REPORT ON IMPLEMENTED MASTER CURRICULA

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List of abbreviations

BOKU	University of Natural Resources and Life Sciences, Vienna
EU	European Union
HEI	Higher Education Institution
KPU	University of Criminal Investigation and Police Studies
MUHEC	Middlesex University Higher Education Corporation
NatRisk	Development of master curricula for natural disasters risk management in Western Balkan countries
OE	Óbuda University
TCASU	Technical College of Applied Sciences Urosevac with temporary seat in Leposavic
TUC	Technical University of Crete, Chania, Greece
UBL	University of Banja Luka
UNI	University of Nis
UNID	University of Defence in Belgrade
UNIME	University of Messina
UNSA	University of Sarajevo
UPKM	University of Pristina in KosovskaMitrovica
WB	Western Balkan
WP	Work package

1 Introduction

Report on implemented master curricula summarizes information regarding realization of master curricula by Western Balkan (WB) Higher Education Institutions (HEIs) in the framework of WP4 "Implementation of developed master curricula and trainings" and activity A4.2 "Implementation of master curricula" of the Erasmus+ Capacity Building in the Field of Higher Education project „Development of master curricula for natural disasters risk management in Western Balkan countries" (NatRisk).

It should be highlighted that six accredited master curricula (3 in RS, 2 in BA, 1 in XK), one accredited specialist professional study programme (1 in XK) and one modernized master study programme (1 in RS) were implemented.

2 Implemented master curricula

The following master study programmes were developed and accredited:

1. University of Nis – Faculty of Civil Engineering and Architecture
   - **Engineering Management for Natural Disasters Risk**

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.

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.

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.

2. University of Criminal Investigation and Police Studies
   - **Natural Disasters Security Risk Management**

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.

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.

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.

3. University of Pristina in KosovskaMitrovica - Faculty of Technical Sciences
   - **Natural Disaster Risk Management**

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.

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.

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.

4. University of Sarajevo
   - **Protection From Natural Disasters**

Frequent occurrences of natural disasters, both in the world and in our area, are becoming one of the most important world problems and factors of the further sustainable development of human civilization. Natural disasters have become a source of permanent threat to the community and the environment as a whole. The damage they cause exceeds all acceptable measures. We are witnessing 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 particular problem of the countries in transition is that they imperatively seek educated experts who will be ready and educated in economic and industrial systems, public enterprises and state institutions to solve complex complex problems in the field of risk management of natural disasters / catastrophes, 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 protection against natural disasters is the education of experts for protection against natural disasters. Master students with advanced knowledge will be directly involved and, more importantly, will improve the process of identification, analysis and risk assessment, and in accordance with the acquired competencies, be able to participate in the development of strategies to prevent and mitigate current and future risks by aligning them with the best EU practices. Modernized classrooms with the latest equipment, software for performing simulations and estimation of natural disasters, and literature, will enable students to acquire practical knowledge that can be immediately applied.
Master Academic Studies The protection against natural disasters should enable students to concretize and expand their knowledge based on understanding the basic principles in the area of protection from natural disasters, mastering additional professional knowledge for the

implementation of modern technical systems, gaining the ability to integrate knowledge that in each the concrete case should be applied in the course of the realization of the study program to be introduced in research independent and creative work.

The purpose of the study program in the area of protection against natural disasters is the education of students for the profession of a specialist professional engineer protection against catastrophic events in accordance with the basic needs of the society. The study program Protection against natural disasters is designed to provide the acquisition of competences and qualifications that are socially justified and useful. It is based on a contemporary curriculum and contemporary curriculum that tracks trends and flows in the field of protection against catastrophic events.

Master Academic Studies Protection against natural disasters lasts one year (two semesters). The title of master protection against natural disasters is obtained. The total number of hours of active teaching differs in relation to the selected module and elective subjects. All elective courses are defined within this study program and are selected from the list of offered electives. The study program provides an accessible and modern, high quality education that will meet students 'expectations and employers' needs. The realization of this conceived study program is trained by specialist engineers (master profession) in protection from natural disasters who have competence, comparability and competitiveness in European and world frames.

Master Academic Study in the field of Protection from Natural Disasters is accentuated on earthquakes, floods and landslides, and droughts, 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 about damage to buildings during the operation of various natural disasters (earthquakes, floods and torrents, landslides) is necessary, which can lead to minor, medium and significant damage to structures, and ultimately to demolition. For the rehabilitation of the environment it is necessary to know the testing and monitoring of environmental parameters and remedial measures. The master program is highly represented by modern methods of prediction and monitoring of disorders or accidents - modeling, simulation and GIS technology. Students are primarily trained in preventive planning and action, 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 Protection from Natural Disasters is to achieve competencies and academic skills in the field of risk management from disasters. By attending a study program, students can develop creative abilities to consider problems and the ability to stand up to independent critical thinking, developing teamwork skills, cooperating and mastering specific theoretical as well as applied skills.

