

Dear colleagues,

Favourable epidemiological situation and good vaccination coverage of GEOBIZ consortium members allowed us to organize two GEOBIZ summer schools in physical mode. I am pleased to present contributions to these two activities held in Belgrade and Dubrovnik.

Also, in this issue we bring an overview of two GEOBIZ LLL-activities organized by our partners from Novi Sad and Sarajevo, and a review of the University of Tirana's participation in GIS day.

In the end, I have saved a special contribution about the public defence of Lucia Capatina's doctoral thesis and the announcement of two conferences organized by our partners. I congratulate Lucia from the bottom of my heart, and all of you I invite to support the announced conferences.

Although this is an introduction to a somewhat ceremonial issue that comes out just before the New Year, I take this opportunity to remind all colleagues who have not yet... to submit financial forms for Y2 as soon as possible but no later than December 31st, 2021.

And finally, on behalf of my colleagues Iva, Mariza, Danijel, Zvonimir and Željko I wish you all the best in the New Year!

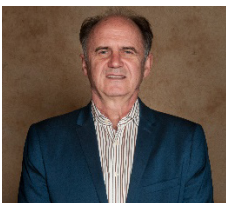


We wish you a
white Christmas,
successful New
Year 2022, and
personal happiness
and health!



Vesna Poslončec-Petrić

1ST GEOBIZ SUMMER SCHOOL, BELGRADE, JULY 5-8, 2021



Branko Božić, Faculty of Civil Engineering,
University of Belgrade

Training the teachers from partner's countries was one of the most important activities in GEOBIZ Erasmus+ project. The overall aim of the training was to help the partner's teachers to: a) prepare and execute university and LLL courses

using the PBL pedagogy approach, b) manage PBL learning process in accordance with business (industry) needs and c) use more educational forms and digital communication technology means. To fulfil the Project proclaimed objectives, two training schools have been planned. The first School should focus on new technologies implemented in geoinformatics educational process, methodology of teaching and selected cases and designed courses. The second School entirely should focus on practising teaching of developed geoinformatics courses. Because of the COVID-19 epidemic, a training program was modified. Having in mind delaying the 1st Summer school, three new online training

events were organized in Leuven, Zagreb and Belgrade. This paper is focused on the summer school in Belgrade and will describe the content of the teachers training process.

Training program

The Summer school was organized from 5th to 8th of July 2021 at the Faculty of Civil Engineering, University of Belgrade. Thirteen sessions were prepared based on the developed cases. Nine teachers were engaged in training process preparing the topics, materials and instructions for the teachers being presented on-site or via Zoom.



GEOBIZ 1st Summer school (Opening ceremony)

On behalf of the Host institution, Project participants were addressed by the Local coordinator, prof. Branko Bozic, Faculty dean prof. Vladan Kuzmanovic and Vice Rector prof. Nenad Zrnic. Project coordinator prof. Zeljko Bacic shortly reported the Project progress. Two presentations have been presented before the training started. The first was actual study programs at the Department of geodesy and geoinformatics and the second regards the new study program in Geoinformatics, recently accredited.

The training program with lecturers, topics and topic material were prepared in advance. Seven topics have been offered, each separated into

two phases, as follows. Topic one - GIS operations with two cases (PCD02 and PCD11) was prepared by Nenad Brodić (UB). The first phase focused on using QGIS for georeferencing raster maps, collecting geospatial data and performing basic GIS operations. Phase two is dedicated to advanced GIS operations and connected to case PCD24 focused on using QGIS for performing advanced GIS operations.



Training of teachers (1)

Topic two - UAV Photogrammetry based on case PCD21 was prepared by Nenad Brodic (UB). It focused on processing georeferenced UAV imagery and data collected on the field in Pix4D Mapper and Pix4Dcloud. Data processing based on case PCD22 and data collected at Umka Landslide with UAV Mapping Mission focused on further processing of photogrammetry project results and analysis in Pix4DMapper, Pix4DCloud and QGIS including: Point Cloud classification and editing, DSM and DEM generation, Contour lines generation and smoothing, Mapping of features, spatial measurements (heights, distances, areas, volumes) and extracting terrain cross-section.

