



Erasmus+

DANUBIAN SMALL & MEDIUM CITIES

03

Teaching module
framework for
assessing the inclusive
development of
Danubian small and
medium sized cities



Co-funded by the
Erasmus+ Programme
of the European Union

Teaching module framework for assessing the inclusive
development of Danubian small and medium sized cities

Teaching module framework for assessing the inclusive development of Danubian small and medium sized cities

Editors

Lubica Vitková, Mihaela Hărmănescu, Angelica Stan

O3 Coordinator Slovak University of Technology in Bratislava /STU

Contributors:

Darya Haroshka, Peter Morgenstein / University for Continuing Education Krems / UWK

Stefan Bindreiter, Julia Forster, Andreas Voigt / Technical University of Vienna / TUW

Lubica Vitková, Katarína Smatanová / Slovak University of Technology in Bratislava / STU

Milena Krklješ, Darko Reba, Mariņa Carević Tomić, Ranka Medenica Todorović, Olivera Marković, Aleksandra Milinković and Stefan Škorić / UNS

Jelena Marić, Danijela Milovanović Rodić, Aleksandra Djukić, Branislav Antonić / UBGD

Mihaela Hărmănescu, Angelica Stan, Sorin Vasile Manea / "Ion Mincu" University of Architecture and Urbanism from Bucharest / UAUIM

Bálint Kádár, Melinda Benkő / Budapest University of Technology and Economics / BME

ISBN 978-80-227-5282-4

Project coordinator: Mihaela Hărmănescu | Quality manager: Angelica Stan | Graphic design: Andra Panait

DANUBIAN_SMCs Project has been (partially) funded by the ERASMUS+ grant program of the European Union under grant no. 2019-1-RO01-KA203-063878. Neither the European Commission nor the project's national funding agency ANPCDEFP are responsible for the content or liable for any losses or damage resulting from the use of these resources.

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

© Spectrum STU Slovak University of Technology in Bratislava, 2023

DANUBIAN_SMCs
2019-1-RO01-KA203-063878
<https://danubian-smcs.uauim.ro>

Co-funded by the
Erasmus+ Programme
of the European Union



Teaching module framework for assessing the inclusive development of Danubian small and medium sized cities

Creative Danube / Innovative Teaching for Inclusive Development in Small and Medium-Sized Danubian Cities

The Danubian_SMCs consortium is composed by 7 European organisations:

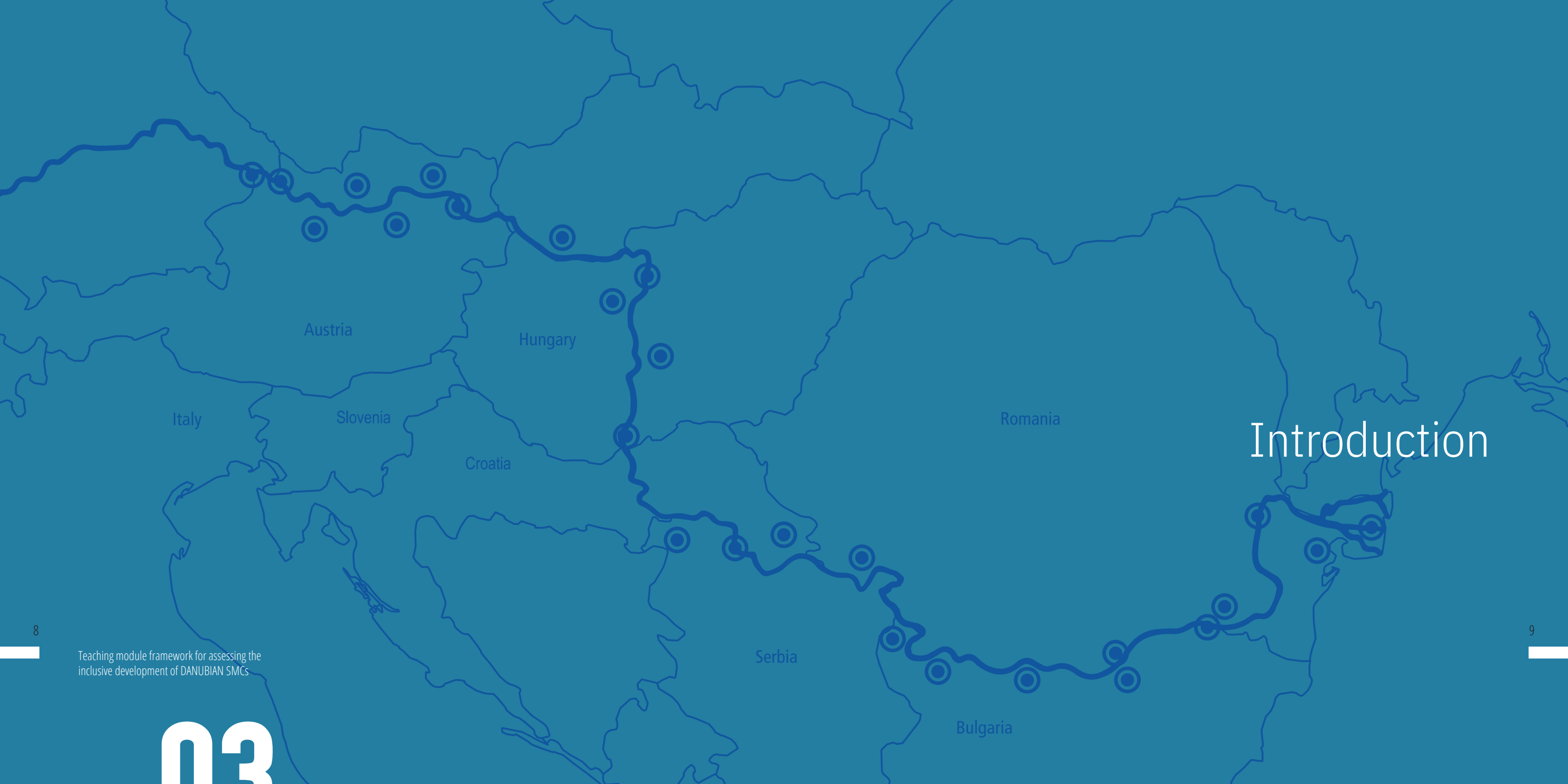
UAUIM	Universitatea de Arhitectură și Urbanism „Ion Mincu” din București (Lead partner)
BME	Budapesti Műszaki és Gazdaságtudományi Egyetem
UNS	Univerzitet U Novom Sadu
UB	Univerzitet U Beogradu
UWK	Universität Fur Weiterbildung Krems
STU	Slovenska Technicka Univerzita V Bratislave
TUW	Technische Universitaet Wien



T A B L E O F C O N T E N T S



10	I. INTRODUCTION
14	II. GENERAL DESCRIPTION – ALTERNATIVES FOR COMMON EDUCATION
16	II.1. Terminology
17	II.1.1. The short term model
22	II.1. 2. The medium term model
26	III. STRUCTURE OF THEMATIC MODULES
64	IV. DESCRIPTION OF THEMATIC MODULES FOR JOINT STUDY PROGRAMES
69	IV. Module 1. Sustainability and resilience
82	IV. Module 2. Sensing and mapping the cities: New Technologies
98	IV. Module 3. Inclusive design: Cities for all
110	IV. Module 4. Urban acupuncture based on participatory place-making
124	IV. Module 5. Urban renewal of DSMCs
136	IV. Module 6. Danube urban-rural lanscape and and blue-green infrastructure
150	IV. Module 7. Multilevel stakeholder cooperation and involvement for sustainable projects in Danubian urban-rural regions



Introduction



I. INTRODUCTION

The Danube is a natural phenomenon that is unique due to its natural characteristics (as floodplain forests, nature reserves, arms, islands...). At the same time, it is an important cultural-social and economic phenomenon. It connects regions, cities, cultures, states, nationalities, communities. It connects areas with a distinctive but also related residential structure or geographical features, cities with different as well as common history, different but also comparable urban structure, economic, cultural and social character.

The areas of the Danube, especially its lower and middle course, are affected by economic stagnation and even deprivation and the related outflow of residents. The fundamental social and economic changes of the last decades and their impacts negatively affected especially small and medium-sized cities located outside the catchment areas of economic and administrative centres of gravity. A large part of the territory around the Danube can be characterised as border areas between states and regions, without adequate mutual transport links. They thus represent the peripheral regions of individual countries,

marked by a complex period of socio-economic changes.

On the contrary, the upper part of the Danube and its adjacent regions represent a suitable example of the utilisation of their natural and cultural potential, which is based on well-thought-out strategies and concepts supporting their sustainable economic and social development. Proven models, as well as current European transformation initiatives, are a suitable model for lifting up the said declining regions and cities.

In the process of transformation of cities and their parts, the support of local communities is essential. Active municipalities, local entrepreneurs and citizens are irreplaceable actors of regeneration processes in close cooperation with relevant experts (planners, urban planners, architects...). Only in mutual cooperation and with respect for the needs of different groups of residents is it possible to create viable communities - urban areas based on the use of local resources, cultural and natural values, with good accessibility and inclusion in the broadest sense of the word.

Problems and challenges of DSMCs

Among the most fundamental problems that the regions around the Danube (especially its lower and middle reaches) are:

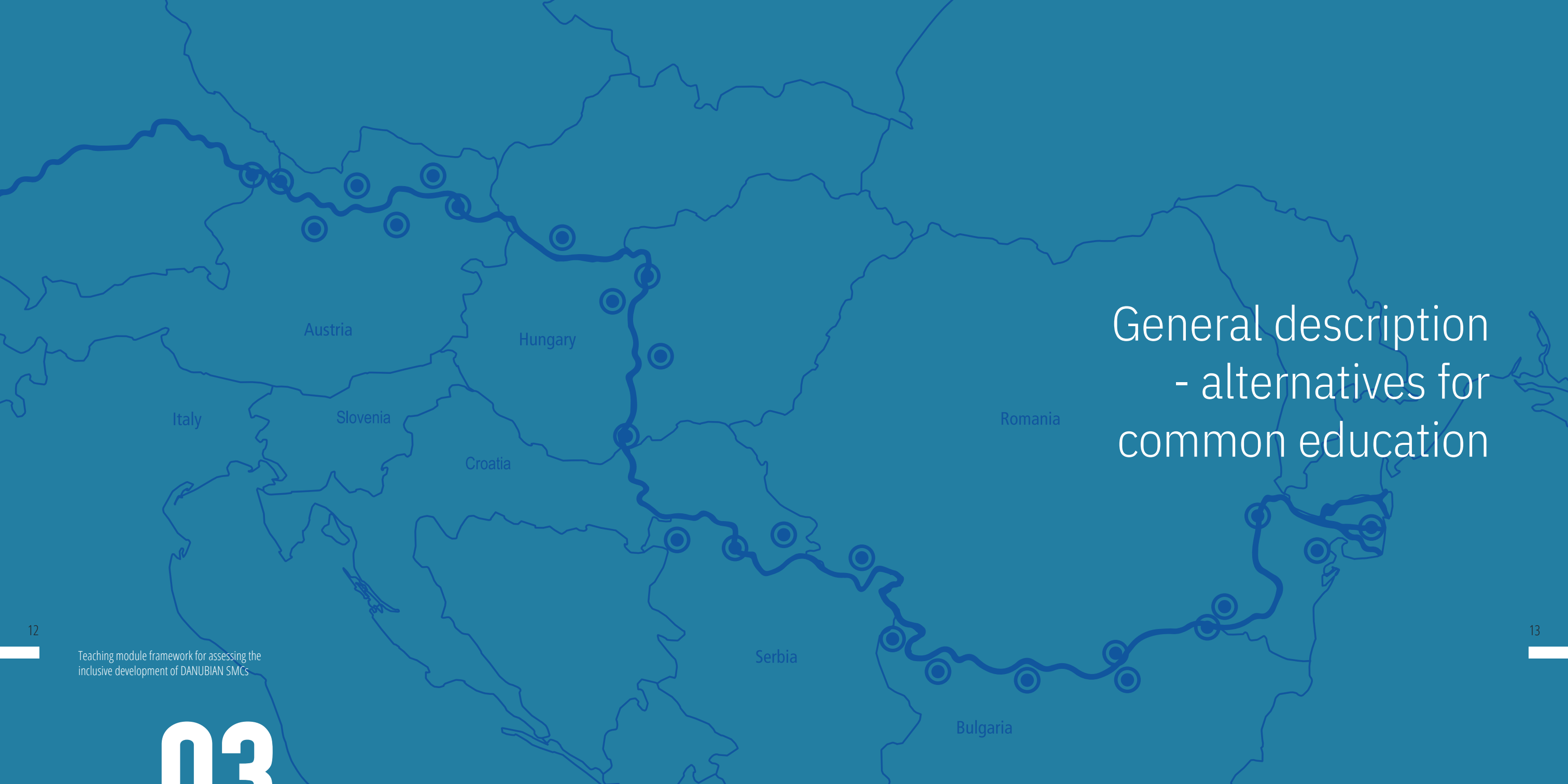
- The social and economic deprivation of the territories, caused by the slowdown or even the stoppage of industrial production;

- It is reflected in the outflow of residents from the region and is accompanied by the effect of shrinking cities, especially small and medium-sized cities outside the catchment area of the capital cities (economic centres).

The mentioned cities are therefore struggling with the degradation of the urban structure, especially former industrial areas, with neglected public spaces, insufficient provision of services, and missing new job opportunities.

However, the mentioned problems can be eliminated, mainly thanks, to the existing cultural, natural and social potential of the given territories. The Danube connects not only cities and regions but also universities. They are significant educational and research institutions that bring new knowledge and innovative approaches. Their important mission is also cooperation with practice and a considerable mission of enlightenment and dissemination of knowledge. Universities are able to solve topical problems of the regions and cities.

Therefore, the grouping of universities located in the regions around the Danube logically focused on creating an educational program that solves the shared problems of declining small and medium-sized cities.



General description - alternatives for common education

II. GENERAL DESCRIPTION - ALTERNATIVES FOR COMMON EDUCATION

Thanks to the implemented Erasmus + project "INCLUSIVE DEVELOPMENT OF DANUBIAN SMALL AND MEDIUM SIZE CITIES", teaching aimed at solving the current problems of Danubian small and medium-sized cities was verified. It was implemented in the form of joint workshops focused on selected topics, which also verified the necessary training methods.

Thanks to the project, it is possible to design and prepare different forms of joint teaching at partner universities for the future. They follow alternative and flexible teaching models aimed at different interest groups and different forms of education.

The output of the project presents a new teaching module focused on Danubian SMCs with an emphasis on the application of innovative teaching methods, critical thinking and interdisciplinary overlaps.

These outputs are based on methodological instructions designed within O1, verified in the process of project implementation and testing prepared teaching material. The developed

new teaching module is applied to the programmes of the partner universities.

This output consists of a complex teaching layout of thematic clusters, presenting the innovative ways in which the topic of Danubian SMCs can be taught for the students benefit, in accordance with the latest European documents. It is realized on the basis and together with the findings and ideas developed during the previous phases of learning-teaching activities, and it is created under the leading idea of inclusive development and of realistic possibilities of implementation - on short, medium and long term.

