highly represented by modern methods of predicting and tracking disorders or accidents - modeling, simulation and GIS technology. Students are primarily educated in preventive planning and operation, risk assessment, decision making and operational action in conditions of catastrophic events, as well as planning and implementation of rehabilitation activities.

The aim of the study program "Natural Disasters Risk Management" is to achieve competencies and academic skills in the field of disasters risk management. By attending a study program, students can develop creative ability to consider problems and the ability to stand up to critical thinking, develop teamwork skills, cooperate and develop specific theoretical as well as applied skills.

The aim of the study program is to educate students for rapid inclusion in immediate work related to disasters risk management. Student should acquire the basics of knowledge to understand the mechanisms of natural disasters such as earthquakes, landslides, floods and torrents, and the planning of measures and activities with the aim of reducing the negative effects on humans and the environment, and to learn the techniques and procedures for the

application of acquired knowledge in practice. The aim of the study program is to learn the methodology of an integrated approach to the creation of a sustainable, environmentally non-violent creted environment. Furthermore, the aim of the study program is the ability to include all previously acquired knowledge in the domain of planning and all other aspects of the construction profession through recognizing and respecting the interdependence of the various parts that makes the whole new space in interaction with the given environment.

The aim of the study program is to educate a student to apply methods and current knowledge about natural hazards and risk assessment by integrating research and practical application on concrete construction structure or facility - special risk analysis and decision making. It will be familiar with various methods of analysis, techniques and tools for assessing sensitivity, and will be able to apply knowledge about different materials and their application to constructions either for prevention or strengthening.

One of the special goals that is in accordance with the aims of education of experts at the Faculty of Civil Engineering University of Sarajevo is to develop students' awareness of the need for permanent education, to develop the ability to recognize, accept and understand topographic data models and algorithms as prerequisites for their implementation in topographic geoinformation systems.

The aim of the master study is to introduce students with selected methods of terrain research and monitoring and to educate students to understand the problems of flooding and propagation of large waters and ways to reduce negative impacts on humans and the environment, then using modern tools in forecasting large waters and their role in flood protection. The aim of the study program is the education of masters regarding team work, with the development of the ability to present scientific results to the professional and general public, as well as the formation of a master who is able to engage in scientific research.

Competencies of graduated students

Requirements for employees dealing with natural disasters risk management are broad and demanding. They should have knowledge and understanding of science about natural risks empowered by applied and practical skills. The competencies of graduate students involve a combination of knowledge, skills and attitudes and the ability to effectively apply them in the context of work responsibilities.

According to the complex theme of natural disasters, future curricula and programs should combine knowledge of natural phenomena, specific modern and innovative technologies and multiple social needs. New curricula should provide knowledge and deeper understanding of science about natural risks and empowerment of applied and practical skills. Graduates should be aware that measures to deal with natural disasters are part of a wider scope and must take

this into account in planning processes. Their actions must be included in neighboring and regional plans and be a part of sustainable and environmentally friendly solutions.

Graduates of master program acquire competencies that must be in line with political and operational frameworks. Due to the fact that different stakeholders (e.g. companies, citizens, governments, NGOs, etc.) are affected by natural disasters, graduates should have the ability to manage multidisciplinary holistic approaches and the areas of their activities and responsibilities are widespread. Due to the fact that responsible decision-makers (e.g. minister, mayor, etc.) are not usually experts in the field of natural disasters, graduates of the new curriculum should have the authority to prepare information for them. They must be able to develop and implement the medium- or long-term strategies necessary to deal with natural disasters within the relevant policy framework.

Master studies enable students to acquire knowledge and competences that allow them to deal with: designing in the field of protection against catastrophic events, developing elaborates on hazard zones, flood protection plans, evacuation plans, rehabilitation plans, risk assessment of threats from natural disasters and catastrophic events and estimates of insurance damage, to work in leadership positions at the Ministry of Internal Affairs in the Risk Directorate, as well as in the Directorate for Prevention, to become entrepreneurs and to deal with natural disasters as legal entities for other legal entities, to draft Reports on Security and Disaster Protection Plans (droughts, floods, landslides, earthquakes, fires, etc.).

Learning outcomes of the Master Program Natural Disaster Risk Management provides students with the following competencies:

- understanding climate change and natural disasters,
- the awareness of the complex and overlapping nature of the disaster,
- mastering the methods, procedures and process of risk identification,
- understanding the causes and consequences of disasters,
- development of strategies and development of methodology and methods of urgency in the context of risk management from natural disasters,
- optimization and management of available resources in emergency situations as part of the system of risk management from natural disasters,
- processing statistical data for the purpose of defining and making appropriate conclusions,
- integrated management in situations of natural disasters, understanding of the civil protection mechanism and institutional framework in Natural Disaster Risk Management,
- knowledge of processes related to risk assessments, land use planning, structural mitigation,
- natural disaster analysis and risk assessment,
- knowledge of prevention, mitigation, response and recovery operations,

- protection of critical infrastructure in natural disasters

Master graduates of the study program natural disasters risk management are competent and qualified to solve complex multidisciplinary problems theoretically and applicatively. Competencies include, above all, the development of critical and independent thinking ability, the ability to analyze problems, synthesize solutions, predict and evaluate the behavior of the chosen solution with a clear idea of what is good and what is the bad side of the chosen solution.

Qualifications of competence that mark the completion of master academic studies are acquired by students:

- They demonstrated theoretical knowledge and understanding in the field of natural disasters risk management;
- Who are able to apply knowledge in solving complex problems in a new or unknown environment;
- Who have the ability to integrate knowledge, solve complex engineering problems and to judge on the basis of available information that contains thoughts and responsibilities;
- Who are able to communicate in a clear and unequivocal manner the knowledge and the way of concluding it to the expert and the general public;
- Those who have the ability to continue their studies in a way that they will choose independently.

When it comes to the specific abilities of the student by mastering the study program of the Master Academic Studies, the student acquires basic knowledge and understanding of specific disciplines in the field of natural disasters risk management, as well as the ability to solve specific problems using scientific methods and procedures. Master graduate students are able to adequately define and present the results of the work by more intensive use of information and communication technologies. Master graduate students have additional competence, compared to students in basic studies, to apply knowledge in practice, and to monitor and apply novelties in the profession. Students are trained to design, organize and manage natural disasters risk management systems.

Quality, contemporary and international compatibility of the study program

Due to the fact that natural disasters can have enormous impacts on different sectors subject to different laws, managing natural disasters requires knowledge of applicable national legislation, i.e. institutional framework for action in situations of natural disasters. Key importance is knowledge of institutions and authorities responsible for the development and implementation of international, federal, provincial and / or municipal laws and contacts with relevant persons. In addition, awareness of EU legislation (e.g. EU Flood Directive, EU Water

Framework Directive, bilateral or multilateral agreements, etc.) is necessary to meet international legal requirements.