Topic three - Geodata for Civil Engineering and Architect Designing was prepared by Mirza Ponjavic (GAUSS) based on the PCD20 case. It focused on importing geospatial data in GIS software. In the second phase (Lecturer: Almir

Karabegović, GAUSS), structuring and integration of geospatial data with other spatial data sets, a new layer for entering polygon features, adding attribute fields and drawing the building contours were analysed. Reading the dimensions of the building and entering the area value in the attribute table; Update GIS data using terrestrial survey data; Adding contextual layers using WMS services for OSM map data and Bing Satellite imagery; Create a map layout with the Layout Manager tool and export the map to a PDF file were included, too.



Training of teachers (2)

Topic four - Noise mapping using mobile devices was prepared by Vesna Poslončec-Petrić & Iva Cibilić (UNIZG). The topic was based on case PCD09 with data collected around the faculty. The training focused on noise pollution - setting the problem, problem-solving approaches and collecting noise data in the selected area. The second part of the topic focus was on statistical geodata processing for web presentation involving the following tasks: interpolate measurement data, attribute data classification and map design and print layout creating and analysis and results from comparison. The next processing programs were used: QGIS, ArcGIS online, Surfer, ...

Topic five - new methods of teaching – Examples for business-academia cooperation in teaching

was prepared by Andreas Wytzisk-Arens (HSBO). Four examples were explained in detail: the autonomous lawnmower, the green city – finding changing places for solar cars, optimizing racing strategy for Solar World Challenge and Assessing urban micro-climate. Through the presentation author focused on the student-centred approach, problem-solving philosophy, developing the skills instead of defined solution, PBL methodology and the role of the teacher in learning process.

Topic six - Mapping burnt areas using satellite EO data was prepared by Nikola Stančić (UB) based on case PCD16. Problem formulation, application of remote sensing for monitoring wildfires and mapping burned areas available Earth observation datasets and Useful remote sensing indices have been exercised. The second phase - Manual processing of satellite EO data using GIS software based on case PCD18 focused on data download and preparation, algorithms for manipulating raster data and detecting burnt areas and reporting.



Training of teachers (3)

Topic seven - Crop monitoring with remote sensing was prepared by Gordana Jakovljević and Mladen Amović (UNBL). The topic was based on case PCD17 and in the first phase - problem formulation discussed remote sensing for agriculture, spectral characteristics, vegetation indices, available EO datasets and introduction

to GEE were included. In phase two - Processing of data using GEE, time series in GEE and Analyse of vegetation dynamics have been discussed.

Summer school attended 24 participants. In the end, the teachers filled the questionnaire. The

results of their response are presented [here](#). The training material for the cases have been prepared and uploaded to [GEOBIZ Moodle](#) platform and [GEOBIZ Repository](#).



Participants of 1st GEOBIZ Summer school

2ND GEOBIZ SUMMER SCHOOL, DUBROVNIK, SEPTEMBER 13-17, 2021



*Iva Cibilić, Faculty of Geodesy
University of Zagreb*

The goal of the second GEOBIZ Summer School was the training of teachers and their preparation for the implementation of the curriculum of advanced technological subjects in the geospatial domain that were developed within the project. Since the methodology of new technologies implemented in geoinformatics educational process was covered

in the First Summer School in Belgrade, now was the time to practice teaching of selected cases and designed geoinformatics courses. Since the COVID-19 pandemic is still active, the event was organized in hybrid mode, the participants who couldn't be with us in Dubrovnik had the opportunity to participate online via MS Teams.

The Summer school was organized from September 13-17, 2021 at the University of Zagreb Centre for Advanced Academic Studies in Dubrovnik, Croatia. The sessions were prepared based on the cases developed in Belgrade Summer School. Presenters were engaged in training process preparing the topics, materials and instructions for the teachers being presented on-site or via MS Teams.

First day of training the participants were welcomed by Frano Hartman, Host institution Director and Almin Đapo, Dean of Faculty of Geodesy. Project coordinator prof. Željko Bačić shortly reported the Project progress.



GEOBIZ 2nd Summer school (Opening ceremony)

The training program with lecturers, topics and topic material was prepared in advance. First day was a brief reminder of the cases that were presented on First Summer School: CD20 – Geodata for Civil Engineering and Architecture Designing by Gauss, CD11 – Digitalization of paper urban planning maps by UNS, CD22 – Vectorization of 3D models of objects based on point clouds by UNBL, CD03 – Utility and Government Services by Gauss, CD21 – UAV in urban planning and management by UB, CD08 – Development of an application for applying GNSS in agriculture by UNIZG, CD05 – Geovisualization in Spatial Epidemiology by Gauss, CD18 – Application of remote sensing data in mapping and monitoring forest by UNS, CD02/CD24 – Statistical Surveys I & II by UB, CD09 – Noise mapping using mobile devices by UNIZG, CD04 – Registers of Spatial Units and Addresses by Gauss, and new case, CD25 – Indoor Navigation using Earth Magnetic Field by UNIZG. Some of the cases discussed in Belgrade did not repeat (CD16, CD17) because new cases were presented (CD03, CD08, CD05, CD04, CD25).

