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Knowledge FOr Resilient soCiEty

K - FORCE

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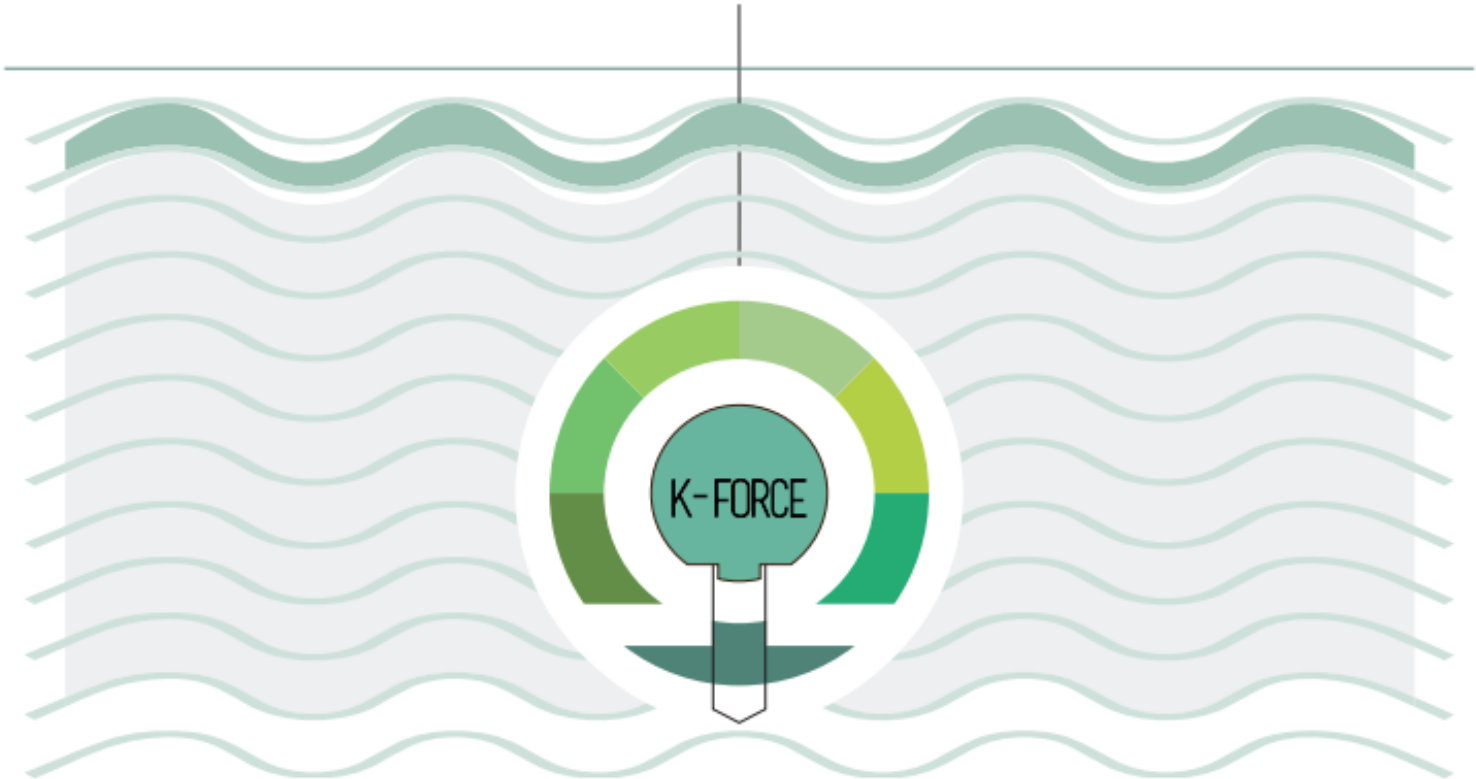

WP1

AN ANALYSIS OF THE DISASTER RISK MANAGEMENT AND FIRE SAFETY ENGINEERING MASTER PROGRAMMES IN EUROPE AND WESTERN BALKAN COUNTRIES

Part 1 – Report on existing master programmes in WBC

Deliverable 1.1

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Report 1.1 part I gives an overview on master programs related to the Disaster Risk Management and Fire Safety Engineering area there are being offered in K-FORCE project's Partner countries - Serbia, Bosnia & Herzegovina and Albania. A list of all master programs which related to the area was compiled, even though their title was not specifically "Disaster Risk Management and/or Fire Safety Engineering". Therefore, MPs in the field of Civil Engineering, Environmental Protection, Sustainable development and Climate Change, Environmental Engineering and other related fields have been listed. Besides this, list of Professional studies in Serbia, as well as in Bosnia & Herzegovina was provided within this report.

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TABLE OF CONTENT

INTRODUCTION

The subject area, Disaster Risk Management and Fire Safety Engineering, refers to Multidisciplinary/Interdisciplinary disciplines, with Engineering and engineering trades as the dominant academic discipline, while other disciplines addressed by curricula being Environmental protection, Architecture and Construction, Civil Protection, Fire Science, Climatology, Hydrology, Seismology and Economy.

In this regard, the following session will give an overview on master programs related to the area there are being offered in K-FORCE project's Partner countries - Serbia, Bosnia & Herzegovina and Albania. A list of all master programs which related to the area was compiled, even though their title was not specifically "Disaster Risk Management and/or Fire Safety Engineering". Therefore, MPs in the field of Civil Engineering, Environmental Protection, Sustainable development and Climate Change, Environmental Engineering and other related fields have been listed. Besides this, list of Professional studies in Serbia, as well as in Bosnia & Herzegovina was provided within this report.

The research of Master programmes in Disaster Risk Management and Fire Safety involved the following steps:

1. Visit to the website of the national accreditation body of each of the countries to find the full list of accredited HE institutions and their programmes where available;
2. Selection of the accredited programmes that may refer to the subject area, Disaster Risk Management and Fire Safety;
3. Making of the list of HE institutions with the programmes;
4. Searching for the information on the selected programmes at the websites of the HE institutions;
5. Narrowing the list of programmes to those actually dealing with some aspects of Disaster Risk Management and Fire Safety;
6. Preparation of the cumulative table with data on relevant programmes;
7. Commenting the results.

Within an analysis of the Disaster Risk Management and Fire Safety Engineering Master programs in Europe and Western Balkan Countries, collected data included the following categories:

- **Country** offering the program
- **Academic Title** of program
- **Host Higher Education Institution (University/Faculty/ Department)**, offering the program
- **Risk Area**
- Number of years **Since** the program has been operational
- **Number of students** enrolled
- **Duration** of program in years and semesters
- Tuition **Fee**
- Programme **Description**, including objectives and target audience
- **Admission** requirements
- **Content**, including organization and curriculum
- **Teaching/Learning** describing teaching methodology and assessment
- **Academic staff**

SERBIA

UNIVERSITY OF NOVI SAD

Faculty of Technical Sciences
Department of Civil Engineering and Geodesy
Novi Sad, Serbia

MASTER ACADEMIC STUDY PROGRAMME
Disaster Risk Management and Fire Safety

Basic data

Risk area: Interdisciplinary, Environmental and occupational safety engineering, Civil engineering, Industrial engineering and management.
Since: 2011
Duration of studies: 1 year (2 semesters)
Number of students: 32
Fee: 100.000, 00 RSD
Academic title: Master in Disaster Risk Management and Fire Safety (M.Dis.Ris.Managem.Fir.Saf.)
Scope of studies: 60 ECTS
Website: www.ftn.uns.ac.rs

Description

The study programme of the graduate academic studies in Disaster Risk Management and Fire Safety presents the continuation of the undergraduate academic studies of Disaster Risk Management and Fire Safety at the Faculty of Technical Sciences, University of Novi Sad.

Engineering and technical disciplines are incorporated into the realization of the curriculum of the undergraduate and graduate academic studies of Disaster Risk Management and Fire Safety, thus representing a highly multidisciplinary and interdisciplinary programme. In the realization of the programme, curriculums in architecture, civil engineering, electrical engineering, mechanical engineering, management, design and in basic scientific disciplines of mathematics, chemistry, physics and others are studied, thus completing the multidisciplinary image of the study programme**.**

The purpose of the Study Programme is the education of students for the profession of Master in Disaster Risk Management and Fire Safety in accordance with the needs of society.