These are the following teaching models aimed at solving the problems of small and medium-sized towns in the Danube Region:

A) Short term model - Teaching module within existing study programs at individual partner universities, leading to the creation of joint study programs, extended by joint workshops through the Blended Intensive program (within the Erasmus+ program);

B) Medium term model - Joint study programs in the engineering degree in study programmes the Architecture, Urbanism, Spatial planning...;

C) Long term model - Lifelong professional education including alliance initiatives, aimed at the transformation of small and medium-sized towns in the Danube region, aimed at various professions;

It is advisable to implement the mentioned models gradually. From simpler forms that can be implemented immediately to joint study programs, the introduction of which requires longer preparation, due to the necessity of synchronising study programs and their syllabi at individual universities.

The following sequence of teaching models appears to be optimal:

- Teaching modules within existing study programs and joint thematic workshops, which focus to different topics - modules within BIP (Erasmus +), (immediate implementation);

- Joint study programs in the engineering degree (necessary legislative preparation and synchronisation);

- Postgraduate and lifelong education for graduates from various fields (long-term preparation required).





II.1. Terminology

Study programme: The study program is made up of a set of subjects (compulsory, compulsory optional and optional), with clearly defined rules for their completion. The study program may include certain thematic modules. The study program is designed in such a way that its successful completion will enable obtaining a university education of the corresponding degree in the relevant field.

In the engineering degree, the standard length of the ŠP study is 2 years and represents the gain of 120 credits (60 credits per year, 30 credits per semester).

Educational module: A module of the educational program is an independent, comprehensive, binding, time- and content-based educational unit of the study program. The module, as a comprehensive learning unit, is focused on a certain area of the study program. The educational module aims to bring comprehensive current and innovative content to the relevant field of education. A module, like a study program, consists of a set of subjects.

Workshop: The workshop represents a form of short-term educational activity, which aims to deepen the knowledge and skills of the participants in a certain specific area. Based on theoretical knowledge and subsequently their practical verification on real tasks and thanks to interactive forms of education, participants will gain valuable stimuli and experience in the focused area.

Lifelong learning - further education: It takes place through formal and informal education. It allows specialists to supplement, expand and deepen their acquired education, requalify for the current requirements of practice.

II.1.1. The short term model

Existing study programs at individual partner universities (SP Architecture, SP Urbanism, SP Landscape and Garden Architecture, SP Spatial Planning) contain theoretical and creative subjects that have the potential to create comprehensive educational modules focused on specific thematic areas. They are designed to include the actual trends of contemporary architectural and urban practice, with an emphasis on the issue of DSMCs (danubian small and medium sized cities).

Participating universities can already offer comprehensive thematic areas - teaching modules that support the transformation and improvement of the urban structure and the formation of viable local communities of DSMCs.

The composition of different teaching topics - modules, as well as the application of the relevant analytical and creative methods, are laid out in such a way that cover a wide range of knowledge and skills necessary for the regeneration and transformation of DSMCs.



The composition of the modules focus on the current areas and topics related to the regeneration of urban structures, affected by varying degrees of degradation, but with significant social, cultural, natural and economic potential. The composition of the modules thus responds to urban problems that need to be solved in the Danube regions, such as abandoned industrial sites, disturbed urban structure, absence of high-quality public spaces, unused waterfronts, lack of job opportunities and services and the related outflow of residents.

a. Basis for the thematic modules

The topics are therefore designed to cover approaches and methods suitable for the regeneration of given cities and their parts. Specific topics are designed as the following modules:

- Module 1. Sustainability and resilience;
- Module 2. Sensing and mapping the cities: New Technologies;
- Module 3. Inclusive design: Cities for all;
- Module 4. Urban acupuncture based on participatory place-making;
- Module 5. Urban renewal of DSMCs;
- Module 6. Danube urban-rural landscape and blue – green in-frastructure;
- Module 7. Multilevel stakeholder cooperation and involvement for sustainable projects in Danubian urban-rural regions;

The modules are created in such a way that they covered the basic areas, which are important for the transformation of DSMCs. They are based on a flexible system that will allow responding to current problems and the latest knowledge related to the transformation of urban structures with an emphasis on their sustainability, viability and inclusion.

b. The goal of joint teaching through modules

The goal of joint teaching through the system of modules is to equip future professionals with the skills and specific knowledge needed to manage the problems of DSMCs, with the aim of their revitalization and revival.

Each of the module will be lead by experts from the partner

university, in cooperation with local authorities and experts and the partner universities.

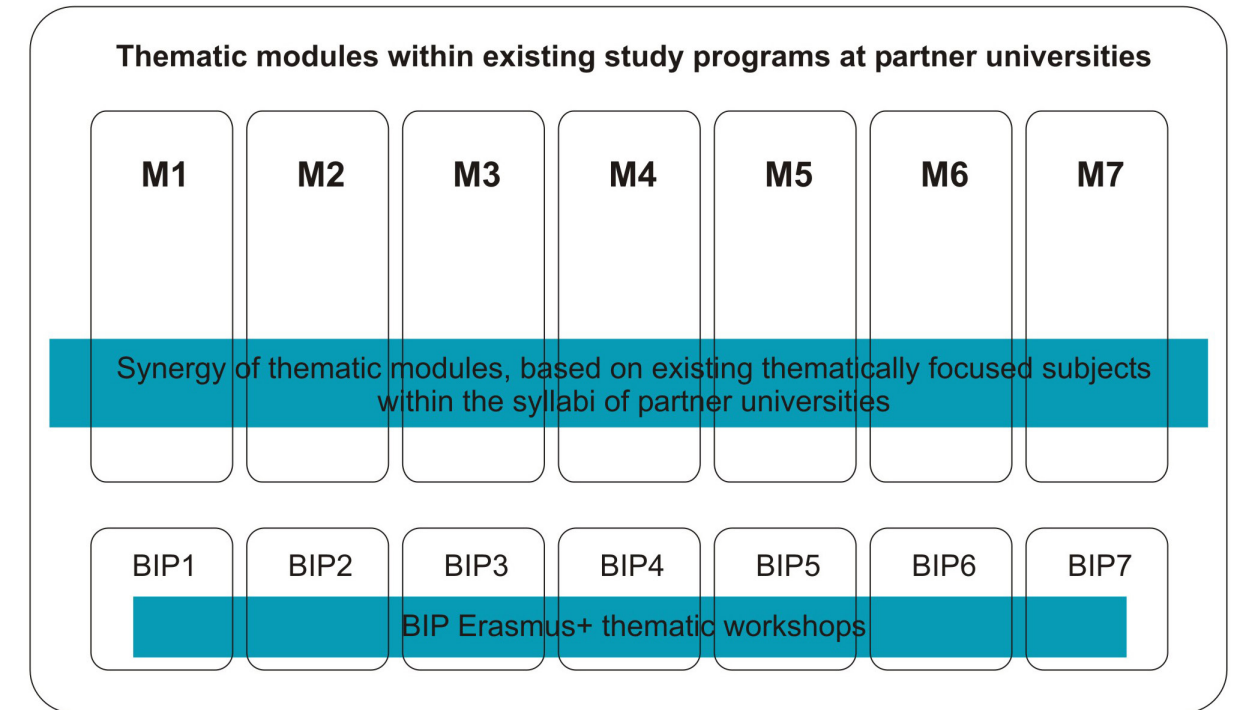
c. Module structure

Each module will consist of:

» Existing theoretical subjects (focused on current issues of the selected problem - thematic focus) and seminars (focussed on research in the field);

» Existing design studios (practical creative part).

The number and character of specific subjects (theoretical subjects, seminars and studio work) included to the thematic module is flexible due to existing difference of their number, amount of teaching hours and the number of subject credits at individual partner universities. The proposed joint teaching structure is based on specific topics (different modules),



Concept of the thematic modules within existing study programs at partner universities, as a basis for joint study programs. The thematic modules are supported also by thematic BIP workshops

whereas responds to the current offer of subjects of partner universities tied to a specific thematic area in which the given university is strong.

Due to the differentiated scope of the offer of existing subjects linked to the thematic area, the range of credits belonging to different modules varies from 3 to 15 ECTS.



d. Thematic workshops within the BIP Erasmus+ program as additional platform of common teaching

Teaching based on modules at partners universities will be supported also by BIP projects - thematic workshops as part of Erasmus+.

These are governed by the established principles of the mentioned program (number of participating universities, partic-

ipants, duration, method of teaching, corresponding credit gain, etc.)

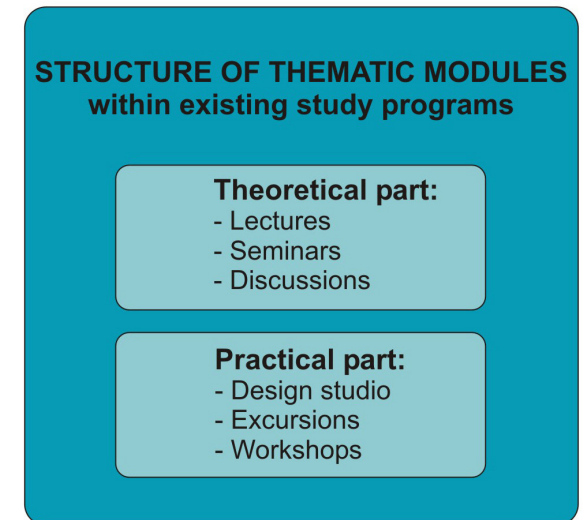
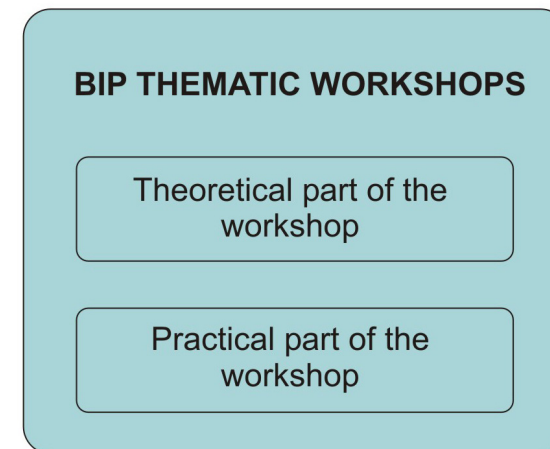
Just like the set thematic modules for joint teaching, each workshop is also linked to a specific thematic area and to the application of relevant analytical and creative methods.

The workshops thus create another platform for synchronization, testing and preparation of joint study programs. These are governed by the established principles of the mentioned program (number of participating universities, participants, duration, method of teaching, corresponding credit gain, etc.)

Just like the set thematic modules for joint teaching, each workshop is also linked to a specific thematic area and to the application of relevant analytical and creative methods. The workshops thus create another platform for synchronization, testing and preparation of joint study programs.

Each BIP workshop represents a complete unit, copying basic thematic areas. It consists of a theoretical and a practical part:

» The theoretical part is aimed at acquiring theoretical knowledge related to a specific topic. It is implemented in the form of lectures, seminars and discussions. An online



The basic structure of the thematic module and structure of the BIP thematic workshop within existing study programs at partner universities

format is also recommended. It represent preparation for the practical interactive and contact part of education.

» The practical part is aimed at gaining practical experience through learning by doing. Firstly, through the acquisition of skills in the analysis and evaluation of the phenomena of a specific location and subsequently through the proposal of a solution. The practical part is realized in the form of a workshop or in the form of a creative studio closely linked to a specific location and cooperation with municipalities and stakeholders.

Each workshop consists of 30 teaching hours (3 ECTS), divided into theoretical and practical creative activity.

II.1.2. The medium term model

In the second stage, within the consortium of partner universities, we will focus on the creation of joint study programs at the engineering degree in the Architecture, Urbanism and Spatial Planning study programs.

In the second stage, within the consortium of partner universities, we will focus on the creation of joint study programs at the engineering degree in the Architecture, Urbanism and Spatial Planning study programs.

During the first phase, we will harmonize the structure of the modules, the structure and character of the subjects, their hours and the number of credits. We will create a structure of compatible modules focused on different thematic areas with a strong synergistic effect. The planned structure of the modules corresponds to the thematic areas already proposed in the first phase:

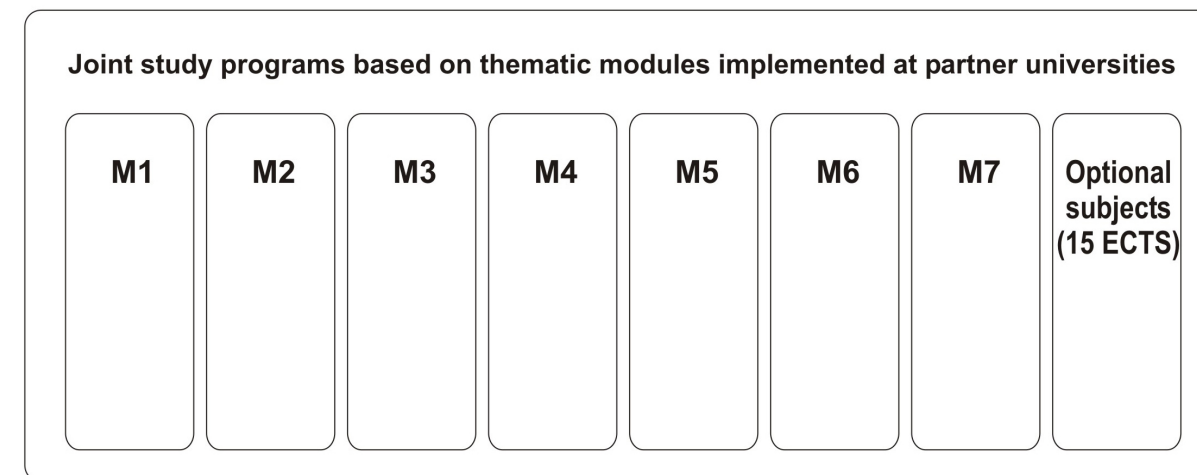
- Module 1. Sustainability and resilience;
- Module 2. Sensing and mapping the cities: New Technologies;

- Module 3. Inclusive design: Cities for all;
- Module 4. Urban acupuncture based on participatory placemaking;
- Module 5. Urban renewal of Danube small and medium cities
- Module 6. Danube urban-rural landscape and blue – green infrastructure;
- Module 7. Multilevel stakeholder cooperation and involvement for sustainable projects in Danubian urban-rural regions;

The thematic modules and their syllabi were harmonised. Individual thematic modules are designed on the same structure of their syllabi. Individual thematic modules (7 modules in total) represent 105 (7x15) ECTS from 120

ECTS for the entire study program in the 2nd degree at partner universities. The modules represent a flexible, at the same time comprehensive system of education focused on the issue of DSMCs. The module system set up in this way enables flexibility in terms of targeting needs and gathering knowledge and skills for solving problems in different Danubian regions. The mentioned system simultaneously allows one to complete a comprehensive study program consisting of all modules offered by partner institutions during the standard length of study, which can be supplemented with additional profiling through the remaining credits (15 ECTS) for self-profiling.

Individual thematic modules are characterized in the same structure of their syllabi.