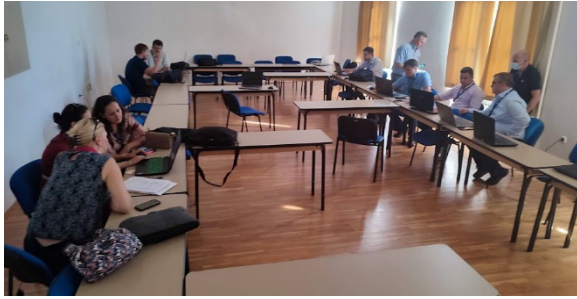
Second day of the training the participants were divided into groups based on their application

for selected cases. Teachers worked in groups on practical implementation of the cases. Below is the table of participants in each practical training of the case.

Table 1. Localization groups

Case	Title	Chosen by	Mentor
CD20	Geodata for Civil Engineering and Architecture Designing	Emina Hadžić, UNSA Edon Maliq, UBT Vitalie Dilan, UST Arben Xhialli UPT(FCE) Tiganu Eugeniu, TUM Botnaru Dumitru, TUM	Mirza Ponjavić and Almir Karabegović, GAUSS
CD11	Digitalization of paper urban planning maps	Enkela Begu UT Tomor Ćela, UBT Botnaru Dumitru, TUM Miladen Amović, UBL	Milan Vrtunski , UNS
CD03	Utility and Government Services	Lucia Capatina, UST	Mirza Ponjavić and Aleksandra Čosić, GAUSS
CD21	UAV in urban planning and management	Shqiprim Ahmeti, UBT Dilan Vitalie, UST Genti Qirjazi,UPT(FCE) Namik Kopliku, UPT (FCE) Gezim Gjata, UPT (FCE) Tiganu Eugeniu, TUM Grama Vasile, TUM	Nenad Brodić, UB
CD05	Geovisualization in Spatial Epidemiology	Hazir Ćadraku, UBT Gherman Bejenaru, UST	Almir Karabegović and Elvir Ferhatbegović, GAUSS
CD18	Application of remote sensing data in mapping and monitoring forest	Tudor Castravet, UST Hamza Reć, L&C Ltd Perparim Ndoj, L&C, Ltd Grama Vasile, TUM Murat Meha, UP	Jovan Kovačević, UB
CD02/CD24	Statistical Surveys I & II	Hazer Dana, UBT Gherman Bejenaru, UST Tudor Castravet, UST Botnaru Dumitru, TUM	J.Kovačević, N.Stančić and N.Brodić, UB
CD09	Noise mapping using mobile devices -	Sonila Papatihimi, UT Emina Hadžić, UNSA Suada Sulejmanović, UNSA	I.Cibilić and V.Poslončec-Petrić, UNIZG
CD04	Registers of Spatial Units and Addresses –	Adelajda Halili UT Hazir Ćadraku, UBT	Mirza Ponjavić and Almir Karabegović, GAUSS

Third day of the training the participants presented what they learned at the practical training, displayed their results and presented how they would implement these topics into their curriculum. They also had the opportunity to hear presentations on the topic “Future of geodesy and geoinformatics – the government view”.



Training of teachers (1)

First presentation in this session was given by Mr. Denis Tabučić, Head of Sector for Management of Public Investment Program Projects of Federal Geodetic Administration of Federation of Bosnia and Herzegovina, followed by Damir Šantek, PhD., Director general of State Geodetic Administration of the Republic of Croatia. Very constructive discussion has been developed at the end of these presentations. Productive day has been concluded with an interesting lecture by Danny Vandenbroucke, KU Leuven: How innovative your university is?

Fourth day of training was time for networking: we visited the Pelješac peninsula.



Participants on Pelješac sightseeing

Last day of Summer School began with a session on Sustainability – post project joint activities. Also, partners participated in the 7th project Progress meeting.

Summer school attended 40 participants on site. The training material for the cases has been prepared and downloaded to GEOBIZ Moodle platform.