The objective of the study programme is to educate an expert who possesses necessary knowledge in basic scientific disciplines (mathematics, physics, chemistry, mechanics, thermo dynamics and other science) in order to create real images about processes happening in nature, the built environment, industrial systems and environment, as well as in the classical and specialized engineering disciplines with an emphasis on the preventive measures while managing risks and fire protection during natural disasters in urban environment, in the processing industry, while manipulating dangerous materials.

One of the specific objectives which is in accordance with educational objectives of experts at the Faculty of Technical Sciences is to develop students` awareness of the need for permanent education, the sustainable development and the environmental protection. The objective of the

study programme is to educate Masters for the teamwork, while developing the ability to represent scientific results to the professional and wider public, but also to create Masters able to be involved in the scientific research.

Master in Disaster Risk Management and Fire Safety, are able to pursue specialist and doctoral studies in the same or related fields of study.

Admission

The study programme prerequisites for the enrolment are completed undergraduate studies with at least 240 ECTS and the passed enrolment examination.

Each year a certain number of students are enrolled at the Faculty of Technical Sciences on the undergraduate or master academic studies of Disaster Risk Management and Fire Safety, in accordance with social needs and infrastructure resources, either at the budget financing or self-financing, which is annually defined by special decision of Scientific Educational Council of the Faculty of Technical Sciences.

Students from other academic programs as well as persons who have completed studies may be enrolled to this study program. In this respect, the evaluation committee (comprising of the heads of all departments involved in realization of the study program) evaluates all passed activities of candidates for enrolment on the basis of all recognized number of points determined by the year of study in which the student can be enrolled. Hence, the passed activities can be recognized in full, can be recognized in part (Commission may require the proper supplement) or they may not be recognized at all.

Content

Fundamental scientific disciplines, studied at this level, give the research character of the program, enabling even better understanding of complex processes in environment, with conditions for further scientific research of students.

All courses last one semester and carry a certain number of points where one point corresponds to about 30 hours of student activities.

An integral part of the curriculum of Disaster Risk Management and Fire Safety is a professional practice and practical work of 45 hours, which is implemented in the relevant scientific research institutions, in organizations for innovation activities, in organizations which provide infrastructural support to innovation activities, in enterprises and public institutions. A student is completing his/her studies by elaboration of the graduate - master thesis, which consists of theoretical and methodological preparation necessary for indepth understanding of the chosen field for writing master thesis paper.

In the **first semester** of studies, students take eight required and one elective courses (elective course is selected from a group of Elective Courses 1).

In the **second semester** of studies, students take three elective courses (one elective course is selected from a group of three elective courses). The second semester also includes the professional practice, study research work on theoretical basis of the master thesis and the master's thesis.

List of courses in 1st semester

1st semester	
Course	**ECTS**
Integrated Natural Disaster Risk Management	4
Assessment of Damaged Structures	4
Protection and Rescue Plans	3
Design and Maintenance of the Fire Detection Systems	4
Design and Maintenance of Stationary Fire Extinguishing Systems	4
Planning and organizing activities during events with catastrophic consequences	3
Advanced Course in Mathematics 1	3
Elective Course 1	3
Total ECTS	**28**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Elective Course 2	3
Elective Course 3	3
Elective Course 4	3
Professional practice	3
Study Research Work on theoretical basis of the master thesis	10
Master Thesis – Elaboration and Defence	10
Total ECTS	**32**

List of elective courses

Elective Course	**ECTS**
Elective Course 1	
Geodetic methods for the determination of geodynamic Movements	3
Crisis Management	3
Elective Course 2	
Fire and Explosion Protection due to Electricity Safety of Strategic Energy Facilities	3
Elective Course 3	
The role of media in reducing the risk Investigation of Fire and Explosion	3
Elective Course 4	
Qualitative and quantitative methods of risk management Technical Systems Reliability	3

Teaching/Learning

Verbal textual methods (lectures, interviews, written materials), illustrative demonstration (Power point presentations, animations, simulations), the laboratory-experimental autonomous and demonstration exercises mark.

Academic Staff

For the realization of the study programme in Disaster Risk Management and Fire Safety, there is teaching staff with necessary professional and scientific qualifications. Scientific and professional qualifications of the teaching staff match the educational and scientific field and level of their assignments. Each teacher has at least five references in the specific scientific or technical field, which is related to his teaching activities at the particular study program. All data on teachers and associates (CV, elections for the position, references) are available to the public.

List of academic staff

Name and surname	Title	E-mail	Phone
Laban Mirjana	Associate Professor, PhD Head of the study programme	mlaban@uns.ac.rs	+381-21-485-2576
Đorđe Ćosić	Associate Professor, PhD	djordjecosic@uns.ac.rs	+381-21-485-2141
Mirjana Malešev	Full Professor, PhD	miram@uns.ac.rs	+381-21-485-2619
Vlastimir Radonjanin	Full Professor, PhD	radonv@uns.ac.rs	+381-21-485-2618

UNIVERSITY OF NIŠ

Faculty of Occupational Safety
Niš, Serbia

MASTER ACADEMIC STUDY PROGRAMME
Emergency Management

Basic data

Risk area: Field technical and technological sciences; emergency management, human resource, fire risk and hazards
Since: 2014
Duration of studies: 1 year (2 semesters)
Number of students: 32
Fee: 72.000,00 RSD
Academic title: Master engineer in environmental protection – emergency management
Scope of studies: 60 ECTS
Website: www.znrfak.ni.ac.rs

Description

The primary aim of the study programme is to enable students to apply scientific and professional achievements in solving the problems of safety of humans and natural and material wealth, and in developing emergency management systems.

Upon completion of the study programme, students acquire the following course-specific, or professional, competences:

- Analyzing risk and emergency management;
- Analyzing cause-and-effect relationships and solving the problems of safety and protection of health, property, and natural wealth during emergencies;
- Developing methodology and methods of emergency management;
- Devising strategies and methods of emergency management;
- Performing innovative activities and working as part of a team in emergency management;
- Developing a knowledge system in emergency management;
- Optimizing and managing available resources in emergency management systems;
- Managing projects and innovations in emergency management systems.

Master engineers in environmental protection – emergency management are able to pursue specialist and doctoral studies in the same or related fields of study.

Admission

To be eligible to apply for enrolment in the first year of master academic studies, a person must have met one of the following requirements:

1. Completed basic academic studies at the Faculty of Occupational Safety in Niš or another higher education institution in the educational scientific field Technical and Technological Sciences and obtained a minimum of 240 ECTS credits;
2. Completed basic academic studies at another higher education institution in other educational-scientific fields and obtained a minimum of 240 ECTS credits;
3. Obtained a HE degree at the Faculty of Occupational Safety in Niš or another higher education institution in the educational scientific field Technical and Technological Sciences according to the rules that were in force until the day the current Law on Higher Education came into force;
4. Obtained a higher education degree at another higher education institution in other educational-scientific fields in duration of minimum eight semesters according to the rules that were in force until the day the current Law on Higher Education came into force.

For candidates who do not meet the abovementioned requirements, the Study Programme Council determines supplementary exams for courses taught in basic academic studies at the Faculty.

Content

The study programme is implemented through:

- Required courses, which include the fundamental knowledge students need to acquire;
- Elective courses, which help students shape their educational profile more closely;
- Internship, which students do in the second semester; and
- The master's thesis, which students complete in the second semester.

The study programme comprises six required and four elective courses (out of 11 EM), internship, and the master's thesis. Students opt for four elective courses from four groups of four courses. Each course comprises a certain number of ECTS credits, whereby elective courses including the master's thesis and internship comprise 31 ECTS credits.

Internship is an integral part of the study programme. It is done in a selected company or institution for the purpose of enabling students to practically apply their acquired knowledge to solving current problems of occupational and environmental safety. It comprises 3 ECTS credits.

The study programme is completed upon completion and public defence of the master's thesis. Through their master's thesis, students demonstrate their ability to synthesize and apply the acquired theoretical and practical knowledge to solving occupational safety problems and their ability to conduct scientific research. The master's thesis comprises 10 ECTS credits.

In the **first semester** of studies, students take four required and two elective courses (one elective course is selected from a group of two elective courses, while the other is selected from a group of three elective courses).