Joint study program based on thematic modules implemented at partner universities



Structure of thematic modules

III. STRUCTURE OF THEMATIC MODULES



Contributors

Darya Haroshka, Peter Morgenstein / University for Continuing Education Krems / UWK

Stefan Bindreiter, Julia Forster, Andreas Voigt / Technical University of Vienna / TUW

Ľubica Vitková, Katarína Smatanová/ Slovak University of Technology in Bratislava / STU

Milena Krklješ, Darko Reba, Marina Carević Tomić, Ranka Medenica Todorović, Olivera Marković, Aleksandra Milinković and Stefan Škorić / UNS

Jelena Marić, Danijela Milovanović Rodić, Aleksandra Djukić, Branislav Antonić / UBGD

Mihaela Hărmănescu, Angelica Stan, Sorin Vasile Manea / "Ion Mincu" University of Architecture and Urbanism from Bucharest / UAUIM

Bálint Kádár, Melinda Benkő / Budapest University of Technology and Economics / BME

Individual thematic modules are characterized in the same structure of their syllabi:

- The aim of the module
- Key words
- Included disciplines
- Responsible partner and participating partners
- Learning outcomes of the program
- Learning outcomes of the course unite
- Teaching and learning methods
- Assessment methods
- Resources



MODULE 1. SUSTAINABILITY AND RESILIENCE

Defining the module and its structure

Aim of module The aim of the module is to understand and be able to apply the principles of sustainability and resilience of cities and towns in the Danube area and gain skills needed for implementation of the sustainability principles from the scale of buildings and local interventions to urban scale.

Key words Planning for the future, urban climate, heat islands, carbon footprint reduction, disaster (flood) protection, resilient society, empowering of communities, sustainable development goals.

Disciplines Architecture and urban planning, urban design, sociology, environmental sciences, landscape design, spatial planning, economy.
The aim is to ensure multidisciplinary.

Responsible partner **UWK**
Other partners: STU, BME, TUW, UBGD, UNS, UAUIM

Learning outcomes of the programme Due to the constantly deteriorating state of the environment, which resulted in the current climate crisis, the transformation of DSMCs is not possible without the application of the principles of sustainable development. Theoretical knowledge and practical skills acquired by students within the module focused on sustainable development represent an essential basis for forming a high-quality, viable and inclusive urban environment of the Danube cities of the future.
The sustainable development of urban structures rests on four pillars: environmental, economic, social and cultural, which must be perceived in their complexity and in their intertwining. The mentioned complexity represents a mosaic of practical and theoretical knowledge from the field of technical, economic, social and artistic disciplines. Only on the basis of a wide range of knowledge is it possible to ensure the sustainability of urban structures for the future.

**Learning
outcomes of
the course unit**

The module is focused on the sustainable development of cities, to main theoretical knowledge and its verification into urban design. Theoretical knowledge is focused on the acquisition of basic theories and principles of sustainable development (ten universal principles of sustainable urban design). In the theory as well as in the practical knowledge application, the module emphasises the acquisition of the principles of sustainable development at all spatial scales such as: building, space, district and entire settlement.

The sustainable creation of urban structures focuses not only on environmental aspects (reducing energy consumption and carbon emissions), but it also takes into account social, economic and cultural sustainability of the built environment.

Strategic decisions at the level of the region, city and its parts are essential for sustainable development. Therefore, it is necessary for students to acquire skills in strategic and conceptual thinking. For the formation of viable communities, cooperation with residents and affected interest groups is necessary. Therefore, students need to acquire the skills to analyse their needs and then the ability to translate them into a design in order to create a quality environment with an adequate sustainable social and economic infrastructure.

Students will adopt basic theories related to the sustainable development of cities, such as: the theory of the compact city, the theory of the city of short routes, the theory of resiliency. On a theoretical level, they learn the basic principles of sustainability. Such are:

- Integrated and strategic planning;
 - Effective use and acquisition of resources; principles of diversity and choice;
 - Ensuring human need (the principles of a healthy, safe, and easily accessible city);
 - Resilience of urban structure;
 - Principles of flexibility and adaptability;
-

-
- Principles of pollution reduction;
 - Principle of concentration (based on the compactness of the urban structure, short roads and polycentric development); principles of diversity;
 - Principles of biodiversity;
 - Principles of economic and social self-sufficiency of cities and their parts. Students will gain the necessary experience in the design of real urban structures in DSMCs. Students are during the design process guided to take into account main principles of sustainable urban design:
 - Context: Functional urban region.
 - Efficiency of energy consumption and natural resources, minimization of land use, efficient transportation through strategic location of new development.
 - Spatial and functional diversity.
 - The need for safety, accessibility, comfort and social contacts.
 - Ability to adapt to changes over time.
 - Minimization of pollution during construction and use.
 - Viability of the city and its parts.
 - Ecological quality of urban structures and areas through the integration of natural elements.
 - Self-sufficient local communities.
 - Character of the place, existing cultural heritage and social capital

**Teaching and
learning
methods**

The lectures are aimed at mastering the basic theories and principles of sustainable development of cities and their parts in the context of functional regions. The training is aimed at supporting critical thinking, acquiring necessary technical and economic knowledge, as well as knowledge related to social and cultural aspects and evaluation of the real environment. A significant part of the teaching process is tied to learning by doing - that is, to the application of acquired knowledge to the creation of a sustainable

environment in selected locations of small and medium-sized Danube cities. Cooperation with municipalities, residents and interest groups plays an important role in the teaching process, as well as collaboration between partners from different schools.

Assessment methods

Development of the solution concept, of its graphic elaboration in a group of students and their presentation before the evaluation committee, participation in lectures, discussions, on-site observation and consultations.

Resources

1. Barton, H., Grant, M. & Guise, R. (2003). *Shaping Neighbourhoods; A Guide for Health, Sustainability and Vitality*. London, Routledge, 432 p., ISBN 9780367336929
2. Bentley I, Alcock A, Murrain P, McGlynn S, Smith G (1985). *Responsive Environments: A Manual for Designers*. Oxford, Architectural Press, 151 p.
3. Bullivant, L. (2012). *Master Planning Futures*. London and New York: Routledge 313 s. ISBN 978-0-415-55447-3
4. Carmona M, Heath T, Oc T & Tiesdell S (2003). *Public Spaces Urban Spaces, The Dimensions of Urban Design*. Oxford, Architectural Press, 306 p.
5. Cuthbert, A., R. (2011): *Understanding Cities. Method in Urban design*. Routledge, New York, p. 330, ISBN 13:978-0-415-60823-7
6. Faar, D. (2007). *Sustainable Urbanism - Urban Design with Nature*. Wiley & Sons, 301 p., ISBN:10-047177751X
7. Jabareen Y (2006). *Sustainable Urban Forms: Their Typologies, Models and Concepts*. Journal of Planning Education and Research Vol.26, No.1, pp 38-52
8. Jenks M, Burton E & Williams K (1996). *The Compact City, A Sustainable Urban Form?* London, Routledge, 360 p., ISBN: 047177751X
9. James A. LaGro Jr. (2013). *Site Analysis Informing Context-Sensitive and Sustainable Site Planning and Design*. Wiley&Sons, New Jersey, ISBN-13: 978-1118123676
10. Rudlin, D., Falk, N. *Sustainable Urban Neighbourhood*. Oxford, Routledge, 288 p.
11. Urban Task Force (1999). *Towards an Urban Renaissance*. London, Routledge, 328 p., ISBN 9781851121656



MODULE 2. SENSING AND MAPPING THE CITIES: NEW TECHNOLOGIES

Defining the module and its structure

Aim of module The aim of the module is to master the methods of urban research, basic methods of mapping and analysis of the urban environment using progressive technologies.

Key words Urban research, mapping, analytical methods and techniques, progressive technologies, GIS, Apps

Disciplines Urban design, landscape design, architecture, urban planning, sociology, human geography.
The aim is to ensure multidisciplinary.

Responsible partner **TUW**
Other partners: UWK, STU, BME, UBGD, UAUIM, UNS

Learning outcomes of the programme Mapping and analyses are an important stage for quality education of urban design. In the overall context of theoretical knowledge and practical skills aimed at the inclusive development of DSMCs, they represent the bases for the design part. They are necessary for understanding problems and potentials of the city and its parts. It is also a cornerstone for the proposal of quality, site-specific solutions.

Learning outcomes of the course unit Mapping and analyses are an important stage for quality education of urban design. It is the stage of research aimed at gaining in-depth knowledge of the designated territory. Analyses create a basis for understanding problems and potentials of the city, or location. It is also a cornerstone for the proposal of quality, site-specific solutions. After completing the module, students are able to formalise spatially relevant analytical questions, to

design adequate analysis strategies and to implement them independently and empirically. They are able to critically evaluate available data and applied methods, competently communicate concrete results of analytical questions visually and thus systematically expand their own analytical and technical solution competencies.

Analytical methods are also important to implement innovative forms and progressive technologies.

Learning process of mapping methods is divided into several phases within the module:

- The study of available materials about the territory;
- Analyses in the field;
- Evaluation of the obtained documents;
- Defining the program for the territory;

As part of the study of available materials, students will focus on the following areas: socio-demographic and economic data on the territory, cultural-historical development of the territory, historical documents, archival materials, historical maps, maps, existing spatial planning documentation, according to the subject of the assignment.

As part of field research, students examine the significance of the locality in the urban context, the urban structure (its functions, character, spatial quality), public spaces (their connectivity, permeability, barriers, functions), traffic-operational relations in the territory and their intensity, the quality of natural elements in the territory, the quality and intensity of social ties and phenomena in the territory.

During the part of evaluation students focus: characteristic features of the area, positive and negative phenomena in monitored areas.

Teaching and learning methods

Acquisition and application of urban research methods and tools.
Study of professional literature tied to the given topic.
Correlational research.
Application of participatory methods (cooperation with local government representatives and stakeholders).
Application of progressive support methods.
Lectures by experts from practice, discussions.
Excursions.

Assessment methods

Development of the solution concept, of its graphic elaboration in a group of students and their presentation before the evaluation committee, participation in lectures, discussions, on-site observation and consultations.

Resources

- Groat, L., Wang, D. (2013). *Architectural research Methods*. New Jersey: Wiley, 468 p.
- Moughtin, C., Cuesta, R., Sarris, C. & Signoretta, P., (1999). *Urban design method and techniques*. Oxford, Architectural Press, 73 p.
- Lang, J. (2005). *Urban design a typology of procedures and products*. Oxford, Architectural Press, 50-69 p.
- LaGro, James a. Jr. (2013). *Site Analysis Informing Context-Sensitive and Sustainable Site Planning and Design*. Wiley&Sons, New Jersey, ISBN-13: 978-1118123676
- Roberts M., Greed, C. (2001). *Approaching Urban Design Process*. London, Rotledge, 57-74 p.

MODULE 3. INCLUSIVE DESIGN: CITIES FOR ALL

Defining the module and its structure

Aim of module The aim of the module is to adopt the principles of accessible, usable, safe and comfortable for everyone, regardless of age, disability or status in life to the greatest extent possible.

Key words Inclusive design, design for all, public space design, accessibility, permeability, participation, vulnerability

Disciplines Urban design, landscape design, architecture, urban planning, sociology, human geography. The aim is to ensure multidisciplinary.

Responsible partner **STU**
Other partners: UWK, BME, TUW, UBGD, UAUIM, UNS

Learning outcomes of the programme In the overall context and mosaic of theoretical knowledge and practical skills aimed at the inclusive development of DSMCs, universal design has a key role. And that through the ability to evaluate the level of environmental barriers and social inclusion. For the attractiveness of urban structures, both for residents and visitors, it is fundamental to create a well-accessible, barrier-free environment for everyone. Viable communities play an important role in the quality of a town's structure. An important aspect in the learning process is also the acquisition of participatory methods linked to communication with a wide range of social groups and to the evaluation of their interests and needs. From the point of view of a differentiated scale, within the application of the method of universal design and social inclusion, it is important to affect the level of the urban zone, ensemble, public space, down to the urban and architectural detail.

**Learning
outcomes of
the course unit**

The module focus on the topic of Universal Design / Design for All is focused on the creation of a non discriminatory environment to ensure the inclusion of all people in society. Universal Design / Design for All are the concepts (methods) to create the built environment to be accessible, usable, safe and comfortable to the greatest extent possible by everyone, regardless of their age, disability, or status in life.

Students will receive information on basic principles of Universal Design / Design for All and knowledge on how to apply these principles in urban and architectural design.

The student will gain information about the basic principles of Universal Design / Design for All and knowledge of how to apply these principles in urban and architectural design.

Theoretical knowledge related to social inclusion is focused on:

- Basic principles of universal design
- Legislative frameworks and European initiatives linked to social inclusion
- Good examples and case studies of inclusive environments
- Discussions aimed at people with disabilities

In addition to theoretical knowledge, students will also acquire practical skills aimed at evaluating the urban environment and public spaces from the point of view of inclusion, the degree of physical and social barriers, respectively the degree of accessibility for all.

The analytical practical part is focused on assessment methods from the point of view of universal design and social inclusion, tied primarily to the urban dimension (public spaces and urban environment). Skills are mainly tied to evaluating the environmental barrier:

- Evaluation of the degree of accessibility of public spaces, public transport nodes, as well as buildings.
- Evaluating the level of barriers in terms of the traffic of public spaces (solutions for pedestrian and bicycle routes, static and dynamic traffic) and the nature of surfaces (edges, stairs and other restrictions);
- Evaluation of the character of the territory in terms of intensity, quality

and function (relationship between pedestrians, traffic, cyclists); Skills are tied to evaluation of the degree of social inclusion too:

- Evaluation of the demographic structure;
- Degree of mixing of social groups/definition of social groups in the territory/excluded communities;
- Evaluating the degree of involvement of the population in public life and planning and transformation of the urban environment.

In the design part, they will verify the application of the acquired knowledge on specific proposals for selected territories. They will focus on creating a complex inclusive environment. An integral part of the process is participation with representatives of local governments, residents and interest groups.

**Teaching and
learning
methods**

The subject Universal Design consists of lectures and exercises. The introductory lectures and exercises are focused on the basic principles of creating an accessible inclusive environment. The principles of universal design in various types of urban environments and types of public spaces and buildings are explained to students within the various lectures, exercises and discussions.

The practical part is focused on learning the methods of evaluating the barrier nature of the environment and the degree of inclusion.

The most suitable teaching methods include the support of practical experiences such as personal encounters with different types of barriers and field work. At the same time, it is advisable to apply methods aimed at interaction between students and affected social groups.

Assessment methods

Development of the solution concept, of its graphic elaboration in a group of students and their presentation before the evaluation committee, participation in lectures, discussions, on-site observation and consultations.

Resources

1. Čerešňová, Z. (2018). *Inclusive Higher Education*. Praha, Gasset, p. 143-174. ISBN 978-80-87079-60-7.
2. Čerešňová, Z. (2009). *Culture for ALL : IP ERASMUS-Design for All - Universal Design*. Bratislava, STU, ISBN 978-80-970177-0-5.
3. Gilbert, R. (2019). *Inclusive Design for a Digital World*. APress, 272 p., ISBN: 148425015X
4. Jacobs, J. (2002). *The Death and Life of Great American Cities*. New Your, Random House, (1961).
5. Smatanová, K. (2014). *Public Space as a Tool for Building Inclusive Communities*. In: Proceedings of the Second International Conference for PhD Students in Civil Engineering and Architecture : Building the community of young researchers : International Conference for PhD Students in Civil Engineering and Architecture, 10-13 December 2014, Cluj-Napoca.
6. Taylor, N. (1999) *Town Planning: ,Social', not just ,Physical'?*, In C. H. Greed (ed.) *Social Town Planning*. London a New York: Routledge, 29-43 p.
7. Vitková, L., Kasala, V., Lamac, O., Nováček, O. (2021). *Urban design teaching and social inclusion*. In *World Transactions on Engineering and Technology Education*. Vol. 19, 3, 324-330. p. ISSN 1446-2257



MODULE 4. URBAN ACUPUNCTURE BASED ON PARTICIPATORY PLACE-MAKING

Defining the module and its structure

Aim of module The aim of the module is to understand the theory, master the methods of urban acupuncture and their application in selected specific cities.

