



REPORT ON HARMONIZATION OF TEACHING ENVIRONMENT WITH EU BEST PRACTICES

Project number: 573806-EPP-1-2016-1-RS-EPPKA2-CBHE-JP

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List of abbreviations

HEI	Higher Education Institution
KPA	Academy of Criminalistics and Police Studies
NatRisk	Development of master curricula for natural disasters risk management in Western Balkan countries
TCASU	Technical College of Applied Sciences Urosevac with temporary seat in Leposavic
UBL	University of Banja Luka
UNI	University of Nis
UNID	University of Defence in Belgrade
UNSA	University of Sarajevo
UPKM	University of Pristina in Kosovska Mitrovica

1 Introduction

Report on harmonization of teaching environment with EU best practices is part of work package 2 “Development of master curricula” and activity A2.5 “Harmonization of teaching environment with EU best practices and purchasing of laboratory equipment and literature” 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).

A major financial part of the NatRisk project was the purchase of the necessary laboratory and teaching equipment, software and related literature. Table 1 presents the realized budget per WB partner HEI.

The reason behind the purchase of equipment was to use it intensively for project related activities such as:

- Implementation of master curricula (WP4.2),
- Implementation of trainings for citizens and public sector (WP4.4).

The equipment and the literature will be used after the project as part of activities in teaching and learning process at the benefiting WB HEIs.

In order to evaluate the purchase and installation of the equipment, the following activities were conducted:

- receipt of property register with the respective equipment items and books from each WB HEI,
- pictures of equipment items and literature were taken,
- protocol was signed with a confirmation signature on the receipt/installment of the full equipment that had been purchased and the integration of it into the property register,
- Erasmus+ stickers were put on the IT equipment, which is obligatory according to the EACEA Guidelines.

According to the Guidelines for the Use of the Grant, the beneficiary i.e. WB HEIs shall retain with project accounts:

- All invoices for all equipment declared costs
- Proofs of payment (bank statement)
- Proofs of tendering procedure for purchases above EUR 25,000
- Proof that VAT is not deductible (if VAT exemption is not obtained and VAT costs are charged to the project budget)
- Registration in the inventory registry

Table 1. Realized budget

No	HEI	Type	Budget (EUR)	Total (EUR)
1	University of Nis	Teaching equipment	39,399.40	69,395.75
		Software	11,712.92	
		Books	1,297.67	
		Laboratory equipment	16,985.76	
2	Academy of Criminalistics and Police Studies	Teaching equipment	12,857.42	35,333.56
		Software	22,476.14	
3	University of Pristina in Kosovska Mitrovica	Teaching equipment	26,307.39	33,044.55
		Software	6,737.16	
4	Technical College of Applied Sciences Urosevac with temporary seat in Leposavic	Teaching equipment	19,432.24	24,026.50
		Software	4,594.26	
5	University of Sarajevo	Teaching equipment and software	30,909.64	32,407.21
		Books	1,497.57	
6	University of Banja Luka	Teaching equipment and software	26,947.64	28,444.42
		Books	1,496.78	
7	University of Defence in Belgrade	Teaching equipment	31,556.19	33,469.44
		Software	898.62	
		Books	1,014.63	
TOTAL				256,121.43

Since it was planned to make three public procurements of equipment (Serbia for UNI, UNID, and KPA, Kosovo* for UPKM and TCASU, Bosnia and Herzegovina for UBL and UNSA) three specifications of equipment, software and literature were made. When the most affordable bid

was selected, each HEI signed a separate contract with the supplier and paid for its share of the equipment in order to receive a separate invoice and introduced the equipment in the inventory books of its HEI. All equipment purchased on the project were exempted from taxes and custom duties, so each WB HEI asked for exemption of taxes and custom duties at competent institutions. The moment when the HEI got its equipment, it introduced it in the inventory registry as its own property and appoints a person in charge of its maintenance.

All materials such as the Call for bids and Tender documentation related to public procurement are publically available at the NatRisk website (<http://www.natrisk.ni.ac.rs/activities?id=34>) while at the NatRisk platform documentation such as invoices, proof of payment, proof of tendering procedure for purchases above EUR 25,000, proof that VAT is not deductible, inventory numbers, and photos are available.

2 Purchased equipment

2.1 University of Nis (UNI)

As part of the equipment purchase for the implementation of the international project "Development of master curricula for natural disasters in the Western Balkan countries" (NatRisk WeB, No. 573806-EPP-1-2016-1-RS-EPPKA2-CBHE-JP; European program Erasmus +), the University of Nis (Faculty of Civil Engineering and Architecture) acquired certain computer equipment, meteorological station, software and numerous professional literature with more than 26 books.

The aforementioned equipment will be used for the establishment and equipping of the laboratory for hydroinformatics, with the aim of improving the teaching and scientific processes at the Master's Degree Program under the title „Engineering Management for Natural Disasters Risk“, whose accreditation is being prepared. The laboratory should provide the student training for using the modern IT technologies and software in the analysis and management of natural disasters, as well as for effective decision making in case of natural disasters, and the results of scientific research will be published in international scientific journals. In order to obtain a more realistic view of natural disasters, the meteorological station, oculus rift and 3D printer will have a special role together with the software packages Surfer, Didger, ArcGIS, IBM SPSS and XLSTAT.

The plan is that together with the education of students on Master Studies, training should also be established through special workshops for the civil sector. The main aim is that students and participants have the opportunity to obtain the necessary information and knowledge for analyzing and managing natural disaster, in accordance with the best EU practice.