The development of such complex master programs that includes civil protection, emergency management, disaster risk reduction, risk reduction and prevention requires holistic and multidisciplinary approaches and will thus fulfill the commitment of higher education to the society in terms of contributing to a sustainable society.

New curricula will be integrated into national efforts to regulate and improve natural disasters risk management through a national legislative, strategic and institutional framework that are in the process of alignment with EU strategies and legislation in the context of accession to the WB. They will also be in line with the agenda for the modernization of European higher education systems, which states that "the modernization of higher education in Europe depends on jurisdiction".

Educational levels related to knowledge, skills and competencies are established by the EHEA Qualifications Framework and the European Qualifications Framework (EQF).

Master programs of the NatRisk project will be compatible with the EHEA Qualification Framework for the second cycle.

"Qualifications that mark the completion of the second cycle (e.g. master's degree) are awarded to students who:

- have demonstrated the knowledge and understanding on which it is based and extends and / or improves what is usually associated with the level of the bachelor and which provides the basis or opportunity for originality in the development and / or application of ideas, often within the context of a research;
- can apply their knowledge and understanding and ability to solve problems in new or unknown environments in a wider (or multidisciplinary) context related to their field of study;
- have the ability to integrate knowledge and handle complexity, and formulate judgments with incomplete or limited information, but this includes thinking about social and ethical responsibilities related to the application of their knowledge and judgments;
- can communicate their conclusions clearly and unequivocally, as well as the knowledge and reasoning on the basis of which they are available, specialist and non-specialist audiences;
- have learning skills to enable them to continue studying in a way that is largely self-directed or autonomous.

Objectives, contents of the courses and activities of learning of new master program will be realized in accordance with previously defined competencies and rules and regulations on accreditation standards and procedures. Upon completion of the new curriculum, managers

will acquire certain competencies to perform their duties, functions and responsibilities in an efficient and proactive way.

5.2 Subjects

No.	Code	Subjects	Hours L+E+CS	ECTS
FIRST SEMESTER				
1.	M	Natural disasters	2+2+0	5
2.	M	Protection and rescue system in case of natural disasters	2+2+0	5
3.	M	Natural disasters risk management	2+2+0	5
4.	E	Elective subject 1	2+2+0	5
5.	E	Elective subject 2	2+2+0	5
6.	E	Elective subject 3	2+2+0	5
		Information and communication technologies in risk management		
		Legal framework for risk management		
		Water-environmental problems in case of natural disasters		
		Water protection		
		In-situ testing and monitoring		
		Evaluation and reinforcement of existing structures		
		Earthquakes and numerical modeling of structures		
		Rehabilitation of objects of cultural and historical heritage		
		Prevention		
		Cartography		
		Topographic / cartographic models		
		Spatial databases and IPPs		
SECOND SEMESTER				
7.		Research in the field of master work	0+20+0	15
8.		Master thesis		15
Total			**12+32+0**	**60**

5.3 Link between competencies and subjects

		MANDATORY SUBJECTS			ELECTIVE SUBJECTS				
		MS1	MS2	MS3	ES1	ES2	ES3	ES4	ES5
Generic competencies	communication	x	x	x	x	x	x	x	
	critical thinking	x	x	x	x	x	x	x	x
	scenario modeling	x		x				x	
	creativity	x	x	x	x	x	x	x	x
	initiative	x	x	x	x		x	x	x
	prediction of solutions and consequences	x	x	x	x		x	x	
	collaboration	x	x	x	x	x	x	x	x
	working in multidisciplinary team	x	x	x	x	x	x	x	x
	intensive use of ICT in acquiring knowledge and solving problems	x		x	x	x	x	x	x
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge	x		x	x	x	x	x	x
	social and civic responsibility	x	x	x	x	x	x	x	x
	development of professional ethics and responsibility	x	x	x	x	x	x	x	x
	effective leadership	x	x	x	x	x			
	strategic thinking	x	x	x	x	x	x	x	
	identification and analysis of problems in NDRM	x		x	x		x	x	x
	experience-based critical decision making	x	x	x			x	x	x
	staying up-to-date with technological development	x		x	x		x	x	x
	holistic and proactive approach to NDRM situations	x	x	x	x		x	x	
	clearly and unambiguously transfer knowledge to the professional and wider public	x	x	x	x	x	x	x	x
Subject-specific competencies	understanding of climate changes and natural disasters	x		x	x	x	x	x	x
	awareness of the complex and overlapping nature of disaster	x		x	x	x	x	x	x
	mastering of methods, procedures and processes of risk identification	x		x	x		x	x	
	understanding the causes and consequences of disasters	x	x	x	x	x	x	x	
	devising strategies and developing methodology and methods of emergency as part of NDRM	x	x	x		x	x	x	
	optimizing and managing available resources in emergency as part of NDRM systems	x	x	x	x		x	x	
	statistical data processing in order to define and make adequate conclusions	x	x	x	x	x	x	x	x
	integrated management in natural disaster situations	x		x	x		x	x	
	understanding of civil protection mechanism and institutional framework in NDRM	x	x	x	x	x	x	x	
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation	x		x			x	x	x
	natural disasters analysis and risk assessment	x		x	x		x	x	
	knowledge about prevention, mitigation, response and recovery operations	x	x	x	x	x	x	x	
	applying ICT in NDRM	x		x	x		x	x	x

	development of human resources in NDRM	x	x	x		x	x		
	applying specialized civil engineering fields in NDRM	x	x	x			x	x	x
	protection of critical infrastructure in natural disaster situations	x	x	x			x	x	x
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods	x		x			x	x	x
	cognizant of the needs of special populations	x	x	x	x	x	x	x	
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management	x		x	x		x	x	