In the **second semester** of studies, students take two required and two elective courses (one elective course is selected from a group of three elective courses and the other is selected from a group of another three elective courses). The second semester also includes the internship and the master's thesis.

List of courses in 1st semester

1st semester	
Course	**ECTS**
Emergency Management Systems	5
Fire Dynamics	5
Human Error Theory	5
Risk and Remediation of Accidents	5
Elective Course 1	5
Elective Course 2	5
Total ECTS	**30**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Civil Protection	5
Intervention and Rescue Tactics	4
Elective Course 3	4
Elective Course 4	4
Internship	3
Master's Thesis	10
Total ECTS	**30**

List of elective courses

Elective Course	ECTS
Elective Course 1	
Project Management	5
Decision Theory	5
Elective Course 2	
Group Psychology	5
Information and Public Relations	5
English Language	5
Elective Course 3	
Systems Engineering	4
Human Resource Management and Development	4
Information Systems in Safety	4
Elective Course 4	
Information and Communications Networks	4
Fire Expertise	4
Health Protection	4

Teaching/Learning

Verbal textual methods (lectures, interviews, written materials), illustrative demonstration (Power point presentations, animations, simulations), the laboratory-experimental autonomous and demonstration exercises mark..

Academic Staff

Basic academic studies study programme **Emergency Management** comprises 17 EM teachers (professors) and 8 EM teaching assistants. The teaching staff possesses the necessary scientific and professional qualifications to properly implement the study programme.

List of academic staff

Name and surname	Title	E-mail	Phone
Žarko Janković	Professor, PhD, Head of the Department of preventive engineering	zarko.jankovic@znrfak.ni.ac.rs	+381-18-529-775
Sonja Pavlović Veselinović	Associate Professor, PhD, Head of Department for research system security and risk	sonja.pavlovic@znrfak.ni.ac.rs	+381-18-529-770
Dejan Petković	Professor, PhD, Head of Department of energy	dejan.petkovic@znrfak.ni.ac.rs	+381-18-529-750

	processes and protection		
Goran Ristić	Associate Professor, PhD, Head of the Department quality of work and environment	goran.ristic@znrfak.ni.ac.rs	+381-18-529-777
Vesna Nikolić	Professor, PhD, Head of the Department of social development and the humanization of working environment	vesna.nikolic@znrfak.ni.ac.rs	+381-18-529-766

MASTER ACADEMIC STUDY PROGRAMME
Fire Protection Engineering

Basic data

Risk area: Field technical and technological sciences; fire risk and hazards, protection systems
Since: 2014
Duration of studies: 1 year (2 semesters)
Number of students: 32
Fee: 72.000,00 RSD
Academic title: Master engineer in occupational safety – fire protection.
Scope of studies: 60 ECTS
Website: www.znrfak.ni.ac.rs

Description

The primary aim of the study programme is to enable students to apply scientific and professional achievements in the field of occupational safety engineering, solve fire protection problems, and manage and develop modern fire protection systems.

The study programme content helps students acquire knowledge in the fields of natural sciences, technical and technological sciences, social sciences and humanities, and medical sciences, and acquire skills and competences that will enable them to work on complex and multidisciplinary fire protection tasks.

Upon completion of the study programme, students acquire the following course-specific, or professional, competences:

- Assessing and preventing risk from fire and explosions;
- Supervising fire and explosion protection;
- Optimizing and managing available resources in a fire protection system;
- Creating reports on the state of fire and explosion protection;
- Devising plans and creating technical documentation for fire and explosion protection;
- Designing fire monitoring, alarm, and extinguishment systems;
- Organizing and managing interventions, rescue, evacuation, and recovery after fires and explosions;
- Providing fire and explosion expertise;
- Educating and managing knowledge in fire and explosion protection;
- Training and selecting professionals, and developing skills in fire and explosion protection;

- Devising norms in fire and explosion protection;
- Developing methodologies, methods, tools, and procedures for fire protection system management;
- Developing methods and metrics for effectiveness assessment of fire protection systems;
- Managing projects and innovations in the fire protection system;
- Organizing and managing a fire protection system;
- Using information and communication technology in environmental engineering;
- Developing engineering ethics.

Master engineers in occupational safety – fire protection are able to pursue specialist and doctoral studies in the same or related fields of study.

Admission

To be eligible to apply for enrolment in the first year of master academic studies, a person must have met one of the following requirements:

1. Completed basic academic studies at the Faculty of Occupational Safety in Niš or another higher education institution in the educationalscientific field Technical and Technological Sciences and obtained a minimum of 240 ECTS credits;
2. Completed basic academic studies at another higher education institution in other educational-scientific fields and obtained a minimum of 240 ECTS credits;
3. Obtained a higher education degree at the Faculty of Occupational Safety in Niš or another higher education institution in the educational scientific field Technical and Technological Sciences according to the rules that were in force until the day the current Law on Higher Education came into force;
4. Obtained a higher education degree at another higher education institution in other educational-scientific fields in duration of minimum eight semesters according to the rules that were in force until the day the current Law on Higher Education came into force.

For candidates who do not meet the abovementioned requirements, the Study Programme Council determines supplementary exams for courses taught in basic academic studies at the Faculty.

Content

The study programme is implemented through:

- Required courses, which include the fundamental knowledge students need to acquire;
- Elective courses, which help students shape their educational profile more closely;
- Internship, which students do in the second semester; and
- The master's thesis, which students complete in the second semester.

The study programme comprises six required and four elective courses (out of 16 FPE/11 EM), internship, and the master's thesis. Students opt for four elective courses from four groups of four courses. Each course comprises a certain number of ECTS credits, whereby elective courses including the master's thesis and internship comprise 31 ECTS credits.

Internship is an integral part of the study programme. It is done in a selected company or institution for the purpose of enabling students to practically apply their acquired knowledge to solving current problems of occupational and environmental safety. It comprises 3 ECTS credits.

The study programme is completed upon completion and public defence of the master's thesis. Through their master's thesis, students demonstrate their ability to synthesize and apply the acquired theoretical and practical knowledge to solving occupational safety problems and their ability to conduct scientific research. The master's thesis comprises 10 ECTS credits.

In the **first semester** of studies, students take four required and two elective courses (both elective courses are selected from a group of four elective courses).

In the **second semester** of studies, students take two required and two elective courses (one elective course is selected from a group of three elective courses, while the other is selected from a group of four elective courses). The second semester also includes the internship and the master's thesis.

List of courses in 1st semester

1st semester	
Course	**ECTS**
Protection Against Fire and Explosions Due to Electric Energy	5
Fire Protection in Technological Processes	5
Design and Maintenance of Fire Alarm Systems	5
Ignition and Combustion Theory	5
Elective Course 1	5
Elective Course 2	5
Total ECTS	**30**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Design and Maintenance of Fire Extinguishing Systems	5
Intervention and Rescue Tactics	4
Elective Course 3	4
Elective Course 4	4
Internship	3
Master's Thesis	10
Total ECTS	**30**

List of elective courses

Elective Course	**ECTS**
Elective Course 1	
Fire Dynamics	5
Human Error Theory	5
Fire Resistance Theory	5
Project Management	5
Elective Course 2	
English Language	5
Fire Protection of Buildings	5

Protection Against Fire Due to Static Electricity and Atmospheric Discharge	5
Fire Protection Organization	5
Elective Course 3	
Fire Protection Economics	4
Systems Engineering	4
Human Resource Management and Development	4
Elective Course 4	
Ventilation of Spaces with High Fire Vulnerability	4
Fire Expertise	4
Health Protection	4
Fire Toxicology	4

Teaching/Learning

Verbal textual methods (lectures, interviews, written materials), illustrative demonstration (Power point presentations, animations, simulations), the laboratory-experimental autonomous and demonstration exercises mark.

Academic Staff

Basic academic studies study programme **Fire Protection Engineering** comprises 24 FPE teachers (professors) and 7 FPE teaching assistants. The teaching staff possesses the necessary scientific and professional qualifications to properly implement the study programme.

