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## Knowledge FOr Resilient soCiEty

573942- EPP-1-2016-1-RS-EPPKA2-CBHE-JP

# Knowledge FOr Resilient soCiEty



Co-funded by the  
Erasmus+ Programme  
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## WP 1.4

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### Procure, install and activate the equipment

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October 2019

## PROJECT INFO

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v.02	8/10/2019	Final version	UT (Elona Pojani)

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## **Introduction**

This report is the final outcome of Task 1.4 Procure, install and activate the equipment of Work package 1 Define directions for development of Master programmes. Within the Erasmus+ Knowledge For Resilient soCiEty, Ref. 573942- EPP-1-2016-1-RS-EPPKA2-CBHE-JP, 6 Laboratories have been established in 6 Western Balkans HEIs, partners in the project. Educational laboratories have been established to improve the teaching/learning activities in innovated master academic studies and newly developed PhD academic studies in Disaster Risk Management and Fire Safety. Several courses offered by academic staff or practical work prepared by students will require the use of newly established laboratories.

In this report, there is a detailed information for each WB project partner regarding the established laboratories in their HEIs, together with the list of equipment purchased. The outline of each report follows these issues:

1. Laboratory description
2. List of equipment and books purchased within the project
3. Inclusion in teaching process
4. Sustainability
5. Photos of Laboratory
6. Photos of Equipment
7. Additional Comment

Procurement activities have been finalized in all HEIs, and the outcome of this process will be presented in the next sessions.



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## REPORT ON ESTABLISHED LABORATORY

### *Project procurements overview – realised procurments*

Partner	Institution	The type of procurement foreseen by the project		
		Laboratory	Computer	Books
P1	UNS	x	x	x
P2	VTSNS	x	x	x
P2	UTZ	x	x	x
P4	UBL	x	x	x
P5	UTA	-	x	x
P6	EPOKA	-	x	x

### *Project procurements overview - realisation dates*

Partner	Institution	Realization date of procurement					
		Laboratory		Computer		Books	
		I proc.	II proc.	I proc.	II proc.	I proc.	II proc.
P1	UNS	26.09.2017.	-	19.10.2017	-	13.09.2017	-
P2	VTSNS	28.09.2017.	-	28.09.2017.	-	13.09.2017.	-
P2	UTZ	29.08.2018.	-	11.07.2018.	22.02.2019.	20.05.2019.	-
P4	UBL	09.08.2018.	07.08.2019.	15.06.2018.	-	25.09.2019.	-
P5	UTA	-	-	19.12.2018.	-	06.06.2018.	-
P6	EPOKA	27.11.2018	13-24.12.2018	13.12.2018	31.12.2018	07.08.2018	-



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## Project procurements overview – costs

Partner	Institution	Price of the realized procurement (EUR)					
		Laboratory		Computer		Books	
		I proc.	II proc.	I proc.	II proc.	I proc.	II proc.
P1	UNS	71917,2	-	71378,8	-	967,2	-
P2	VTSNS	2829,8	-	25450,2	-	647,3	-
P2	UTZ	9136,8	-	16156,8	2709,8	1016,4	-
P4	UBL	9714,6	1019,8	17657,5	-	997,1	-
P5	UTA	-	-	24640,0	-	2602,0	-
P6	EPOKA	2629	3270	18000,0	4500,0	893,41	-

## Project procurements overview - costs

Partner	Institution	Total amount spent (EUR)	Planned amount to be spent (EUR)	Difference between planned and spent amount (EUR)
P1	UNS	144263,2	144200	-63,2
P2	VTSNS	28927,3	29400	472,7
P2	UTZ	29019,9	29400	380,1
P4	UBL	29388,9	29400	11,09
P5	UTA	27242,0	29400	2158,0
P6	EPOKA	29292.41	29400	107.59



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## REPORT ON ESTABLISHED LABORATORY PROJECT PARTNER: UNIVERSITY OF NOVI SAD (P1)

### LABORATORY DESCRIPTION

Established educational laboratories have aim to serve in the realization of master academic studies and PhD studies in Disaster risk management and fire safety modernized/developed within the K-FORCE project of the ERASMUS+ programme.

Laboratory and IT equipment is placed in K-FORCE Educational laboratories: two of them (LG003 and LG005) are located at the Department of civil engineering's building and third one is located at the premise of Faculty of Technical sciences (705).

The Laboratories are accessible to both students and teaching staff for teaching/learning purposes as well as for research activities.

### LIST OF EQUIPMENT

ITC equipment			
No.	Name of item	Quantity	The purpose
1.	PC client	8	to be used by teaching staff in their office premises and in the laboratory for research, teaching and other purposes
2.	Laptop computer	17	to be used by teaching staff for teaching, meetings and for students for studying, research and other purposes
3.	External display	9	to be used by teaching staff in their office premises and in the laboratory for research, teaching and other purposes
4.	Digital camera with Tripod	1	to be stored in the department and used for different purposes related to documentation of meetings, webinars and other project activities
5.	Scanner	1	to be used for different purposes related to project administration, teaching, research and other purposes
6.	Multifunctional printer	1	established in the department premise and used for different purposes related to project administration, teaching, research and other paperwork preparation
7.	Printer	2	established in the department premises and in the laboratory and used for different purposes related to project administration, teaching, research and other paperwork preparation
8.	Smart panel	2	to be used for lectures, for displaying professional presentations, films and other educational content
9.	Additional ITC equipment	NA	Equipment needed for installing/setting up of communication lines for internet connection
Laboratory equipment			
No.	Name of item	Quantity	The purpose





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1.	Outdoor Handheld GPS GIS Mapping Data Collector	1	installed in the laboratories and to be used for research, teaching, project activities and other purposes by teaching staff and students
2.	Handheld Laser Distance Measurer	1	
3.	Educational measurement equipment Hyphenated TGA-FTIR	1	
4.	Unmanned Aerial Photogrametric Vehicle	1	
<b>Books/Journals/E-books</b>			
1.	Evacuation Modeling Trends	1	to be used for research, teaching, project activities and other purposes by teaching staff and students
2.	An Introduction to Fire Dynamics	1	
3.	Performance-based Fire Safety Design	1	
4.	Quantitative Risk Assessment in Fire Safety	1	
5.	Statistics and Probability Theory: In Pursuit of Engineering Decision Support (Topics in Safety, Risk, Reliability and Quality)	1	
6.	Principles Of Fire Behavior And Combustion	1	
7.	Natural Hazards and Disasters	1	
8.	Disaster Recovery	1	
9.	Disaster Operations and Decision Making	1	
10.	Defining and Measuring Economic Resilience from a Societal, Environmental and Security Perspective	1	
11.	Fire Performance Analysis for Buildings	1	

## INCLUSION IN TEACHING PROCESS

Above all, Educational laboratories have been established to improve the teaching/learning activities in innovated master academic studies and newly developed PhD academic studies in Disaster risk management and fire safety. Among the courses of the master study programs, there are two common courses – Calculation and modelling of evacuation, and Risk analysis in decision making for disaster protection, that are shared with some of partner HE institutions on the project. The Educational Labs will help establish closer cooperation with the partners through the teaching process of the common courses, with the intention to prolong it beyond the project life cycle.

Apart from the fact that lectures and/or exercises of the common courses can be recorded and exchanged, more student-centred approach is also desirable. Here are some examples of student engagement regarding the Educational Lab and its equipment.

- Calculation and model of evacuation – The course offers partners the possibility to include students in performing joint calculations and modeling of evacuation of specific structures by using the Laboratory equipment. Thus produced evacuation plans can further be used as editable templates for teaching purposes in the institutions involved.
- Risk analysis in decision making for disaster protection – Case studies can be developed by student teams in partner institutions, and then exchanged and discussed through the Laboratory established communication channels. Additionally, in each institution, the material produced will be available to students for individual analyses in the e-library, while group elaboration is possible through the ICT platform.

Since all lectures have practical and technological nature and require the verification of results in the laboratory and on the field, these laboratories provide the necessary basic infrastructure. In addition to the hardware part, the laboratories are also equipped with the software that is used strictly for training students for planning evacuation in case of a hazard. Computers are necessary to provide the infrastructure that is able to support the processes of modelling, while GPS devices, camera and laser handheld measurer are used to verify the field results that the students should obtain in practical exercises of modelling.



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More complex educational systems, devices of greater precision and practical educational laboratory where students are trained to work on the instruments used in professional practice will support the production of the doctoral theses and the achievement of the set educational goals.

## SUSTAINABILITY

The institution has sufficient financial means to support the maintenance of all its equipment including the items purchased through the K-FORCE project. The staff is constantly informed about new equipment and trained and retrained according to the needs of the teaching/working process. The equipment is accessible to all staff involved in particular activities or tasks, not just to individuals. Especially younger staff members are encouraged to use the equipment.

The Educational laboratory is regularly used by students of Department of civil engineering and geodesy as well as by Disaster risk management and fire safety students, so all of them can benefit from the ITC equipment, particularly the interactive board enabling various forms of teaching/learning activities. In the combination with the camera and computers installed in it, the Laboratory is a true multimedia classroom suitable for videoconferencing, recording of lectures/exercises, and production of e-learning material of all kind with students as active participants. Laboratory equipment can be used for various research activities of PhD students, as well as teaching staff in the future.

## EDUCATIONAL LABORATORIES

### EDUCATIONAL LABORATORY LG005





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EDUCATIONAL LABORATORY LG003



EDUCATIONAL LABORATORY 705





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## EQUIPMENT

### ITC equipment

#### 1. PC client (8 pcs)





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## 2. Laptop computer (17 pcs)





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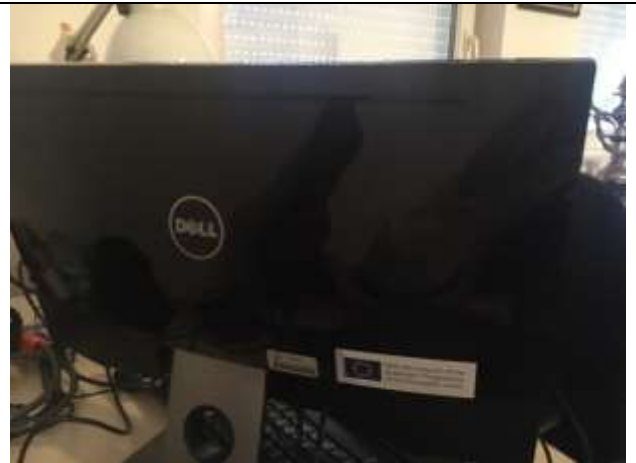




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## 3. External display (9 pcs)



## 4. Digital camera with Tripod (1 pc)





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5. Scanner (1 pc)



6. Multifuncional printer (1 pc)



7. Printer (2 pc)



8. Smart panel (1 pc)







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## 9. Additional ITC equipment

Rack server



Wireless access point



Cisco CATALIST 2960plus + 2xBASE-SX SFP



## Laboratory equipment

### 1. Outdoor Handheld GPS GIS Mapping Data Collector



### 2. Handheld Laser Distance Measurer



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3. Educational measurement equipment Hyphenated TGA-FTIR



4. Unmanned Aerial Photogrammetric Vehicle





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## Books



## ANY ADDITIONAL COMMENT

Blank area for additional comments.