The aim of the study program is to educate and train students for rapid inclusion in immediate work related to risk management from disasters. The 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 master the techniques and procedures for the application of acquired knowledge in practice. The aim of the study program is to

master the methodology of an integrated approach to the creation of a sustainable, environmentally non-violent built 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 make up the whole of the new space in interaction with the given environment.

The aim of the study program is to train a student to apply methods and current knowledge about natural hazard / hazard 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 for strengthening.

One of the special goals that is in accordance with the aims of education of experts at the Faculty of Civil Engineering at the 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 to selected methods of field research and monitoring and to train 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 master students for 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 student who is able to engage in scientific research work.

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

Given 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 in relation to natural risks, while strengthening applied and practical skills, recognizing that measures to address natural disasters are part of a wider scope and must be taken into account in planning processes. Their actions must be included in neighbouring and regional plans and be part of sustainable and environmentally friendly solutions.

Due to the fact that the responsible decision-makers (e.g., the minister, the mayor, etc.) are not usually experts in the field of natural disasters, a new profile of experts who would be trained in the curriculum in question could significantly contribute to making better decisions or preparing relevant information for their adoption. Master studies enable students to acquire

knowledge and competencies that enable them to participate in: designing in the field of protection against catastrophic events; Develop elaborate on hazard zones; elaboration of flood protection plans, evacuation plans, rehabilitation plans; risk assessment of threats from natural disasters and catastrophic events and insurance damage assessment, in various companies aimed at the safety of citizens, and the like.

Learning outcomes of the master program Protection from natural disasters to students provides the following competencies:

- Implementation and development of the concept of integrated risk management from natural disasters,
- Determine the structure and content of the rehabilitation plans with an overview of construction measures for the rehabilitation of terrains, facilities and infrastructure,
- Building resistance to natural disasters,
- Mastering the methods of preventing, mitigating and remedying the appearance of terrain instability 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 conditions 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 risk management from 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.

5. University of Banja Luka – Faculty of Security Sciences
    - **Natural Disasters Risk Management**

The purpose of the study program is to enable students to progress in advanced studies concepts of civil protection, security sciences and related disciplines; to ehnance key settings of the more important theories about the causes of 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 connect with related problems and phenomena; to govern the basic methods and procedures collecting, systematizing and analyzing data; to calcurate hazards and risks and use modern technologies to persuade researsh.

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

The establishment of a new study program will be answered the requirements of the society in development and the achievements of civil protection.

Study program model is 4 + 1 - academic master studies and lasts 1year, or 2 semesters or 60 ECTS points.

The total number of subjects is 11, out of which 4 are compulsory subjects and 7 are elective subjects.

All courses are single-semester and carry the appropriate number of ECTS credits.

The curriculum defines the description of each subject containing the title, type of course, year and semester of study, number of ECTS points, teacher's name, course objective with expected outcomes, knowledge and competences, prerequisites for attending the course, content of the course, recommended literature, methods of teaching, methods of checking knowledge and assessment and other data.

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.

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.

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.

The student completes the studies by creating a master's thesis consisting of theoretical-methodological preparations necessary for deeper understanding of the area from which the master is work works and make the work itself. Master work is defended before a commission

consisting of three teachers who are references to the topic of master's work.

6. University of Defence in Belgrade
   - **Risk Management in case of Natural Catastrophe**

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.

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.

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.

One master study programme was modernised:

University of Nis – Faculty of Occupational Safety

- **Management of emergency situations**

The purpose of the study program Management of emergency situations 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.

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.

By mastering the study program of master academic studies Management of emergency situations, 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.

One specialist professional study programme was developed and accredited:

Technical College of Applied Sciences Urosevac with temporary seat in Leposavic

- **Risk Management of Catastrophic Events and Fire**

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 Risk management of catastrophic events and fire 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.

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.

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 Risk management of catastrophic events and fire 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.

3 Statistics on implemented master programmes

Four study programmes are directly compared at UNI, TCASU, UBL and UNSA.

The overall rating of master curriculum is presented in Figure 1 (all ratings of five point scale).