List of academic staff

Name and surname	Title	E-mail	Phone
Žarko Janković	Professor, PhD, Head of the Depart. of preventive engineering	zarko.jankovic@znrfak.ni.ac.rs	+381-18-529-775
Sonja Pavlović Veselinović	Ass. Professor, PhD, Head of Depart. for research system security and risk	sonja.pavlovic@znrfak.ni.ac.rs	+381-18-529-770
Dejan Petković	Professor, PhD, Head of Depart. of energy processes and protection	dejan.petkovic@znrfak.ni.ac.rs	+381-18-529-750
Goran Ristić	Ass. Professor, PhD, Head of the Depart. for quality of work and environment	goran.ristic@znrfak.ni.ac.rs	+381-18-529-777
Vesna Nikolić	Professor, PhD, Head of the Depart. of social development and the humanization of working environment	vesna.nikolic@znrfak.ni.ac.rs	+381-18-529-766

UNIVERSITY OF BELGRADE

Faculty of Security Studies
Belgrade, Serbia

MASTER ACADEMIC STUDY PROGRAMME
Security Studies

Basic data

Risk area: Humanities faculties
Since: 2006
Duration of studies: 1 year (2 semesters)
Number of students: 50
Fee: 106.500,00 RSD
Scope of studies: 60 ECTS
Website: www.bg.ac.rs

Description

The Faculty activities take place within organizational units.

1. The academic organizational units - departments:
   - Security Studies
   - Defence Studies
   - Civil Protection and Environment Protection Studies
   - Human and Social Resources Management Studies
   - Humanities Studies
2. The research organizational units:
   - Security Studies Institute
   - Human Security Research Centre
   - Peace Studies Centre
   - Conflict Research Centre
   - Security Management Centre
   - Innovations Centre

By its syllabus and curriculum, the Faculty covers interrelated philosophical, sociological, political, legal, economic, psychological, ethical, humanitarian, civilian-military, and other aspects of the security studies, human and social resources, defence, civil defence and environment protection.

Students' general capabilities and competence refer predominantly to the development of skills for: critical thinking, the analysis of contemporary security issues, the application of acquired knowledge in practice, keeping abreast of new developments in the field, problem solving at all levels, and local and international cooperation. The course-specific capabilities and competence of Masters of Arts in Security Management include the ability to work and conduct research in the field of security studies, human and social resources management studies, civil protection studies, environment protection studies and defence studies. The most important job positions and research activities include:

- Organizing security-related activities in government departments and other government bodies;

- Working in security agencies, inspection services, and as special assistants for public and national security;
- Developing and implementing security systems for persons, property and business in companies and institutions;
- Project planning and writing in the field of security at all levels (corporate, local, municipal, regional, national);
- Conducting security studies, analyses, assessments and plans;
- Working in human and social resources management in government departments;
- Human and social resources management and their development in civil defence, civil protection, environmental protection and security;
- Emergency management;
- Corporate and environmental risks management;
- National, regional and local civil protection management in Serbia;
- Participation in research projects in core fields of the program.

After successfully completing the MA program at the Faculty of Security Studies, students will be familiar with the latest theoretical developments in security studies and they will possess skills to independently conduct simpler research projects on security issues and processes. They will also gain knowledge and skills necessary to communicate, present and transfer the knowledge acquired in the course of their studies.

Admission

Candidates can enrol in postgraduate academic studies if they have previously completed their basic academic studies and earned at least 240 ECTS credits.

Candidates who have graduated from the Faculty of Security Studies or affiliated faculties and have an average grade above 8 (eight) can be directly admitted into the MA program. Candidates who have graduated from faculties not affiliated with the Faculty of Security Studies are required to pass a compensatory exam in order to be admitted and need to have an average grade of 8 (eight) or above. The affiliated faculties include all the faculties of humanities and social sciences of the University of Belgrade (The Faculty of Economics, The Faculty of Law, The Faculty of Political Sciences, The Teachers' Training Faculty, The Faculty of Philosophy, The Faculty of Philology, and The Faculty of Orthodox Theology), The Academy of Criminalistics and Police Studies and The Military Academy.

Content

The curriculum comprises the following activities:

- Four compulsory courses
- Two optional courses
- An adequate amount of class and research activities

After successfully passing their exams, students are required to write and defend their master's degree thesis.

List of courses in 1st semester

1st semester	
Course	**ECTS**
Security Doctrines and Comparative Systems	7
Methods of Scientific Research	7
Geopolitical Perspectives of the Modern World	7
Globalization and Environment Protection	7
Total ECTS	**28**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Elective Course 1	5
Elective Course 2	5
Study Research Paper	7
Master's Thesis	15
Total ECTS	**32**

List of elective courses

Elective Course	ECTS
Serbian Security System	5
National and Human Security Management	5
Natural Resources and Cultural Good Protection	5
Peace and Humanitarian Operations	

Postgraduate Certificate Studies in Security Management

Postgraduate certificate studies in security management are available to those who have completed basic undergraduate or basic academic studies and earned at least 180 ECTS credits. Candidates for undergraduate security studies are ranked based on their GPA from the basic studies and the duration of those studies. Precedence is given to the candidates who have graduated from the Faculty of Security Studies or affiliated faculties, as well as to students who have graduated from the Criminal and Police Academy and the Military Academy.

The curriculum encompasses the following activities:

- Three compulsory courses
- One group of optional courses

After successfully passing their exams, students are required to write and defend a thesis.

List of courses in 1st semester

1st semester	
Course	**ECTS**
Crises Prevention and Management	7
Terrorism as a Security Treat and Counter-Terrosrist Security Management	7
Designing and Implementation of Personal, Property and Corporate Security and Protection Systems	6
Total ECTS	**20**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Elective Course 1	7
Elective Course 2	7
Elective Course 3	6
Final Thesis	20
Total ECTS	**40**

List of elective courses

Elective Course	ECTS
Elective Group 1 – Crisis Management	
Security and Defence Crisis Management	7
Crisis Management in Industry and Power Supply Systems	7
Crisis Management and the Media	6
Elective Group 2 – Security Systems	
Systems for the Protection of Banks, Post Offices and other Financial Institutions	7
Systems for the Protection of Legal Persons Engaged in Manufacturing, Sales and Services	7
Systems for the Protection of Transport of Money, Gold, Cultural Goods and other Valuables	6
Elective Group 3 – Security Management in the Fight Against Terrorism	
Defence against Terrorism – Actions and Operations	7
Religion and Terrorism	7
Terrorism and Information Science	6
Elective Group 4 – Emergency Management	
Risk Management	7

Civil Protection in Emergences	7
Integrated Systems of Defence and Rescue in Emergences	6

Teaching/Learning

Verbal textual methods (lectures, interviews, written materials), illustrative demonstration (Power point presentations, animations, simulations), the laboratory-experimental autonomous and demonstration exercises mark.

Academic Staff

Over 50 professors are currently employed at the Faculty.

List of academic staff

Name and surname	Title	E-mail	Phone
Slađana Đurić	PhD, Professor, Head of the study program	sdjuric@eunet.rs	+381 11 645 18 58
Ivica Radović	PhD, Professor	ivica.radovic@fb.bg.ac.rs	-

HIGHER TECHNICAL SCHOOL OF PROFESSIONAL STUDIES IN NOVI SAD

SPECIALIST GRADUATE PROFESSIONAL STUDY PROGRAMME
Fire Protection and Rescue in Emergency Situations

Basic data

Risk area: Disaster, fire safety
Since: 2017
Duration of studies: 1 year (2 semesters)
Number of students: 20
Academic title: Specialist professional engineer in Environmental Protection - Fire and rescue
Scope of studies: 60 ECTS
Website: www.vtsns.edu.rs

Description

The Higher Education Technical School of Professional Studies in Novi Sad was founded in 1959 as the Advanced Mechanical Engineering School. Today the School educates a broad array of professionals, starting from mechanical engineering and all fields of protection, through graphics and design, to electrical engineering, informatics, e-business and multimedia. The school is a leading higher education institution of this type, with 14 accredited three-year bachelor degree study programmes and 7 one-year specialist programmes functioning in compliance with the European

educational standards stated in the Bologna Declaration. Titles conferred on the completion of the studies are Bachelor applied and Bachelor applied – specialist, respectively.

The Higher Education Technical School of Professional Studies in Novi Sad has included practice in the form of work placements in its study programmes as an important segment. Students at both basic and specialist applied studies spend the last semester at practical work in an enterprise or institution. School strives to make this practice really good, which is achieved through a careful selection of the partner organization and monitoring of students by a teacher-mentor and co-mentor from the organization. The result of the work placement is experience gaining, material collecting for the diploma project, and it happens that students after the completion of their studies get jobs at very places where they have performed work placements.