**REPORT ON ESTABLISHED LABORATORY**  
**PROJECT PARTNER: P2 – The Higher Education Technical School of**  
**Professional Studies in Novi Sad**

### LABORATORY DESCRIPTION

Our K-FORCE ICT Educational Laboratory has been established in classroom No. 4, located on the ground floor of building A, in the Higher Education Technical School of Professional Studies in Novi Sad, with the aim to serve in the realization of the master professional studies in Protection Engineering developed within the K-FORCE project of the ERASMUS+ programme.



The area of the Laboratory is 54m<sup>2</sup>. It is a pleasant space with plenty of natural light and good artificial lighting, with adequate central heating and air-conditioning. The room is furnished with desks having 37 working positions and equal number of armchairs. There is also a whiteboard, an overhead projector, a projection screen and a cabinet for storing stationery accessories and equipment when not in use.

The Laboratory is open to both students and teachers throughout the day starting from 8 a.m. till evening hours for teaching/learning purposes as well as for research activities according to the timetable defining periods of activities and users.

### LIST OF EQUIPMENT

#### LIST OF ITC EQUIPMENT AND ACCESSORIES PURCHASED

No.	Item	Pieces	Purpose
1	Fujitsu S26361 server computer PZ RX2530 M2	1	To improve the operation of the computer network in the institution
2	MikroTik RB2011UIAS VPN router	1	
3	D-link DGS-1210-28 network switch	5	
4	Ubiquiti UAP-AC-LR Access Point UnFi indoor	2	
5	Clevertouch Plus 55" interactive board, full HD	1	To be used in the teaching/learning process
6	Lenovo 80SV0110YA notebook IdeaPad 510	10	
7	Lenovo 80NV013KYA IdeaPad Y700	4	
8	Lenovo 80VF00CKYA notebook Yoga 910-13	4	To be used in the teaching/learning process and/or for administrative project activities
9	DELL SE2416H Monitor 23.8" SE2416H	4	
10	HP inc G3059A Printer multifunctional Pro M130fn	1	
11	Laser printer HP M203dw	1	
12	Canon scanner BE9623B010A Lide 220 A4	1	To be used for webinar recording and footage production related to project and other activities
13	Monfrotto MKCOMPACTA aluminum stand	1	
14	Canon XC-10 Digitalni camcorder XC-10	1	
15	Leica 806648 Disto D810 touch measuring range	1	



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## LIST OF BOOKS PURCHASED

No.	Item	Pieces	Purpose
1	Evacuation Modeling Trends	1	To be used in research and project activities, and in the teaching/learning process in the Protection Department
2	An Introduction to Fire Dynamics	1	
3	Performance-based Fire Safety Design	1	
4	Quantitative Risk Assessment in Fire Safety	1	
5	Principles of Fire Behavior and Combustion	1	
6	Disaster Operations and Decision Making	1	
7	Climate Change and Natural Disasters	1	
8	Fire Performance Analysis for Buildings	1	

## INCLUSION IN TEACHING PROCESS

The primary goal of establishing the Laboratory in the VTSNS has been to improve the activities of the teaching/learning process in the newly developed master professional studies in Protection Engineering. The programme comprises 14 courses and all of them can be entirely or partially delivered in the Laboratory. Its equipment is used by both teachers and students to enhance the transfer of knowledge, and support research.

Due to its ICT and recording equipment the Laboratory offers plenty of technical solutions and possibilities to apply student-centred learning, aiming to involve students more than usually in the process of acquiring knowledge through less used approaches like the workshop, panel, debate, competition, or case study, which get a new dimension when conducted in the multimedia environment of the Laboratory.

Moreover, since two of our courses (Calculation and model of evacuation, and Risk analysis in decision making for disaster protection) belong to a group of common courses also implemented in other WBC project partners, the Laboratory will definitely contribute to better collaboration with these HE institutions as the teaching materials and lectures can be easily shared, even simultaneously owing to videoconferencing. Even some closer forms of student cooperation could be applied. For instance, the concept of project families could be extended to students from partner institutions to deal with topics of mutual interest related to the common or other courses, in order to exchange experiences and facts, and deepen the selected subject matter by discussing it from different angles. At the conclusion of their assignments, they produce deliverables such as research data, plans of action, simulations, models, presentations, seminary papers, videos etc. applicable as ready-made teaching/learning materials for the future course activities.

Generally, the Laboratory not only helps students broaden their knowledge in the professional field, but also plays a significant role in upgrading their IT skills by using specific modelling software and up-to-date hardware in performing various tasks, which is nowadays a prerequisite in job acquisition and further advancement of employees.

In addition, the Laboratory has already been successfully used for delivering three different LLL courses realised in the VTSNS (Risk resilience, Fire and rescue PPE, and Evacuation modelling) to professionals from the field of protection.

## SUSTAINABILITY

The VTSNS can normally finance the maintenance of the equipment purchased during the K-FORCE project by way of its steady state funding. Our staff members have been promptly informed about all items purchased, and when necessary, trained and retrained depending on institutional needs and operational requirements. This predominantly refers to younger technical and teaching personnel who are permanent users of the equipment.



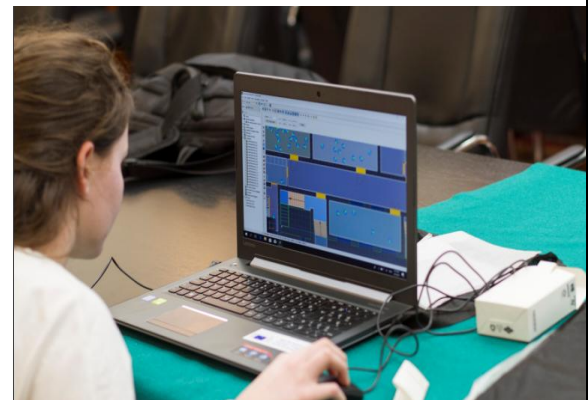
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The Laboratory has been used for lectures and exercises of our master courses, and for the LLL courses based on the professional master programme Protection Engineering. Since there is a great interest in the master studies as we enrol 32 students in the first year, and one of the LLL courses (Risk resilience) brings additional points to professionals intending to become master students, it is expected that the Laboratory will be constantly in use in the years to come.

Moreover, the Laboratory has also been available to teachers and students of other study programmes of our four departments (Mechanical Engineering, Graphics, Electrical Engineering, and Protection) who benefit from the equipment installed, enabling usage and production of different e-learning materials tailored according to the particular needs of a course, and made for students by their teachers and fellow students alike.

## LABORATORY





## EQUIPMENT

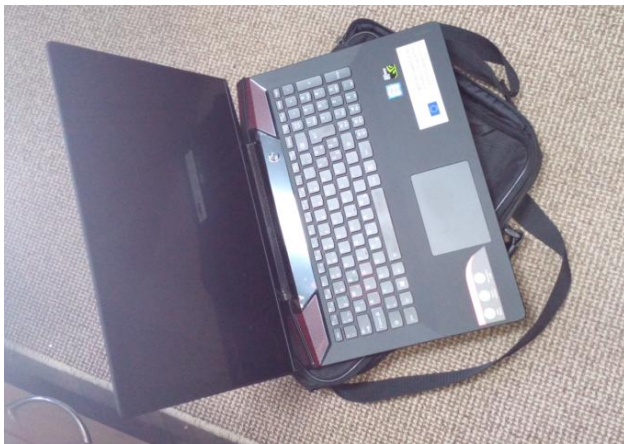
### Photos of the equipment purchased



1. Clevartouch Plus 55" interactive board (1 piece)



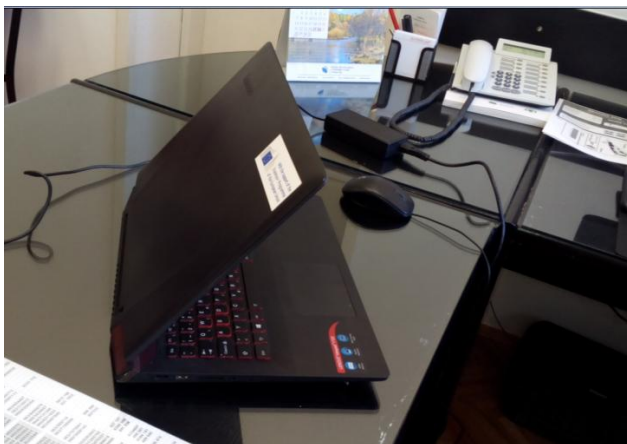
2. Lenovo 80NV013KYA IdeaPad Y700 (1 piece)



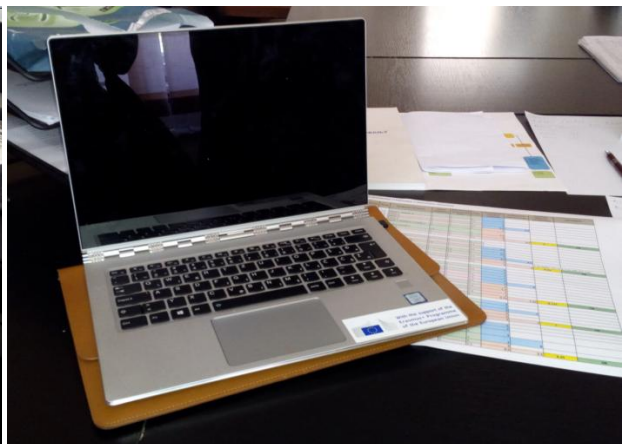
3. Lenovo 80NV013KYA IdeaPad Y700 (1 piece)