Key words Urban acupuncture, architectural strategy, urban dimension, urban intervention, public space, theory and practice

Disciplines Urban design, landscape design, architecture, urban planning, sociology, human geography
The aim is to ensure multidisciplinary

Responsible partner **UNS**
Other partners: UWK, TUW, STU, BME, UBGD, UAUIM

Learning outcomes of the programme In the overall context and the mosaic of theoretical knowledge and practical skills aimed at inclusive development in DSMCs has the acquisition of acupuncture methods a significant role. Namely, the ability to define problematic or strategic places for the future development or transformation of the urban structure is necessary for the overall increase in urban quality. An important aspect in the process of the learning is also adoption of participation methods - the ability to communicate with stakeholders (representatives of local governments, relevant interest groups and above all with residents).
From the point of view of containing the scale of urban fabric, within the application of the acupuncture method, it is fundamental to understand the context - the significance of the locality within the city as a whole, respectively the city part, up to designing mastering in urban-architectural dimension. The architectural solutions of intervention have to correspond to the given location and situations, including the form, content, and suitable placement in the space.

Learning outcomes of the course unit

The aim of the module is to understand the theory, to master the methods of urban acupuncture and their application in selected specific cities and localities.

The module is in the theoretical part focused on the verification of theories and methods of urban acupuncture, participatory planning and through examples of successful practice. Students will gain basic theoretical knowledge about urban acupuncture and its importance for the improvement and transformation of urban structures. They will acquire concepts focused on different levels of visions aimed at improving urbanity, urban connectivity, sustainability, activating urban life, etc., as well as differentiated concepts in terms of the scope of interventions - from urban to architectural.

In the practical part, the module focuses on the survey of the context and analysis of the problems of the selected city and site and then on the design interventions related to the selected site, with the intention of increasing its quality and the impact on the wider environment. Students will master the principles of participatory planning, ideally through the design of small interventions. The possibility of implementing an intervention is also valuable.

Teaching and learning methods

Lectures are focused on the theory and methods of urban acupuncture (theorists such as: Manuel de Sola Morales, Jaime Lerner, Casagrande, Casanova & Jesus and others) and participatory planning. At the same time, the lectures focus on the basic principles of the transformation of settlements with an emphasis on sustainability, social and quality aspects. Theoretical lectures are supplemented by discussions and information about the development and problems of the selected and related cities. Practical parts are focused on skills - the acquisition of analytical, evaluation and conceptual principles related to design of the small interventions in the selected sites with effect to increase their social and spatial quality.

Assessment methods

Development of the solution concept, of its graphic elaboration in a group of students and their presentation before the evaluation committee, participation in lectures, discussions, on-site observation and consultations.

Resources

- 1.Sola Morales, M. (2008). *A Matter of Things*. Rotterdam, NAI Uitgevers, 208 p. ISBN 978-90-5662-520-7
- 2.Lerner, J. (2014). *Urban Acupuncture* , Island Press, 160 p., ISBN 9781610917278
- 3.Casanova, H., Hernandez, J. (2014). *Public space acupuncture. Strategies and interventions for activating city life*. Actar Publishers, New York, 324 p., ISBN 9780989331708
- 4.Busquets, J., Corominas, M. (2009). *Cerda and the Barcelona of the future, reality versus project*. Diputacion de Barcelona
- 5.Ghel, J., Svarre, B. (2013). *How to study public space*. Island Press, Washington, ISBN 10-1610914236

MODULE 5. URBAN RENEWAL OF DANUBE SMALL AND MEDIUM CITIES

Defining the module and its structure

Aim of module The aim of the module is to provide students with different views and approaches of the renewal of the urban structure affected by spatial, environmental, social, economic and cultural aspects in order to ensure their sustainable development. The aim of the subject is to lead students to the ability to critically analyse the problems of cities (to understand the reasons for the decline and shrinking of cities), to adopt various theories and principles of renewal and regeneration of cities and their parts.

Key words Medium to large scale development, riverside development, Danube heritage, connectivity, urban form, valorisation, industrial heritage, adaptation and reuse;

Disciplines Architecture, urban planning, urban design, sociology, urban landscape design, spatial planning, economy.
The aim is to ensure multidisciplinary.

Responsible partner **UBGD**
Other partners: STU, BME, TUW, UAUIM, UNS

Learning outcomes of the programme The transformation and revitalisation of the shrinking cities and declined areas of them is one of the keys aims of the mosaic of theoretical knowledge and practical skill at education, which focus on the inclusive development of DSMCs. Revitalisation of declined urban fabric is one of the key factors of the principle of sustainability (in all its pillars - environmental, economic, social and cultural). Revitalisation of urban fabric supports resilience, also thanks to involvement of local and regional stakeholders. Last, but not least, the process of transformation focuses on city culture specificity in the Danube region.

Learning outcomes of the course unit The aim of the module is to provide students with different views and approaches of the renewal of the urban structure affected by spatial, environmental, social, economic and cultural aspects in order to ensure their sustainable development. The aim of the subject is to lead students to the ability to critically analyse the problems of cities (to understand the reasons for the decline and shrinking of cities), to adopt various theories and principles of renewal and regeneration of cities. Part of the module is

learning the methods of creating and regenerating degraded parts of cities in real locations of DSMCs.

The module focuses on exploring spatial, environmental, economic, socio-cultural, political and administrative relations. In the theoretical part, it offers an overview of various models and principles of the renewal of cities and their parts. The supporting topics of the module are:

- Agenda for the renewal of cities and their parts as a pillar of sustainable development.
- Spatial, economic, social and cultural context of the decline of cities and their parts.
- Principles of regeneration of degraded urban sites. Types of interventions supporting the reproduction of urban space.
 - Physical and environmental aspects: Quality of the revitalised environment.
 - Economic and social aspects of design: formation of viable and sustainable urban communities.

Practical experience is verified on specific assignments focused on brownfields, coastal areas (often large transformative areas), when their use is fundamentally changed (to functionally full-value areas), with cultural and industrial heritage.

Teaching and learning methods

Lectures are focused on the transformation issue of settlements and their parts with focus to understand their spatial, operational, functional, organisational characteristics and specifics. At the same time, the lectures focus on the basic principles of transformation of settlements with an emphasis on sustainability. They are supplemented by discussions and observation in the terrain. The practical exercises are focused on the acquisition of analytical, evaluation and conceptual skills related to the design of selected parts of the settlements which use their potential.

Assessment methods

Development of the solution concept, of its graphic elaboration in a group of students and their presentation before the evaluation committee, participation in lectures, discussions, on-site observation and consultations

Resources

1. Bullivant, L. (2012) *Master Planning Futures*. London and New York: Routledge 313 p. ISBN 978-0-415-55447-3
 2. Cuthbert, A. R. (2011): *Understanding Cities. Method in Urban design*. Routledge, New York, p. 330, ISBN 13:978-0-415-60823-7
 3. Cuthbert, A., R. (2006). *The Form of the Cities. Political Economy and Urban Design*. Blackwell Publishing, Oxford, Malden, Carlton, p. 304, ISBN 13:978-0-4051-1639-8
 4. Christiaanse, K., Born, H., Gietma, R., Oort, I. (2006): *Situation: KCAP*. nai010 Publishers, p. 352, ISBN-13 : 978-9056624477
 5. Koolhaas, R. (1995) *S,M,L,XL*. New York, Monacelli Press, ISBN 9781885254863
 6. Djukic, A., Kadar, B. (2019) *Integrative Strategic Planning and Design for the Strengthening of Identity and Cultural Tourism in the Danube Cities : Smederevo*. Publisher University of Belgrade, Faculty of Architecture, ISBN: 978-86-7924-214-3
 7. LaGro, James A. Jr. (2013): *Site Analysis Informing Context-Sensitive and Sustainable Site Planning and Design*. Wiley&Sons, New Jersey, ISBN-13: 978-1118123676
 8. MAAS, Winy, RIJS, Jacob, KOEK, Richard (1998): *FARMAX Excursions on Density*, Rotterdam, 010 Publishers, ISBN 9789064505874
 9. Mikoleit, A. a Moritz Pürckhauer (2011). *Urban Code. 100 Lessons for Understanding the City*. Zürich: Massachusetts Institute of Technology and gta Verlag. ISBN 978-0-262-01641-4.
 10. Schenk, L.(2013). *Designing Cities; Basic – Principles – Projects*. Birkhäuser Verlag GmbH, Basel, ISBN 978-3-0346-1325
 11. Yang, D., Keller, M. (2019) *Urban Grids: Handbook for Regular City Design* ORO Editions, ISBN 978-1-940743-95-0.
-

MODULE 6. DANUBE URBAN-RURAL LANDSCAPE AND BLUE-GREEN INFRASTRUCTURE (BGI)

Defining the module and its structure

Aim of module The aim of the module is to show students different approaches to the creation of a sustainable urban and rural environment through the support of blue-green infrastructure.

Key words Landscape, urban, rural, blue – green (- yellow) infrastructure, urban climate, heat islands, carbon footprint reduction, disaster (flood) protection, planning for the future, adaptation; nature-based solutions (NBS), green-blue corridors, climate resilience, well-being, and healthy cities.

Disciplines Architecture, landscape design, urban design and planning, spatial planning, geography, ecology, water management, economy, public administration.
Is important to ensure multidisciplinary know-how and expertise.

Responsible partner **UAUIM**
Other partners: STU, TUW, UNS, UWK, UBGD
Associate partners: local and regional administrations

Learning outcomes of the programme The aim of the module is to show students different approaches to the creation of a sustainable urban and rural environment through the support of blue-green infrastructure.
Blue-green infrastructure is an important principle of creating a sustainable environment. BGIs are adaptable systems and can be efficient on a variety of different scales, depending on attributes of the local urban context, such as available space, topography, and climate (Dreiseitl & Wanschura 2016). Moreover, it is characteristic of the Danube region, its cities and rural environment. Therefore, it is necessary to build on it and develop the blue-green infrastructure (and corridor), both as part of the image of the region, but especially as an important principle of the fight against the climate crisis. The aim of the module is to lead students to the ability to master various theories and principles of application of blue-green infrastructure in the landscape and urban structure.

Learning outcomes of the course unit

Green and blue infrastructure represents a wide range of ecosystems that improve the quality of the urban environment. The lectures are focused on the possibilities of using the potential of green and blue elements to regulate temperature and air quality, water accumulation, or noise reduction. The module is focused on the development of concepts and design principles of blue and green infrastructure, which not only support resistance to climate change, but also contribute to a healthy and liveable urban environment. A healthy and liveable urban environment also contributes to strengthening the socio-economic climate in cities and the Danube transnational corridor. As part of the creation, students apply the acquired knowledge about the functionality of green and blue infrastructure to specific designs of multifunctional green and blue infrastructure. Also, identification of and solution to complex design and management-oriented tasks related to blue-green infrastructure and innovative local management and design in the field will be part of the students' knowledge.

Teaching and learning methods

The lectures are focused on the issue of the Danube blue-green infrastructure corridor and its importance for the sustainability of cities and regions, especially for mitigating the effects of the climate crisis. The blue-green infrastructure also plays an important role in the image of the Danube cities and the landscape, identifying the Danube as a blue-green corridor. In this context, emphasis is placed on the impairment of its basic characteristics and the restoration of its traces, which have disappeared over the decades. Practical exercises are aimed at acquiring analytical and conceptual skills related to the design of blue-green infrastructure and the ability to use the natural potentials of cities and the countryside.

Assessment methods

Development of the solution concept, of its graphic elaboration in a group of students and their presentation before the evaluation committee, participation in lectures, discussions, on-site observation and consultations.

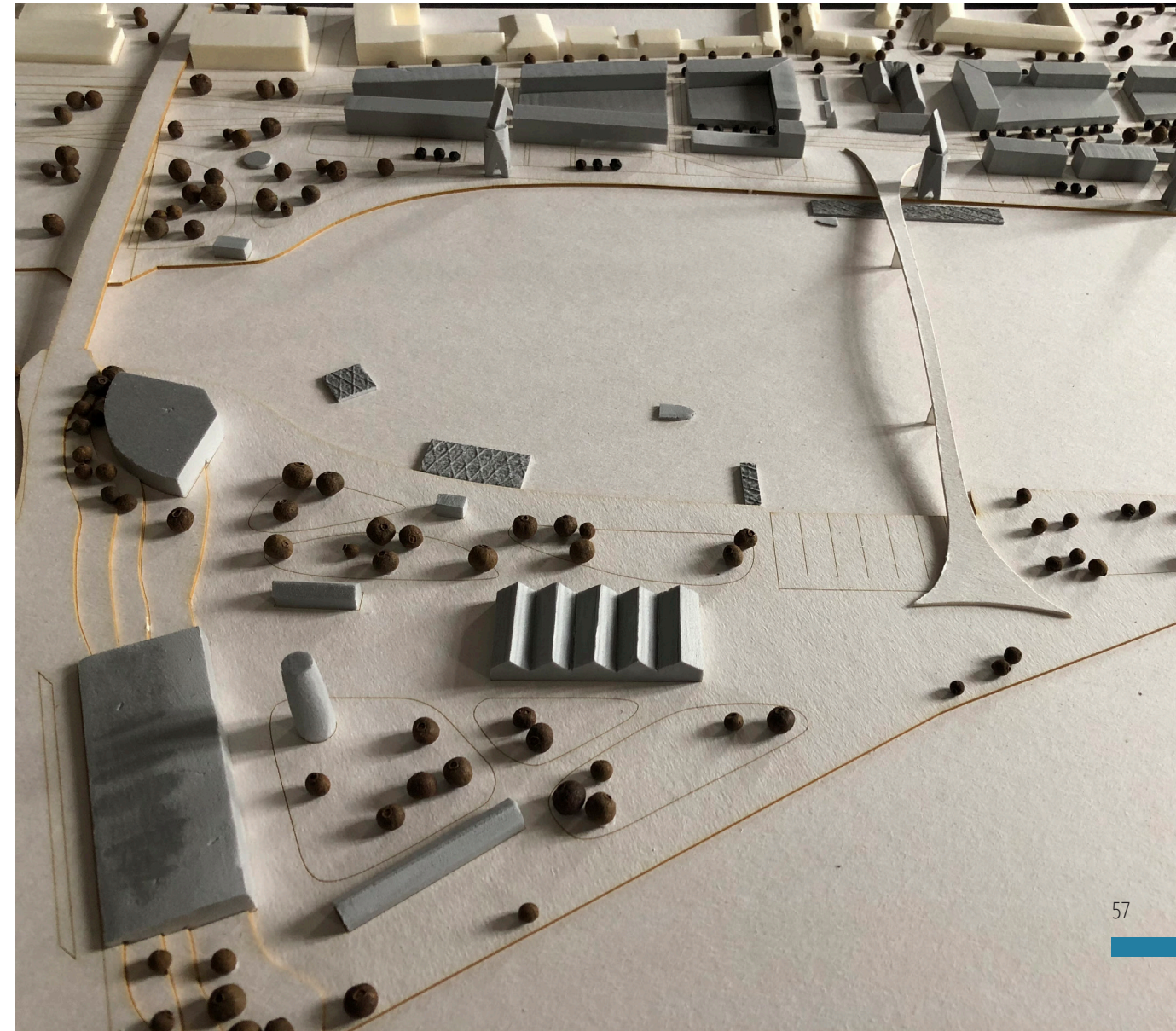
Resources

- 1.Andreucci, MB (2013) *Progressing Green Infrastructure in Zubir S.S,* Brebbia C. A. (eds) *The Sustainable City VIII* (2 Volume Set).Urban Regeneration and Sustainability pp 413 - 422 doi:10.2495/SC130351
- 2.Beatley, T. (2000) *Green Urbanism: Learning from European Cities.* Washington DC, Island Press.
- 3.Bell, S., Fleming, L.E., Grellier, J., Kuhlmann, F., Nieuwenhuijsen, M.J., & White, M.P. (Eds.). (2021). *Urban Blue Spaces: Planning and Design for Water, Health and Well-Being* (1st ed.). Routledge._ <https://doi.org/10.4324/9780429056161>
- 4.Benedict, M.A. & McMahon, E.D. (2002) *Green Infrastructure: Smart Conservation for the 21st Century.* Renewable Resources Journal, Autumn Edition, 12-17.
- 5.Benedict, M.A. & McMahon, E.D. (2006) *Green Infrastructure: linking landscapes and communities.* Washington, DC, Island Press.
- 6.Dreiseitl, H & Wanschura, B., eds. (2016). *Strengthening Blue-Green Infrastructure in our cities enhancing blue-green infrastructure & social performance* in high density urban environments, Liveable Cities Lab, Ramboll.
- 7.European Commission (2021): *Green and Blue Infrastructures.* Available at: https://knowledge4policy.ec.europa.eu/glossary-item/green-blue-infrastructures_en
- 8.European Comision (2020) *The EU Strategy on Green Infrastructure.* Available at:https://ec.europa.eu/environment/nature/ecosystems/strategy/index_en.htm
- 9.European Commission – EC (2013) *Building a Green Infrastructure for Europe, Luxembourg, Publication Office of the European Union.* Doi:10.2779/54125
- 10.EUROPEAN COMMISSION – EC (2011) *EU Strategy for the Danube Region (EUSDR).* Available at: <http://www.danuberegion.eu/attachments/article/590643/EUSDR-EN.PDF>.
- 11.European Commission (2007). *Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and*

management of flood risks (Text with EEA relevance). Available at:

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32007L0060>

12. Gill, S.E., Handley, J.F., Ennos, A.R. & Pauleit, S. (2007) *Adapting cities for climate change: The role of green infrastructure. Climate Change and Citie.*, 33(1), 115-133.
13. Joklová V, Djukic, A, Hărmănescu, M, Janková, J (2019) *Conceptual approaches to environmental quality and liveability in smaller cities*. In: Benko, M, Pavel, G., Vitkova, L (Eds) *Book on the unexplored cultural heritage in communities by the Danube*, INTERREG- DANUrB, Gasset, Praha pp 104-112
14. Mell, I.C. (2009) *Can Green Infrastructure promote urban sustainability?* Proceedings of the ICE - Engineering Sustainability, 162(ES1), 23-34.
15. Stan, A., Harmanescu, M (2021). *Abandoned lands in small and medium sized cities situated on Southern and Lower Danube's urban fronts, as opportunity to enhance the river urban green infrastructure (UGI)*. In *Urban Services to Ecosystems: Green Infrastructure Benefits from the Landscape to the Urban Scale*, Catalano, C., Andreucci, M.B., Guarino, R., Bretzel, F., Leone, M., Pasta, S. (Eds.), Springer: Nature. DOI: 10.1007/978-3-030-75929-2_19
16. Tzoulas, K., Korpela, K., Venn, S., Yli-Pelkonen, V., Kazmierczak, A., Niemele, J. & James, P. (2007). *Promoting Ecosystem and Human Health in Urban Areas using Green Infrastructure: A Literature Review*. *Landscape and Urban Planning*, 81, 167-178.



MODULE 7. MULTILEVEL STAKEHOLDER COOPERATION AND INVOLVEMENT FOR SUSTAINABLE PROJECTS IN DANUBIAN URBAN-RURAL REGIONS

Defining the module and its structure

Aim of module The aim of the module is to give practical knowledge on stakeholder engagement and cooperative action in projects developing public buildings, spaces and infrastructure in small and medium communities.

Key words stakeholder involvement, commons, local governance, participation, inclusive design, multilevel governance structures, urban planning, urban design

Disciplines Urban policy, urban design, landscape design, architecture, urban planning, sociology, human geography.

Responsible partner **BME**
Other partners: UWK, BME, TUW, UBGD, UAUIM, UNS

Learning outcomes of the programme The aim of the module is to show students how the governance models and stakeholder involvement influence the creation of a sustainable urban and rural environment through planning and design procedures involving at different levels locals. Projects are most of the time designed, developed and implemented in a multi-stakeholder environment, and the module shows to students the values and potentials of stakeholder involvement in public space, building or infrastructure development. Students will have practical knowledge on multi-level governance and project management, on the management of urban and rural commons, on the different challenges of Danubian small and medium cities and regions regarding management, governance and project implementations, and will be familiar with the administrative methods and funding possibilities in such environment, with special regard to EU development funds.

**Learning
outcomes of
the course unit**

Theoretical lectures present the different governance models, municipality types and their challenges and the different stakeholder types in urban and rural areas along the Danube. Lectures will present the methods of stakeholder involvement, participation and project design and implementation embedded in the legal environments of Danube countries and the EU. The different European strategies, frameworks and programmes will also be taught, with special regard to EU development funding opportunities. Students will also learn about the theory of commons and the examples of multilevel governance. Students will also acquire practical knowledge on site, as the learning will partially take place in specific SMCs (small or medium cities) or rural regions along the Danube. Students will have the opportunity to integrate the knowledge of this module into their design courses running parallel in their academic curricula. They will learn to acquire development possibilities from local stakeholders and to develop a project together with them.

**Teaching and
learning
methods**

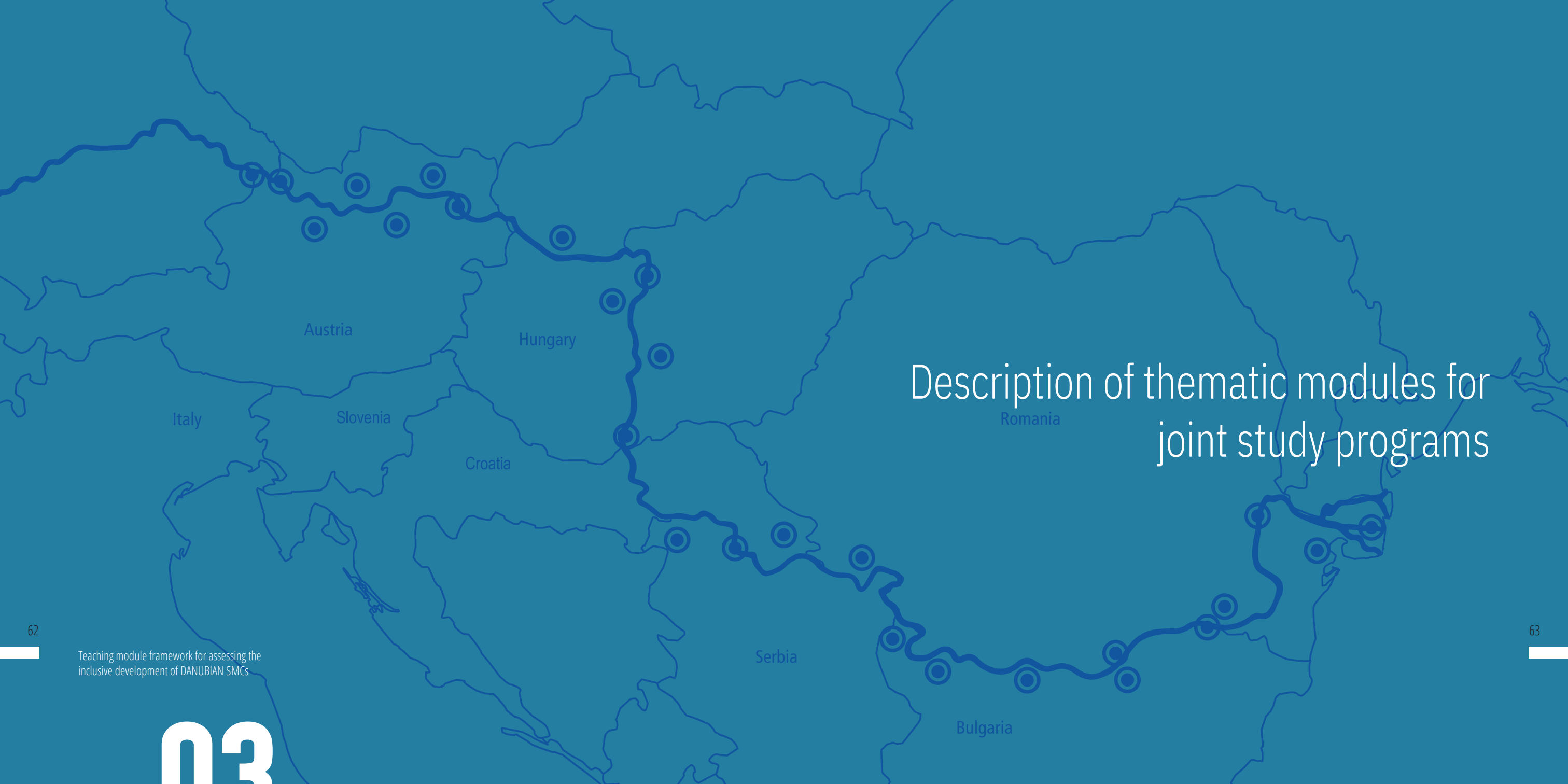
This module consists of lectures and on-site exercises. Lectures are focused on the theory and methods of governance models, urban and rural commons, stakeholder inclusion techniques, policy, governance and funding frameworks of urban and rural areas in Danubian countries. Theoretical knowledge will be used in on-site exercises. Students will be working on-site in small and medium size cities or rural areas along the Danube, contacting directly local stakeholders and involving them in the creation and implementation of projects (implementation as a theoretical practice exercise). Students will have to map the present stakeholder network, governance structure and potentials for development, including funding possibilities. Students will directly contact stakeholders, analyse their positions and aims, and develop a project together with them. At the end of the course the presentations will also be held on-site together with stakeholders.

**Assessment
methods**

Development of the solution concept, of its graphic elaboration in a group of students and their presentation before the evaluation committee, participation in lectures, discussions, on-site workshops with stakeholders.

Resources

1. Djukic, A., Stan, A., Kadar, B., Antonic, B. (2022) *D+ Atlas: Atlas of hidden urban values along the Danube*. Publisher University of Belgrade, Faculty of Architecture, ISBN: 978-86-7924-320-1
2. Benkő, M., Kádár, B., Gregor, P., Vitkova, L. (2019) *Book on Unexplored Cultural Heritage in Communities by the Danube*. Praha: Gasset, 137 p. ISBN: 9788087079638
3. Djukic, A., Kadar, B., (2019) *Integrative Strategic Planning and Design for the Strengthening of Identity and Cultural Tourism in the Danube Cities: Smederevo*. Publisher University of Belgrade, Faculty of Architecture, ISBN: 978-86-7924-214-3
4. LaGro, James A. Jr. (2013): *Site Analysis Informing Context-Sensitive and Sustainable Site Planning and Design*. Wiley&Sons, New Jersey, ISBN-13: 978-222823;979
5. Foster, S. R. (2011). *Collective action and the urban commons*. Notre Dame L. Rev., 87, 57.
6. Borch, C., & Kornberger, M. (2015). *Urban commons. Rethinking the City*.
7. Veldpaus, L. (2015). *Historic urban landscapes: framing the integration of urban and heritage planning in multilevel governance*.
8. Bradford, N. J. (2004). *Place matters and multi-level governance: Perspectives on a new urban policy paradigm*. Canadian Policy Research Networks.



Description of thematic modules for joint study programs

IV. DESCRIPTION OF THEMATIC MODULES FOR JOINT STUDY PROGRAMS



Introduction

**The context of the module topic in
urban planning and spatial planning**

Issues of the module topic

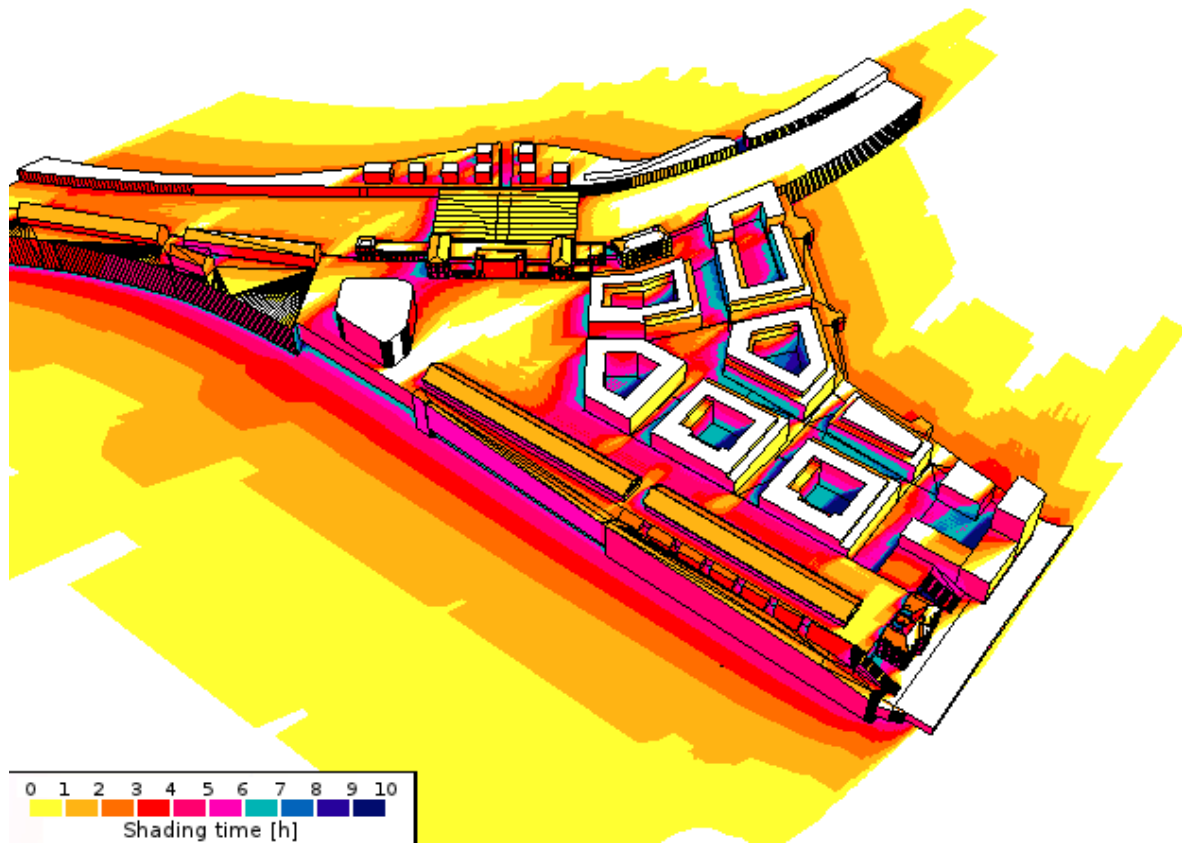
Teaching methods focused on module

Innovative tools

Examples of assignments



Module 1. Sustainability and resilience



Students project, Re-Development of the in Bratislava Main Train Station area – Simulation of solar potential and shadow analysis of the proposed urban structure. (Project of Kamenská, M., 2020)

IV. Module 1. Sustainability and resilience

University responsible of the module:
University for Continuing Education
Krems / UWK

Contributors: Darya Haroshka, Peter Morgenstein

IV. Module 1. 1. Introduction

Sustainability of urban development represents a complex issue involving all aspects of contemporary human existence in an urban context. To address it, it is necessary to strengthen adequate environmental education and training for new generations (as well as current ones). Cities are the carriers of culture and civilisational progress. They must respond to the consequences of climate change and meet social and ethical demands in a way that allows them to ensure the continuity of life. In addition to the social and economic aspects, urban planning must include energy and climate considerations, define efficiency potentials, and promote energy production directly in urban structures and look for ways of storing it.