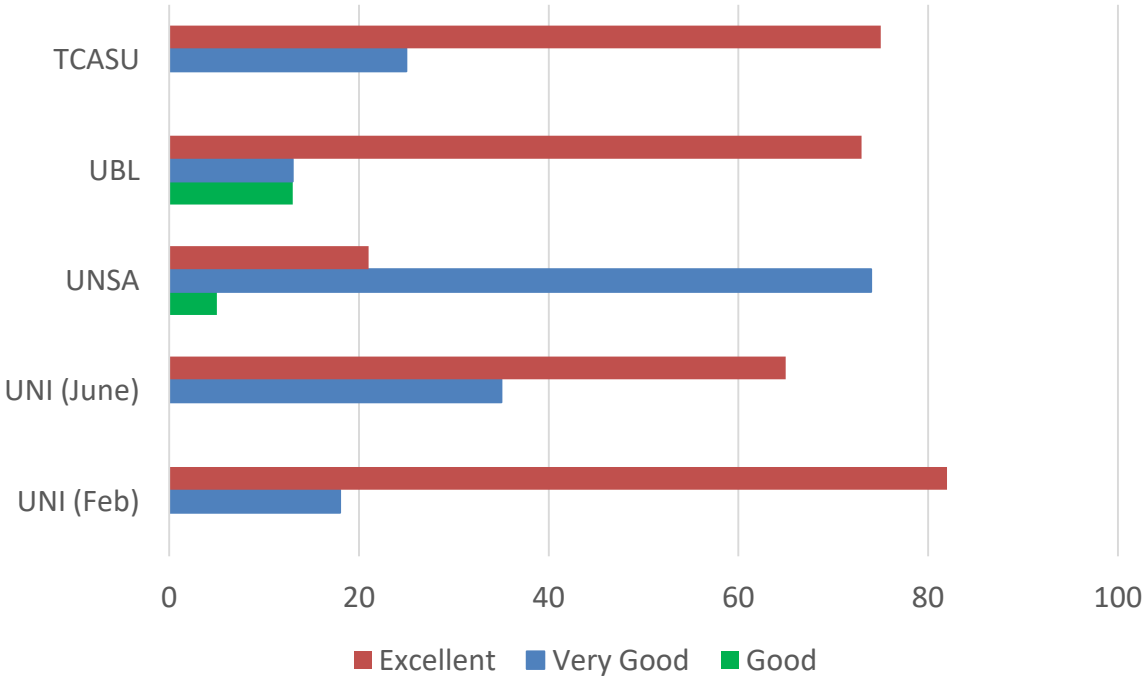

Figure 1. Overall rating of master curriculum

General evaluation criteria is presented in Figure 2 (top two ratings of five point scale).

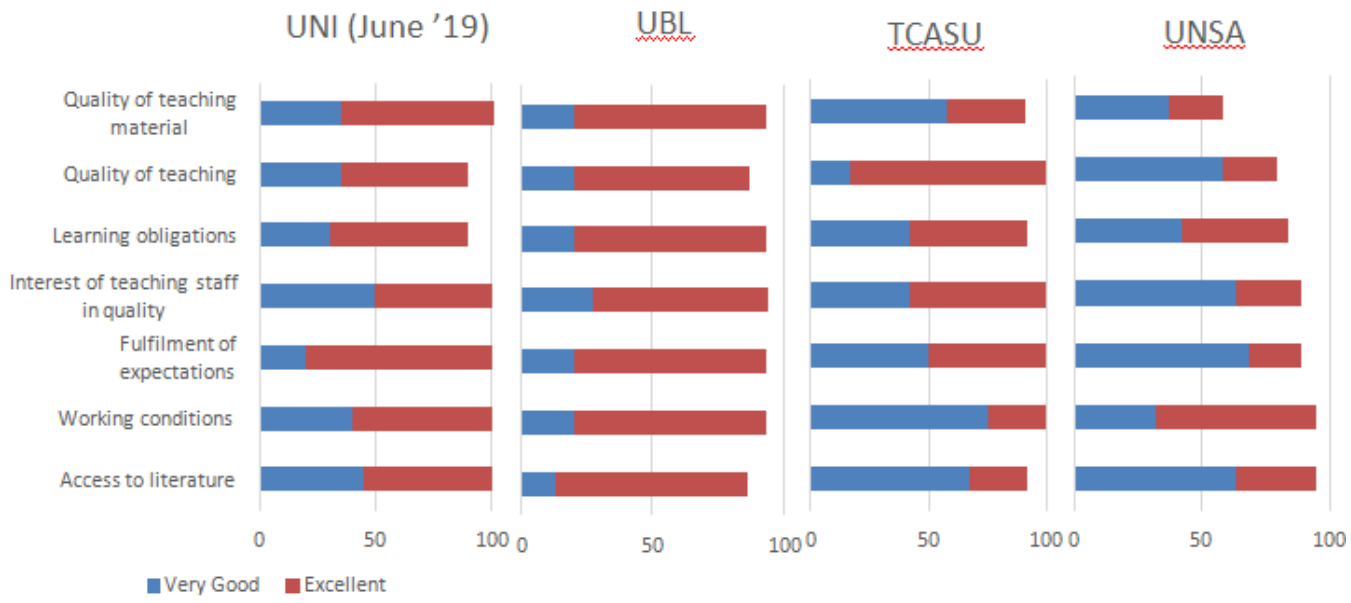

Figure 2. General evaluation criteria

Possibility of participation in student mobility criteria is presented in Figure 3 (all ratings of five point scale.