4. Lenovo 80NV013KYA IdeaPad Y700 (1 piece)



5. Lenovo 80NV013KYA IdeaPad Y700 (1 piece)



6. Lenovo 80VF00CKYA notebook Yoga 910-13 (1 piece)



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7. Lenovo 80VF00CKYA notebook Yoga 910-13 (3 pieces)



8. Lenovo 80SV0110YA notebook IdeaPad 510 (10 pieces)



9. DELL SE2416H Monitor 23.8" SE2416H (2 pieces)





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10. DELL SE2416H Monitor 23.8" SE2416H (1 piece)



11. Ubiquiti UAP-AC-LR Access Point UnFi indoor (1 piece)



12. Ubiquiti UAP-AC-LR Access Point UnFi indoor (1 piece)



13. Laser printer HP M203dw (1 piece)



14. HP inc G3059A Printer multifunctional Pro M130fn (1 piece)



15. Canon scanner BE9623B010A Lide 220 A4 (1 piece)



# KnowledgeFOR ResilientsoCiEtY



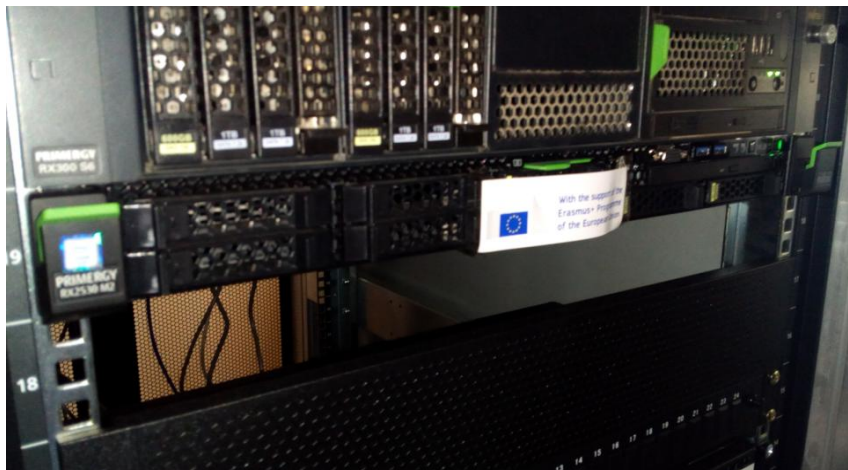
16. D-link DGS-1210-28 network switch (2 pieces)



17. D-link DGS-1210-28 network switch (2 pieces)



18. D-link DGS-1210-28 network switch (1 piece) and MikroTik RB2011UIAS VPN router (1 piece)



19. Fujitsu S26361 server computer PZ RX2530 M2 (1 piece)



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20. Canon XC-10 Digitalni camcorder XC-10 (1 piece)



21. Monfrotto MKCOMPACTA aluminum stand (1 piece) 22. Leica 806648 Disto D810 touch measuring range (1 piece)

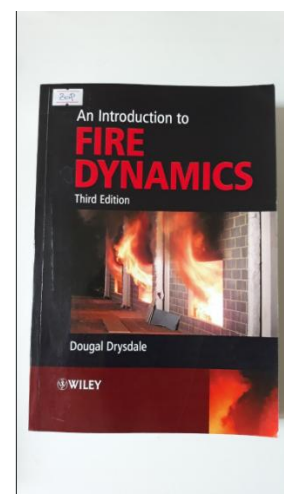
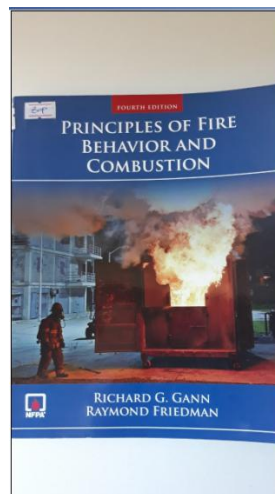
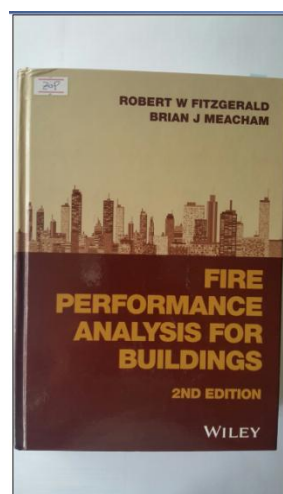
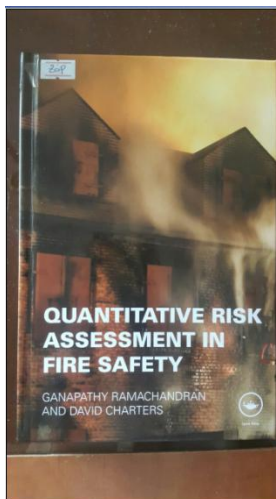


23. DELL SE2416H Monitor 23.8" SE2416H (1 piece)



# KnowledgeFOR ResilientsoCiEty

Photos of the books



## ANY ADDITIONAL COMMENT

Due to the nature of the purchased equipment and the purpose of the Laboratory, not all items are located in the Laboratory itself.

Above all, it is the equipment bought for educational purposes that is placed in the Laboratory, whereas the rest of the equipment having the supportive role in the teaching/learning process and project activities (financial and dissemination) is elsewhere, in Teacher's Offices, the Accounting Office and the Reception Office. The recording equipment is kept in the Equipment Storeroom when not used. The devices improving the operation of the computer network in the institution by providing a fast Internet connection are based in the System Room.

The books are in the VTSNS Library to be on hand to all interested users.



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## REPORT ON ESTABLISHED LABORATORY PROJECT PARTNER: University of Tuzla

### LABORATORY DESCRIPTION

Purchased IT equipment is placed in newly established K-FORCE ICT LAB. This LAB is located in renovated and adapted ex-classroom No 33. The size of it is approx. 60 square meters. The purpose of this LAB is to be used for Master students exercises of evacuation and rescue simulation.

Purchased LAB equipment is distributed to 4 existing laboratories in order to improve their capacities for students' practical work and research.

Therefore, Leica DISTO D810 Touch Laser Distance Measure, MobileMapper 50 SpectraPrecision GPS GIS Mapping Data Collector and Multiplin detector MX6 (CO, CO<sub>2</sub>, NO<sub>2</sub>, CH<sub>4</sub>, SO<sub>2</sub>) will be kept in existing Lab for Natural hazards, safety and ventilation (LAB3). LAB3 will be used on daily basis for master students exercises and research.

Bosch D-tect 150SV Professional Detector will be used by Civil engineering department for student's practical and research work in investigating structural stability – will be kept in LAB 13 (Lab for non-destructive testing of structure).

Laboratory Oven FN120 will be in LAB4 (Lab for Geomechanics) as an upgrade to be used for students' education in the field of Geotechnics (Geomechanics) and landslide remediation, as planned in Master study curriculum.

USB Microscopes will be in LAB6 (Lab for optical research of mineral and rocks) but will be used as field devices for rapid analysis. Will be accessible to students as per syllabus and class schedules.

Purchased LAB equipment Lutron PM-1064SD Data Logging Indoor Quality Monitor and Environment Meter 7 in 1 Lutron LM9000 will be in LAB3 (Lab for Natural hazards, safety and ventilation).

Dron DJI Phantom 3 Advanced and Camera Tripod will be at office No. 31 (Project Coordinator's office).

All purchased lab equipment will be accessible to students as per syllabus and class schedules.

### LIST OF EQUIPMENT

#### Purchased IT equipment:

- Laptop computer Dell Vostro 3568, quantity: 10
- Laptop computer Lenovo Legion Y520-15, quantity: 4
- External display/computer monitor Acer KA24HYBID, quantity: 2
- DLP video projector Acer X128H, quantity: 2
- Wireless WiFi Router LINKSYS EA9500 AC5400, quantity: 1
- Smart Pannel PRESTIGIO MultiBoard 55" L Series, quantity: 1
- Digital camera Nikon D5600 + 18-140mm, quantity: 1

Purpose for all above listed IT equipment: to equip IT cabinet/Lab which will be used for simulation analysis of evacuation and rescue.

- Desktop computer/server, quantity: 1 (Purpose: for management of licensed software)

#### Purchased LAB equipment:

- **Leica DISTO D810 Touch Laser Distance Measure, quantity: 1** (Purpose: enables to determine the width, height, area or even the diameter of an object; to measure the staircases, disabled access ramps and roofs; can be used to check whether cross beams are straight, the levelness of existing floors, among other applications. Will be used for field measuring and practical exercises in length measuring.)
- **MobileMapper 50 SpectraPrecision GPS GIS Mapping Data Collector, quantity: 1** (Purpose: GPS GIS mapping data collector will be used for mapping of exploration area.)



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- **Bosch D-tect 150SV Professional Detector, quantity: 1** (Purpose: The detector status of reinforcement with non-destructive methods reveals any damage reinforcement within the reinforced concrete structures. Defects can be result from seismic earthquakes, landslides, subsidence, effects of high temperature (fire), and a number of other circumstances. These damages are often difficult to spot by visual examination and are crucial for the stability of the structure after the catastrophic impacts. Students should get an insight into the character of the state of reinforcement for structural stability, particularly after disasters.)
- **Multiplin detector MX6 (CO, CO<sub>2</sub>, NO<sub>2</sub>, CH<sub>4</sub>, SO<sub>2</sub>), quantity: 1** (Purpose: Control of the chemical composition of the atmosphere is crucial for successful extinguishing and rescue actions in case of fire. Multi-gas mobile detector allows rapid control of the chemical composition of the atmosphere inside fire area in real time. This information is of great importance for future professionals for planning actions, determining the routes of withdrawal, as well as early detection of oxidation processes.)
- **Laboratory Oven FN120, quantity: 1** (Purpose: Determination of water content in field samples is important for analysis of geotechnical (geomechanical) characteristics of the soil, because water is the most common cause of the instability of the terrain, throughout the change of physical and mechanical characteristics of soil. Adequate solutions for landslide remediation require laboratory tests. Laboratory oven is standard laboratory equipment for thermal treatment of all types of samples. The context of K-FORCE project provides the education of students in the field of geotechnics (geomechanics) and remediation of landslide, which are almost obligatory companion of natural disasters on WBC areas.)
- **USB Microscope PCE-MM 200UV, quantity: 1** (Purpose: simple field device for rapid analysis of surface and material composition. It is often used in forensics, but also for rapid terrain analysis of the current state of construction toolkits. Students could use these devices to learn directly on the ground to distinguish the materials, their condition, possible micro pitting, traces of fire activity)
- **USB Microscope PCE-MM 200, quantity: 1** (Purpose: same as for previous item)
- **Lutron PM-1064SD Data Logging Indoor Quality Monitor, quantity: 1** (Purpose: for monitoring of air pollutant source from dust, petrochemical industry, steel-making plant, thermal power plant, restaurant, smoke, burning plants, driving automobiles. The meter is a real-time air quality monitor instrument used to monitor the concentration of PM2.5, humidity and temperature in the indoor environment. Will be used for field measuring and practical exercises).
- **Environment Meter 7 in 1 Lutron LM9000, quantity: 1** (Purpose: The Lutron LM-9000 pocket environment anemometer meter measures airflow, temperature, light, relative humidity dew point, barometer and Type K thermometer. It has a lightweight low-friction ball vane providing high accuracy at high & low air velocity.)
- **Camera Tripod, quantity: 1** (Purpose: Tripod for recording teaching sessions in SMS).
- **Dron DJI Phantom 3 Advanced, quantity: 1** (Purpose: For field investigations and observations.)