The basic premises of sustainability in urban planning terms include density and compactness of the built environment, diversity of architecture and environment, composition

of the population, environmentally friendly forms of transport, walkability, local employment opportunities, contact with the natural environment, minimisation of the ecological footprint of the settlement, etc.

Buildings currently consume around 40% of the total energy consumed in Europe during their life cycle, which also means that they are the sector with the largest share of energy resource exploitation. In addition, they are responsible for 36% of CO₂ emissions. Globally, more than 50% of the total population is concentrated in cities, and almost 73% in Europe, and the trend is upwards. According to a UN study, up to 70% of the population will live in urbanised areas by 2050.

IV. Module 1. 2. The context of sustainability and principles of resilience within the Danubian region

Due to the constantly deteriorating state of the environment, which resulted in the current climate crisis, the transformation of DS-MCs is not possible without the application of the principles of sustainable development. Theoretical knowledge and practical skills acquired by students within the module focused on sustainable development represent an essential basis for forming a high-quality, viable and inclusive urban environment of the Danube cities of the future.

The sustainable development of urban structures rests on four pillars: environmental, economic, social and cultural, which must be perceived in their complexity and in their in-

tertwining. The mentioned complexity represents a mosaic of practical and theoretical knowledge from the field of technical, economic, social and artistic disciplines. Only on the basis of a wide range of knowledge is it possible to ensure the sustainability of urban structures for the future.

Gradually, we are already starting to experience concrete impacts of climate change within our cities. Like large metropolises, due to changing climate the towns along the Danube also suffer from extreme weather events, prolonged periods of drought, increased temperature, urban heat islands as well as flush rain. Although some of these events are not as severe given the scale and density of DSMCs, these events affect the comfort and behaviour of inhabitants as well as visitors. Furthermore, they have effects on the performance of buildings and urban structures.

While the population of urban metropolises is continuously rising, smaller cities suffer from diminishing numbers of inhabitants. Thus SMCs are losing a great portion of citizens in productive age, resulting due to interconnectedness of the issues in reduction of the town development potential. Strategies, which improve the quality of life for young generations are crucial for slowing and reversing the brain-drain. These problems are affecting the culturally rich and diverse Danube Region as well. It is thus necessary to improve the education contents and focus it deliberately on cross-country collaboration in the field of sustainability, resilience, safeguarding of cultural heritage. These areas can help generating new employment opportunities as well as can support the activation of local and regional potential of human creativity and connect it to tradition, identity and culture thus promoting sustainable development utilizing local knowledge and resources.

The globally valid Sustainable Development Goals (SDGs) introduced by the United Nations represent a guideline which supports the coordinated improvement of sustainability of DSMCs. The SDGs form an interconnected system representing a widely

targeted strategy which can help refurbishing and redeveloping the DSMCs built upon local and regional possibilities and specificities while keeping in line with the globally coordinated campaign.

The education profiles of architecture and urban planning students are focused widely and connect creative ideas with knowledge, observation, analytic and synthetic skills, as well as interaction and presentation skills. At the same time, the results of these students' work tend to be less dependent on words and language and are more visual, which makes collaboration and understanding across nations far easier. Architecture and urban planning students represent a great opportunity for establishing and pursuing the transdisciplinary approach needed when dealing with topics of complex sustainability and resilience. By experiencing to collaborate transnationally on the topic during their study years, it will become natural for them to cooperate in practice.

IV. Module 1. 3. Issues of sustainability and principles of resilience within the Danubian region

In order to draft and propose an architectural or urban project with focus on sustainable development, the designer needs to perform an in-depth analysis of local and regional context and a variety of potentials ranging from social and cultural issues through materials until energy sources up to life cycle assessment. This complex approach cannot be successful without proper background knowledge and without connection to the site or region in ques-

tion. The module aims for providing students with theoretical understanding and practical skills to apply principles of sustainability and resilience from the level of temporary interventions over architectural design level up to the level of strategical proposals for urban development in the Danube area and beyond.

The module is focused on the sustainable development of cities, to main theoretical knowledge and its verification into urban design. Theoretical knowledge is focused on the acquisition of basic theories and principles of sustainable development (ten universal principles of sustainable urban design). In the theory as well as in the practical knowledge application, the module emphasises the acquisition of the principles of sustainable development at all spatial scales such as: building, space, district and entire settlement.

The design of sustainable urban structures focuses not only on environmental aspects (reducing energy consumption and carbon emissions), but it also takes into account social, economic and cultural sustainability of the built environment.

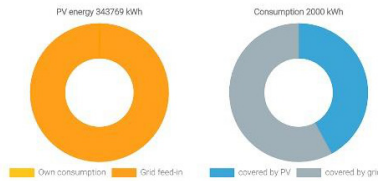
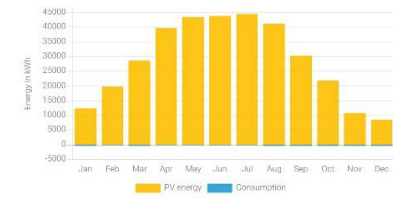
Strategic decisions at the level of the region, city and its parts are essential for sustainable development. Therefore, it is necessary for students to acquire skills in strategic and conceptual thinking. For the formation of viable communities, cooperation with residents and affected interest groups is necessary. Therefore, students need to acquire the skills to analyse their needs and then the ability to translate them into a design in order to create

a quality environment with an adequate sustainable social and economic infrastructure.

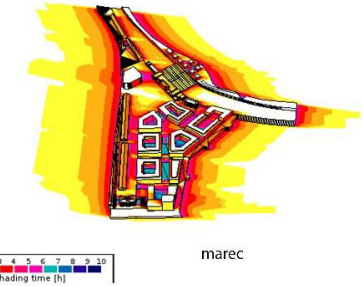
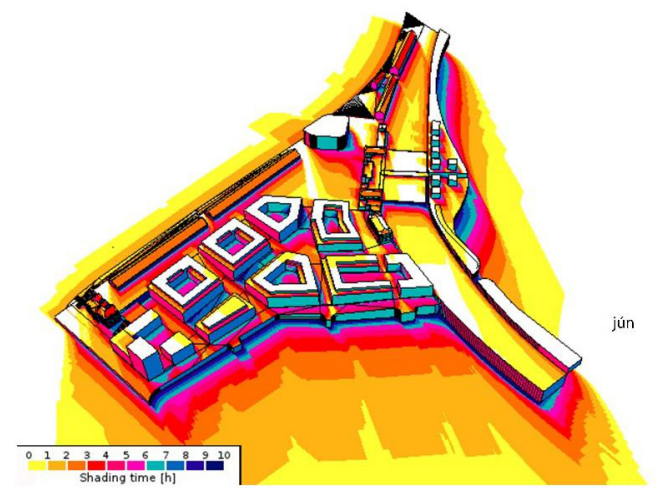
The proposed structure of the sustainability module is divided into the theoretical background provision and the practical application of the theoretical knowledge in architectural/urban design studio or on-site workshop.

Students will adopt basic theories related to the sustainable development of cities, such as: the theory of the compact city, the theory of the city of short routes, the theory of resiliency. On a theoretical level, they learn the basic principles of sustainability. Such are:

- Understanding sustainable development goals in the context of urban planning;
- Integrated and strategic planning; participative planning with focus on sustainability promotion;
- Effective use and acquisition of resources; principles of diversity and choice;
- Integration of renewable energy sources in urban areas
- Ensuring human need (the principles of a healthy, safe, and easily accessible city);
- Resilience of urban structure;
- Principles of flexibility and adaptability;
- Strategies of urban refurbishment;
- Principles of CO2 emissions and pollution reduction through urban design;
- Principle of concentration (based on the compactness of the



Annual PV energy	343769 kWh	vyťažiteľnosť z 900 panelov na streche bloku pri sklone panelov 30stupnov.
thereof own consumption	343769 kWh	
thereof grid feed-in	0 kWh	
Own power consumption	0.2 %	- pri údaji 40kw/h/rok na m3 - celý blok potrebuje 1 500 000kwh/rok
Consumption	2000 kWh	
covered by PV	842 kWh	
covered by grid	1158 kWh	
Solar fraction	42.1 %	
Avoided CO2 emissions	183916 kg/year	



Students project, Re-Development of the in Bratislava Main Train Station area – Simulation of solar potential, calculation of potential energy gains from building integrated renewable energy sources. (Project of Kamenská, M., 2020)

urban structure, short roads and polycentric development); principles of diversity;

- Principles of biodiversity;
- Principles of economic and social self-sufficiency of cities and their parts;
- Material sustainability, use of renewable building materials.
- Cultural sustainability – integration of local

and regional identity and cultural heritage in (re)developments.

- Students will gain the necessary experience in the design of real urban structures in DS-MCs. During the design process students are guided to take into account main principles of sustainable urban design:
- Context: Functional urban region.
 - Efficiency of energy consumption and nat-

ural resources, integration of renewable energy sources, minimization of land use, efficient transportation through strategic location and urban layout of new development.

- Spatial and functional diversity, livability.
- The need for safety, accessibility, comfort and social contacts.
- Ability to adapt to changes over time.
- Minimization of pollution during construction and use.
- Ecological quality of urban structures and areas through the integration of natural elements
- Mitigation of climate change effects, heat island reduction.
- Self-sufficient local communities.
- Character of the place, integration of existing cultural heritage and social capital

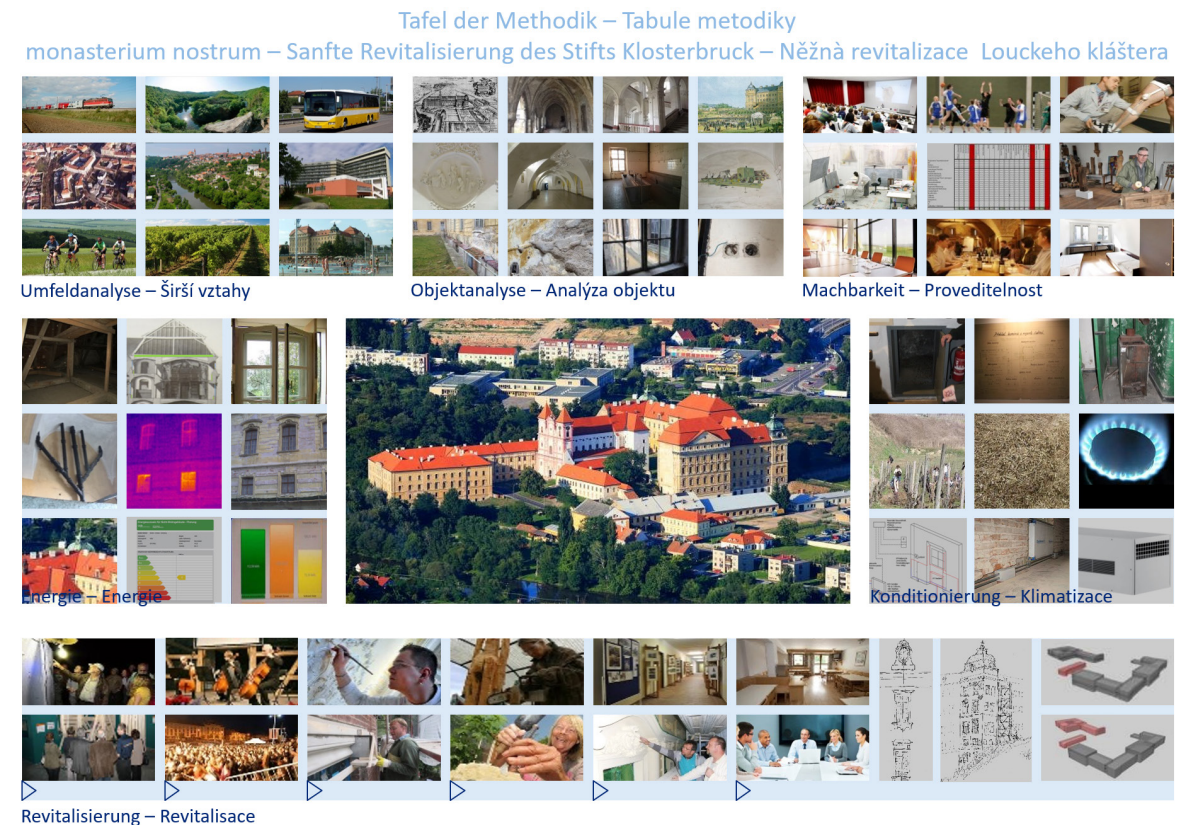
IV. Module 1. 4. Teaching methods focused on sustainability and principles of resilience within the Danubian region

a. The role of the methodology

A contemporary teaching and learning approach engages students in interdisciplinary planning teams to work on diverse aspects of a holistic project design, thus eliminating the strict separation of disciplines and allowing them to address several different stages of design as well as to focus on specific design objectives. Students are encouraged to develop creative ideas for the sustainable development of the built environment.

The lectures are aimed at mastering the basic theories and principles of sustainable development of cities and their parts in the context of functional regions. The training is aimed at sup-

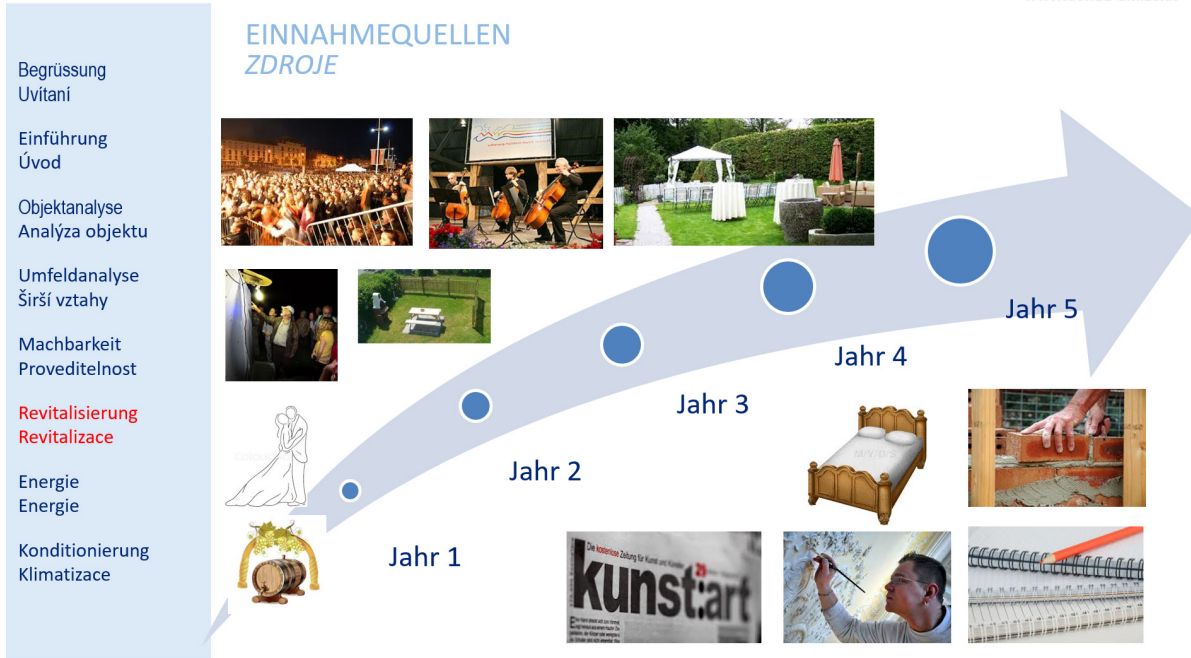
The basic structure of the thematic module and structure of the BIP thematic workshop within existing study programs at partner universities



Revitalisierung des Klosters Louka in Znojmo Revitalizace Louckeho Kláštera ve Znojmě



www.donau-uni.ac.at



Proposition of a concept of gradual soft revitalization of the Monastery Louka in Znojmo following the pre-set targets and respecting the cultural setting, social context as well as sustainability of the refurbishment. Students of the University for Continuing Education Krems: Aydt R., Eismair A. Heindl R., Hörtl R., Kirschenhofer K., Korbut U., Schopper F., Smuskiewicz A., Unger S., Figl F., Grasmann I., Gugerell F., Los G.; 2014.

porting critical thinking, acquiring necessary technical and economic knowledge, as well as knowledge related to social and cultural aspects and evaluation of the real environment and its potentials for increasing sustainability. A significant part of the teaching process is tied to learning by doing - that is, to the application of acquired knowledge to the creation of a sustainable environment in selected locations of DSMCs, if possible, in the context of a specific site and in interaction with representatives of relevant stakeholders (municipality, regional authority, citizens, etc.). Cooperation with municipalities, residents and interest groups plays an important role in the teaching process, as well as collaboration between partners from different schools.