Table 2. Software

No	Title	Quantity
1	Surfer 14 LIC	1
2	Grapher 12 LIC	1
3	Didger 5 LIC	1
4	MapViewer 8 LIC	1
5	CorelDRAW Graphics Suite 2017 Single User License, edu licence	1
6	Esri ArcGIS for Desktop Advanced Teaching & Research Lab Kit 10.5 (Concurrent Use)	1
7	Esri ArcGIS Spatial Analyst Teaching & Research Lab Kit 10.5 (Concurrent Use)	1
8	Esri ArcGIS Geostatistical Analyst Teaching & Research Lab Kit 10.5 (Concurrent Use)	1

9	IBM SPSS Statistics premium, version 24	1
10	XLSTAT-Forecast	1
11	Minitab 17	1
12	MathType LIC	1
13	Adobe Photoshop CC Subscription EDU Named 3YR Adobe LIC	1
14	VisioPro 2016 SNGL NL AE Microsoft OLP LIC	1
15	Matlab - Statistics and Machine Learning Toolbox	1

Table 3. Teaching equipment

No	Manufacturer and model	Quantity	Type of the equipment
1	Notebook-HP NOT 250 G5 i3-5005U, 4G, 500GB, Win10 Pro	6	IT equipment - notebook computer
2	Fujitsu desktop and monitor 24"- i3, 8GB, 500GB, win10, Office H&S, AV ES Nod	15	IT equipment - desktop computer
3	Dell server PowerEdge T430	2	IT equipment - server
4	Kingston KTM-SX316/16GB	8	IT equipment - server component
5	Vivitek Projector DX881ST, plate Short Throw Vivitek DX881 ST + Avtek Easy Mount + Avtek Video 200	1	Audio, Video and Communication equipment - projector
6	Projector - Vivitek DS234	1	Audio, Video and Communication equipment - projector
7	Interactive table - 85" iboard	1	IT equipment - smart board
8	Wireless presenter - LOGITECH Cordless	2	Audio, Video and Communication equipment - other
9	Magnetic whiteboard 120x180	1	Assistive technology equipment
10	Flipchart table 70 x 103	1	Assistive technology equipment
11	Tablet Acer B1-850 8", QC MT8163/1GB/16GB/GPS/Android	2	IT equipment - tablet computer
12	Smart LCD TV 55" PANASONIC LED Smart, FHD, WiFi, DVB	1	Audio, Video and Communication equipment - TV

13	Projector mini pocket LG PH300	1	Audio, Video and Communication equipment - projector
14	Dron - Phantom 4 Standard	1	Audio, Video and Communication equipment - photo equipment
15	Develop Ineo 226	1	IT equipment - printers, scanners, multifunctional devices
16	GoPro HD herp 5	1	Audio, Video and Communication equipment - photo equipment
17	HP Color laser jet M176n	1	IT equipment - printers, scanners, multifunctional devices
18	MUSTEK SCANEXPRESS A3 2400S	1	IT equipment - printers, scanners, multifunctional devices
19	Canyon stereo CNS-HHP3	15	Audio, Video and Communication equipment - other
20	Genius SP-HF1800A 2.0	2	Audio, Video and Communication equipment - other
21	Wireless router model DIR-809 D-Link	1	IT equipment - network devices
22	Oculus Rift + Leap Motion Oculus Touch	1	Audio, Video and Communication equipment - other
23	LulzBot TAZ 3D Printer, v6.0 Boxed for Retail EU edition	1	IT equipment - printers, scanners, multifunctional devices
24	HDD External 3.5" 2TB WD 8MB GLAN USB 3.0 My Cloud	1	IT equipment - other

Table 4. Books

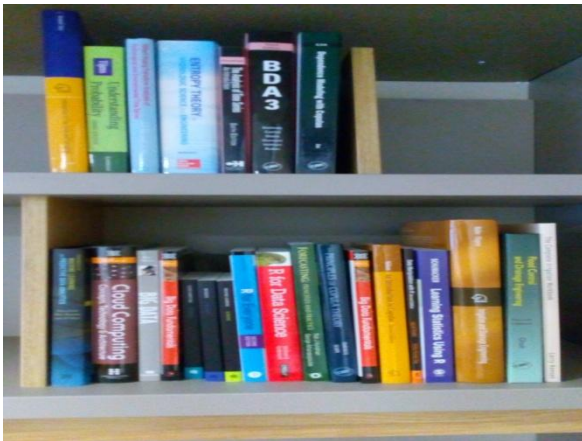
No	Title	Quantity
1	Chris Chatfield, The Analysis of Time Series: An Introduction, 2003, ISBN 978-1584883173	1
2	Larry E. Keesen, The Complete Irrigation Workbook: Design, Installation, Maintenance and Water Management, 2013, ISBN 978-1482778250	1
3	Peter Waller, Muluneh Yitayew, Irrigation and Drainage Engineering, 2015, ISBN 978-3319056982	1
4	S.N. Ghosh, Flood Control and Drainage Engineering, 2014, ISBN 978-1138026278	1