#### Purchased books:

#	Author	Book	Publisher	Qty
1	R. Ulusay	The ISRM Suggested Methods for Rock Characterization, Testing and Monitoring	Springer	1
2	G.L. Sivakumar Babu, V.V.S. Rao	Forensic Geotechnical Engineering	Springer	1
3	A. Lopez-Carresi	Disaster Management: International Lessons in Risk Reduction, Response and Recovery	Routledge	1
4	A. Tiwari	The Capacity Crisis in Disaster Risk Management: Why Disaster Management Capacity Remains Low in Developing Countries and	Springer	1



# Knowledge FOR Resilient soCiEty



		What Can be Done		
5	P. Tran, R. Shaw	Environment Disaster Linkages	Emerald Publishing Limited	1
6	J.C. Jones	Numerical Exercises in Fire Protection Engineering	Whittles Publishing	1
7	P.R. Decicco	Special Problems in Fire Protection Engineering	Routledge	1
8	Ed.: Deutsche Gesellschaft fur Geotechnik e.V	Recommendations on Piling (EA-Pfähle)	John Wiley & Sons Ltd.	1
9	Ed.: Deutsche Gesellschaft fur Geotechnik e.V	Recommendations on Excavations - EAB	John Wiley & Sons Ltd.	1
10	Ed.: Deutsche Gesellschaft fur Geotechnik e.V.:	Recommendations for Design and Analysis of Earth Structures using Geosynthetic Reinforcements - EBGeo	John Wiley & Sons Ltd.	1
11	S. Baas	Disaster Risk Management Systems Analysis: A guide book (Environment and Natural Resources Management Series)	Food and Agriculture Organization of the United Nations	1

## INCLUSION IN TEACHING PROCESS

List of courses and practical work where students will use established laboratories:

- **“GEOTECHNICAL HAZARDS”**. Brief description of Course: Identification, classification and physical properties of soil and general structural characteristics of rocks; Mechanical properties of soil and rocks; Process of changes in the rock as a risk; Water as the hazard in geotechnics; Geotechnical research in soil and rock; Influence of the stability of the slopes and foundation pits on the safety of people and machines; Hazard and Hazard Assessment in Geotechnics; Uncertainties in Geotechnics; Emergency Geotechnical Measures for Natural Disasters; Reduction of risk in the slopes; Factor of safety; Geotechnical monitoring.
- **“ASSESSMENT OF DAMAGED CIVIL ENGINEERING STRUCTURES”**. Brief description of Course: Building constructions, forms, budget concept, execution, maintenance. Load on construction and structure response. Static and dynamic loads. Exploitation life of building constructions. Hazards. Risk analysis. Failures and collapse of construction objects. Types of structural damage in catastrophic events (fire, earthquake, explosion, flood, overload, landslides, etc.). Damage rating (methodology, test methods of construction, equipment, applicability of the method). Case studies from practice.
- **“FIRE SAFETY ENGINEERING”**. Brief description of Course: The basics of heat science (thermodynamics); Fire Dynamics; Active and passive fire protection; People's reaction to fire; Structural fire protection; Preventing Explosion Conditions Fulfillment and Explosion Protection; Fires and Explosions in Mining and Industry; Regulations on safety and fire protection; Risk and fire hazard analysis; Design of stationary fire extinguishing systems; Fire and Explosion - case studies; Forensic investigations.

IT equipment will enable students to implement theoretical knowledge on evacuation and rescue in modern simulation software. This will advance teaching process since it will move from theoretical teaching to problem-based learning. This is equipment will be used for “Fire Safety Engineering” Course.

LAB equipment will be used for above listed courses in order to improve teaching in practical work / exercises. All purchased equipment will be used for students' research within courses as well as master thesis research.

## SUSTAINABILITY



# Knowledge FOR Resilient soCiEty



Laboratory equipment acquired through the K-FORCE project will be incorporated into existing laboratories, which have established management structure and working standards. Maintenance of equipment procured through the K-FORCE project, since it is part of the official laboratory equipment of the University of Tuzla, falls under the same maintenance and servicing regime as the rest of the equipment.

All engaged laboratories (LAB3, LAB4, LAB6 and LAB13) have either a permanently employed Senior lab technician (LAB3 and LAB4) or appointed Head of laboratory from among teaching staff who manage and take care of functionality, availability and correctness/accuracy of equipment. Through the organizational scheme itself and the structure of the University of Tuzla, or the Faculty of Mining, Geology and Civil Engineering in Tuzla, laboratories are maintained and financed as operational units within the University. Lab technicians are trained and certified to work on specific instruments according to the indicated needs.

With regard to the Master study curriculum, and the foreseen units within the exercises, a part of the teaching process will be carried out through practical and laboratory exercises. Purchased equipment will not be used exclusively by a students of a new Master study developed within K-FORCE, but also by students of the I, II and III cycle of other study programs, as required. Of course, this equipment has been procured to upgrade and capacitate laboratories for better teaching quality of the Master degree program "Disaster Risk Management and Fire Safety Engineering", therefore this study and its participants have a priority.

## LABORATORY

- Below are pictures of new established ICT Educational Lab (ex-classroom No 33):



- Below are pictures of Desktop computer/server in new established ICT Educational Lab (ex-classroom No 33):







# Knowledge FOR Resilient soCiEty



## EQUIPMENT

- Below are pictures of purchased LAB equipment:



- Below are pictures of ICT Educational Lab (ex-classroom No 33) with installed IT equipment:



- “LAB 3” (Lab for natural hazards, safety and ventilation) with equipment in it:



- “LAB 6” (Lab for optical research of mineral and rocks) with equipment in it:



# Knowledge FOR Resilient soCiEty



- “LAB 4” (Lab for geomechanics) with equipment in it:



- “LAB 13” (Lab for non-destructive testing of structures) with equipment in it:



# Knowledge FOR Resilient soCiEty



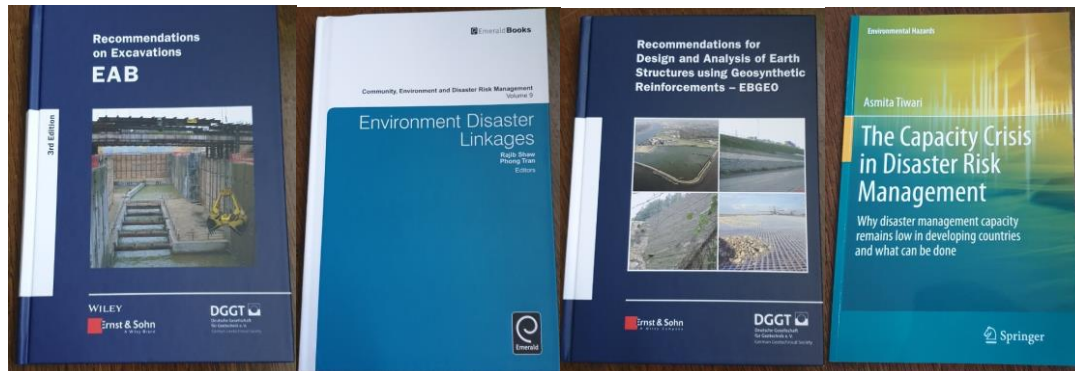
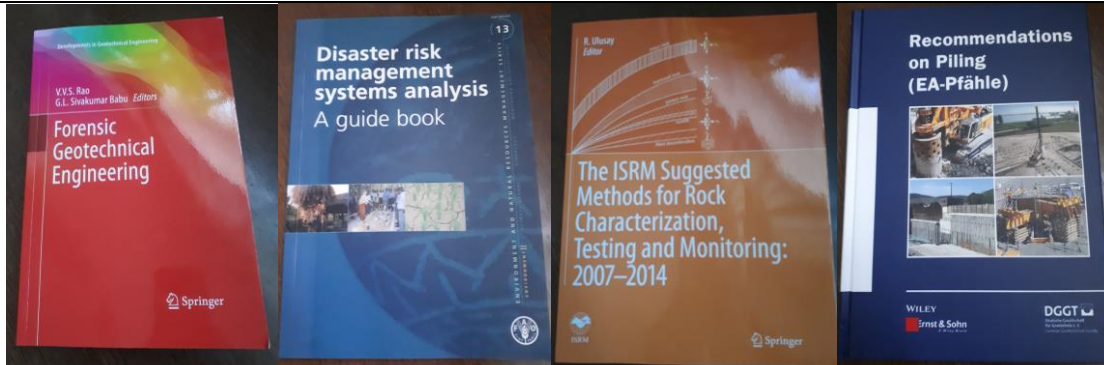
- "Office 31":



- Books:



# Knowledge FOR Resilient soCiEty



ANY ADDITIONAL COMMENT

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# Knowledge FOR Resilient soCiEty



## REPORT ON ESTABLISHED LABORATORY PROJECT PARTNER: UNIVERSITY OF BANJA LUKA (P4)

### LABORATORY DESCRIPTION

- Please describe the laboratory(s) that is(are) established and equipment through K-FORCE project (the size, place, functionality, purpose...)? How the laboratory will be accessible to students/researchers?