		ELECTIVE SUBJECTS											
		ES1	ES2	ES3	ES4	ES5	ES6	ES7	ES8	ES9	ES10	ES11	ES12
Generic competencies	communication	x	x	x	x								
	critical thinking	x	x	x	x	x	x	x	x	x	x	x	x
	scenario modeling				x			x					
	creativity	x	x	x	x	x	x	x	x	x	x	x	x
	initiative	x		x	x	x	x	x	x	x	x	x	x
	prediction of solutions and consequences	x		x	x								
	collaboration	x	x	x	x	x	x	x	x	x	x	x	x
	working in multidisciplinary team	x	x	x	x	x					x	x	x
	intensive use of ICT in acquiring knowledge and solving problems	x	x	x	x	x	x	x	x	x	x	x	x
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge	x	x	x	x	x	x	x	x	x	x	x	x
	social and civic responsibility	x	x	x	x	x	x		x				
	development of professional ethics and responsibility	x	x	x	x	x	x	x	x	x	x	x	x
	effective leadership	x	x										
	strategic thinking	x	x	x	x								
	identification and analysis of problems in NDRM	x		x	x	x	x	x	x	x	x	x	x
	experience-based critical decision making			x	x	x	x	x	x	x			
	staying up-to-date with technological development	x		x	x	x	x	x	x	x	x	x	x
	holistic and proactive approach to NDRM situations	x		x	x		x						

	clearly and unambiguously transfer knowledge to the professional and wider public	x	x	x	x	x	x	x	x	x	x	x	x
Subject-specific competencies	understanding of climate changes and natural disasters	x	x	x	x	x	x	x					
	awareness of the complex and overlapping nature of disaster	x	x	x	x	x	x	x			x	x	x
	mastering of methods, procedures and processes of risk identification	x		x	x		x	x					
	understanding the causes and consequences of disasters	x	x	x	x		x	x		x			
	devising strategies and developing methodology and methods of emergency as part of NDRM		x	x	x								
	optimizing and managing available resources in emergency as part of NDRM systems	x		x	x								
	statistical data processing in order to define and make adequate conclusions	x	x	x	x	x	x	x	x	x	x	x	x
	integrated management in natural disaster situations	x		x	x								
	understanding of civil protection mechanism and institutional framework in NDRM	x	x	x	x								
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation			x	x	x	x	x	x	x			
	natural disasters analysis and risk assessment	x		x	x		x	x	x				
	knowledge about prevention, mitigation, response and recovery operations	x	x	x	x								
	applying ICT in NDRM	x		x	x	x	x	x	x	x	x	x	x
	development of human resources in		x	x									

	NDRM												
	applying specialized civil engineering fields in NDRM			x	x	x	x						
	protection of critical infrastructure in natural disaster situations			x	x	x	x	x	x	x	x	x	x
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods			x	x	x	x	x	x	x	x	x	x
	cognizant of the needs of special populations	x	x	x	x				x				
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management	x		x	x		x						

MS1 - Natural disasters
MS2 - Protection and rescue system in case of natural disasters
MS3 - Natural disasters risk management
ES1 - Information and communication technologies in risk management
ES2 - Legal framework for risk management
ES3 - Water - environmental problems in case of natural disasters
ES4 – Water protection
ES5 - In-situ testing and monitoring
ES6 – Evaluation and reinforcement of existing structures
ES7 – Earthquakes and numerical modeling of structures
ES8 – Rehabilitation of objects of cultural and historical heritage
ES9 – Prevention
ES10 – Cartography
ES11 – Topographic / cartographic models
ES12 - Spatial databases and IPPs

6. University of Banja Luka (UBL)

6.1 Description of the study program

Name of study program and title

Master Academic Studies – NATURAL DISASTERS RISK MANAGEMENT
Title: Master of protection and rescue

The purpose of the study program

The purpose of the master's degree program "Natural Disasters Risk Management" is that after graduation, students master advanced concepts in civil defense, security sciences and related disciplines; know the key settings of more important theories about emergency situations caused by natural disasters, as well as the processes and actors of protection and rescue; to be able to describe the most important phenomena and problems, classify them and link them to related problems and phenomena; to govern the basic methods and procedures for collecting, systematizing and analyzing data; to be able to independently expand their knowledge and transfer them to others.

The study program has a clearly defined purpose and role in the education system, accessible to the public. By establishing a new study program, it will respond to the demands of the developing society and the achievements of civil protection, and provide a modern, highly-qualified approach to protection and rescue in emergencies caused by natural disasters. Considering the great social needs for this personnel profile, it may be considered that the opening of a new study program would be of particular social importance to the Republic of Srpska. In this study, applying the Bologna principles in education, it will be educated profiles in the field of civil protection for the highest levels of complex tasks. This would enable the level of citizen security to be raised at all levels of society and government.

Finally, the purpose of this study program is to clearly define the possibilities for continuing further scientific training, especially in the third cycle of studies (doctoral studies) and for monitoring scientific achievements in the field of security and criminality, all in the function of creating a quality scientific education profile for execution of security and criminal affairs in the broadest sense of the word.

Objectives of the study program

The main goal of the study program of the Master Academic Studies is the education of appropriate civil protection experts belonging to the scientific field from the field of Security and Criminology, at the master level, who will be trained for performing complex and managerial tasks as well as training for further scientific - research.

Master study program "Natural Disasters Risk Management" aims to establish a balance of theoretical and practical knowledge so that education is based on science and focused on practice (hence, the requirement is to strike a balance between the adopted theoretical knowledge and the developed practical skills), to enable the continuation of the third cycle of studies, as well as up-dating during the working life, to provide personnel who will be able to monitor, analyze and interpret the phenomena caused by natural disasters and the way of reacting.

Additionally, the objectives of the study program include the development of creative abilities and the mastering of the specific practical skills required for those profiles and security systems. In this way, the goal of improving the state of protection and rescue and raising it to a higher level is achieved, which implies a higher level of efficiency and effectiveness of personnel in tasks related to security and performance of managerial functions in civil protection systems for which there is an increasing need. In this way, which is the primary goal of this study program, there will be a greater degree of security of people and property, the safety of the economy and society as a whole and greater efficiency and professionalism of personnel in civil protection, both in the organizational and functional sense. Therefore, this study program provides a significant contribution to the increase in the number of residents with a higher level of education.

Competencies of graduated students

During the aforementioned studies in the second cycle of studies, students will improve the knowledge and special skills acquired in the first cycle of studies. Students who complete academic master studies will have general and specific competencies that relate to the following general abilities: familiarization with natural phenomena that can cause disasters and cause a state of emergency; realistic assessment of information and relevant facts about emergencies; exchange of data and other relevant information and ideas with appropriate experts and institutions in the country and abroad; application of modern scientific methods and means of protection and rescue; ability to legally and efficiently perform tasks in the state and non-state civil protection sector; respecting standards and ethical norms of the profession; permanent training and skills for permanent self-education in the profession.

Also, students who complete academic master studies have the following specific skills: basic knowledge of security and protection and their application in solving complex problems in emergency situations caused by natural disasters; integration of adopted multidisciplinary knowledge (in the field of security, legal, economic, technical and other sciences) in carrying out complex security and protection tasks; justified and correct application of legal powers; the ability to use modern technical means in civil protection; management of organizational units of the state and non-state civil protection sector and the use of information and other modern technologies in protection and rescue.