The objectives of the Fire Protection and Rescue programme are the acquisition of specialized knowledge and enhanced training to provide specialist for fire expertise and chemical accidents management in rehabilitation. It gives an opportunity for the development and application of models, methods, tools and procedures in the management of fire protection and rescue in emergency situations. Specialist studies should provide theoretical and practical knowledge in the field of national and international standards.

Admission

The study programme prerequisites for the enrolment are completed undergraduate studies with at least 180 ECTS.

Content

List of courses in 1st semester

1st semester	
Course	**ECTS**
Risk management and risk assessment methods	6
Applied modelling methods for experiments	6
Protection in accident situations	8
Elective Course	8
Total ECTS	**28**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Monitoring in protection	6
Theoretical and experimental bases of specialist thesis	6
Vocational engineering practice	5
Specialist thesis	15
Total ECTS	**32**

List of elective courses

Elective Course	ECTS
Disaster management	8
Fire expertise	8

Teaching/Learning

Verbal textual methods (lectures, interviews, written materials), illustrative demonstration (Power point presentations, animations, simulations), the laboratory-experimental autonomous and demonstration exercises mark.

Academic Staff

List of academic staff

Name and surname	Title	E-mail	Phone
Branko Savić	PhD, Professor, Head of the School	direktor@vtsns.edu.rs	+381 21 489 2510
Verica Milanko	PhD, Professor	milanko@vtsns.edu.rs	-
Anita Petrović-Gegić	PhD, Professor	petrovic.a@vtsns.edu.rs	-
Saša Spaić	PhD, Professor	spaic@vtsns.edu.rs	-

BOSNIA & HERZEGOVINA

UNIVERSITY OF SARAJEVO

Faculty of Criminal Justice and Security Studies
Sarajevo, Bosnia & Herzegovina

MASTER ACADEMIC STUDY PROGRAMME
Crisis Management in the Security Sector

Basic data

Risk area: Crisis management
Since: 1993
Duration of studies: 1 year (2 semesters)
Fee: 2.400, 00 KM
Academic title: MSc in Crisis Management in Security Sector
Scope of studies: 60 ECTS
Website: www.masterprogrami.edu.ba

Description

Crisis management deals with the creation of procedures, agreements and decisions that affect the course of the crisis and includes the organization, preparatory measures and the allocation of resources for its master.

Admission

The right of entry to the second cycle of studies have candidates who have completed the appropriate first course of study that evaluated with at least 240 ECTS credits, as well as candidates who have completed their studies at the pre-Bologna curricula, with the obligation of the Faculty / Academy of the planned quotas in the second cycle studies must have at least 50% of seats in relation to the enrollment quota for all departments / courses in the first cycle.

Content

List of courses in 1st semester

1st semester	
Course	**ECTS**
Security management	3
Crisis situations	3
Crisis management	3
Emergency management	6

Crisis communication	6
Research methods and crisis management	6
Human resource crisis	3
Total ECTS	**30**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Final exam	30
Total ECTS	**30**

Assessment must be in accordance with the Bologna principles. Laying partial assessment and final exam is done in the traditional manner.

Teaching/Learning

The program of the second cycle of studies is the study of distance learning.

Distance Learning enables continuous learning via the Internet where students develop professionally at your own pace.

Academic Staff

- Prof. dr. Jasmin Ahić
- Prof. dr. Nadil Berbić
- Prof. dr. Marina Mitrevska
- Doc. dr. Robert Mikac
- Prof. dr. Želimir Kešetović
- Prof. dr. Edina Bećirević

UNIVERSITY OF TUZLA

Faculty of Mining, Geology and Civil Engineering
Tuzla, Bosnia & Herzegovina

MASTER ACADEMIC STUDY PROGRAMME
Security and Assistance

Basic data

Risk area: Security and assistance
Duration of studies: 1 year (2 semesters)
Fee: 2.400, 00 KM

Scope of studies: 60 ECTS
Website: www.rggf.untz.ba

Description

Study program of the second cycle study "Security and Assistance". Program II cycle studies will be of organized through the specified orientation, which will ensure the continuity and upgrading of knowledge and skills acquired through the Undergraduate study program. The main objectives are reflected in the acquisition of new knowledge in the field of science and security assistance and the desire to enable students to further profiling in the profession and to their competence, acquired ending cycle of studies, further expand.

Admission

The right of entry to the second cycle of studies, study program "Security and Assistance", to all persons who have completed undergraduate and security assistance (first cycle) for a period of four years (with achieved 240 ECTS credits).

Foreign nationals and stateless persons have the right to enroll in the study under the same conditions as citizens of B&H. Enrollment in the study is done on the basis of a public competition which is launched and its content is determined by the University Senate in Tuzla on the proposal senate of Mining, Geology and Civil Engineering.

Content

List of courses in 1st semester

1st semester	
Course	**ECTS**
New technologies, tools and equipment for fire protection	8
Protection in electrical networks and installations	7
Modern systems of safety in mining and geology	8
Disaster Management	7
Total ECTS	**30**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Systems general safety	5
Numerical methods and computer applications in security	5
Master's thesis	20
Total ECTS	**30**

Teaching/Learning

Master studies in the study program "Security and assistance" is organized as a regular course.

Academic Staff

Head od section: Dr.sc. Nadil Berbić (nadil.berbic@untz.ba)

UNIVERSITY OF BANJA LUKA

Faculty of Architecture, Civil Engineering and Geodesy
Banja Luka, Bosnia & Herzegovina

MASTER ACADEMIC STUDY PROGRAMME
Structural Engineering

Basic data

Risk area: --
Since: 2016
Duration of studies: 1 year (2 semesters)
Fee: 880, 00 KM
Scope of studies: 60 ECTS
Website: www.aggfbl.org

Description

For the purpose of gaining Master degree in structural engineering students enroll the Master graduate study - structural engineering to be better experts , and License for doing professional work in structural engineering.

Admission

Master graduate study - ***Structural Engineering*** orientation may enroll persons who have completed appropriate undergraduate study with Structural Engineering orientation, thereby gaining 240 ECTS credits.

The Academic University Council shall determine the conditions for admission to the graduate professional study.

Mater graduate professional study may enroll foreign nationals provided Knowledge of the Serbian language and script. Before enrolling, foreign citizens must make process of academic recognition of higher education qualifications and periods studies for the purpose of continuing education, in accordance with the Regulations on Academic Recognition foreign higher education qualifications and periods of study.

Content

List of courses in 1st semester

1st semester	
Course	**ECTS**
Structural Modelling	5
Modern Concrete Composites	5
Plates and Shells	5
Bridges	7
Elective course 1	4
Elective course 2	4
Total ECTS	**30**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Elective course 3	7
Elective course 4	7
Master thesis	16
Total ECTS	**30**

List of elective courses

Elective Course		**ECTS**
Elective Courses 1 and 2		
Aseismic Design and Construction		4
Durability and Assessment of Concrete Structures		4
Engineering Rock Mechanics		4
Operational Research in Civil Engineering		4
Masonry Structures		4
Experimental Structural Analysis		4
Group and title of the elective course		
Theory of Structures		
Elective course 3	Finite Element Method – Advanced Course	7
Elective course 4	Structure Stability	7
Concrete Structures		

Elective course 3	Concrete Construction for Engineering Structures	7
Elective course 4	Pre-stressed Concrete Structures	7
Metal Structures		
Elective course 3	Special Metal Structures	7
Elective course 4	Composite Structures	7
Timber Structures		
Elective course 3	Glued Laminated Structures	7
Elective course 4	Special Timber Structures	7
Structural Damage Repair		
Elective course 3	Structural Damage Repair	7
Elective course 4	**Damage Repair of Timber, Steel and Masonry Structures**	7

Teaching/Learning

Master studies in the study program "**Structural Engineering**" is organized as a regular course.

Academic Staff

Head od section: Dr.sc. Mato Uljarević (muljarevic@aggfbl.org)

MASTER ACADEMIC STUDY PROGRAMME
Hydrotehnical Engineering

Basic data

Risk area: --
Since: 2016
Duration of studies: 1 year (2 semesters)
Fee: 880, 00 KM
Scope of studies: 60 ECTS
Website: www.aggfbl.org

Description

For the purpose of gaining Master degree in Hydrotehnical Engineering students enroll the Master graduate study - Hydrotehnical Engineering to be better experts , and License for doing professional work in Hydrotehnical Engineering.