The laboratory equipment is installed in K-FORCE classroom at the Institute for Urban Planning, Civil Engineering and Ecology of Republika of Srpska in Banja Luka, and the ITC equipment is partially installed at K-FORCE classroom and partially in offices of staff included in teaching at module “Disaster risk management”. Students and teachers will be granted access according to the academic schedule, upon request for the needs of specific subjects. The laboratory might be used also for PhD defense, academic staff meeting, project meetings, etc. Laptops can be taken to the other locations or in the field.

### LIST OF EQUIPMENT

- Please specify the list of equipment purchased through the project and specify the purpose.

ITC equipment			
No.	Name of item	Quantity	The purpose
1.	Laptop	10	to be used by students for studying, research and other purposes
2.	Laptop	1	to be used by teaching staff in their office premises for research, teaching and other purposes
3.	Laptop + Notebook cooler	2	to be used by teaching staff in their office premises for research, teaching and other purposes
4.	Notebook	1	to be used by teaching staff for teaching, meetings and other purposes
5.	Desktop computer	4	to be used by teaching staff in their office premises and in the laboratory for research, teaching and other purposes
6.	Printer	2	is established in the department premises and in the laboratory and used for different purposes related to project administration, teaching, research and other paperwork preparation
7.	External HDD	2	to be stored in the department and used for facilitating document transfer and inventory
8.	Presentation pointer	3	to be used for teaching purposes
9.	LED Monitor	2	it is installed in the hall of institution for displaying professional presentations, films and other educational content
10.	Wifi router and network configuration	1	it is installed in the laboratory and used for providing internet in the laboratory room
11.	Digital camera	1	to be stored in the department and used for different purposes related to documentation of meetings, webinars and other project activities
12.	Remote projector	1	it is installed in the laboratory and used for teaching, webinars and other project activities



# Knowledge FOR Resilient soCiEty



Laboratory equipment			
No.	Name of item	Quantity	The purpose
1.	Thermo Hygrometer	5	it is installed in the laboratory and to be used for research, teaching, project activities and other purposes by teaching staff and students
2.	Glass thermometer	2	
3.	Precision balances	1	
4.	Bigger mass balances	1	
5.	Huge mass balances	1	
6.	Digital Caliper	5	
7.	USB - Mikroskop	2	
8.	Integrated Voice Digital Test Hammer	1	
9.	Timer-Stopwatch	5	
10.	Menzura 1000 ml	1	
11.	Menzura 100 ml	2	
12.	Multi Functional Rebar Detector	1	
13.	Pull off Adhesion Tester	1	
14.	Professional laser range distance measurer finder	4	
15.	Multi-beam infrared thermometer	1	
16.	The compact ultrasonic thickness meter for homogeneous materials	1	
17.	Vacuum exicator with lid and porcelain plate used for preserving moisture-sensitive items, d=250 mm	1	
18.	Control square (size L 300x200 mm, carbon steel, with back)	1	
19.	Precision feeler gauges (thickness 0.05-1.00, length 200 mm)	1	
20.	Precision feeler gauges (thickness 0.10-2.00, length 100 mm)	1	
21.	Precision feeler gauges (thickness 0.03-1.00, length 100 mm)	1	
22.	Laboratory graduated glass ST, 1000 ml (Capacity: 500ml)	1	
23.	Menzuras STVF 500ml (Capacity: 500ml, class A)	1	
24.	Menzuras STVF 1000ml (Capacity: 1000ml, class A)	1	
25.	Laboratory hot plate (d=18,5 cm, 150 W)	1	
26.	Comparator (precision 0.01 mm, rang 0-3 mm, analog)	4	
27.	Magnetic stand with fixed post and boom arm for comparater	1	



# Knowledge FOR Resilient soCiEty



Books			
No.	Name of item	Quantity	The purpose
1.	Odimljavanje i arhitektura (Smoke extraction and architecture)	1	to be used by students for studying, research and other purposes
2.	Urbanističke i građevinsko-arhitektonske mere bezbednosti od požara (Urban and architectural fire safety measures)	1	
3.	Požari i njihova dejstva (Fires and their effects)	1	
4.	Instalacije i oprema za bezbednost od požara i eksplozija (Fire safety installation and equipment)	1	
5.	Rekonstrukcije zidanih objekata visokogradnje (Reconstruction of masonry buildings)	1	
6.	Projektovanje sistema za dojavu požara (Design of fire alarm systems)	1	
7.	Zidane konstrukcije – nosivost, trajnost i energetska efikasnost (Masonry – load capacity, durability and energy efficiency)	1	
8.	Betonske konstrukcije – SANACIJA (Concrete structures – REPAIR)	2	
9.	Ocena stanja, održavanje i sanacija građevinskih objekata i naselja (Assessment, maintenance and rehabilitation of buildings and settlements)	1	
10.	Elastomerni ležajevi (Elastomeric bearings)	1	
11.	Trajnost konstrukcija (Durability of structures)	2	
12.	Teorija i tehnologija betona (Concrete theory and technology)	2	
13.	Eksperimentalna analiza konstrukcija mjernim trakama (Experimental analysis of structures with strain gauges)	1	
14.	Građevinske tablice (Engineering tables)	2	
15.	Inženjerstvo pouzdanosti 1 (Reliability Engineering 1)	1	



# Knowledge FOR Resilient soCiEty



16.	Montaža betonskih konstrukcija zgrada (Installation of concrete structures )	2
17.	Aseizmičko projektovanje i arhitektura (Aseismic design and architecture)	1
18.	Adaptacija i sanacija (Adaptation and repair)	2
19.	Zidane konstrukcije u savremenoj građevinskoj praksi (Masonry structures in contemporary construction)	1
20.	Građevinski materijali u savremenom graditeljstvu (Building materials in contemporary building development)	1
21.	Experimental stress analysis	1
22.	Numerical Exercises in Fire Protection Engineering	1

## INCLUSION IN TEACHING PROCESS

- Please give a list of courses/practical work where students will use newly established laboratories? Give a brief description for every course, how it will advance the teaching process.

Several courses will require laboratory work. Students will be required to work with different programs for risk modeling and will have to apply their knowledge in different course projects. Therefore independent and supervised work in the laboratory will be required.

Equipment will be used for subjects:

1. **Aseismic Design and Construction** - Introduction to problems in earthquake engineering and seismic analysis of structures, as well as training for defining (selection) of input parameters and analysis of constructions response in the effects of earthquake. As part of the exercise, students will model the construction in a seismic design using current earthquake engineering programs. Laboratory work will be required.
2. **Experimental Analysis of Structures** - Organization and execution of experimental analysis of constructions, identification and analysis of problems based on experimental results and solving current problems of building constructions using experimental analysis. Laboratory work will be required.
3. **Constructive Rules for Fire safety of Building** - Students master the basic concepts of fire, its origin and consequences. In particular, the student mastered the necessary knowledge of construction measures of fire protection and their application. As part of the exercise, students will simulate fire and evacuation routes using the software. Laboratory work will be required.
4. **Assessment of Damaged Structures** - Students acquiring knowledge on the basic types of damage to buildings after catastrophic events and fires, as well as on methodologies and methods for assessing the actual condition and safety of damaged buildings. Within laboratory exercises, students can see and perform various non-destructive tests themselves.
5. **Repair of Timber, Steel and Masonry structures** - Students acquiring knowledge on the basic aspects of sustainability, and principles, possibilities and methods of rehabilitation of masonry, steel and wooden structures. Laboratory work will be required.
6. **Repair of Concrete Structures** - Students acquiring knowledge about principles, possibilities and methods of remediation of concrete elements and constructions. Laboratory work will be required.





# Knowledge FOR Resilient soCiEtY



In the course of lectures on subjects in the study master program DRM&FSE of the Faculty of Architecture, Civil Engineering and Geodesy of the University of Banja Luka, where possible, students will collect field data which later processed and put in defined database and simulation models. Therefore, they are enabled to participate in the complete procedure for performing safety and disaster management works. Based on the above, the subject curriculum foresees that within the subject that will address the topic of the assessment of damaged civil engineering structures, geotechnical hazards and fire safety engineering, the issue of defining a structures stability, properties will be adequately described as much as possible of the data collected from different sources. In practical terms, it is intended to work on the field data measuring, then defining a database, acquiring data acquired through various sources, and ultimately to provide reliable information on which correct and competent decisions can be made in crisis situations.

## SUSTAINABILITY

- How are long-term needs for support being addressed (maintenance of equipment, continued retraining of staff, continuity of staff and financing)?

The administrative staff of the Faculty of Architecture, Civil Engineering and Geodesy of the University of Banja Luka will be in charge of periodical equipment maintenance. Moreover, external contractors might be engaged for specific purposes related to equipment maintenance. A dedicated administrative staff is in charge for all IT equipment management, therefore is constantly being trained and is competent for this task. Every year budget of the institution foresee financing for periodic maintenance of equipment.

- Do you think students will be using laboratory established through the project?

The new master program developed within the K-FORCE project has been licensed by the Ministry of Education and Culture. It is foreseen that the program will pursue long after the project is finished. The list of subjects presented above specifies the need for laboratory work for learning process. Therefore it is expected that the laboratory will be very beneficial for implementing this master. Moreover, other study programs of the Department of Civil Engineering also require intensive laboratory work and the capacities of the institution currently are unable to fulfil the requirements of some subjects. Therefore, this new laboratory will address also need beyond the project. It is expected that it will be in full operation after its establishment.



# Knowledge FOR Resilient soCiEty



## LABORATORY

- Please “insert” here 4 photos of the laboratory (space, laboratory as a whole, entrance door with the K-FORCE sign...).



## EQUIPMENT

- Please “insert” photos of the equipment items in laboratory.