In the realization of the goals and tasks of Master Academic Studies, the main focus is on scientific-methodological training of students for studying problems in the field of security and protection. This will be achieved by studying certain educational-scientific content and methodology of scientific research of security phenomena and their linking with new and deepened teaching content from those fields. Students deepen and complement the knowledge gained in studies in order to apply acquired knowledge and skills to solve specific problems and at the same time prepare and train for further scientific and research work.

Outcomes of the learning process

Study program of the second cycle provides:

- high scientific and professional level of studies in accordance with modern and future development of safety in the field of security and criminalistics;
- study, develop and deepen the old contents at a higher level than previous education, and in a function of professional performance of senior management in various subjects of the security and civil protection system;
- direct students to independent and creative scientific and professional work during the studies;
- acquisition of special knowledge and competences, in relation to the graduated security and criminal lawyer, which are reflected in additional knowledge from a certain narrower scientific field, security and protection;
- training of candidates to perform independently and professionally various tasks;
- candidates acquire skills and adopt techniques of learning / analyzing relevant literature that will enable them to continue their studies in a way that will be marked only by routing and autonomy;
- training candidates for further individual and collective scientific and research work.

Quality, contemporary and international compatibility of the study program

The study program is comprehensive and possesses the necessary compatibility with other related study programs.

Thus, we formally and structurally harmonized it with more accredited foreign programs in terms of enrollment conditions, duration of studies, graduation and study methods.

The UBL quality assurance system consists of:

Ensuring the quality of the study program

- The process of analyzing the attractiveness data of the existing study program,
- The process of revision of the study program,
- The process of developing new study programs,
- The process of introducing a new subject,

- The process of analyzing the completion of studies,
- The process of analyzing data on employment upon completion of studies,
- The process of interviewing graduated students.

Ensuring and improving the quality of the teaching process

- Defining the rules and criteria for grading students,
- The procedure on student's appeal for evaluation,
- Analysis of the success of the exam,
- Analysis of the number of students and teachers,
- Evaluation of teaching and teachers by students,
- Self-evaluation of teachers.

Ensuring the quality of resources to support students

- Procedure for continuously improving and increasing resources to support learning,
- Evaluation of the work of the student service,
- Procurement of compulsory literature from all subjects from which classes are delivered,
- Subscription to scientific bases with complete text in the field of law,
- Subscription to reference scientific journals.

Ensuring the quality of scientific and research activity of teaching staff

- The strategy of scientific work,
- Creating a positive environment for researching and strengthening the scientific profile of the institution.

The study program has been harmonized with European standards regarding enrollment conditions, duration of studies, conditions for transition to the next year, acquisition of diploma and study methods.

As examples of the close comparability of the study program of the second cycle of studies, Natural Disasters Risk Management, the following accredited higher education institutions from the countries of the environment are listed:

- Faculty of Security, University of Belgrade, Serbia,
- Academy of criminalistic and police studies in Belgrade, Serbia,
- Faculty of Security, University of Kiril and Methodius, Skopje, FYR Macedonia,
- Faculty of Security Studies, University of Maribor, Slovenia.

This study program is in line with established standards for accreditation. It is realized in accordance with the following standards:

- there is an ECTS score system,

- the mobility of students and teachers is stimulated in the framework of cooperation with the relevant European universities,
- a system of comparability of diplomas with similar study programs of European universities was introduced, which is particularly evident through the addition of diplomas.

6.2 Subjects

No.	Code	Subjects	Hours L+E+CS	ECTS
FIRST SEMESTER				
1.	M	Methodology of scientific research	3+1+0	6
2.	M	Natural disasters risk management	3+1+0	5
3.	M	Natural disasters and catastrophes	3+1+0	6
4.	M	Protection and rescue system in natural disaster	3+1+0	5
5.	E	Elective subject 1	2+1+0	4
6.	E	Elective subject 2	2+1+0	4
		Protection of critical infrastructure in natural disasters		
		Prevention and suppression of crime in conditions of natural disasters		
		Law regarding emergency situations caused by natural disasters - Legal framework for risk management		
		Information and communication technologies in support of natural disasters risk management		
		Crisis management and communication in natural disasters		
		Environmental safety and natural disaster		
		Competence and role of the police in natural disasters		
SECOND SEMESTER				
7.		Research in the field of master work	300	20
8.		Master thesis		10
Total			**12+6+26**	**60**

6.3 Link between competencies and subjects

		MANDATORY SUBJECTS			
		MS1	MS2	MS3	MS4
Generic competencies	communication	x			x
	critical thinking		x	x	x
	scenario modeling	x	x	x	x
	creativity		x	x	x
	initiative		x	x	x
	prediction of solutions and consequences	x	x	x	
	collaboration	x		x	x
	working in multidisciplinary team		x	x	x
	intensive use of ICT in acquiring knowledge and solving problems		x	x	x
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge	x	x	x	
	social and civic responsibility		x		x
	development of professional ethics and responsibility		x		x
	effective leadership				x
	strategic thinking	x		x	x
	identification and analysis of problems in NDRM	x	x	x	
	experience-based critical decision making		x	x	
	staying up-to-date with technological development	x	x	x	
	holistic and proactive approach to NDRM situations	x		x	x
	clearly and unambiguously transfer knowledge to the professional and wider public	x		x	x
Subject-specific competencies	understanding of climate changes and natural disasters		x		
	awareness of the complex and overlapping nature of disaster		x		x
	mastering of methods, procedures and processes of risk identification		x	x	
	understanding the causes and consequences of disasters		x	x	x
	devising strategies and developing methodology and methods of emergency as part of NDRM	x	x	x	x
	optimizing and managing available resources in emergency as part of NDRM systems	x	x	x	x
	statistical data processing in order to define and make adequate conclusions			x	
	integrated management in natural disaster situations		x		
	understanding of civil protection mechanism and institutional framework in NDRM		x	x	x
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation		x		x
	natural disasters analysis and risk assessment		x	x	
	knowledge about prevention, mitigation, response and recovery operations		x	x	x
	applying ICT in NDRM		x		

	development of human resources in NDRM			x	x
	applying specialized civil engineering fields in NDRM		x	x	x
	protection of critical infrastructure in natural disaster situations			x	x
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods		x	x	
	cognizant of the needs of special populations		x		x
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management		x	x	