5	Roger B. Nelsen, An Introduction to Copulas (Springer Series in Statistics), 2007, ISBN 978-0387286594	1
6	Hilbert-Huang Transform Analysis of Hydrological and Environmental Time Series, 2008, 978-1402064531	1
7	Vijay Singh, Entropy Theory in Hydrologic Science and Engineering , 2015, ISBN 978-0071835466	1
8	H. Tijms, Understanding probability, 2007, ISBN 978-1107658561	1
9	Rob J. Hyndman, George Athanasopoulos, Forecasting: principles and practice, 2013, ISBN 978-0987507105	1
10	Peter J. Brockwell, Richard A. Davis, Introduction to Time Series and Forecasting, 2010, ISBN 978-0387953519	1
11	Andrew Gelman, John B. Carlin, Hal S. Stern, David B. Dunson, Aki Vehtari, Donald B. Rubin, Bayesian Data Analysis, 2013, ISBN 978-1439840955	1
12	Hadley Wickham, Garrett Grolemund, R for Data Science: Import, Tidy, Transform, Visualize, and Model Data, 2017, ISBN 978-1491910399	1
13	John D. Kelleher, Brian Mac Namee, Aoife D'Arcy, Fundamentals of Machine Learning for Predictive Data Analytics: Algorithms, Worked Examples, and Case Studies, 2015, ISBN 978-0262029445	1
14	Ethem Alpaydin, Machine Learning: The New AI, 2016, ISBN 978-0262529518	1
15	Jeffrey Pomerantz, Metadata, 2015, ISBN 978-0262528511	1
16	Nayan B. Ruparelia, Cloud Computing, 2016, ISBN 978-0262529099	1
17	Thomas Erl, Ricardo Puttini, Zaigham Mahmood, Cloud Computing: Concepts, Technology & Architecture, 2013, ISBN 978-0133387520	1
18	Harry Joe, Dependence Modeling with Copulas, 2014, ISBN 978-1466583221	1
19	Fabrizio Durante, Carlo Sempi, Principles of Copula Theory, 2015, ISBN 978-1439884423	1
20	Jared P. Lander, R for Everyone: Advanced Analytics and Graphics, 2013, ISBN 978-0321888037	1
21	Randall E. Schumacker, Learning Statistics Using R, 2014, ISBN 978-1452286297	1
22	Jaynal Abedin, Kishor Kumar Das, Data Manipulation with R - Second Edition, 2015, ISBN 978-1785288814	1
23	Thomas Erl, Wajid Khattak, Paul Buhler, Big Data Fundamentals: Concepts, Drivers & Techniques, 2016, ISBN 978-0134291079	1
24	Nathan Marz, James Warren, Big Data: Principles and best practices of scalable realtime data systems, 2015, ISBN 978-1617290343	1
25	Vujica Yevjevich, Probability and Statistics in Hydrology, 1972, ISBN 978-0918334008	1
26	Vujica Yevjevich, Structure of Daily Hydrologic Series, 1984, ISBN 978-0918334558	1

Table 5. Laboratory equipment

No	Manufacturer and model	Quantity
1	Humidity and Temperature Probes 2m cable RHT 175	1
2	Air temperature PT100 1/5DIN 2m cable PT100/5	1
3	PT100 1/5DIN 5m cable PT100/5	3
4	Compact Wind direction sensor 4.3129.60.173	1
5	Compact Wind speed sensor 4.3519.00.000	1
6	Solar Radiation Sensor CMP6_2m	1
7	Atmospheric pressure sensor MSB 181	1
8	Rain Gauge MR3H	1
9	Meteorological Mast MM10 10m height MM10F	1
10	Cross arm (meteo sensors) MM-CM	1
11	Cross arm (wind sensors) MM-CW	1
12	Radiation Shield for Air Temperature Sensor MetCover3	1
13	Radiation Shield for Ground Temperature Sensor MetCoverGND	1
14	Pedestal for rain gauge (1m) MM1R	1
15	Phreatimeter -Water level indicator with temperature sensor and bottom-hole indicator FRT-50	1
16	PL-MBDA2 Main Board	1
17	PL-LC Case LC	1
18	PL-DSP Display with touchscreen	1
19	Industrial secure digital card 1GB SDC1G	2
20	AMS111 basic meteo software PL-SWBM	1
21	IP66 Protective Case MWT_CIP661	1
22	PL-PTA Connection terminal	1
23	GSM modem module with antenna GC-864C2	1
24	Power supply with charger 50W 12V SCP-50-12	1
25	SurgeDIN Overvoltage protection	1

26	Transformer MR-TR40P	1
27	Backup battery 7 Ah MR-BT7	1
28	IMS 4.0 Lite IMS/L	1



2.2 Academy of Criminalistics and Police Studies (KPA)

As part of the equipment purchase for the implementation of the international project "Development of master curricula for natural disasters in the Western Balkan countries" (NatRisk, No. 573806-EPP-1-2016-1-RS-EPPKA2-CBHE-JP; European program Erasmus+), the Academy of Criminalistic and Police Studies in Belgrade acquired certain computer equipment (15 computers, 1 projector and the so-called smart board). Specialized software "XVR Simulation Platform - XVR on Scene Instructor Permanent License" was also purchased, making the Academy one of the few institutions in this part of the international region that possesses such software.

The aforementioned equipment will be used for: lectures and exercises at the master program under the title "Natural Disasters Security Risk Management", whose accreditation is being prepared; development of human, material and technical resources for teaching at this study program; simulation of tactical and technical scenarios during natural disasters in a virtual environment, in order to carry out teaching activities in situations that are very similar to real

ones; training of students to effectively make decisions in case of natural disasters; carrying out scientific research whose results will be published in scientific journals; and the creation of preconditions for the laboratory of the Academy equipped with these resources to become an auxiliary headquarters for emergency situations of the Republic of Serbia and the City of Belgrade.