### ITC equipment

1. Laptop (10 pcs)



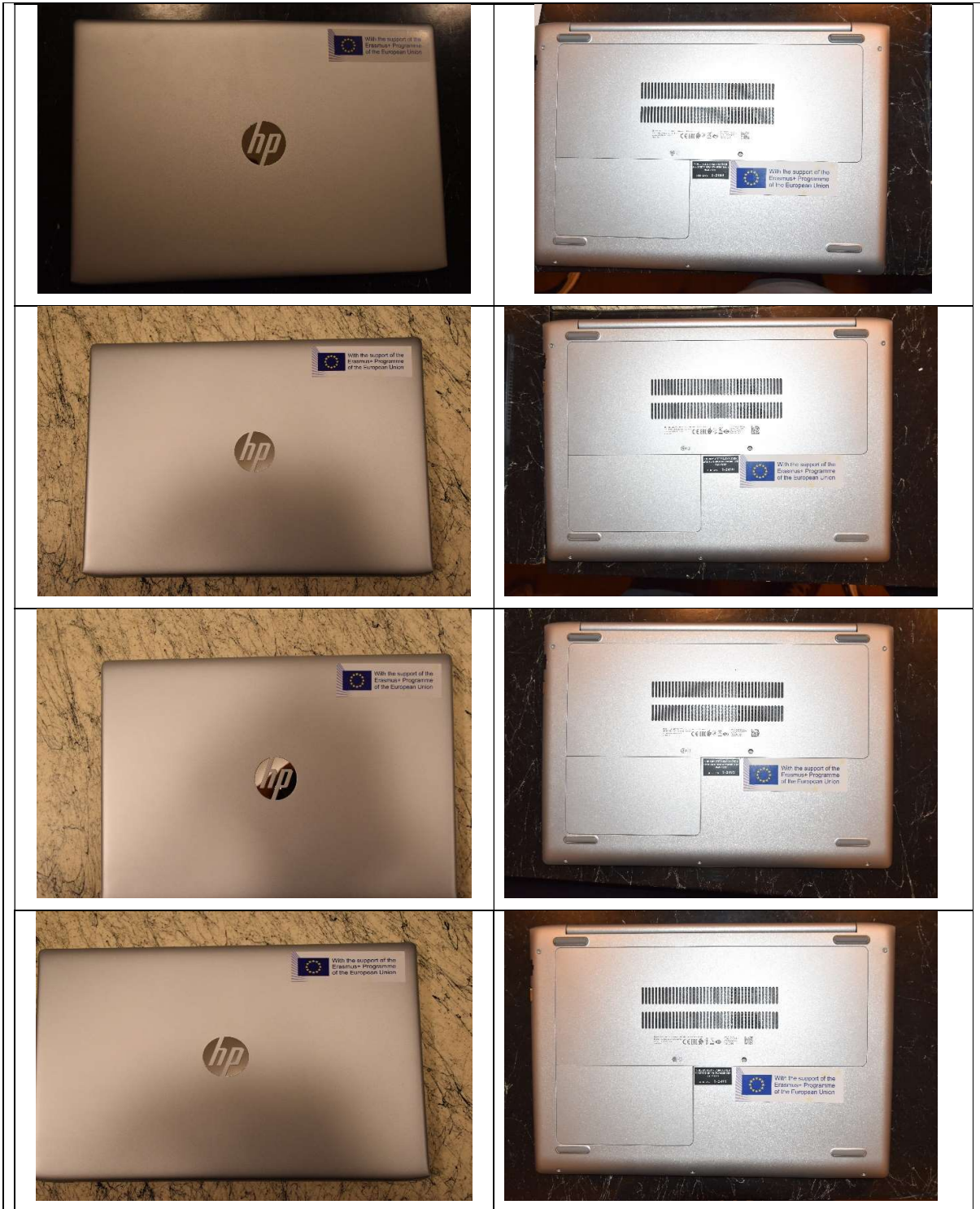


# Knowledge FOR Resilient soCiEty





# Knowledge FOR Resilient soCiEty





# Knowledge FOR Resilient soCiEty



## 2. Laptop (1 pc)



## 3. Laptop + Notebook cooler (2 pcs)





# Knowledge FOR Resilient soCiEty



## 4. Notebook (1 pc)



## 4. Desktop computer (4 pcs)





# Knowledge FOR Resilient soCiEty



## 6. Printer (2 pcs)



## 7. External HDD (2 pcs)





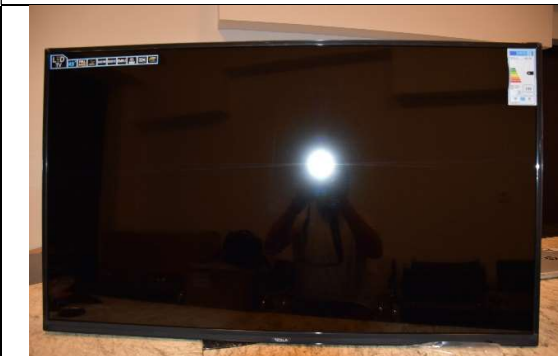
# Knowledge FOR Resilient soCiEty



## 8. Presentation pointer (3 pcs)



## 9. LED Monitor (2 pcs)







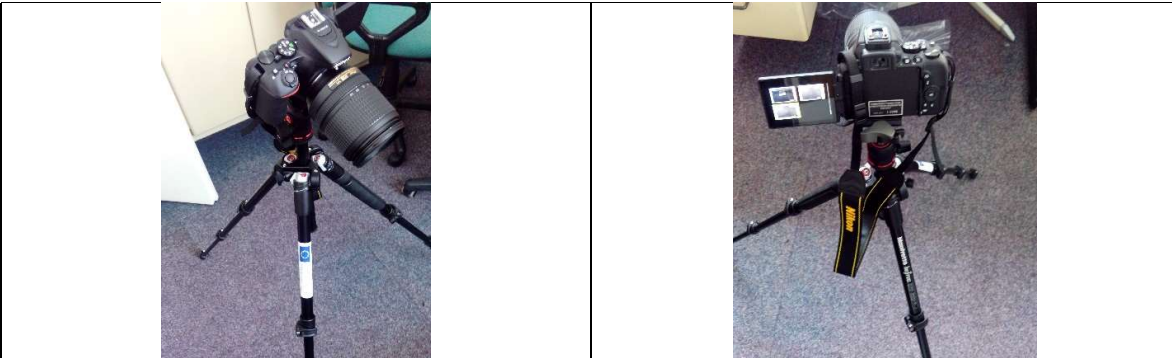
# Knowledge FOR Resilient soCiEty



10. Wifi router and network configuration (1 pc)



11. Digital camera (1 pc)



12. Remote projector (1 pc)





# Knowledge FOR Resilient soCiEty

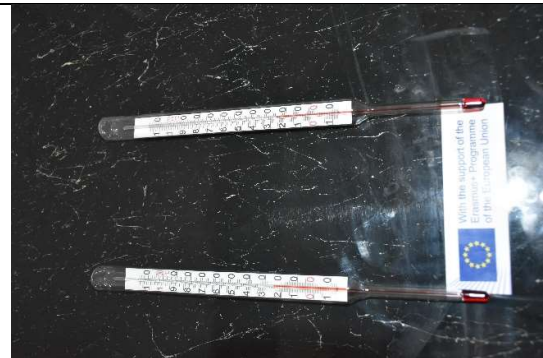


## Laboratory equipment

### 1. Thermo Hygrometer (5 pcs)



### 2. Glass thermometer (2 pcs)



### 3. Precision balances ( 1 pc)





# Knowledge FOR Resilient soCiEty



## 4. Bigger mass balances (1 pc)



## 5. Huge mass balances (1 pc)



## 6. Digital Caliper (5 pcs)





## 7. USB – Mikroskop (2 pcs)



## 8. Integrated Voice Digital Test Hammer (1 pc)



## 9. Timer-Stopwatch (5 pcs)





10. Menzura 1000 ml (1 pc)



11. Menzura 100 ml (2 pcs)



12. Multi Functional Rebar Detector (1 pc)





13. Pull off Adhesion Tester (1 pc)



14. Professional laser range distance measurer finder (4 pcs)



15. Multi-beam infrared thermometer (1 pcs)





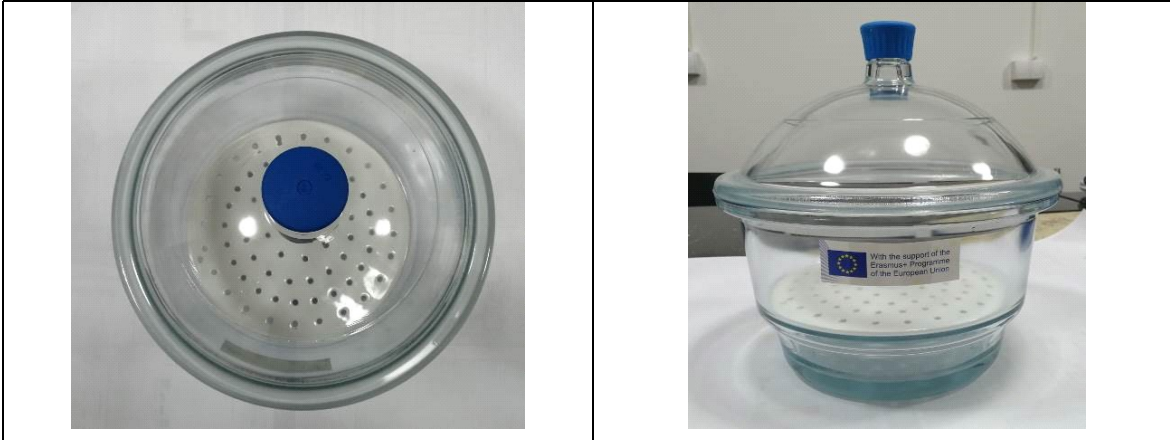
# Knowledge FOR Resilient soCiEty



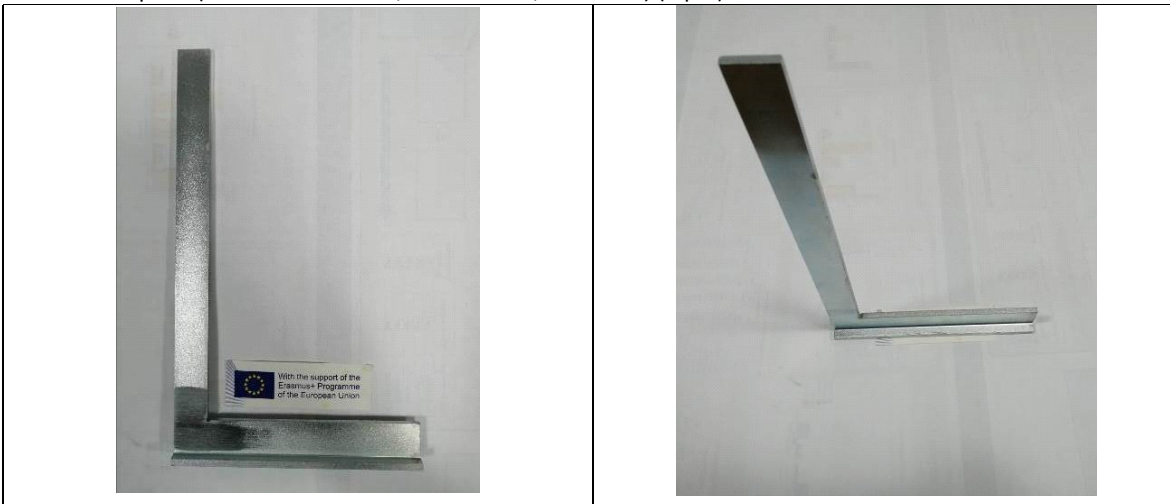
16. The compact ultrasonic thickness meter for homogeneous materials (1 pcs)