		ELECTIVE SUBJECTS						
		ES1	ES2	ES3	ES4	ES5	ES6	ES7
Generic competencies	communication				x	x		x
	critical thinking	x	x	x	x	x		
	scenario modeling	x	x		x	x		
	creativity	x	x			x	x	
	initiative	x	x		x			x
	prediction of solutions and consequences	x	x	x	x			x
	collaboration	x	x	x	x	x		x
	working in multidisciplinary team	x	x	x	x	x	x	x
	intensive use of ICT in acquiring knowledge and solving problems	x	x	x	x	x		
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge			x	x	x		
	social and civic responsibility			x		x	x	x
	development of professional ethics and responsibility	x	x	x		x	x	x
	effective leadership					x		
	strategic thinking			x		x		x
	identification and analysis of problems in NDRM	x	x	x	x	x	x	x
	experience-based critical decision making	x		x	x			
	staying up-to-date with technological development	x	x	x	x		x	
	holistic and proactive approach to NDRM situations			x	x			x
	clearly and unambiguously transfer knowledge to the professional and wider public	x	x	x	x	x		x
Subject-specific competencies	understanding of climate changes and natural disasters	x	x	x	x	x	x	x
	awareness of the complex and overlapping nature of disaster	x	x	x	x	x	x	x
	mastering of methods, procedures and processes of risk identification	x	x		x			
	understanding the causes and consequences of disasters	x	x	x	x	x	x	x
	devising strategies and developing methodology and methods of emergency as part of NDRM				x			x
	optimizing and managing available resources in emergency as part of NDRM systems			x	x			x

	statistical data processing in order to define and make adequate conclusions				x			
	integrated management in natural disaster situations				x			
	understanding of civil protection mechanism and institutional framework in NDRM				x	x	x	x
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation	x	x	x	x		x	
	natural disasters analysis and risk assessment	x	x	x	x	x		
	knowledge about prevention, mitigation, response and recovery operations				x	x	x	x
	applying ICT in NDRM	x	x	x	x			
	development of human resources in NDRM				x	x	x	x
	applying specialized civil engineering fields in NDRM	x	x	x	x			
	protection of critical infrastructure in natural disaster situations	x	x	x	x			
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods			x	x		x	
	cognizant of the needs of special populations			x	x	x	x	x
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management	x		x	x		x	

MS1 - Methodology of scientific research
MS2 - Natural disasters risk management
MS3 - Natural disasters and catastrophes
MS4 - Protection and rescue system in natural disaster
ES1 - Protection of critical infrastructure in natural disasters
ES2 - Prevention and suppression of crime in conditions of natural disasters
ES3 – Law regarding emergency situations caused by natural disasters - Legal framework for risk management
ES4 - Information and communication technologies in support of risk management from natural disasters
ES5 - Crisis management and communication in natural disasters
ES6 - Environmental safety and natural disaster
ES7 - Competence and role of the police in natural disasters

7. Technical College of Applied Sciences Urosevac - Leposavic (TCASU)

7.1 Description of the study program

Name of study program and title

Specialist vocational studies – RISK MANAGEMENT BY CATASTROPHIC EVENTS AND FIRE
Title: Specialist-professional engineer for protection of catastrophic events and fire safety

The purpose of the study program

The study program has clearly defined purpose and role in the educational system, available to public.

The purpose of the study program is the education of students for the profession of specialist-professional engineer in the field of disasters risk management and fire safety in line with the basic requirements of people. The study program Disasters risk management and fire safety is conceptualized to provide acquisition of competencies and qualifications which are socially justified and useful. It is based on the modern curriculum and modern syllabi that follows the trends and directions in the field of protection from catastrophic events and fire.

The study program is based on adopted principles of national policy and strategy in the field of environmental protection, international, European and national regulations and standards and modern trends for the development of the system of protection from catastrophic events and fire.

In accordance with the school's mission, the study program provides modern and high-quality education which shall fulfill the expectations of students and requirements of the employers. The study program organized in such way aims to educate specialist- professional engineers in the field of disaster management and fire safety who are competent, comparable and competitive in the European and world context.

Objectives of the study program

The main objective of the study program is to educate professional engineers- specialist for protection against catastrophic events and fire through a theoretical and practical teaching in a quality, modern and accessible way. The objectives of the study program are in line with the educational goals and the school's social mission.

The objective of the study program is to educate experts that will gain required knowledge from fundamental scientific disciplines related to protection from catastrophic events and fire (natural disasters, sustainable development and environmental protection, management and

development of human resources in protection) in order to form a realistic picture of processes that occur in the nature, surroundings and environment, as well as traditional and specific engineering disciplines with the emphasis on the activities of prevention in disasters risk management and protection from catastrophic events and fire (natural disasters risk management, legal framework for risks management, protection and rescue, information and communication technologies in risk management, fire dynamics and expertise, fire detection systems).

One of the special goals, which is in line with the goals of education of professional engineers at TSACU is to develop awareness among students for the need of permanent education and environmental protection. The objective of the study program is the education of teamwork specialists, with the development of the ability to present scientific results to the professional and general public, as well as the education of a specialist who will be able to engage in scientific research work.

Competencies of graduated students

By mastering the study program, students acquire general and subject-specific skills that are in the function of high-quality professional, scientific and artistic activity.

After graduation, students acquire the following general competences:

- ability to acquire, interpret and use relevant information in the field of profession;
- ability to successfully solve complex problems in a partially new or unknown environment;
- ability to apply acquired knowledge and principles in a professional manner;
- ability to follow and critically accept new professional knowledge;
- ability to transfer and communicate ideas, problems and solutions;
- to respect ethical norms and responsibilities towards other social community;
- ability for team work.

After graduation, the student acquires the following subject-specific competence:

- the ability to analyze the causes and consequences of natural disasters;
- the ability to preventive action using modern information technologies and techniques;
- management of the system of protection against catastrophic events and fire;
- ability to systematically search, monitor and implement new regulations and standards in the field of protection against catastrophic events and fire;
- fire expertise.

By mastering the curriculum envisaged by the study program Disasters risk management and fire safety, the student will be able:

- to solve problems efficiently in the uncertain conditions;

- to pass his/her ideas, opinions and attitudes to professional and wider social environment;
- to apply principles of work in the team;
- to communicate, orally and in written, with professional and social community;
- to make literary review independently;
- to analyze, evaluate and elaborate the principles of application of law, technical regulations and standards from the field of protection from disasters and fire;
- to apply principles, systems and procedures of preventive protection against the disasters and fire;
- to define activities in the implementation of procedures for drafting the risk assessment acts and to propose appropriate measures;
- to plan necessary time and resources for implementation of protection measures against disasters and fire.

Quality, contemporary and international compatibility of the study program

The study program is in compliance with contemporary world trends and state of the profession, science and arts in the appropriate educational and scientific field and is comparable with similar programs at the foreign higher education institutions, especially within the European education area.

The study program of specialist professional studies Disasters risk management and fire safety enables students to acquire contemporary professional knowledge necessary for education of professional engineers- specialists in the area of protection against disasters and fire.