Admission

Master graduate study - ***Hydrotehnical Engineering*** orientation may enroll persons who have completed appropriate undergraduate study with Hydrotehnical Engineering orientation, thereby gaining 240 ECTS credits.

The Academic University Council shall determine the conditions for admission to the graduate professional study.

Master graduate professional study may enroll foreign nationals provided Knowledge of the Serbian language and script. Before enrolling, foreign citizens must make process of academic recognition of higher education qualifications and periods studies for the purpose of continuing education, in accordance with the Regulations on Academic Recognition foreign higher education qualifications and periods of study.

Content

List of courses in 1st semester

1st semester	
Course	**ECTS**
Structural Modelling	5
Groundwater Resources Exploitation and Protection	5
Hydroelectric Power	5
Drainage and Irrigation Systems	7
Elective course 1	4
Elective course 2	4
Total ECTS	**30**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Elective course 3	7
Elective course 4	7
Master thesis	16
Total ECTS	**30**

List of elective courses

Elective Course	**ECTS**
Elective Courses 1 and 2	
Measurements in Hydrotechnics	4
GIS in Hydrotechnical practice	4
Statistical Hydrology	4
Contemporary Concrete Composites	4
Aseismic Design and Construction	4
Operational Research in Civil Engineering	4

Group and title of the elective course		
Hydrotechnical Engineering Structures		
Elective course 3	Hydrotechnical Structures 2	7
Elective course 4	Engineering Rock Mechanics	7
Water Quality and Treatment		
Elective course 3	Water Supply	7
Elective course 4	Wastewater Treatment	7
River Basin Management		
Elective course 3	Integrated Water Resources Management	7
Elective course 4	**Flood Management**	7
Hydrotechnical Engineering of Transportation Infrastructure		
Elective course 3	Waterways and Ports	7
Elective course 4	Highway Drainage Systems	7

Teaching/Learning

Master studies in the study program "**Structural Engineering**" is organized as a regular course.

Academic Staff

Head od section: Dr.sc. Mato Uljarević (muljarevic@aggfbl.org)

MASTER ACADEMIC STUDY PROGRAMME
Transportation Engineering

Basic data

Risk area: --
Since: 2016
Duration of studies: 1 year (2 semesters)
Fee: 880, 00 KM
Scope of studies: 60 ECTS
Website: www.aggfbl.org

Description

For the purpose of gaining Master degree in Transportation Engineering students enroll the Master graduate study - Transportation Engineering to be better experts , and License for doing professional work in Transportation Engineering

Admission

Master graduate study - ***Transportation Engineering*** orientation may enroll persons who have completed appropriate undergraduate study with Transportation Engineering orientation, thereby gaining 240 ECTS credits.

The Academic University Council shall determine the conditions for admission to the graduate professional study.

Master graduate professional study may enroll foreign nationals provided Knowledge of the Serbian language and script. Before enrolling, foreign citizens must make process of academic recognition of higher education qualifications and periods studies for the purpose of continuing education, in accordance with the Regulations on Academic Recognition foreign higher education qualifications and periods of study.

Content

List of courses in 1st semester

1st semester	
Course	**ECTS**
Structural Modelling	5
Groundwater Resources Exploitation and Protection	5
Hydroelectric Power	5
Drainage and Irrigation Systems	7
Elective course 1	4
Elective course 2	4
Total ECTS	**30**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Elective course 3	7
Elective course 4	7
Master thesis	16
Total ECTS	**30**

List of elective courses

Elective Course	**ECTS**
Elective Courses 1 and 2	
Highway Management	4
Modern Technologies in Transportation Infrastructure	4
Bridges	4

Contemporary Concrete Composites		4
Operational Research in Civil Engineering		4
Aseismic Design and Construction		4
Experimental Structural Analysis		4
Earth-fill and Retaining Structures		4
Group and title of the elective course		
Geotechnical Construction of Highways		
Elective course 3	Underground Structures and Tunnels	7
Elective course 4	Geotechnical Problems in Road Construction	7
Highways		
Elective course 3	Intersections	7
Elective course 4	Parking Structures	7
Railways		
Elective course 3	Urban Track Systems	7
Elective course 4	Railway Reconstruction	7
Hydrotechnical Engineering in Road Construction		
Elective course 3	Highway Drainage Systems	7
Elective course 4	Waterways and Ports	7

Teaching/Learning

Master studies in the study program "**Structural Engineering**" is organized as a regular course.

Academic Staff

Head od section: Dr.sc. Mato Uljarević (muljarevic@aggfbl.org)

MASTER ACADEMIC STUDY PROGRAMME
Construction Project Organization and Technology

Basic data

Risk area: --
Since: 2016
Duration of studies: 1 year (2 semesters)
Fee: 880, 00 KM
Scope of studies: 60 ECTS
Website: www.aggfbl.org

Description

For the purpose of gaining Master degree in Construction Project Organization And Technology students enroll the Master graduate study - Construction Project Construction Project Organization And Technology to be better experts, for doing professional work in Construction Project Organization And Technology

Admission

Master graduate study - ***Construction Project Organization And Technology*** orientation may enroll persons who have completed appropriate undergraduate study with Construction Project Organization And Technology orientation, thereby gaining 240 ECTS credits.

The Academic University Council shall determine the conditions for admission to the graduate professional study.

Master graduate professional study may enroll foreign nationals provided Knowledge of the Serbian language and script. Before enrolling, foreign citizens must make process of academic recognition of higher education qualifications and periods studies for the purpose of continuing education, in accordance with the Regulations on Academic Recognition foreign higher education qualifications and periods of study.

Content

List of courses in 1st semester

1st semester	
Course	**ECTS**
Structural Modelling	5
Operational Research in Civil Engineering	5
Special Management Issues in Civil Engineering	5
Contemporary Concrete Composites	7
Elective course 1	4
Elective course 2	4
Total ECTS	**30**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Elective course 3	7
Elective course 4	7
Master thesis	16
Total ECTS	**30**

List of elective courses

Elective Course		ECTS
Elective Courses 1 and 2		
International Project Management		4
Hydrotechnical Infrastructure Construction		4
Road Maintenance		4
Aseismic Design and Construction		4
Special Metal Structures		4
Underground Structures and Tunnels		4
Group and title of the elective course		
Project Management		
Elective course 3	Construction Management and Tendering Procedures	7
Elective course 4	Investment Project Management	7
Quality and Risk Management		
Elective course 3	Quality Management in Civil Engineering	7
Elective course 4	**Risk Management of Civil Engineering Projects**	7
Engineering Optimizations in Civil Engineering		
Elective course 3	Optimization Methods in Civil Engineering	7
Elective course 4	Selected topics in Civil Engineering Economics	7
Contemporary Building Technologies		
Elective course 3	Special Construction Technologies	7
Elective course 4	Durability and Assessment of Concrete Structures	7

Teaching/Learning

Master studies in the study program "**Structural Engineering**" is organized as a regular course.

Academic Staff

Head od section: Dr.sc. Mato Uljarević (muljarevic@aggfbl.org)

MASTER ACADEMIC STUDY PROGRAMME
Geotechnical Engineering

Basic data

Risk area: --
Since: 2016
Duration of studies: 1 year (2 semesters)
Fee: 880, 00 KM
Scope of studies: 60 ECTS
Website: www.aggfbl.org

Description

For the purpose of gaining Master degree in Geotechnical Engineering students enroll the Master graduate study - Construction Project Geotechnical Engineering to be better experts , and License for doing professional work in Geotechnical Engineering.

Admission

Master graduate study - **Geotechnical Engineering** orientation may enroll persons who have completed appropriate undergraduate study with Geotechnical Engineering orientation, thereby gaining 240 ECTS credits.

The Academic University Council shall determine the conditions for admission to the graduate professional study.

Master graduate professional study may enroll foreign nationals provided Knowledge of the Serbian language and script. Before enrolling, foreign citizens must make process of academic recognition of higher education qualifications and periods studies for the purpose of continuing education, in accordance with the Regulations on Academic Recognition foreign higher education qualifications and periods of study.