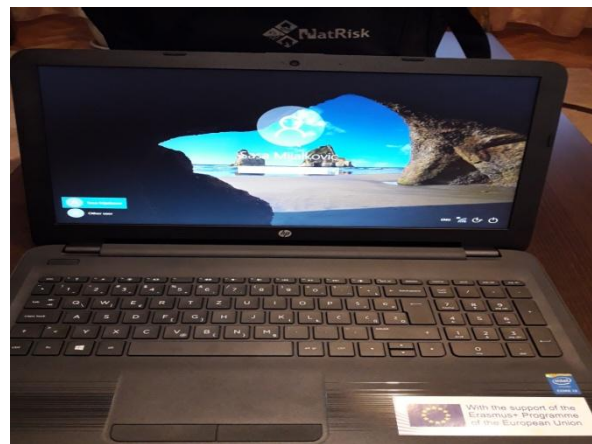
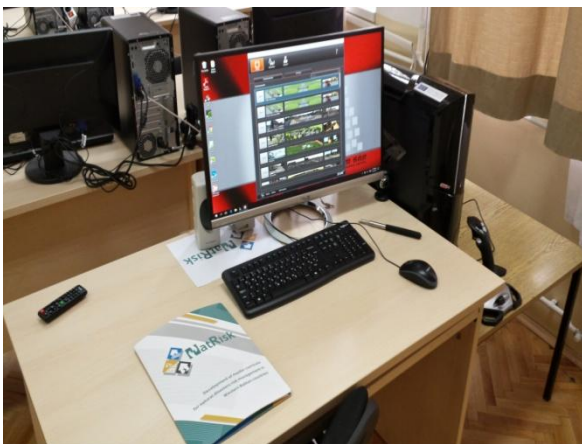
In addition to education for the purpose of managing the security risks of natural disasters, this office has all the capacities for the professional development of members of the various lines of work of the Ministry of the Interior of the Republic of Serbia, primarily the Emergency Situations Department, the Police Directorate, the Criminal Police Directorate, the Border Police, the Traffic Police, National Criminalistic-Technical Centre and others.

Table 6. teaching equipment

No	Manufacturer and model	Quantity	Type of the equipment
1	HP Prodesk 490 G3 MT i3-6100 4G,500 Win10 Pro+ HP monitor 21 V213a 20.7"	11	IT equipment - desktop computer
2	Desktop and monitor 24" and periphery devices	1	IT equipment - desktop computer
3	Printer HP Color laser jet M176n	1	IT equipment - printers, scanners, multifunctional devices
4	HP NOT 250 G5 i3-5005U,4GB,500 GB, Win 10 P	3	IT equipment - notebook computer
5	Projector Vivitek DS234	1	Audio, Video and Communication equipment - projector
6	Interactive table - 85" iboard	1	IT equipment - smart board

Table 7. Software

No	Title	Quantity
1	XVR Simulation Platform XVR On Scene Instructor Permanent Licence	1



2.3 University of Defence (UNID)

One of the goals of the University of Defence in Belgrade is the development of the Center for training of the subjects of the system of protection and rescue from natural and other disasters, through courses and other forms of trainings.

Within the framework of NatRisk project and approved funds, a tender was organized and computer equipment and software for equipping one classroom (cabinet, laboratory) were purchased.

Computer equipment and software are designed to enhance and modernize teaching process at the University of Defence in the field of Risk Management in case of natural disasters and harmonization of teaching environment with the EU best practices.

The aim is to create conditions for the realization of classes with students of Master Academic Studies, courses and other forms of training in a modern equipped area and with appropriate software in the field of Risk Management in case of natural disasters.

In that way, students and courses participants (citizens' and public sector) will have the opportunity, in accordance with the best EU practice, to acquire the necessary knowledge for the transparent and efficient management of the risk of natural disasters, in order to apply the acquired knowledge and to improve the existing system of protection and rescue upon completion of studies and courses.

Table 8. Software

No	Title	Quantity
1	CorelDRAW Graphics Suite X8 Single User License, edu licence	1
2	Adobe Photoshop CC, single user, edu licence	1
3	Microsoft Visio Professional 2016, single user OLP NL Acdmc licence	2

Table 9. Teaching equipment

No	Manufacturer and model	Quantity	Type of the equipment
1	Tower computer Dell Precision Tower 3620 with display P2717H	1	IT equipment - desktop computer
2	Tower computer Dell Optiplex 5040 with two displays Dell E2016H and Dell C5517H	2	IT equipment - desktop computer
3	Tower computer Dell Precision Tower 3620 with display Dell 20 - E2016H	4	IT equipment - desktop computer
4	Tower computer Dell Optiplex 3046 MT with display Dell 20 - E2016H	17	IT equipment - desktop computer
5	Laptop computer Dell Inspiron 5767	3	IT equipment - notebook computer
6	Laptop computer Dell Vostro 5568	5	IT equipment - notebook computer
7	Dell server PowerEdge T430	1	IT equipment - server
8	Projector EPSON EB-965H 3LCD	2	Audio, Video and Communication equipment - projector
9	Projector plate VEGA EL S240	1	Audio, Video and Communication equipment - projector plate
10	Projector plate VEGA CM 25-160	1	Audio, Video and Communication equipment - projector plate

11	Laser printer Brother HLL8250CDN	1	IT equipment - printers, scanners, multifunctional devices
12	Multifunctional device SHARP AR6023D + ARNB7	1	IT equipment - printers, scanners, multifunctional devices
13	Scanner A3 MUSTEK SCANEXPRESS A3 2400S	1	IT equipment - printers, scanners, multifunctional devices
14	Line interactive Vision VST 1500 Riello	15	IT equipment - UPS
15	Extended power cord with multiple ED plugin	5	IT equipment - other

Table 10. Books

No	Title	Quantity
1	Branko Babić, 2013, Integrisani sistem zaštite, Novi Sad, ISBN 978-86-80698-06-9	10
2	Branko Babić, 2017, Sistem zaštite i spasavanja, Novi Sad, ISBN 978-86-80698-05-2	20
3	Miomir Stanković, Suzana Savić, 2012, Teorija sistema i rizika, Akademska misao, Beograd, ISBN 978-86-80698-04-5	10
4	Keković Zoran, Savić Suzana, Komazec Nenad, Milošević Nenad, Jovanović Dragiša, 2011, Procena rizika u zaštiti lica, imovine i poslovanja, ISBN 976-86-84069-59-9	20
5	Bostrom Nik, Ćirković Milan, 2012, Rizici globalnih katastrofa, Heliks, Smederevo, ISBN 978-86-86059-14-7	10