17. Vacuum exicator with lid and porcelain plate used for preserving moisture-sensitive items, d=250 mm (1 pcs)



18. Control square (size L 300x200 mm, carbon steel, with back) (1 pcs)





# Knowledge FOR Resilient soCiEty



19. Precision feeler gauges (thickness 0.05-1.00, length 200 mm) (1 pcs)



20. Precision feeler gauges (thickness 0.10-2.00, length 100 mm) (1 pcs)



21. Precision feeler gauges (thickness 0.03-1.00, length 100 mm) (1 pcs)







# Knowledge FOR Resilient soCiEty



22. Laboratory graduated glass ST, 1000 ml (Capacity: 500ml) (1 pcs)

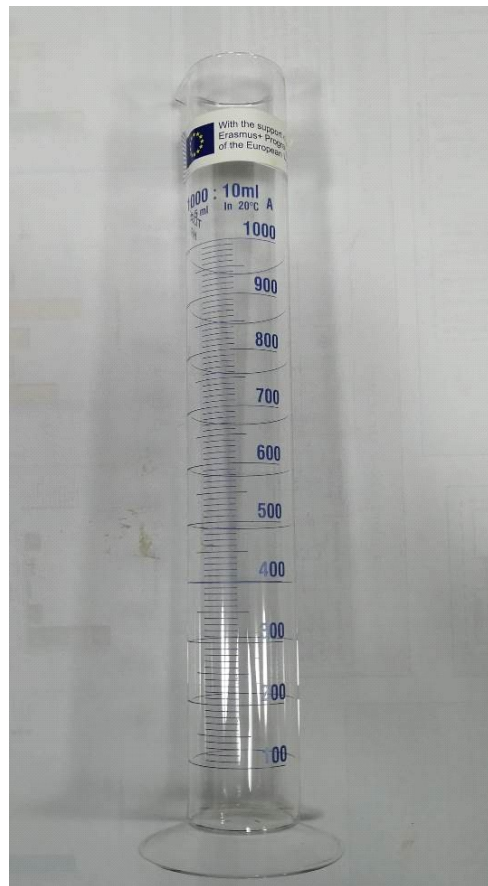


23. Menzuras STVF 500ml (Capacity: 500ml, class A) (1 pcs)





24. Menzuras STVF 1000ml (Capacity: 1000ml, class A) (1 pcs)



25. Laboratory hot plate (d=18,5 cm, 150 W) (1 pcs)





# Knowledge FOR Resilient soCiEty



26. Comparator (precision 0.01 mm, rang 0-3 mm, analog) (4 pcs)



27. Magnetic stand with fixed post and boom arm for comparator (1 pcs)



## BOOKS



## ANY ADDITIONAL COMMENT

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# KnowledgeFOR ResilientsoCiEty



## REPORT ON ESTABLISHED LABORATORY PROJECT PARTNER: University of Tirana (P5)

### LABORATORY DESCRIPTION

- Please describe the laboratory(s) that is(are) established and equipment through K-FORCE project (the size, place, functionality, purpose...)? How the laboratory will be accessible to students/researchers?

The laboratory auditorium has been created in room A208, at the premises of the Faculty of Economy University of Tirana. It is located on the second floor of building A and has an area of 35 m<sup>2</sup>. Same types of laboratories have been created in the same floor on similar rooms transformed for the purpose of creating learning environments. The laboratory will be administered by the Department of Finance, and used for the purposes of delivering learning sections of different subjects within the new Master Program created within the K-Force project and other subjects related to finance study programs. Students and teachers will be granted access according to the academic schedule, upon request for the needs of specific subjects. The laboratory might be used also for PhD defense, academic staff meeting, project meetings, etc.

### LIST OF EQUIPMENT

- Please specify the list of equipment purchased through the project and specify the purpose.

The list of equipment to be established in the new Laboratory at the faculty of Economy (UT) is as follows:

- 31 PC – to be established in the Laboratory and used for teaching purposes.
- 31 Monitor – to be established in the Laboratory and used for teaching purposes.
- 4 Laptops – to be used by teaching staff in their office premises for research, teaching, and other purposes.
- 1 Projector – to be established in the Laboratory and used for teaching purposes.
- 1 Projector Support – to be established in the Laboratory and used for teaching purposes.
- 1 Projector White Board – to be established in the Laboratory and used for teaching purposes.
- 1 Wireless Slide presenter – to be established in the Laboratory and used for teaching purposes.
- 1 Photocopy/Printer – to be established in the Department premises and used for different purposes related to project administration, teaching, research and other paperwork preparation.
- 1 Shredder – to be established in the Department premises and used for different purposes related to project administration
- 1 Router Wireless – to be established in the Laboratory and used for providing internet in the Laboratory room
- 1 Chromecast - to be established in the Laboratory and used for media streaming.
- 1 set of TeleConference Room Equipment (Camera + Microphones) - to be established in the Laboratory and used for distance learning purposes, conference calls with project partners, and other types of video calls.
- 1 set of Speakers – to be established in the Laboratory and used for teaching purposes.
- 1 Video Converter adapter – to be established in the Laboratory and used for teaching purposes.
- 1 External HDD 1 TB – to be stored in the department and used for facilitating document transfer and inventory.
- 1 Digital Camera to be stored in the department and used for different purposes related to documentation of meetings, and other project activities.
- 1 Tripod – to be used with the digital camera.
- 1 Outdoor Handheld GPS GIS Mapping Data Collector x 1 – to be used for specific purposes of the teaching subject "Risk Modeling in Practice" to be offered in the new developed master program.
- 23 titles of Books/textbooks – to be used in each subject of the new master program as basic or additional literature for teaching and learning process.



# KnowledgeFOR ResilientsoCiEty



The list of books purchased within the project include:

- 1 Research Methods and Methodology in Finance and Accounting  
Bob Ryan, Robert W. Scapens, Michael Theobald, Viv Beattie, ISBN 978-1861528810, Cengage Learning EMEA
- 2 Case Study Research: Design and Methods (Applied Social Research Methods) 5th Edition  
Robert K. Yin, ISBN 978-1452242569, SAGE Publications
- 3 Alternative Risk Transfer: Integrated Risk Management through Insurance, Reinsurance, and the Capital Markets Hardcover  
Erik Banks, ISBN 978-0470857458, Wiley; 1 edition
- 4 Introduction to International Disaster Management, Third Edition 3rd Edition  
Damon P. Coppola, ISBN 978-0128014776, Butterworth-Heinemann
- 5 Environmental Economics  
Barry C Field (Author), ISBN 9781259255403, McGraw Hill
- 6 Governing Sustainability  
W. Neil Adger, Andrew Jordan, ISBN 978-0521518758, Cambridge University Press
- 7 Business Risk and Simulation Modelling in Practice: Using Excel, VBA and @RISK (The Wiley Finance Series) 1st Edition  
Michael Rees, ISBN 978-1118904053., Wiley
- 8 Financial Modeling (MIT Press) fourth edition Edition  
Simon Benninga, ISBN 978-0262027281, The MIT Press
- 9 Principles of Risk Analysis: Decision Making Under Uncertainty 1st Edition  
Charles Yoe, ISBN 978-1439857496, CRC Press (2 copies)
- 10 Implementing Enterprise Risk Management: From Methods to Applications  
James Lam, ISBN 978-0471745198, Wiley
- 11 Financial Institutions Management: A risk management approach  
Saunders, ISBN 9781259922046, McGraw Hill
- 12 Risk Management in Banking (Wiley Finance)  
Joël Bessis, ISBN 978-1118660218, Wiley
- 13 Valuation: Measuring and Managing the Value of Companies, 6th Edition  
McKinsey & Company Inc., Tim Koller, Marc Goedhart, David Wessels, ISBN 9781118873700, Wiley
- 14 Probability for Risk Management  
Matthew J. Stewart, Donald Hassett, ISBN 978-1566985482, ACTEX Publications
- 15 Principles of Risk Management and Insurance (12th Edition)  
George E. Rejda, Michael McNamara, ISBN 978-0132992916, Pearson
- 16 Energy Markets: Price Risk Management and Trading  
Tom James, ISBN 978-0470822258, Wiley
- 17 Occupational Health and Safety Management: A Practical Approach, Third Edition  
Charles D. Reese, ISBN 978-1482231335, CRC Press
- 18 Real Estate Principles: A value approach  
David C. Ling, Wayne R. Archer, ISBN 9781259252631, McGraw Hill
- 19 Defining and Measuring Economic Resilience from a Societal, Environmental and Security Perspective (Integrated Disaster Risk Management)  
Adam Rose, ISBN-13: 978-9811015328, Springer; 1st ed. 2017 edition (April 4, 2017) (2 copies)
- 20 Behavioral Corporate Finance  
Hersh Shefrin, ISBN-13: 978-0072848656, McGraw-Hill/Irwin Series in Finance, Insurance, and Real Est
- 21 Fiscal Administration  
John Mikesell, ISBN-13: 978-1305953680, Wadsworth Publishing; 10 edition
- 22 Corporate Value of Enterprise Risk Management: The Next Step in Business Management  
Sim Segal, ISBN-13: 978-0470882542, Wiley; 1 edition (March 8, 2011)
- 23 Risk Management: Concepts and Guidance, Fifth Edition  
Carl L. Pritchard, ISBN-13: 978-1482258455, Auerbach Publications; 5 edition (December 17, 2014)

**INCLUSION IN TEACHING PROCESS**



- Please give a list of courses/practical work where students will use newly established laboratories? Give a brief description for every course, how it will advance the teaching process.