Joint photo of the participants 2nd Summer School

LLL ACTIVITIES OF GEOINFORMATICS LABORATORY, NOVI SAD

LLL COURSE: “APPLICATION OF GPR TECHNOLOGY IN ARCHAEOLOGY”



*Aleksandar Ristic,
University of Novi Sad*

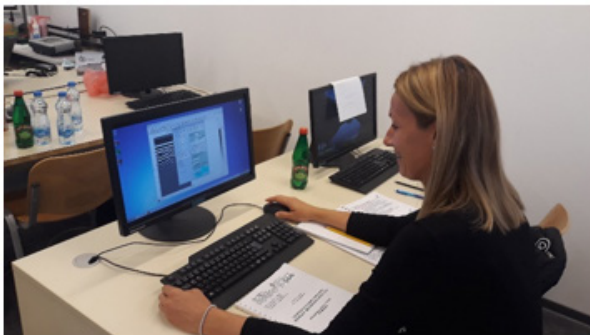


*Željko Bugarinovic,
University of Novi Sad*

In the period from 20.09. – 24.09.2021. in the organization of the Geoinformatics Laboratory at the Faculty of Technical Sciences in Novi Sad, an LLL course in the field of application of georadar scanning technology for the needs of detection

and identification of archaeological content was held. The course was attended by participants from the Provincial Institute for the Protection of Cultural Monuments based in Petrovaradin.

The theoretical part of the course included: description and specification of georadar characteristics, analysis of the impact of the acquisition process in combination with the impact of the surrounding land and classes of objects that represent potential archaeological content on acquisition techniques and results. Special emphasis is given to advanced acquisition techniques that include an integrated mode of operation with a GNSS device, as well as the formation of a basic and complex 3D model.



LLL course team from Novi Sad University

As part of the interpretation of the results on examples with archaeological content, the effects of EM wave polarization, basic and

advanced phases of processing and software processing of radargrams in the ReflexW environment were analyzed. This part of the

course was presented by PhD Aleksandar Ristic, a full professor at FTN, in the premises of the Science and Technology Park.

Participants were also introduced to the practical application of Mala Ground Explorer georadar and data processing, which included: introduction to hardware and software units of georadar, setting acquisition parameters on the Mala GX controller, calibration of encoders and dielectric constants, 2D scanning of objects of different dimensions, materials and dispositions, realization of the acquisition process for creating 3D models with or without integration with GNSS device, interpretation of scan results, processing and processing of radargrams. Data acquisition was performed using the Mala GX device, partly in the campus area of the

University of Novi Sad, and partly at selected locations at the Petrovaradin Fortress. Software processing of the acquisition results was performed in the ReflexW environment in the computer laboratory of the FTN Science and Technology Park. This part of the course was conducted by MSc Zeljko Bugarinovic, teaching assistant at FTN.

Upon completion of the training, prof. PhD Aleksandar Ristic and MSc. Zeljko Bugarinovic handed the course participants Certificates of successfully completing basic training.

Developing LLL courses is a continuous activity that started within the BESTSDI project and continues ever since. For more information visit [here](#).

LLL ACTIVITIES OF UNIVERSITY OF SARAJEVO

LLL COURSE: “FUNDAMENTALS OF GIS AND ITS PRACTICAL APPLICATION IN CIVIL ENGINEERING”



Suada Sulejmanović
University of Sarajevo, Faculty of Civil Engineering
Department of Roads and Transportation

The Faculty of Civil Engineering at the University of Sarajevo held an LLL course entitled "Fundamentals of GIS and its practical application in civil engineering". LLL course was conducted for employees of Public Company “Ceste FBiH” Sarajevo. This LLL course offers the

skills to use GIS software in a professional environment successfully.

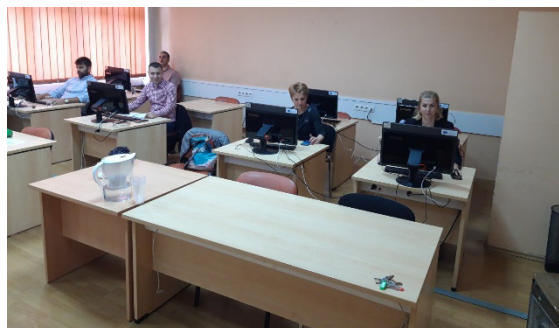


GEOBIZ LLL course, Sarajevo 2021, Day 1

The course provides basic information related to GIS - what is GIS and what can be done with it. The attendees were introduced to the basic functions of GIS, interface, map creation, spatial data models and databases in which they are

stored. The course is intended for everyone who has no previous experience with GIS tools and needs it in everyday business. The course was attended by architects, civil engineers, urban planners / spatial planners and geologists.