By mastering the study program, the student acquires knowledge, skills and abilities that provide realization of competencies and learning outcomes needed by economy and the development of the society as a whole.

The study program is harmonized with the contemporary and current scientific and professional knowledge, and is comparable with the study programs of protection against disasters and fire which exist at colleges and faculties in our vicinity. The fundamental principles of harmonization are:

- each course lasts one semester,
- credit system,
- elective courses,
- students' practical work, and
- objectives and outcomes of studying, that is, the knowledge and skills that student acquires after the completed studies are clearly defined.

Taking into account the specific characteristic of the profession Disasters risk management and fire safety in Serbia, respecting the experiences of relevant world university institutions which

are longer engaged in the education of experts in this field, the study program Disasters risk management and fire safety of specialist studies has been established and defined and its profile is recognized as sublimation of study programs of the following university institutions:

- Middlesex University, (OHS), London (www.mdx.ac.uk);
- University of Natural Resources and Life Sciences, Vienna (www.boku.ac.at/en/);
- University of Edinburgh, GB (www.see.ed.ac.uk/postgraduate/taughtdeg/SFSE/);
- Faculty of Technical Sciences, Novi Sad (www.ftn.uns.ac.rs);
- Faculty of Ocupational Safety Nis (http://www.znrfak.ni.ac.rs/);
- Technical College of Applied Sciences, Novi Sad (www.vtsns.edu.rs).

7.2 Subjects

No.	Code	Subjects	Hours L+E+CS	ECTS
FIRST SEMESTER				
1.	M	English language – higher course	2+2+0	6
2.	M	Research methods and scientific communications	2+2+0	6
3.	M	Natural disasters	2+2+0	6
4.	M	Fire Dynamics and Expertise	2+2+0	6
5.	E	Elective subject 1	2+2+0	6
		Risks Management Legal Frameworks		
		Information and communication technologies in risk management		
SECOND SEMESTER				
6.	M	Fire Extinguishers and equipment	3+3+0	7
7.	M	Natural disasters risk management	3+3+0	7
8.	E	Elective subject 2	3+3+0	6
		Management and development of human resources in the protection		
		Sustainable development and environmental protection		
		Protection and rescue		
9.		Professional practice		2
10.		Specialist Thesis		8
Total			**19+19+0**	**60**

7.3 Link between competencies and subjects

		MANDATORY SUBJECTS					
		MS1	MS2	MS3	MS4	MS5	MS6
Generic competencies	communication	x	x				x
	critical thinking	x	x	x	x	x	x
	scenario modeling		x		x		x
	creativity	x	x			x	x
	initiative	x	x			x	x
	prediction of solutions and consequences				x	x	x
	collaboration	x	x			x	x
	working in multidisciplinary team		x			x	x
	intensive use of ICT in acquiring knowledge and solving problems		x			x	x
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge		x	x	x	x	x
	social and civic responsibility			x	x		x
	development of professional ethics and responsibility	x	x	x	x		x
	effective leadership						x
	strategic thinking						x
	identification and analysis of problems in NDRM						x
	experience-based critical decision making		x	x		x	x
	staying up-to-date with technological development	x	x	x	x	x	x
	holistic and proactive approach to NDRM situations		x	x			x
	clearly and unambiguously transfer knowledge to the professional and wider public	x	x		x	x	x
Subject-specific competencies	understanding of climate changes and natural disasters			x			x
	awareness of the complex and overlapping nature of disaster			x			x
	mastering of methods, procedures and processes of risk identification			x			x
	understanding the causes and consequences of disasters			x			x
	devising strategies and developing methodology and methods of emergency as part of NDRM						x
	optimizing and managing available resources in emergency as part of NDRM systems						x
	statistical data processing in order to define and make adequate conclusions						x
	integrated management in natural disaster situations						x
	understanding of civil protection mechanism and institutional framework in NDRM						x
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation			x			x
	natural disasters analysis and risk assessment						x
	knowledge about prevention, mitigation, response and recovery operations						x
	applying ICT in NDRM						x
	development of human resources in NDRM						x

	applying specialized civil engineering fields in NDRM						x
	protection of critical infrastructure in natural disaster situations			x			x
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods						x
	cognizant of the needs of special populations			x			x
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management			x			x

		ELECTIVE SUBJECTS				
		ES1	ES2	ES3	ES4	ES5
Generic competencies	communication	x		x		x
	critical thinking	x		x	x	x
	scenario modeling		x	x	x	
	creativity	x	x	x	x	x
	initiative			x	x	x
	prediction of solutions and consequences		x	x	x	x
	collaboration	x	x	x	x	x
	working in multidisciplinary team	x	x	x	x	x
	intensive use of ICT in acquiring knowledge and solving problems		x		x	
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge			x		
	social and civic responsibility	x	x	x	x	x
	development of professional ethics and responsibility	x		x	x	x
	effective leadership	x		x	x	x
	strategic thinking	x			x	x
	identification and analysis of problems in NDRM		x			
	experience-based critical decision making			x		x
	staying up-to-date with technological development		x	x	x	
	holistic and proactive approach to NDRM situations		x		x	x
	clearly and unambiguously transfer knowledge to the professional and wider public	x	x	x		x
Subject-specific competencies	understanding of climate changes and natural disasters	x	x		x	
	awareness of the complex and overlapping nature of disaster	x	x			
	mastering of methods, procedures and processes of risk identification		x			
	understanding the causes and consequences of disasters	x				x
	devising strategies and developing methodology and methods of emergency as part of NDRM					x
	optimizing and managing available resources in emergency as part of NDRM systems					x
	statistical data processing in order to define and		x			x

	make adequate conclusions					
	integrated management in natural disaster situations					
	understanding of civil protection mechanism and institutional framework in NDRM	x				x
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation		x			
	natural disasters analysis and risk assessment		x			
	knowledge about prevention, mitigation, response and recovery operations	x				x
	applying ICT in NDRM		x			
	development of human resources in NDRM	x				x
	applying specialized civil engineering fields in NDRM					x
	protection of critical infrastructure in natural disaster situations					x
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods		x			
	cognizant of the needs of special populations	x		x		x
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management		x		x	

MS1 - English language – higher course
MS2 - Research methods and scientific communications
MS3 - Natural disasters
MS4 - Fire Dynamics and Expertise
MS5 – Fire Extinguishers and equipment
MS6 – Natural disasters risk management
ES1 - Risks Management Legal Frameworks
ES2 - Information and communication technologies in risk management
ES3 - Management and development of human resources in the protection
ES4 - Sustainable development and environmental protection
ES5 - Protection and rescue

8. University of Defense in Belgrade – Military academy (UNID)

8.1 Description of the study program

Name of study program and title

Master Academic Studies – RISK MANAGEMENT IN CASE OF NATURAL CATASTROPHE
Title: Master manager of risk management in case of natural disasters

The purpose of the study program

The purpose of the study program of Master Academic Studies Risk management in the case of natural disasters is the education of students to gain the title of master manager of risk management in case of natural disasters in accordance with the basic needs of the society. The Risk Management Program in the case of natural disasters is designed to ensure the acquisition of competencies and qualifications that are socially justified and useful, as well as for continuing education in doctoral studies. This study program is fully in line with the general objectives and tasks of education at the Military Academy, that is, with the general objectives and tasks of education of officers in the Serbian Army and the education system in the Republic of Serbia.