2.4 University of Priština in Kosovska Mitrovica (UPKM)

As part of the equipment purchase for the implementation of the international project "Development of master curricula for natural disasters in the Western Balkan countries" (NatRisk, No. 573806-EPP-1-2016-1-RS-EPPKA2-CBHE-JP; European program Erasmus +), the University of Pristina in Kosovska Mitrovica (UPKM) acquired certain computer equipment and software. The modelling system consists of one main program (AERMOD) and two pre-processors (AERMET and AERMAP). The major purpose of AERMET is to calculate boundary layer parameters for use by AERMOD. AERMET passes all meteorological observations to AERMOD. The AERMIC terrain pre-processor AERMAP uses gridded terrain data to create receptor grids. This program package is important for UPKM as it provides the possibility for modeling of Meteorology and extreme weather conditions in Natural Disasters conditions, as well as a Logistics problem by using the sub-program CAL ROADS View. The HYDRUS-1D Software Package for Simulating the two and three Dimensional Movement of Water, Heat, and Multiple Solutes in Variably-Saturated Media HYDRUS will be used to simulate water flows, water table and water pressure in order to predict the possible floods and to simulate the submerged area, considering the soil type and absorbance.

The aforementioned equipment will be used for: lectures and exercises at the master program under the title "Natural Disaster Risk Management", whose accreditation is being prepared. The

objective is to train the students to use IT in response to natural disasters by using multi media tools, as well as software application for monitoring, analysis, and simulation of natural disasters, training the students to effectively make decisions in case of natural disasters; carrying out scientific research whose results will be published in scientific journals.

In addition to education for the purpose of managing the security risks of natural disasters, this laboratory has all the capacities for the training of the professionals in public and private sectors in the service offered by UPKM through the Lifelong Learning Programme.

Table 11. Teaching equipment

No	Manufacturer and model	Quantity	Type of the equipment
1	Desktop computers Altos Elite, Intel Core i5/8GB/1TB/RX 460 2GB/DVD Motherboard H81, PCIe/DDR3/SATA3/USB3.0/GLAN/7.1 Processor Intel Core i5-4660, 6MB BX, 3.2 GHz, Memory 8 GB, Graphic card AMD Radeon RX460 2GB GDDR5, HDMI/DVI/DP/128bit	15	IT equipment - desktop computer
2	Monitor 21,5" Dell SE2216H VA, 1920x1080 (FullHD), 178/178 HDMI, VGA (D-Sub)	15	IT equipment - monitor
3	Laptop computer MacBook Air 13" i5 Dual-core 1.6GHz,/8GB/256GB SSD/IntelHD Graphics 6000 INT KB	2	IT equipment - notebook computer
4	Laptop computer Asus X540LJ-XX550D 15.6", Intel Core i3-5005U/6GB/1TB/GT 920M 2GB/BT/HDMI	7	IT equipment - notebook computer
5	Laptop computer Lenovo IdeaPad Yoga 500-1580N600J7YA	1	IT equipment - notebook computer
6	Server HP ML350 Gen9 Intel 6C 2xE5-2620v3 2.4GHz SFF 32 GB P440ar/2GB 2x300GB SAS	2	IT equipment - server
7	Projector Epson EB-W32, 3LCD WXGA 1280x800 3200ANSI 15000:1 HDMI	3	Audio, Video and Communication equipment - projector
8	Printer HP LaserJet Enterprise M604dn E6B68A	2	IT equipment - printers, scanners, multifunctional devices
9	Printer Laser Color A4 HP M452nw	1	IT equipment - printers, scanners, multifunctional devices

10	UPS Inverter TRIPP LITE ASPINT 3636VR	1	IT equipment - UPS
11	UPS Battery SunLight SP12-245	1	IT equipment - UPS
12	AIO computer iMac 27", Quad-Core i5 3.2GHz/8GB/1TB/AMD R9 M380 2GB/INT KB	1	IT equipment - desktop computer
13	Network equipment CLOUD ROUTER SWITCH MIKROTIK CRS125-24G-1S-RM L3 24-PORT 10/100/1000MBPS+1-PORT SFP 10/100/1000MBPS+USB	4	IT equipment - network equipment

Table 12. Software

No	Title	Quantity
1	HYDRUS 2.x Educational Site Licence Level L4 3D Standard	1
2	AERMOD View	1
3	CALRoad View	1



2.5 Technical College of Applied Sciences Urosevac with temporary seat in Leposavic (TCASU)

Following the equipment purchase procedure for the implementation of the International project, "Development of master curricula for natural disasters in the Western Balkan countries" (NatRisk, No. 573806-EPP-1-2016-1-RS-EPPKA2-CBHE-JP; European program Erasmus+), Technical College of Applied Sciences Urosevac, with temporary seat in Leposavic, acquired certain equipment (15 computers, 4 projector, 1 Smart Board, 2 printers and 1 TV set). Specialized software "HYDRUS 2.X, PCPROGRESS, Educational site license Level L4 3D Standard" and "IBM-SPSS Statistics (Premium Faculty Pack Bundle) Permanent License" were also purchased, making the TCASU one of the leading institutions in this part of the region that possesses such software.