Several courses will require laboratory work. Students will be required to work with different programs for risk modeling and will have to apply their knowledge in different course projects. Therefore independent and supervised work in the laboratory will be required. The list of subject that will require such work and a short description is as follows:

### **1. Foundation for risk assessment and Decision Making**

Students shall gain fundamental knowledge and understanding of risk analysis, risk evaluation and risk management, with applications in a broad array of areas including safety, health, environment and society. Decision making module is devoted to individual decision theory, game theory and social choice theory. Laboratory work will be required in the topics of game theory, decision making and risk analysis.

### **2. Econometrics**

This course introduces the econometric techniques that are commonly applied to finance with a critical and selective exposition, emphasizing the areas of Econometrics, such as GARCH, co-integration and copulas that are required for resolving problems in market risk analysis. Laboratory work will be required throughout the course for applying theoretical knowledge in practice.

### **3. Probability in Risk Management**

This course introduces students to the principles of probability theory. Specific topics covered include probability theory; descriptive statistics and graphical representations of data; probability distribution functions, etc. Laboratory work will be required for selected topics.

### **4. Risk Modeling in Practice**

This subject will offer a comprehensive, in–depth, and practical guide that aims to help business risk managers, modeling analysts and general management to understand, conduct and use quantitative risk assessment and uncertainty modeling in their own situations. Intensive laboratory work will be required throughout the course.

### **5. Valuation of Real Estates**

This course retains its focus on the valuation and appraisal of commercial and industrial property across investment, development and occupier markets. It is structured from the client perspective and covers single-asset pricing, risk and return issues. Laboratory work will be required in selected topics.

### **6. Research Methods**

This module will serve to give students thorough knowledge and skills necessary to perform a study project, scientific article or dissertation. Students will develop the ability to conduct individual research or studies in their professional careers. Laboratory work will be required in selected topics.

## **SUSTAINABILITY**

- How are long-term needs for support being addressed (maintenance of equipment, continued retraining of staff, continuity of staff and financing)?

The administrative staff of the Faculty of Economy, UT, will be in charge of periodical equipment maintenance. Moreover, external contractors might be engaged for specific purposes related to equipment maintenance. A dedicated administrative staff is in charge for all laboratories management, therefore is constantly being trained and is competent for this task. Every year budget of the institution foresee financing for periodic maintenance of equipment.

- Do you think students will be using laboratory established through the project?

The new master program developed within the K-Force project has been licensed by the Ministry of Education. It is foreseen that the program will pursue long after the project is finished. The list of subject presented above specifies



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the need for laboratory work for learning process. Therefore it is expected that the laboratory will be very beneficial for implementing this master. Moreover, other study programs of the Department of Finance also require intensive laboratory work and the capacities of the institution currently are unable to fulfil the requirements of some subjects. Therefore, this new laboratory will address also need beyond the project. It is expected that it will be in full operation after its establishment.

## LABORATORY

- Please “insert” here 4 photos of the laboratory (space, laboratory as a whole, entrance door with the K-FORCE sign...).

The procurement process ended on 26 December 2018. The Contract with the Supplier was signed on 7 January 2019 and the delivery of equipment was finalized on 23 February 2019. Below are some pictures of the current Room where the laboratory is being established. There are some additional instalments in process, while all equipment are being stored at the Department of Finance. Some of them are being already used such as the printer/photocopy.



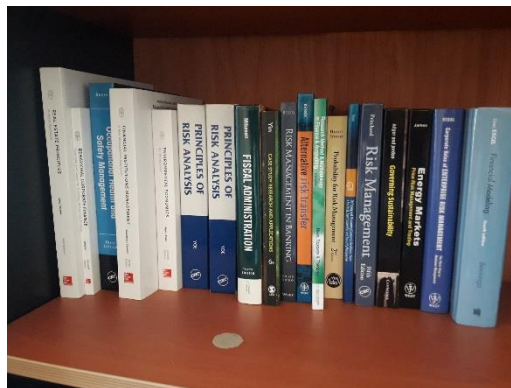


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## EQUIPMENT

- Please “insert” photos of the equipment items in laboratory.



## ANY ADDITIONAL COMMENT

Some administrative issues delayed the process of equipment procurement. Anyhow, the process was concluded February 2019, with the delivery of the equipment.





## REPORT ON ESTABLISHED LABORATORY PROJECT PARTNER: EPOKA UNIVERSITY (P6)

### LABORATORY DESCRIPTION

- Please describe the laboratory(s) that is(are) established and equipment through K-FORCE project (the size, place, functionality, purpose...)? How the laboratory will be accessible to students/researchers?
  - The established laboratory to advance the effective teaching and learning process within the framework of the Professional Master in DRM&FS at Epoka University. In addition, the lab provides educational opportunities to improve quality of the offered courses.
  - The students/researchers can access the laboratory daily basis, during the laboratory/seminar of the courses as well as for independent work (research, study) any time they require. The access is made via their students/researcher Epoka ID (identity card).
  - The lab is placed on the ground floor of the Building E of Epoka Uni Campus. The lab space is for 40 computers used mainly by the students of the Professional Master in DRM&FS at Epoka University.

### LIST OF EQUIPMENT

- Please specify the list of equipment purchased through the project and specify the purpose.
  1. **PC komputer x 25**- Used for multipurpose tasks and processes of the students and lecturers within the framework of the program Professional Master in DRM&FS at Epoka University including computer-aided analysis and design, programming, and GIS
  2. **Laptop x 6** - Used for multipurpose tasks and processes of the lecturers for presentations, meetings, reports within the framework of the program Professional Master in DRM&FS at Epoka University
  3. **Digital Camera x1**- capturing photographs in digital memory and diagnosing the situation of disaster management and fire safety
  4. **Outdoor Handheld GPS GIS Mapping Data Collector x 1** – to analyse the primary source of Geographic Information Systems (GIS) Data, presented both spatially and geographically
  5. **Video projector x 3** – presentations purposes
  6. **Router Wireless x 1**- supporting Fast Ethernet integrated into the main SoC.
  7. **Video conference system x1**- enabling the communication over a distance between different researchers (video and audio) in near real-time.

The list of books purchased within the K-Force project:

1. Project Management: A Systems Approach to Planning, Scheduling, and Controlling  
Harold Kerzner; ISBN 978-1118022276; Wiley Publishing Inc., 2013
2. Flood Risk Assessment and Management "Dawei Han  
DOI:10.2174/97816080504751110101 eISBN:978-1-60805-047-5, 2011 ISBN:978-1-60805-555-5 (2 copies)
3. Structural Design for Fire Safety, 2nd Edition Andrew H. Buchanan, Anthony Kwabena Abu ISBN: 978-0-470-97289-2 (2 copies)



4. Remote Sensing and GIS Technologies for Monitoring and Prediction of Disasters Nayak, Shailesh, Zlatanova, Sisi (Eds.) ISBN: 978-3-540-79259-8, Year 2008, Pages: 272, Edition 1, Publisher: Springer
5. Natural Disaster Risk Management: Geosciences and Social Responsibility Ulrich Ranke, ISBN: 3319206745, Year 2015, Publisher: Springer
6. The Capacity Crisis in Disaster Risk Management: Why disaster management capacity remains low in developing countries and what can be done Asmita Tiwari, ISBN: 3319094041, Year 2015, Publisher: Springer
7. Barry's Advanced Construction of Buildings 2nd Edition Stephen Emmitt, Christopher A. Gorse, Wiley-Blackwell; 2 edition (February 1, 2010) ISBN: 978-1405188531
8. Assessment of Total Evacuation Systems for Tall Buildings, Ronchi, Enrico, Nilsson, Daniel, Springer, ISBN 978-1-4939-1074-8

## INCLUSION IN TEACHING PROCESS

Please give a list of courses/practical work where students will use newly established laboratories? Give a brief description for every course, how it will advance the teaching process.

\*The computer laboratory is already a crucial operative space for the course Arch451- Landscape Perspectives in DRM&FS, being delivered within the scope of the program Professional Master in DRM&FS at Epoka University. The technical specifications of the machines provide a fair performance in the practical sessions of the course. Specifically, the course is utilizing QGIS as an open source software in learning and improving a GIS based methodology of forest fire risk assessment relying on the wildfire ignition probability and wildfire spreading capacity of forested landscapes. The availability of the computer laboratory is crucial in experiencing a project-based learning and problem-oriented research process.

\*In addition, the laboratory is used specifically for the course: ARCH 428- Evacuation Calculation Modeling within the scope of the program Professional Master in DRM&FS at Epoka University. The course syllabus included the used of the computational simulation: Pathfinder installed in the computer lap. The software analyses the evacuation time: Components of evacuation time, Transitions, Queues. In addition, in the lab, general concepts of evacuation modelling and tutorial are introduced

\*For all the other courses, the lap is crucial to help the students write reports and prepare the term and final projects in different application software's (word, excel, PowerPoint, engineering-related computational software)

## SUSTAINABILITY

- How are long-term needs for support being addressed (maintenance of equipment, continued retraining of staff, continuity of staff and financing)?
- Do you think students will be using laboratory established through the project?

The long-term needs for the laboratory support will be addressed as follows:

- The maintenance of equipment will be ensured through the technical support of the ICTC Office and University Technician Team. ICTCO is responsible for the maintenance ICT based Labs, in respect to software and hardware, providing security and ensuring the continuation of its functioning;
- Periodical assessment (semesterly) and request for updating/upgrading of equipment;



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- Continuous training will be supported through partnership and coalitions with public- and private- sector organisations;
- The University commits for the continuity of staff and financing.

The established educational ICT based laboratory is based on interoperability capabilities, through the learning platform, to ensure its continuous usage. With the expanding of disastrous events and emergency sector labour market, it is expected a great interest in graduate DRM&FSE education. The teaching staff will keep up with novel trends both in the field and teaching methods, ensuring the need for long term usage of the lab.

## LABORATORY

- Please “insert” here photos of the laboratory (space, laboratory as a whole, entrance door with the K-FORCE sign...).



## EQUIPMENT

- Please “insert” photos of the equipment items in laboratory.



PC



LAPTOP



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CAMERA WITH FISHEYE



VIDEO PROJECTOR



ROUTER



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DATA COLLECTOR



PROJECTOR



BOOKS



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**ANY ADDITIONAL COMMENT**

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