The aim was to learn how to analyse the spatial data, use cartography techniques to communicate the results in maps, and collaborate with peers in GIS and GIS-dependent fields. Finally, the aim was to learn how to create a professional-quality GIS portfolio piece using a combination of data identification and collection, analytical map development, and spatial analysis techniques.



GEOBIZ LLL course, Sarajevo 2021 – Day 2

The course consisted of three Modules. The first two Modules lasted two hours each and included theoretical knowledge of GIS and spatial data infrastructure. The third Module, lasting 8 hours,

covered exercises on practical examples from practice.

The lifelong learning course was held in three days, 21-10-2021, 22-10-2021 and 26-10-2021, at the Faculty of Civil Engineering, University of Sarajevo.



GEOBIZ LLL course, Sarajevo 2021, Day 3

At the end of the course, participants were able to: handle GIS tools, map and visualize, create and supplement geospatial databases, georeferenced different cartographic bases, create maps and layouts, perform spatial analysis with collected geodata.

The LLL course participants gained a basic knowledge of SDI and the application of the QGIS program to their professional field to use that knowledge and advance their professional development.

At the end of the course, participants gained a certificate.

LUCIA CAPATINA DEFENDED PHD THESIS



*Livia Nistor-Lopatenco,
Technical University of
Moldova*



*Vitalie Dilan,
Tiraspol State University*

On May 14th, 2021, Lucia Capatina successfully defended her PhD thesis on „Flood Risk in the Prut River floodplain, downstream the Costesti-Stanca” at the Institute of Ecology and Geography (Chisinau, Republic of Moldova).

The research was conducted at the Faculty of Geography, Tiraspol State University and Institute of Ecology and Geography under the supervision of Prof., dr. habilitatus,

corresponding member of Academy of Sciences of Moldova, Maria Nedelcov and Prof., dr. habilitatus Valentin Sofroni. The doctoral research aim was to carry out the flood risk analysis in the Prut River floodplain, downstream the Costesti-Stanca reservoir by modelling while making use of the specific indicators and linking the results with such obtained as part of the historical data analysis, in order to develop the flood risk management plan for the study area. The main results are: the Flood Risk Indices (environmental, economic and social) and the Total Flood Risk Index were calculated for the research area along with the estimation of the flood risk for the localities within the Prut

floodplain; the development of the flood risk management plan with specific actions meant to minimize the impact on the population, economy and environment. The scientific results have been implemented by central authorities to the development of the Government Decision on Flood risk management plan in Danube-Prut and Black Sea river basin district and the Management plan of the Danube-Prut and the Black Sea river basin district (cycle II). Flood risk calculation model has been implemented by the Exceptional Situations Department of Chisinau for the Flood risk maps development for the Hancesti-Vaslui area.



Public defence of Lucia Capatina's doctoral thesis

GISDAY 2021 IN THE DEPARTMENT OF GEOGRAPHY, TIRANA



*Sonila Papathimiu
Faculty of History and Philology
University of Tirana*

On the International GIS Day, on November 17th, 2021, the Department of Geography at the Faculty of History and Philology, Tirana, organized the workshop: "GIS in Geosciences. Geography students in action".



One of the goals of this activity was to promote the scientific work of students who have completed Master studies in "Applied GIS" and their connection with the labour market.

In this workshop, Prof. Dr. Sabri Laci, Local Coordinator of the GEOBIZ Project and Prof. assoc. Dr. Sonila Papathimiu presented the benefits of the Department of Geography from the Erasmus plus projects such as: GEOWEB and GEOBIZ.

Among other things, they mentioned the benefits in infrastructure with the establishment of GIS Laboratories and the continuous training of pedagogues for the use of modern teaching methods, especially Problem Based Learning,

businesses academia workshops and connections etc.



Announcement



IAT 2022 - INTERNATIONAL SYMPOSIUM ON INNOVATIVE AND INTERDISCIPLINARY APPLICATIONS OF ADVANCED TECHNOLOGIES

Sarajevo, June 22-26, 2022; <https://bhaas.org/sarajevo-2022/>



STEPGRAD 2022 - INTERNATIONAL CONFERENCE ON CONTEMPORARY THEORY AND PRACTICE IN CONSTRUCTION XV

Banja Luka, June 16-17, 2021; <https://stepgrad.aggf.unibl.org/en/>

Impressum

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