The above-cited equipment will be used for:

- teaching process, lectures, exercises and practical work at the specialist program Disasters Risk Management and Fire safety, established under the NatRisk project, and whose accreditation process has already been initiated;
- upgrading of both human and technical resources for the realization of teaching process at this study program;
- training of students for effective decision-making in the case of natural disasters;
- simulation of different scenarios that may occur due to natural disasters in the virtual environment and how to manage such situations;
- training of administrative and teaching staff how to react in the case of natural disasters;
- training of local community how to behave and react in the case of natural disasters;
- conducting scientific research regarding the potential natural disasters risk in the environment and publishing of the obtained results in the scientific journals;

The equipped laboratory will be used also for the needs of public sector. In cooperation with local authorities and competent public services, we plan to establish a scientific-technical based laboratory which will contribute to better perceiving, understanding, predicting, preventing and behaving in the cases of natural disasters risks and fire of the local community.

Table 13. Teaching equipment

No	Manufacturer and model	Quantity	Type of the equipment
1	Altos Elite Ghost, Intel Core i5/8GB/1TB/RX 460/DVD with SAMSUNG LED 21.5" Monitor	10	IT equipment - desktop computer
2	DELL Inspiron 15 5567	2	IT equipment - notebook computer
3	DELL Inspiron 15 3558	5	IT equipment - notebook computer
4	DELL PowerEdge T630 2x Xeon E5-2620 v3 6	1	IT equipment - server

5	BENQ TH681	3	Audio, Video and Communication equipment - projector
6	LIGRA Luxiboard 6Touch 88 in	1	IT equipment - smart board
7	MFP Laser A4 HP M426fdn	2	IT equipment - printers, scanners, multifunctional devices
8	APC BX1400U-GR Back UPS	1	IT equipment - UPS
9	LG Minibeam Nano 130	1	Audio, Video and Communication equipment - projector
10	SAMSUNG LED TV 50"	1	Audio, Video and Communication equipment - TV

Table 14. Software

No	Title	Quantity
1	HYDRUS 2.x PC-PROGRESS Educational Site License Level L4 3D Standard	1
2	IBM-SPSS-Statistics (Premium Faculty Pack bundle)	1





2.6 University of Sarajevo (UNSA)

As part of the equipment purchase for the implementation of the international project "Development of master curricula for natural disasters in the Western Balkan countries" (NatRisk, No. 573806-EPP-1-2016-1-RS-EPPKA2-CBHE-JP; European program Erasmus+), the University of Sarajevo acquired certain computer equipment and software. Computer equipment includes the most modern computers, notebooks, printers, projectors, „smart table“ and additional network components. Software that were purchased are used for advanced statistical analysis and presentation of data (SPSS, XLSTAT) and programming and mathematical simulation of various civil engineering problems related to natural disasters (MATLAB).

The aforementioned computer equipment and software will be used for: lectures and exercises at the master program under the title "Natural Disaster Protection", whose accreditation is in progress. The objective of this study is that students acquire knowledge and competencies that enable them to participate in: designing in the field of protection against catastrophic events, design in the field of flood protection, design of evacuation plans, design of reconstruction plans, risk assessment of threats from natural disasters and catastrophic events and insurance damage assessment.

In addition to education for the purpose of master study, this equipment has all the capacities for the training of the professionals in public and private sectors through the Lifelong Learning Program.

Table 15. Teaching equipment

No	Manufacturer and model	Quantity	Type of the equipment
1	AIO HP PROONE 600 G3 21,5"	15	IT equipment - desktop computer
2	HP PROBOOK 450 G5 i7-8550U	2	IT equipment - notebook computer

3	HP PROBOOK 450 G5 i3-7100U	5	IT equipment - notebook computer
4	ACER SPIN x360 with an active pen	1	IT equipment - notebook computer
5	EPSON EB-S41	3	Audio, Video and Communication equipment - projector
6	ACER C205	1	Audio, Video and Communication equipment - projector
7	Reflecta Crystal-Line Rollo 240x240cm	3	Audio, Video and Communication equipment - plate
8	Smart Board SB480 + projector M333XS	1	IT equipment - smart board
9	Philips 55" LED Smart TV	1	Audio, Video and Communication equipment - TV
10	UPS APC PM5-GR	5	IT equipment - UPS
11	HP Color Laser Jet M181fw	2	IT equipment - printer
12	Wireless router D LINK DIR 882	1	Audio, Video and Communication equipment - router

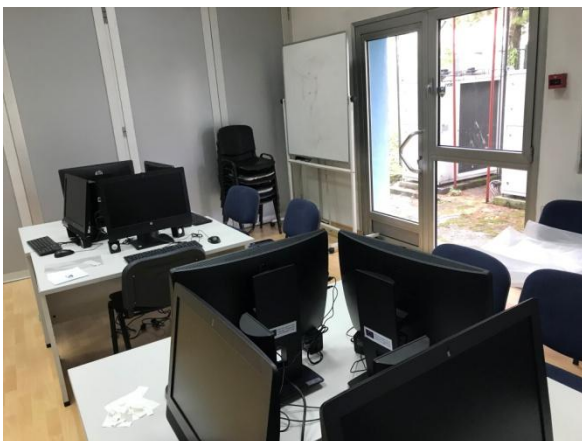
Table 16. Software

No	Title	Quantity
1	IBM SPSS Statistics premium licence	3
2	XL STAT Premium Academic Version	1
3	XLSTAT 3D Plot Academic	1
4	MATLAB 2017	1
5	COREL DRAW	1
6	Kaspersky endpoint security cloud	1