Proposed structuring of the variable teaching methods consists of:

- Observation and analyses related to the context of the environment and with the involvement of local government representatives, residents, interest groups, entrepreneurs; application of innovative methods in data collection and mapping (including specific methodologies and the use of digital tools, interactive methods of data collection, use of structured datasets and advanced information tools);

- Formulation of the problem and specifying the focus of the work;

- Iterative presentation and peer feedback sessions;

- Use of advanced computer aided design

methodologies for assessment and calculation of potentials and evaluation and assessment of the intended design performance using advanced assessment tools;

- Use of speculative methods, experimentation and verification of premises during the design process.

- Blended collaboration - combination of virtual and physical components, integration of on-line lectures and feedback sessions for improvement of their quality.

b. Design studio

- The teaching methods of the design studio are aimed at:

- Learning in an interdisciplinary and international team;

- Learning through simulation of real design processes and planning (participation, communication with experts, with representatives of local governments and stakeholders);

- Learning by doing and interaction across disciplines.

c. Assessment methods

Development of the solution concept, of its graphic elaboration in a group of students and their presentation before the evaluation committee, participation in lectures, discussions, on-site observation and consultations.

IV. Module 1. 5. Innovative tools

The innovative teaching methods suitable for the module are aimed at providing interactive experiences with hands on simulations of the sustainability performance of proposed designs. The students should be able to use simulation and evaluation tools as well as to self-develop methods of assessment and visualisation of meeting desired targets of sustainability utilising different comparative indicators (e.g. solar potential assessment, energy consumption, generation and storage, assessment of materials and their environmental impact, indicators of cultural sustainability etc.) Working with physical and virtual 3D models, simulation of energy flows and urban processes, situations and transformation of the structure should become part of the design process and of argumentation.

Use of online platforms and virtual collaboration needs to be included in the progress of the work alongside with use of VR and AR tools accompanying the on-site experience.

IV. Module 1. 6. Examples of assignments

Within a urban design studio project the students dealt with a refurbishment project within dense urbanised area in proximity of the Bratislava main train station. The task was to propose a urban structure which would be integrated into the existing environment and would improve the quality of the surrounding area. At the same time, stress was given on use of sustainable materials and integration of sustainable energy sources by applying concepts of building integrated active solar systems.

The presented studio project was realised at the Faculty of Architecture and Design of the Slovak University of Technology in Bratislava (Studio Vitková/Špaček)





Module 2. Sensing and mapping the cities: New technologies

IV. Module 2. Sensing and mapping the cities: New Technologies

University responsible of the module: Technical University of Vienna / TUW

Contributors: Stefan Bindreiter, Julia Forster, Andreas Voigt

IV. Module 2. 1. Introduction

"[Spatial] planning needs to reflect the complexity of the world we live in. The development of visions, ideas and plans is a communicative and iterative process, consisting of knowledge, creativity, courage and a positive mindset regarding the future." (Bindreiter et al., 2021: 7)

Planners and architects can utilise their professional skills, competences, and experience in planning processes, but a successful plan needs to incorporate and synthesise ideas from a broader community. Therefore, a main task of the planning professionals is the coordination of idea development, proposing visions under particular circumstances and iteratively reflecting upon them with further stakeholders and the wider community.

Modern planning and decision-making support tools can facilitate such processes. By using state-of-the-art ICT-based tools planners can stimulate the development, synthesis, and concretisation of ideas in an open and inclusive way.

Within the Danubian_SMCs project the teaching team has already enabled students to acquire the skills and competences that are needed to address contemporary and future challeng-

es in planning in a meaningful and effective way. In addition to experiencing other planning cultures in an international setting, learning and critically engaging with new technologies and innovative tools is an integral part of Danubian_SCMs teaching modules.

The following sections were developed during the Danubian_SMCs project and compile mainly technical contents and focal points, which are partly already included in different curricula of the planning studies at TU Wien: Architecture (TU Wien, 2022a), Spatial Planning (TU Wien, 2022c), Building Science and Environment (TU Wien, 2012), Cartography (TU Wien, 2015), Geodesy and Geoinformatics (TU Wien, 2022b). The selected focal points are suitable to become part of an international teaching module with the partner universities from the Danubian_SMCs project and beyond. They are designed for interdisciplinary exchange between students from the fields of architecture, spatial planning and other planning and engineering sciences such as civil engineering or geography. The focus lies on integrated application of tools and learning of skills in practical situations of concrete planning tasks and problems. The contents support the efforts of a common and innovative planning doctrine to deal with the challenges of DSMCs.

IV. Module 2. 2. The context of analysis, mapping and visualisation in urban planning and spatial planning

Architects and planners mostly work together with different other disciplines in complex and interdisciplinary contexts: In regional or municipal development planning in urban and rural areas, in urban development, urban redevelopment and urban renewal, as well as in traffic, infrastructure and environmental planning. They are also involved in the fields of real estate management and project development, in economic development and structural policy, in urban and regional marketing, and in political and economic consulting or in international development cooperation.

All these fields and tasks require thorough analyses based on solid data for preparing and making comprehensible and transparent decisions.

Technological advancement has added numerous new methods and tools to the "toolbox" of spatial planners and architects: Modern sensory technologies enable an expanded perception of space, while sophisticated and advanced simulation methods help us to understand underlying processes and obtain a picture of different future spatial scenarios. At various spatial levels and in the respective institutional and thematic contexts, planners and architects often perform a combination of the following independent activities:

- Analysis of physical / geographical / social space,

¹ICT: Information and Communication Technology

- Spatial research and consulting,
- Spatial planning design and drafting,
- Design of planning processes,
- Communication, mediation and negotiation of space and spatial planning, and
- Establishing spatial agreements, liabilities, and legal certainty.

Evidentially, planning is not an exclusively technological matter, but a social and communicative process. As such, visualization tools not only define a pre-set image of the future but also provide a solid basis for communication and discussion and to support decision-making.

IV. Module 2. 3. Issues of sensing and mapping in urban planning and spatial planning

In order to analyse a space and its characteristics, planners and architects make use of various methods of reconnaissance and investigation. On-site inspections and field surveys are carried out to explore the space and obtain a multi-sensory perception of it. The findings and results thus obtained can be analysed in greater detail using analogue mapping, sketches and visualizations and supplemented by additional descriptive and numeric data. They use GIS and CAD-based spatial analysis to elaborate a quantitative and qualitative basis for planning decisions and communication. The following topics and issues can be integrated with design studios and project work but need at least basic lectures and introduction (1-3) in separate courses:

1. GEO DATA MANAGEMENT

Knowledge of existing systems and data infrastructures, as well as data handling, is key to efficient and appropriate use of data. A basic understanding of the concepts behind the tools used is

necessary to develop technical solution competence.

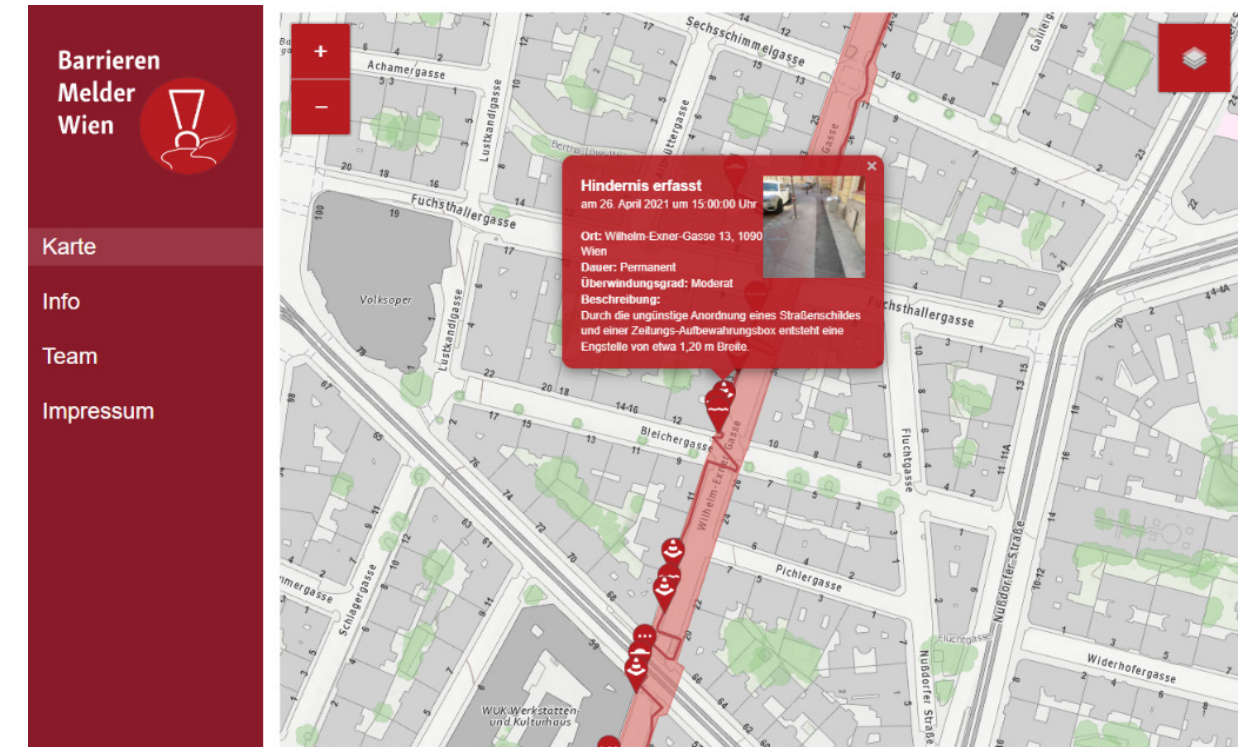
2. SPATIAL ANALYSIS

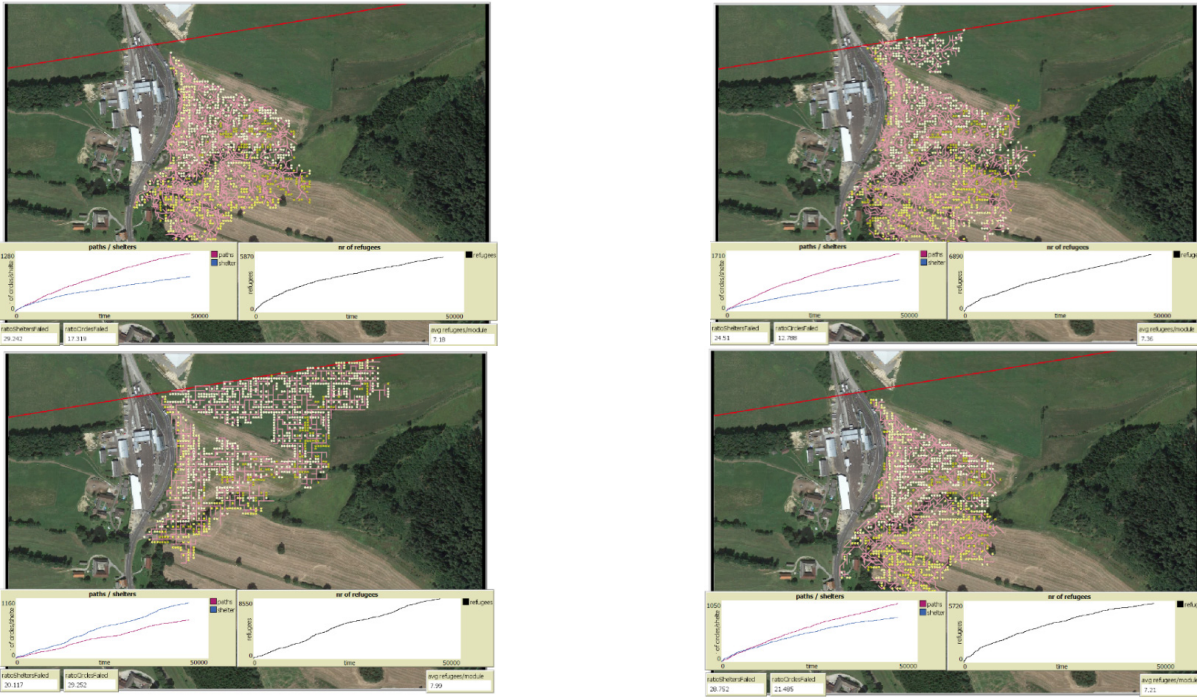
For the analysis it is necessary to know and understand the data. Therefore, vector and raster data models, the organization and integration of complex spatial data structures, data acquisition, data validation, descriptive spatial analysis, as well as modelling and evaluation and assessment of spatial relations are addressed.

3. SPATIAL VISUALISATION

At all scales, from the design of a building to the development of a regional strategy, tools, maps, spatial analyses, and visualizations help in decision-making but also in communication between disciplines. The knowledge of graphical data types and variables, perception and interaction, 3D Visualisation, modelling and simulation is key for successful communication.

Students project "Barrier reporter Vienna" (Project of Kössldorfer, M., Aufhauser, M., and Graßl, A. 2021)





Agent based simulation of space allocation rules for refugee tents in a refugee camp with Netlogo (Student exercise of Bindreiter, S., 2017)

Current and contemporary issues in technology and planning are influenced by digitalization, the technological change in our working and living environment. New data and new contexts are constantly emerging, which are also relevant for planning. A critical reflection on this must be provided within these topics (4-6):

4. INTERACTIVE AND STRATEGIC VISUALISATION

... deals with the possibilities and opportunities of interactive visualisations (AR, VR, dashboards, ...).

5. OPEN SOURCE TOOLS IN PLANNING

... engages with new data, tools, and opportunities emerging

from an ever-growing open-source community.