Content

List of courses in 1st semester

1st semester	
Course	**ECTS**
Structural Modelling	5
Engineering Rock Mechanics	5
Geotechnical Engineering	5
Geotechnical Laboratory	7
Elective course 1	4
Elective course 2	4
Total ECTS	**30**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Elective course 3	7
Elective course 4	7
Master thesis	16
Total ECTS	**30**

List of elective courses

Elective Course		**ECTS**
Elective Courses 1 and 2		
Applied Soil Mechanics		4
Underground Structures and Tunnels		4
Applied Geology		4
Bridges		4
Contemporary Concrete Composites		4
Operational Research in Civil Engineering		4
Aseismic Design and Construction		4
Experimental Analysis of Structures		4
Group and title of the elective course		
Geotechnical Engineering and Stability		
Elective course 3	Soil Mechanics	7
Elective course 4	**Geohazards**	7
Geotechnical Design		
Elective course 3	Geotechnical Engineering Project	7
Elective course 4	Field Testing and Observations	7
Physical-Mechanical Properties of Soil and Rocks		
Elective course 3	Flow Processes in Soil and Rocks	7
Elective course 4	Soil and Rocks Reinforcement	7
Foundation Design		
Elective course 3	Complex Foundation Design	7
Elective course 4	Foundation Pit Protection	7
Geotechnical Engineering Structures		
Elective course 3	Earth-Fill and Retaining Structures	7
Elective course 4	Geotechnical and Environmental Engineering	7

Teaching/Learning

Master studies in the study program "**Structural Engineering**" is organized as a regular course.

Academic Staff

Head od section: Dr.sc. Mato Uljarević (muljarevic@aggfbl.org)

Faculty of Mechanical Engineering
Banja Luka, Bosnia & Herzegovina

SPECIALIST GRADUATE PROFESSIONAL STUDY PROGRAMME
Specialist Graduate Professional Study of Safety

Basic data

Risk area: Safety at work
Since: 2009
Duration of studies: 2 year (4 semesters)
Academic title: Master of mechanical engineering, study program Safety on work
Scope of studies: 120 ECTS
Website: www.mf-bl.com

Description

Study is organized as a regular through lectures, exercises (auditory and laboratory), homework assignments (projects, seminar papers) and professional visits to industrial facilities. During classes, planned exams are being performed. All exams are both written and oral. Academic Council of the faculty establishes commission for each master thesis, on whose proposal the thesis is being approved and the mentor assigned. Completed thesis is being examined by the same (or extended) commission on whose proposal the Council appoints defending of the thesis.

Through optional subjects and master thesis, the student can be directed on Fire protection module being displayed in Annex of diploma by means of list of passed exams and the master thesis title.

Admission

On this study program can be enrolled person with obtained academic degree from faculty of mechanical engineering or similar technical faculty which in terms of name, program and volume meets academic study of mechanical engineering (180 ECTS).

Content

List of courses in 1st semester

1st semester	
Course	**ECTS**
Ergonomic designing	5

Chemistry in industrial systems	5
Transport and storage of dangerous matters	5
Elective course 1	5
Elective course 2	5
Elective course 3	5
Total ECTS	**30**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Safety in technological systems	5
Safety in internal transport	5
Safety in internal transport	5
Elective course 4	5
Elective course 5	5
Elective course 6	5
Total ECTS	**30**

List of courses in 3rd semester

3rd semester	
Course	**ECTS**
Technical expertise	6
Toxicology	5
Safety of equipment and products	5
Elective course 7	4
Elective course 8	4
Elective course 9	4
Laboratory work	2
Total ECTS	**30**

List of courses in 4th semester

4th semester	
Course	**ECTS**
Master thesis	30
Total ECTS	**30**

List of elective courses

Elective Course	ECTS
Elective Courses 1, 2 and 3	
Electromagnetic radiation	5
Comfort of working environment	5
Process of uncontrolled combustion	5
Pressurized facilities and installations	5
Elective Courses 4, 5 and 6	
Maintenance of technical assets	5
Microbiology	5
Psychophysiology of work	5
Systems and assets for fire fighting	5
Elective Courses 7, 8 and 9	
Biomechanics	4
Equipment for intervention and rescuing	4
Designing systems for fire protection	4
Methodology of scientific-research work	4

Teaching/Learning

Verbal textual methods (lectures, interviews, written materials), illustrative demonstration (Power point presentations, animations, simulations), the laboratory-experimental autonomous and demonstration exercises mark..

Academic Staff

Prof. dr Branislav Anđelković

Prof. dr Snezana Petković

Prof. dr Mladen Todić

Prof. dr Miroslav Rogić

Prof. dr Milan Tica

Prof. dr Mićo Gaćanović

Prof. dr Pero Petrović

Prof. dr Zdravko Milovanović

Prof. dr Miroslav Petković

Prof. dr Valentina Golubović-Bugarski

Prof. dr Gordana Globočki

ALBANIA

AGRICULTURE UNIVERSITY OF TIRANA

Faculty of Agriculture and Environment
Department of Agro-Environment and Ecology
Tirana, Albania

MASTER ACADEMIC STUDY PROGRAMME
Renewable Energy

Basic data

Risk area: Environmental Impact and Climate Change
Duration of studies: 2 years (4 semesters)
Number of students: 10
Academic title: Master of Science (MSc) in Renewable Energies
Scope of studies: 120 ECTS
Website: www.ubt.edu.al

Description

The Scientific master Programme "Renewable Energy" consists of two terms of course studies and a thesis. The course studies concern the attendance of and the successful examination in Master of Science courses. Each individual course lasts a semester. Instruction in the courses includes lectures, seminar, workshops and projects. Participation of students during the lecture is obligatory 80%. Participation of students during the seminar is obligatory 80%. Workshops and exercises constitute a crucial element of learning. The preparation of a thesis, which concerns a specialised study, takes place in the summer period, following the spring semester.

The Department of Agro-Environment and Ecology was established in 2001. Through teaching and scientific programs offered in this department, students are expected to gather the main concepts of ecology and their relationship with other disciplines, protection and sustainable management of land resources, water and natural resources, and different practices for sustainable environmental development in the country and the region.

Admission

Acceptance of applications for entry in the postgraduate programme of specialization "Renewable Energy" is subject to the Greek national legislation. Priority is given to agro-environmental engineering graduates and next to graduates from other environmental engineering and related-subject disciplines.

Content

List of courses in 1st semester

1st semester	
Course	**ECTS**
Renewable Energy Systems	6
Scientific Methods	6
Environmental Impact and Climate Change	6
Economy, trade and energy policy	6
Advanced energy technologies	6
Total ECTS	**30**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Physical Cycle Assessment of bioenergy and industrial plants – LCA	6
Energy scenarios (LEAP)	6
Energy Waste Treatment	6
Elective course	12
Total ECTS	**30**

List of courses in 3rd semester

3rd semester	
Course	**ECTS**
Thermal and photovoltaic solar plants	6
Bio energy	6
Wind, Hydro and Geothermal	6
Elective course 1	6
Elective course 2	6
Total ECTS	**30**

List of courses in 4th semester

4th semester	
Course	**ECTS**
Scientific Master thesis	30
Total ECTS	**30**

POLYTECHNIC UNIVERSITY OF TIRANA

Faculty of Civil Engineering
Tirana, Albania

PROFESSIONAL MASTER STUDY PROGRAM
Environmental Engineering

Basic data

Risk area: Risk assessment
Duration of studies: 2 years (4 semesters)
Number of students: 30
Scope of studies: 90 ECTS
Website: www.fin.edu.al

Description

The Postgraduate Programme "Environmental Engineering" consists of two terms of course studies and a thesis. The course studies concern the attendance of lectures and seminars and the successful examination in professional master courses. Each individual course lasts a semester. Instruction in the courses includes lectures, laboratory work, elaboration and presentation of projects and seminars. The preparation of a thesis, which concerns a specialised study, takes place in the spring semester.

Admission

Acceptance of applications for entry in the professional master programme of specialization "Environmental Engineering" is subject to the Albanian national legislation. Priority is given to Environmental Engineering graduates and next to graduates from other engineering, and related-subject disciplines.