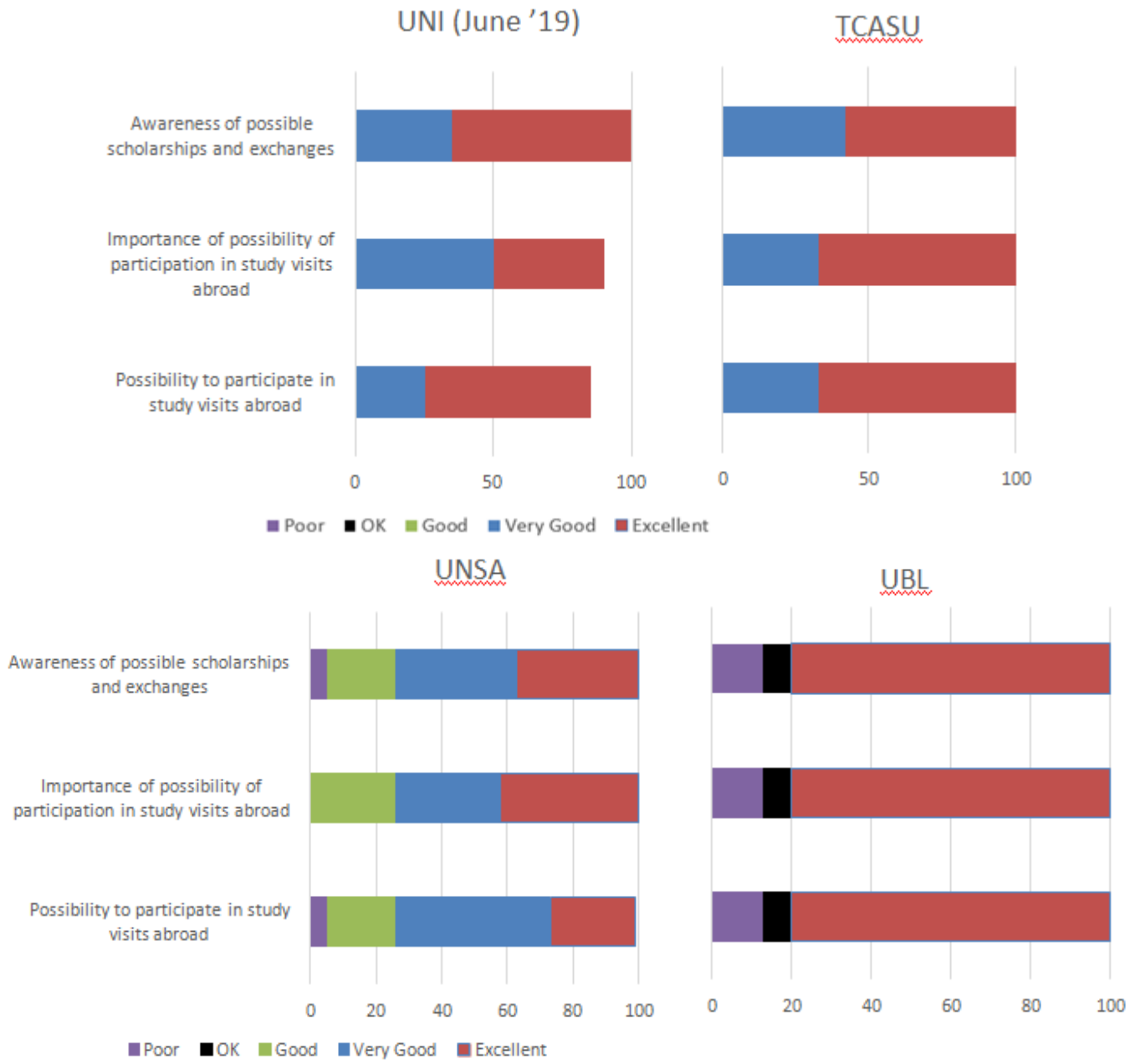

Figure 3. Possibility of participation in student mobility criteria

General conclusion

Overall for all four institutions' courses the students gave very strong positive ratings for general and expectation criteria.

Within this very positive context there are indications that institutions could focus on:

- All institutions to maintain high student satisfaction across all criteria.
- UNI to enhance manner of presentation, tempo and laboratory equipment. Also explore balance of course content and delivery between semesters.
- TCASU enhancing working conditions, access to literature, laboratory equipment and quality of teaching materials.
- UNSA could improve their overall score profile perhaps by improving the practical exercises, laboratory equipment and tempo. Enhancing quality of teaching and the materials and perceived staff interest in that quality.
- For UNSA and UBL in feedback the relevance of student mobility was questioned. The reasons could be explored further and relevant action taken.