The master program of master academic studies forms the officers, civil servants and other persons for carrying out the tasks of master managers of risk management in case of natural disasters both in the system of national security and defense of the Republic of Serbia and in the civil sector.

This study program provides specialized educational knowledge in the field of risk management in case of natural disasters and the basis for further work by research oriented students (candidates). The focus of the study program is on the integration of theoretical and research work with the aim of preparing students for the improvement of theoretical knowledge in the field of natural disasters, crisis management, implementation of operational research for making optimal decisions in crisis situations, methodology of scientific work, scientific and professional education in accordance with legal regulations as well as practical training for crisis prevention and management in emergency situations and natural disasters. The realization of this study program contributes to the improvement of environmental protection in accordance with the concept of sustainable development and gives the starting point for students for doctoral studies.

This study program should enable the development of critical thinking and the training of personnel trained in strategic thinking and the application of theoretical knowledge in order to effectively and effectively manages risk in the event of natural disasters and who will have competence, comparability and competitiveness in European and global frameworks.

The outcome of the education process is the knowledge, skills and competencies that enable students (officers and others) to apply acquired knowledge to solve problems, from the highest to the lowest level, in the areas of risk management in case of natural disasters, with creative and initiative approach, as well as managing the organizational units dealing with protection and rescue operations and decision-making in crisis situations.

Objectives of the study program

The objectives of the master's study program in the study of risk management in the case of natural disasters are the development of academic knowledge and skills, leadership and creative abilities and the achievement of the competencies necessary for taking over duties in the national security and defense system with a focus on training for leadership and managerial positions in order to solve specific problems in emergency situations.

The objectives of this study program are in full accordance with the mission and tasks of the Military Academy in which the program is being conducted, since this military higher education institution creates officers and other persons for all missions and tasks of the Serbian Armed Forces.

The development of creativity among students is encouraged in the process of using the geographic information system, application of methods of operational research and operational planning in the sphere of protection and rescue in case of natural disasters. In this way, in addition to the application of scientific knowledge, the development of the profession and the promotion of creativity in the field of emergency situations are encouraged.

The main goal of the study program is to educate students on the application of scientific, professional and practical achievements, knowledge and skills in the field of management natural disasters, in order to identify and use opportunities, and to solve concrete (practical) problems.

The specific objectives of the program are acquisition of knowledge and skills for:

- assessment of vulnerability of objects and people, protection and rescue plans, risk assessment act and plan of operation for support to civil authorities in case of natural disasters,
- protection of health and behavior in emergency situations and emergency situations,
- acquiring knowledge about information and communication networks and ways of using the geographic information system in case of natural disasters,
- security management in case of natural disasters,
- purification (RHB decontamination technology) in case of natural disasters,
- use of the organization of state administration and legislation in emergency situations,
- proactive activities and team work in case of natural disasters,
- permanent education in the field of management in case of natural disasters,

- identifying indicators that indicate the possibility of natural disasters and the application of preventive measures and activities.

The objectives of the Master Academic Studies study program are achieved by continuous and comprehensive study of contemporary theoretical and methodological approaches in the field of social science and humanities, by critically analyzing existing theoretical and methodological experiences in this field and by developing skills for managing and managing risks in case of natural disasters.

Competencies of graduated students

By mastering the study program of master academic studies Risk management in case of natural disasters students (officers and other persons) acquire general and subject-specific skills that are in the function of quality performance of leadership and managerial duties in emergency situations.

By mastering the study program, the student acquires the following general abilities:

- application of analytical-synthetic methods for understanding the problem of risk in case of natural disasters and predicting the solution of certain problems;
- mastering skills, methods, procedures and processes of research of managerial and other problems of risk management in case of natural disasters;
- systemic knowledge and understanding of the crisis management field that complements the acquired knowledge in upgrading and basic academic studies.
- ability for critical analysis, assessment and synthesis of new and complex risk management ideas;
- to take the lead position and apply professional ethics in your immediate work environment;
- the ability to transfer professional knowledge and ideas to colleagues, the broad academic community and the society as a whole;
- integration of knowledge, solving complex problems and judging based on available information that contains reflections on social and ethical issues related to the application of their knowledge.

By mastering the study program the student acquires the following subject-specific abilities:

- basic knowledge and understanding of professional-specialist knowledge, which complements the knowledge acquired on improvement and basic academic studies, and the application of such knowledge and skills in the field of risk management in case of natural disasters;
- solving concrete problems of risk management at different levels, methods of operational research and geographic information system through appropriate simulation models;

- linking previously acquired knowledge from the basis of natural disasters, crises, crisis management with acquired knowledge from risk management to address specific situations and problems of risk management in case of natural disasters;
- link basic knowledge from different fields and their application in the collection, analysis and interpretation of data necessary for decision-making and solutions in their professional duties;
- monitoring and application of current scientific and professional knowledge from crisis management, as well as the ability to transfer acquired knowledge to the military and general public;
- natural disaster analysis and connection with the emergency sector;
- proactive and teamwork in crisis management;
- mastering the methods of scientific research and design and
- the use of information and communication technology in analyzing global strategic trends, modern security challenges and forecasting the development of a security environment.

Quality, contemporary and international compatibility of the study program

Master study program is largely in line with the corresponding study programs in the European educational space, which successfully applied the Bologna reform and conduct the education of cadets and students in accredited areas:

- University of Edinburgh, GB http://www.see.ed.ac.uk/postgraduate/taughtdeg/SFSE/
- Faculty of Eingeneering, LTH, Lund, Sweden http://www.lu.se/master-of-disaster-management-english
- Ghent University, Ghent, Belgium http://www.imfse.ugent.be/index.asp?p=582&a=582

These study programs are according to plans and programs that are studied in a certain degree compatible and comparable with the proposed study program Risk management in case of natural disasters.

Differences in the thematic and program units of particular subjects have been targeted for the modern, modern and complete education of students from areas that are considered basic, while the subsequent direction of students achieves profiling of specific risk management issues in case of natural disasters through elective subjects. Elective courses can be chosen according to individual affinities and interests of students.