Content

List of courses in 1st semester

1st semester	
Course	**ECTS**
Works of hydro energy extinction	5
Erosion	5
Water treatment technologies	8
G.I.S. (Environmental Map)	4
Renewable Energy	5
Total ECTS	**27**

List of courses in 2nd semester

2nd semester	
Course	**ECTS**
Waste treatment technologies	5
Pollution associated with energy	5
Rational use of energy	5
Water supply and sewerage	6
Risk assessment	4
Civil protection	4
Communication and expression techniques	4
Total ECTS	**33**

List of courses in 3rd semester

3rd semester	
Course	**ECTS**
Professional practice	15
Total ECTS	**15**

List of courses in 4th semester

4th semester	
Course	**ECTS**
Master thesis	15
Total ECTS	**15**

CONCLUSION

The Report 1.1 - part I gives an overview on master programs related to the Disaster Risk Management and Fire Safety Engineering area there are being offered in K-FORCE project's Partner countries - Serbia, Bosnia & Herzegovina and Albania. A list of all master programs which related to the area was compiled, even though their title was not specifically "Disaster Risk Management and/or Fire Safety Engineering". Therefore, MPs in the field of Civil Engineering, Environmental Protection, Sustainable development and Climate Change, Environmental Engineering and other related fields have been listed. Besides this, list of Professional studies in Serbia, as well as in Bosnia & Herzegovina was provided within this report.

The survey of available master study programs in the field of Disaster Risk Management and Fire Safety Engineering was done based on latest information about accredited study programs on Ministries of higher education web-sites.

In Serbia, 3 master academic study programs fully focused on DRM&FSE were found. There is one master academic programme implemented at University of Novi Sad (*Disaster Risk Management and Fire Safety*) and two master programs in University of Niš (*Emergency Management and Fire Protection Engineering*). Also, there is also one 1st level – bachelor academic study program, *Disaster Risk Management and Fire Safety,* at University of Novi Sad.

Disaster Risk Management and Fire Safety programme at University of Novi Sad fully covers the field related to the study of natural disasters and fires, monitoring, measures for their prevention and mitigation of consequences.

Other study programs curricula are different, but subjects' common ground is that they are dedicated to teaching the students to deal with the consequences, instead the disaster and fire prevention. The majority of programs are in *fire protection* field, and there is a lack of subjects treating *fire risks* theory and *fire safety* issues. Preventive measures are treated only as prescriptive ones; although contemporary *fire safety engineering* is about performance based measures, risk theory and engineering judgment.

Very few programs are in the *emergency situations* or *civil protection* field. However, there is also one master study programme implemented at University of Belgrade, where crisis management in various areas and security measures are studied, and one elective group studies the field of emergency situations.

Regarding the professional studies, there are 3 specialist study programs or modules in Serbia - *Fire Protection and Rescue in Emergency Situations*, *Occupational safety - Fire Protection* and *Rescue and Fire Protection*.

In Bosnia & Herzegovina, 2 master study programs that include subjects dedicated to DRM&FSE were found – at University of Sarajevo and University of Tuzla. These subjects are manly concerned with Crisis and emergence management, as well as new technologies, tools and equipment for fire protection. Also, there are several curriculums offering thematic areas related to the risk of catastrophic events and fire at University of Banja Luka (Civil Engineering study program, primarily

through courses which belong to Department of Materials and Structures, Department of geotechnical engineering, Department of hydraulic engineering).

Regarding the professional studies, there is one specialist study programme in Bosnia & Herzegovina - Specialist Graduate Professional Study of Safety in Banja Luka.

There are no higher education study programs in the field of Disaster Risk Management and Fire Safety Engineering in Albania. However, at Polytechnic University of Tirana, within Environmental Engineering master programme, there is one subject dedicated to Disaster Management, mainly concerned with environmental impact and climate change scenarios. At Agriculture University of Tirana, within MP Renewable Energies, there is one subject dedicated to Disaster Management, mainly concerned with environmental risk, and environmental management.

Climate change, fast urbanization and new technologies, in interaction with irresponsible human activities, cause the need for multidisciplinary and interdisciplinary engineering competences, knowledge and skills. Considering these, available higher education is insufficient and unsustainable at regional level without modernizing and further development.

The survey of available master study programs in the field of Disaster Risk Management and Fire Safety Engineering showed that there are an insufficient number of master degree programs in Balkan region. Number of graduates is insufficient for regional or national needs. Consequently, there is a need for experts who are competent to operate in all phases of the catastrophic events and that are able to solve problems in the field. Also, there is a need for education of competitive experts who will be able to create a sustainable financial plan for disaster preparedness and preventive measures, according to regional economy recourses. At this moment, existing higher education programs do not meet the mentioned WB countries' needs for qualified staff. Moreover, disaster risk management basic terminology in Balkan languages does not exist in curricula.

In order to improve regional resilience to hazards and capability for regional cooperation in risk prevention and response, it is necessary to provide the required number of multidisciplinary experts by modernizing and developing higher education at the regional higher education institutions in subject field. It also includes continuous professional development of employees in DRM&FSE sector in WB countries, through creation and implementation of certified LLL courses for practitioners. Aim is to build regional-based disaster preparedness and a culture of safety and resilience at all levels according to EU Integration Strategies and National relevant strategies.

The Balkan's higher education institutions (HEIs) need to assess the level and quality of HEIs capacity (infrastructure, facilities, laboratories, workforces etc.) in this field and to identify the key competences, knowledge and skills necessary for contemporary practice and future needs. It will help harmonization of new programs content with the Region's needs. Acquired knowledge in the field of Disaster Risk Management and Fire Safety Engineering will provide the base for building a resilient society.

APPENDIX

List of Master programmes in Disaster Risk Management and Fire Safety Engineering (DRM&FSE) filed in Serbia

STUDY PROGRAMME	HIGHER EDUCATION INSTITUTION	CITY	RISK AREA
Disaster Risk Management and Fire Safety	University of Novi Sad Faculty of Technical Sciences Novi Sad	Novi Sad	Interdisciplinary, Environmental and occupational safety engineering; Civil engineering; Industrial engineering and management
Emergency Management	University of Niš Faculty of Occupational Safety in Niš	Niš	Interdisciplinary, Environmental and occupational safety engineering; Civil engineering; Industrial engineering and management
Fire Protection Engineering			Field technical and technological sciences; fire risk and hazards, protection systems
Security Studies	University of Belgrade Faculty of Security Studies	Belgrade	Humanities faculties

List of Bologna 2nd level Professional studies (Specialist) in Disaster Risk Management and Fire Safety Engineering (DRM&FSE) filed in Serbia

STUDY PROGRAMME	HIGHER EDUCATION INSTITUTION	CITY	RISK AREA
Fire Protection and Rescue in Emergency Situations	Higher Technical School of Professional Studies in Novi Sad	Novi Sad	Disaster, fire safety
Occupational safety - Fire Protection and Rescue	Tehnikum Taurunum, Higher Engineering School of Professional Studies www.tehnikum.edu.rs	Zemun	Fire safety
Fire Protection	Higher Technical School of Professional Studies vts-zvecan.edu.rs	Zvečan	Fire safety

List of Master programmes (MP) and Specialist graduate professional study programmes (SGPP) related to DRM&FSE filed in Bosnia & Herzegovina

STUDY PROGRAMME	HIGHER EDUCATION INSTITUTION	CITY	RISK AREA
MP Crisis Management in the Security Sector	University of Sarajevo Faculty of Criminal Justice and Security Studies	Sarajevo	Crisis management
MP Security and Assistance	University of Tuzla Faculty of Mining, Geology and Civil Engineering	Tuzla	Security and assistance
MP Structural Engineering	University of Banja Luka Faculty of Architecture, Civil Engineering and Geodesy	Banja Luka	-
MP Hydrotehnical Engineering			-
MP Transportation Engineering			-
MP Construction Project Organization and Technology			-
MP Geotechnical Engineering			-
SGPP of Safety	University of Banja Luka Faculty of Mechanical Engineering		Safety at work

List of Master programmes (MP) related to Disaster Risk Management and Fire Safety Engineering (DRM&FSE) filed in Albania

STUDY PROGRAMME	HIGHER EDUCATION INSTITUTION	CITY	RISK AREA
Professional MP in Environmental Engineering	Department of Civil Engineering Polytechnic University of Tirana	Tirana	Risk assessment
Master of Science (MSc) in Renewable Energies	Department of Agro-Environment and Ecology Agriculture University of Tirana		Environmental Impact and Climate Change