Table 17. Books

No	Title	Quantity
1	Alcira Kreimer, Margaret Arnold, Anne Carlin (Editors), 2003, Globalization and Urban Development, The World Bank, ISBN 978-3-540-25859-9	1
2	Mark Pelling, 2003, The Vulnerability of Cities: Natural Disasters and Social Resilience, 1st Edition, Earthscan from Routhledge, ISBN-13: 978-1853838309	1
3	Howard H. Chang, 1988, Fluvial Processes in River Engineering, Krieger Publishing Company, ISBN-13: 978-1575243023	1
4	Marcelo Garcia et al., 2008, Sedimentation Engineering (Manual 110): Processes, Measurements, Modeling, and Practice, American Society of Civil Engineers, ISBN (print): 978-0-7844-0814-8	1
5	Ning Chien, Zhaohui Wan, 1999, Mechanics of Sediment Transport, American Society of Civil Engineers, ISBN (print): 978-0-7844-0400-3	1
6	Maged M. El Osta, Mohamed Sh. El Sabri, Milad H. Masoud, 2016, Estimation of flash flood using surface water model and GIS technique in Wadi El Azariq, East Sinai, Egypt, Journal: Natural Hazards and Earth System Sciences, ISSN 1561-8633	1
7	Uitto, Juha Ilari, Puri, Jyotsna, van den Berg, Rob D. (Eds.), 2017, Evaluating Climate Change Action for Sustainable Development, ISBN 978-3-319-43701-9	1
8	Gilbert M. Masters, Wendell P. Ela, 2015, Introduction to Environmental Engineering and Science, 3rd Edition, ISBN-13: 978-0131481930	1
9	Gilbert M. Masters, 1997, Introduction to Environmental Engineering and Science, 2nd Edition	1
10	Daniel P. Loucks, Eelco van Beek, 2017, Water Resource Systems Planning and Management: An Introduction to Methods, Models, and Applications, ISBN 978-3-319-44232-7	1
11	John E. Gribbin, 2001, Introduction to Hydraulics & Hydrology: With Applications for Stormwater Management, ISBN-13: 978-1133691839	1
12	Thomas Lillesand, Ralph W. Kiefer, Chipman, 2011, Remote sensing and image interpretation, 7th edition, Wiley, ISBN-13: 978-0471255154	1
13	James C. Robertson, 2000, Introduction to Fire Prevention, 5th Edition, ISBN-13: 978-0130139160	1
14	Hubert Chanson, 2004, Hydraulics of Open Channel Flow: An Introduction - Basic Principles, Sediment Motion, Hydraulic Modeling, Design of Hydraulic Structures, Second Edition, ISBN-10: 0750659785	1
15	Hubert Chanson, 2004, Environmental Hydraulics for Open Channel Flows, 1st Edition, ISBN-10: 0750661658	1
16	Paul A. Longley, Michael F. Goodchild, David J. Maguire, David W. Rhind, 2005, Geographical Information Systems: Principles, Techniques, Management and Applications, 2nd Edition, John Wiley & Sons Inc,	1

	ISBN 10: 0471735450	
17	Peter A. Burrough, Rachael McDonnell, 1998, Principles of Geographical Information Systems: Spatial Information Systems and Geostatistics, ISBN 10: 0198233655	1
18	Brian Tomaszewski, 2014, Geographic Information Systems (GIS) for Disaster Management, Rochester Institute of Technology, ISBN: 978-1-4822-1168-9	1
19	Martina Zelenáková, Lenka Zvijáková, 2017, Using Risk Analysis for Flood Protection Assessment, ISBN 978-3-319-52149-7	1
20	Edward A. Keller, Duane E. DeVecchio, 2014, Natural Hazards: Earth's Processes as Hazards, Disasters, and Catastrophes, 4th Edition, Routledge, ISBN-10:0321939964	1
21	David S. Brumbaugh, 2009, Earthquakes: Science & Society, 2nd Edition, Pearson, ISBN-10:0321612280	1
22	Jurgen Garbrecht, Thomas Piechota, 2005, Climate Variations, Climate Change, and Water Resources Engineering, American Society of Civil Engineers, ISBN-13: 978-0784408247	1
23	Seth Stein, Jerome L. Stein, 2014, Playing against Nature: Integrating Science and Economics to Mitigate Natural Hazards in an Uncertain World (Wiley Works), American Geophysical Union, ISBN-10:1118620828	1
24	Malcolm Newson, 1994, Hydrology and the River Environment, 1st Edition, Oxford University Press, ISBN-13: 978-0198741572	1
25	Temenoujka Bandrova, 2016, Thematic Cartography for the Society Open Data Platform, Springer, ISBN 10: 3319352245	1





2.7 University of Banja Luka (UBL)

As part of the procurement of equipment for the realization of the international project "Development of master curricula for natural disasters in the Western Balkan countries" (NatRisk, number 573806-EPP-1-2016-1-RS-EPPKA2-CBHE-JP; European program Erasmus +) , University of Banja Luka (Faculty of Security Sciences) purchased computer equipment (17 desktops, 7 laptops, 4 projectors, smart board, LCD TV, 2 tablets, magnetic board, three projection screens, 2 printers, scanner, ...) and software (Kaspersky, SPSS, Adobe Creative Cloud for Education, MapViewer, Adobe Captivate).

The aforementioned equipment will be used for: lectures and exercises in the master study program named "Managing the Risk of Natural Disasters", whose accreditation is in the final phase. Computer equipment should be used to equip the halls and cabinets in order to modernize the teaching, training and learning process.

Purchased software packages will serve to protect the computer and network equipment, allow cartographic and 3D modelling of reliefs and river course and development of scenarios for student training.

The aim of these activities is to provide adequate conditions for conducting the teaching process at the Faculty of Security Sciences, modernize the teaching and training process and to create conditions for the realization of scientific research whose results will be published in relevant journals.