In addition, almost all elements of the study program, such as academic title, duration and value in the ESPB, the name and content of the offered courses, the ways of taking exams, learning outcomes and teacher competencies, are harmonized with both the higher education institutions and the relevant higher education institutions in the country.

8.2 Subjects

No.	Code	Subjects	Hours L+E+CS	ECTS
FIRST SEMESTER				
1.	M	Natural Disasters	2+3+0	6
2.	M	Natural Disasters Risk Management	3+2+0	6
3.	M	Protection and Rescue System in Natural Disaster Situations	2+3+2	8
4.	E	Elective subject 1	2+2+0	5
5.	E	Elective subject 2	2+2+0	5
		Operational research		
		Models for support to decision making process		
		State administration organization and emergency legislation		
		Application of GIS in risk assesment in Natural Disaster Situations		
SECOND SEMESTER				
6.	M	Methodology of scientific research work	2+2+0	6
7.	E	Elective subject 3	2+3+0	6
		Operations for support to civilian authorities in Natural Disaster Situations		
		Security Management in Natural Disaster Situations		
		Asanation (CBR decontamination technology)		
8.		Study research work on the basis of master work	0+0+8	8
9.		Master thesis		10
Total			**15+17+10**	**60**

8.3 Link between competencies and subjects

		MANDATORY SUBJECTS			
		MS1	MS2	MS3	MS4
Generic competencies	communication	x	x	x	x
	critical thinking	x	x	x	x
	scenario modeling		x		
	creativity	x	x	x	x
	initiative	x	x	x	
	prediction of solutions and consequences	x	x	x	
	collaboration	x	x	x	
	working in multidisciplinary team		x	x	x
	intensive use of ICT in acquiring knowledge and solving problems		x		x

	solving complex multidisciplinary problems in theory and practice applying acquired knowledge		x		x
	social and civic responsibility	x	x	x	
	development of professional ethics and responsibility	x	x	x	
	effective leadership	x	x	x	x
	strategic thinking	x	x	x	x
	identification and analysis of problems in NDRM	x	x		
	experience-based critical decision making	x	x	x	x
	staying up-to-date with technological development	x	x		
	holistic and proactive approach to NDRM situations	x	x	x	x
	clearly and unambiguously transfer knowledge to the professional and wider public	x	x	x	x
Subject-specific competencies	understanding of climate changes and natural disasters	x	x		
	awareness of the complex and overlapping nature of disaster	x	x		
	mastering of methods, procedures and processes of risk identification	x	x		x
	understanding the causes and consequences of disasters	x	x	x	
	devising strategies and developing methodology and methods of emergency as part of NDRM		x	x	x
	optimizing and managing available resources in emergency as part of NDRM systems		x	x	
	statistical data processing in order to define and make adequate conclusions		x		x
	integrated management in natural disaster situations	x	x		
	understanding of civil protection mechanism and institutional framework in NDRM		x	x	
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation	x	x		
	natural disasters analysis and risk assessment	x	x		
	knowledge about prevention, mitigation, response and recovery operations	x	x	x	
	applying ICT in NDRM		x		
	development of human resources in NDRM		x	x	x
	applying specialized civil engineering fields in NDRM		x	x	
	protection of critical infrastructure in natural disaster situations	x	x	x	
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods		x		x
	cognizant of the needs of special populations	x	x	x	
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management	x	x		

		ELECTIVE SUBJECTS						
		ES1	ES2	ES3	ES4	ES5	ES6	ES7
Generic competencies	communication			x	x	x	x	x
	critical thinking	x	x	x	x	x	x	x
	scenario modeling		x			x	x	x
	creativity	x	x	x	x	x	x	x
	initiative		x			x	x	x
	prediction of solutions and consequences	x	x		x	x	x	x
	collaboration		x	x	x	x	x	x
	working in multidisciplinary team			x	x	x	x	x
	intensive use of ICT in acquiring knowledge and solving problems	x	x		x	x	x	
	solving complex multidisciplinary problems in theory and practice applying acquired knowledge	x	x		x	x	x	x
	social and civic responsibility			x		x	x	x
	development of professional ethics and responsibility	x	x	x		x	x	x
	effective leadership	x	x	x	x	x	x	x
	strategic thinking	x	x	x	x	x	x	x
	identification and analysis of problems in NDRM	x	x		x	x	x	
	experience-based critical decision making	x	x		x	x	x	x
	staying up-to-date with technological development	x	x		x	x	x	x
	holistic and proactive approach to NDRM situations	x	x		x	x	x	x
	clearly and unambiguously transfer knowledge to the professional and wider public	x	x	x	x	x	x	x
Subject-specific competencies	understanding of climate changes and natural disasters			x		x	x	x
	awareness of the complex and overlapping nature of disaster			x		x	x	
	mastering of methods, procedures and processes of risk identification	x	x		x	x	x	x
	understanding the causes and consequences of disasters			x		x	x	
	devising strategies and developing methodology and methods of emergency as part of NDRM	x	x			x	x	x
	optimizing and managing available resources in emergency as part of NDRM systems	x	x		x	x	x	x
	statistical data processing in order to define and make adequate conclusions	x	x			x	x	x
	integrated management in natural disaster situations	x	x			x	x	x
	understanding of civil protection mechanism and institutional framework in NDRM			x		x	x	x
	knowledge of the processes associated with risk assessments, land-use planning, structural mitigation	x	x		x	x	x	
	natural disasters analysis and risk assessment	x	x		x	x	x	x
	knowledge about prevention, mitigation, response and recovery operations			x		x	x	x
	applying ICT in NDRM	x	x		x	x	x	
	development of human resources in NDRM	x	x	x	x	x	x	x
	applying specialized civil engineering fields in NDRM	x	x	x		x	x	x

	protection of critical infrastructure in natural disaster situations			x		x	x	x
	understanding and using appropriate methods for research design regarding data collection and analysis, particularly focused on contemporary qualitative and quantitative methods	x	x			x	x	x
	cognizant of the needs of special populations			x		x	x	
	evaluation of the potential for more and worse disasters, and appreciate the need for a more proactive approach to disaster management					x	x	

MS1 - Natural Disasters
MS2 - Natural Disasters Risk Management
MS3 - Protection and Rescue System in Natural Disaster Situations
MS4 - Methodology of scientific research work
ES1 - Operational research
ES2 - Models for support to decision making process
ES3 - State administration organization and emergency legislation
ES4 - Application of GIS in risk assesment in Natural Disaster Situations
ES5 - Operations for support to civilian authorities in Natural Disaster Situations
ES6 – Security Management in Natural Disaster Situations
ES7 - Asanation (CBR decontamination technology)