Table 18. Teaching equipment

No	Manufacturer and model	Quantity	Type of the equipment
1	Desktop computer i3-7100 8GB RAM 500GB 500GB SATA with display Acer V226HQLBD 21.5" LED	15	IT equipment - desktop computer
2	Desktop computer i7-7700 16GB RAM DDR4 1TB SATA with display Acer K24HLBD 24" LED	2	IT equipment - desktop computer

3	HP ZBOOK I5-6300U 8GB 15.6"	2	IT equipment - notebook computer
4	Dell Inspiron 15 3552	5	IT equipment - notebook computer
5	Asus ZenPad10 Z301M	2	IT equipment - tablet
6	Optoma X355	2	Audio, Video and Communication equipment - projector
7	Optoma ML750S	1	Audio, Video and Communication equipment - projector
8	Reflecta CrystalLine 200x200	1	Audio, Video and Communication equipment - plate
9	Reflecta Tripod 200x200	1	Audio, Video and Communication equipment - plate
10	SMART 85"	1	IT equipment - smart board
11	Magnetic board	1	Other equipment - magnetic board
12	Flipchart	1	Other equipment - flipchart
13	Headset	15	Audio, Video and Communication equipment - headset
14	Wireless router Mercusys MW305R	2	Audio, Video and Communication equipment - router
15	Lexmark MS312DN	1	IT equipment - printer
16	LaserJet Pro M102A	1	IT equipment - printer
17	Epson WF DS7500	1	IT equipment - scanner
18	Vivax Imago LED TV 55"	1	Audio, Video and Communication equipment - TV

Table 19. Software

No	Title	Quantity
1	Kaspersky anti-virus 2018 licence	25
2	IBM SPSS Statistics premium licence	1
3	Adobe Creative Cloud for education with Adobe Captivative	1
4	Adobe Creative Cloud for education Desktop Apps Per Device License	1
5	MapViewer	2

Table 20. Books

No	Title	Quantity
1	Srđan Milašinović, Saša Milojević, 2016, Projektovanje i realizovanje naučnih istraživanja, Kriminalističko-policijska akademija	3
2	Dragan Mlađan, 2015, Bezbednost u vanrednim situacijama, Kriminalističko-policijska akademija	2
3	Arjen Boin, Pole Hart, Erik Stern, 2010, Politika upravljanja krizama, Fakultet bezbednosti Beograd	3
4	Andrew Ashworth, Mike Redmayne, 2010, The Criminal Process, ISBN 9780199547289	1
5	Anonimus, 2015, Deep Web – Mračna strana internet, Laguna, ISBN 978-86-521-1993-6	4
6	Margaret Arnold, Robert S. Chen, Uwe Deichmann, Maxx Dilley, Arthur L. Lerner-Lam, 2006, Natural Disaster Hotspots Case Studies (Disaster Risk Management)	4
7	Andrew S. Goudie, 2013, The Human Impact on the Natural Environment: Past, Present, and Future, Wiley-Blackwell publishing, 7th Edition, ISBN 978-1-118-57658-8	2
8	P. Abbott, 2016, Natural disasters, McGraw-Hill Higher education	1
9	Keith McCormick, Jesus Salcedo, Jon Peck, Andrew Wheeler, Jason Verlen, 2017, SPSS Statistics for Data Analysis and Visualization, John Wiley & Sons, Inc., ISBN 978-1-119-00355-7	2
10	Georjeanna Wilson-Doenges, 2014, SPSS for Research Methods: A Basic Guide, W. W. Norton & Company, ISBN-13 978-0393938821	2
11	John Walkenbach, 2013, Excel 2013 Power Programming with VBA, 1st Edition, John Wiley & Sons, Inc., ISBN-10 1118490398	1

12	Alberto Ferrari, Marco Russo, 2013, Microsoft Excel 2013 Building Data Models with PowerPivot, Microsoft Press, ISBN-10 0735676348	2
13	Richard Sylves, 2008, Disaster Policy and Politics; Emergency Management and Homeland Security, CQ Press, ISBN-13: 978-1483307817	1
14	Richard Saferstein, 2017, Criminalistics: An Introduction to Forensic Science, 11th Edition, Pearson, ISBN-10: 0134477596	1
15	Samuel P. Huntington, 2011, The Clash of Civilizations and the Remaking of World Order, Simon & Schuster, ISBN-10: 1451628978	3
16	Brian Tomaszewski, 2014, Geographic Information Systems (GIS) for Disaster Management, Rochester Institute of Technology, ISBN 978-1-4822-1168-9	2
17	Michael Bar-Zohar, Nissim Mishal, 2014, Mossad: The Greatest Missions of the Israeli Secret Service Hardcover, Ecco, ISBN-10: 0062123408	3
18	A. Robertson, 1987, British and American Approaches to Intelligence (RUSI Defence Studies), 1st Edition, Palgrave Macmillan UK, ISBN 978-1-349-08418-0	2
19	Bill Nelson, Amelia Phillips, Christopher Steuart, 2015, Guide to Computer Forensics and Investigations (with DVD), 5th Edition, Cengage learning, ISBN-10: 1133727948	1
20	P.W. Singer, Allan Friedman, 2014, Cybersecurity and Cyberwar: What Everyone Needs to Know, Oxford U. Press, ISBN-10 0199918112	3
21	Randy Weaver, 2015, Guide to Network Defense and Countermeasures, 3rd Edition, Cengage learning	1
22	Daniel P. Loucks, Eelco van Beek, 2017, Water Resource Systems Planning and Management: An Introduction to Methods, Models, and Applications, ISBN 978-3-319-44232-7	2