6. SPATIAL PLANNING SUPPORT SYSTEMS AND SIMULATION

... deals with the application and development of a wide range of support tools from different disciplines (AI + machine learning, simulation, ...).

IV. Module 2. 4. Teaching methods focused on innovative tools

A modern approach to teaching and education in planning is to have students work on multiscale project designs in interdisciplinary planning teams, which breaks down the strict separation of disciplines and allows them to address multiple different planning phases. The need for holistic planning processes within defined parameters encourages students to develop ideas for sustainable development of our built environment.

Curricula of the master's at the universities of the Danubian_SMCs project ensure that students acquire cognitive and practical skills in addition to technical and methodological competencies. By working in groups of different sizes or individually social competencies and self-competencies are strengthened.

In the "mapping and sensing the city" topics within the Danubian_SMCs teaching module, mainly methodical and technical competencies are deepened. Students learn how to independently develop spatially relevant knowl-

edge from data and information and make it usable for application-related questions and analyses. In doing so, analytical, and evaluative competencies are to be developed, which enable the students to independently compile spatially relevant information. They learn to select, adapt, modify, and apply appropriate methods and instruments in a goal-oriented and problem-related manner.

After completing the module, students will be able to formalize spatially relevant analytical questions and design appropriate analysis strategies and implement them independently both technically and empirically. In doing so, they proceed in a reflective manner and can critically evaluate the existing and generated data and methods used. They can competently communicate the results of analytical questions visually.

The courses in this module have a low technical entry hurdle to pick up the interdisciplinary group of students on a common knowledge level. In return, the further course requires the participants to work independently with the assigned exercises and the tutorials and reference examples provided:

The fundamentals are taught in lectures and hands-on exercises in a few practice lessons. Based on an exercise project, the question of which the students can choose themselves within a given thematic framework, they deepen their knowledge in independent work in individual or groups of two.

The courses are designed to familiarize stu-

dents with tools, critically evaluate and reflect on their application and possible uses in planning and design. In addition to the acquired analytical skills and technical problem-solving skills, the students can reflect on the framework conditions of digitization and associated transformation processes based on (spatial) planning-relevant topics.

IV. Module 2. 5. Innovative tools

The module provides for the use of modern technologies in the field of (geo spatial) data creation, management, and communication. This includes a critical examination of data security, data protection media and (location based) services, both from a technical and a social perspective.

This comprises the use of open-source tools and open data, getting to know and using modern hardware from the field of georeferencing (laser scan, GPS based applications and tools) to wearable sensors for human environmental exposure in urban settings.

Creating and applying innovative and interactive forms of communication and visualization (virtual and augmented reality) to communicate planning can also be explored in this module. There are now numerous options and tools that allow an introduction to the use of these tools that require little or no programming skills.

Nevertheless, a cross-faculty and cross-disciplinary conception and implementation of the courses (e.g. with computer science, geodesy and geoinformatics) is recommended. The connection and cooperation with existing research and teaching projects (e.g. design studios) is also suitable.

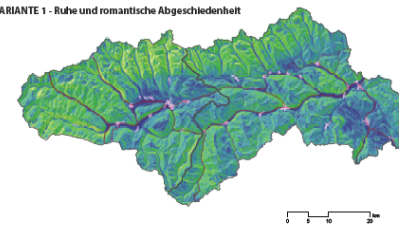
Almhüttenstandorte

Die Analyse zeigt mögliche Almhüttenstandorte in den Bezirken Tamsweg und Murau. Geeignet weisen diese Standorte für Ferienwohnhäuser und Almhütten in bergiger, südorientierter und vor allem sonniger Lage. Optimal für Menschen die Abgeschiedenheit bevorzugen und ihre Zeit in Österreichischer Berglandschaft verbringen möchten.

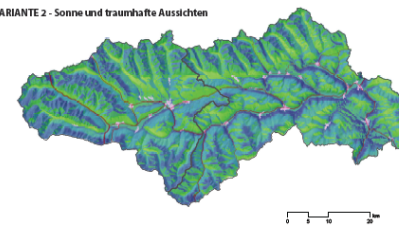
Bezirkstribereich Tamsweg (Sbg) und Murau (Stmk)



VARIANTE 1 - Ruhe und romantische Abgeschiedenheit



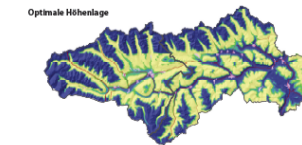
VARIANTE 2 - Sonne und traumhafte Aussichten



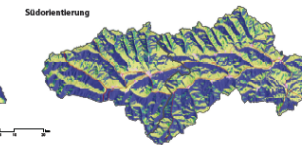
Bearbeiter: Stefan Bindreiter 1325213, Oliver Kern 1225929
Quellen: Statistik Austria - Gemeindedaten, Geomarketing GmbH, WGeoGIS GmbH

Bei der Standortsuche wurden vier verschiedene Eignungsattribute verwendet.

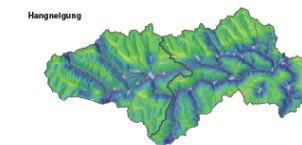
Optimale Höhenlage



Südorientierung



Hangneigung

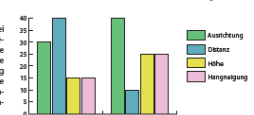


Entfernungen zu Straße und Siedlung

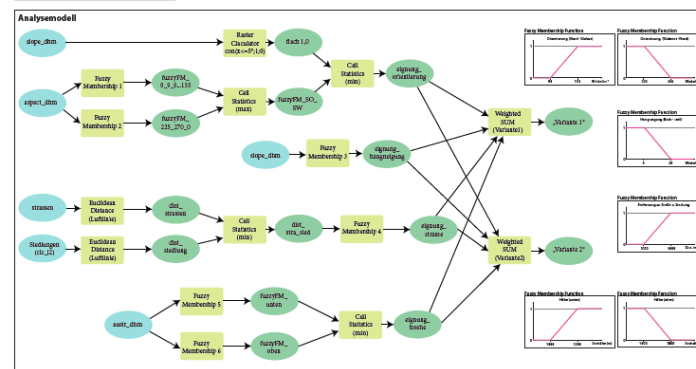


Legende zu den Eignungskarten
sehr gut geeignet
nicht geeignet
Ortsgebiete

Gewichtung d. Attribute
Zwei Varianten wurden untersucht, wobei bei Variante 1 besonders auf die Abgeschiedenheit, somit auf die Entfernung zu Straße und Siedlung geachtet wurde. Bei Variante 2 wurde neben der südlichen Orientierung und der Hangneigung auch speziell auf eine ausgezeichnete Aussicht wertgelegt. Nebenstehendes Balkendiagramm zeigt die prozentuelle Gewichtung der einzelnen Attribute.



- 1) Die optimale Höhe des Standorts. Untersuchungen haben ergeben, dass in der Region die Höhen zwischen 1200 und 1600 m Seehöhe am besten für die Lage von touristisch nutzbaren Almhütten geeignet sind, wobei sowohl nach oben und unten jeweils eine Abweichung von 200 Höhenmetern akzeptabel sind.
- 2) Die Ausrichtung: Bevorzugt wurden südlich orientierte Lagen zwischen Südost und Südwest.
- 3) Die Entfernung zur nächsten Straße bzw. Siedlung. Um ein Gefühl der Abgeschiedenheit und Ruhe zu erreichen sind Entfernungen von mindestens 1 km, optimalerweise von mind. 3 km anzustreben.
- 4) Die Hangneigung: Für die Erreichbarkeit und Bebaubarkeit sind Hangneigungen von unter 20° zu bevorzugen.



Spatial Analysis with GIS and fuzzy logic (Student exercise of Kern, O., Bindreiter, S., 2015)

IV. Module 2. 5. Examples of assignments

Within the course “Interactive maps as a presentation method - Getting started with web mapping”

the assignment was to map spatial features (recorded with cell phone) in the city and use an interactive map to present a relevant planning topic (freely chosen by the students). The displayed example result in Fig 1 was a simple web map, programmed with JavaScript and Leaflet (see Fig.1), to illustrate and collect barriers for pedestrians within a Viennese neighbourhood. A similar approach was used in the Intensive Programme 3&4 in Vienna.

Assignment for Fig2. shows variants of an agent based simulation with Netlogo within the course “Agent based spatial simulation and visualisation” while Fig. 3 shows the results of a practical exercise of multiparametric analysis on site suitability for tourist accommodations in the Alpine region using fuzzy logic and GIS, within the course “Spatial Analysis with GIS”

²Institute of Spatial Planning, TU Wien: 280.745 Focus: Visual Communication and Design - Interactive maps as a presentation method - Getting started with web mapping (3 ECTS)

³Agent based simulation with Netlogo <https://ccl.northwestern.edu/netlogo/>, last visited 22.12.2022

⁴Institute of Spatial Planning, TU Wien: 259.643 Agent based spatial simulation and visualisation (3 ECTS)

⁵Institute of Spatial Planning, TU Wien: 280.780 Spatial Planning with GIS (3 ECTS)

References

1. Bindreiter, S., Cserpes, B., Forster, J., Koppensteiner, K., & Schuster, I. (2021). Simlab visualise to understand. https://simlab.tuwien.ac.at/wp-content/uploads/2021/09/simlab_booklet_2021_final_low_.pdf
2. TU Wien. (2012). Curriculum des Masterstudiums “Building Science and Technology” an der TU Wien. https://www.tuwien.at/fileadmin/Assets/dienstleister/studienabteilung/Alte_Studienplaene/Masterstudium_Building_Science_and_Technology.pdf
3. TU Wien. (2015). Studienplan (Curriculum) für das internationale Masterstudium CARTOGRAPHY. https://tiss.tuwien.ac.at/mbl/main/mbl_anhang?a=4&n=1315
4. TU Wien. (2022a). Studienplan (Curriculum) für das Masterstudium Architektur UE 066 443. https://www.tuwien.at/fileadmin/Assets/dienstleister/studienabteilung/MSc_Studienplaene_2022/Masterstudium_Architektur_2022.pdf
5. TU Wien. (2022b). Studienplan (Curriculum) für das Masterstudium Geodäsie und Geoinformation UE 066 421. https://www.tuwien.at/fileadmin/Assets/dienstleister/studienabteilung/MSc_Studienplaene_2022/Masterstudium_Geodäsie_Und_Geoinformation_2022.pdf

6. TU Wien. (2022c). Studienplan (Curriculum) für das Masterstudium Raumplanung und Raumordnung UE 066 440. https://www.tuwien.at/fileadmin/Assets/dienstleister/studienabteilung/MSc_Studienplaene_2022/Masterstudium_Raumplanung_und_Raumordnung_2022.pdf

Short term integration of Danubian_SMCs topics in curricula at TU Wien:

As curricula at TU Wien are already organized in modules, the following table shows where DANUBIAN_SCMs related topics and methods can be integrated in existing master courses.

The issues of the thematic complex of “Sensing and Mapping the City” are arranged in rows in the first column. Other columns name the teaching module within the curricula and the cells are filled with names and ECTS of actual courses.

Non-exclusive assignment to cells is based on module and course descriptions available in German language at www.tuwien.ac.at

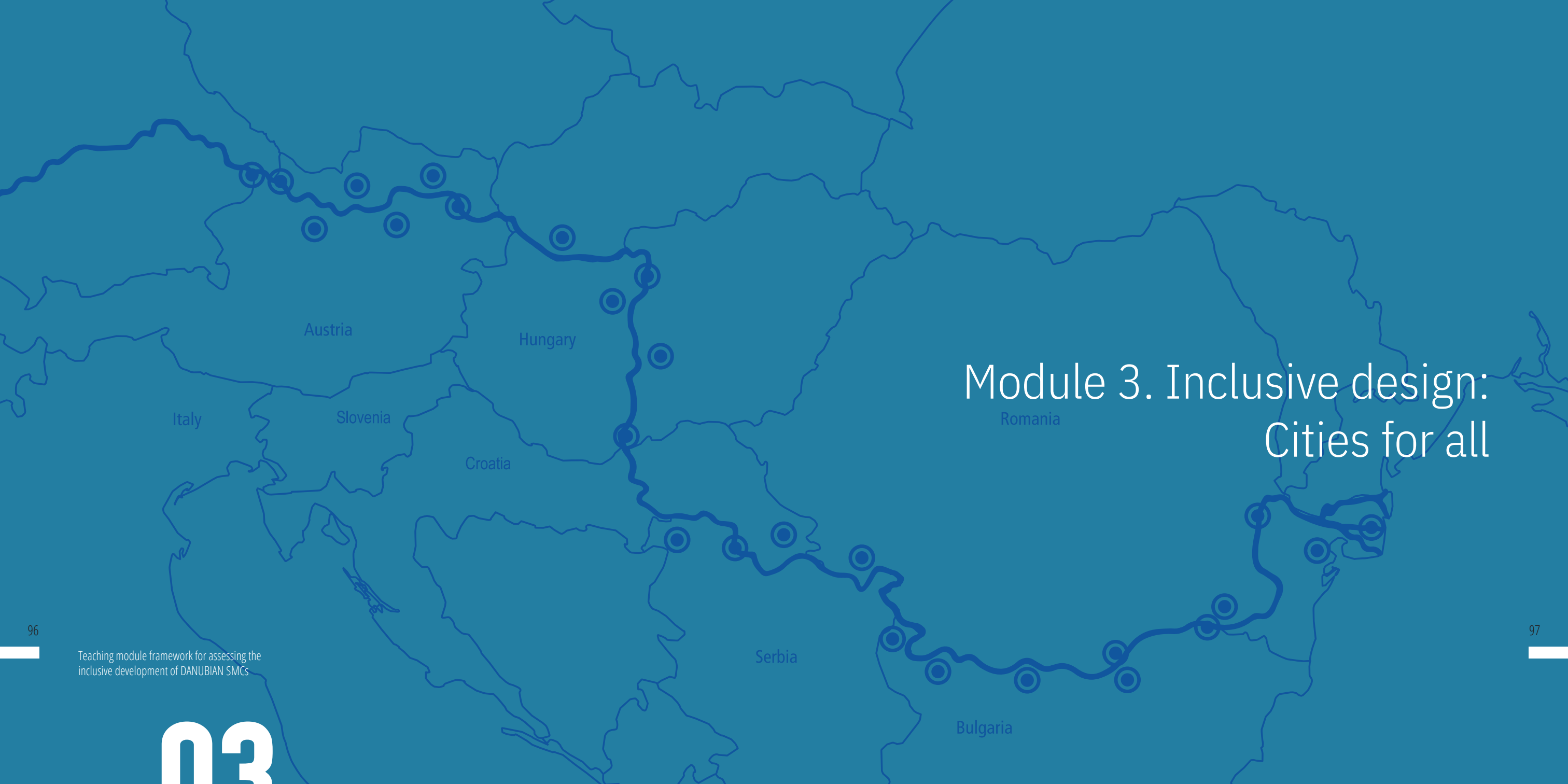
Curriculum	Architecture		Building Science and Environment
Faculty	Faculty of Architecture and Planning		
Modules TU WIEN	Design Studios (45 ECTS)	Scientific and artistic consolidation (30 ECTS)	Tools and Media (5 ECTS)
Module DANUBIAN_SMCs			
Danubian_SMCs core topic			
Planning and teaching in/for DSMCs		Urban Design in Southeast Europe (10) Cultural Spaces (10)	
Sensing and Mapping the city topics/issues			
1 Geo data management	Design Studios (15, 10, 5 or 2.5 ECTS)	Communication design and visualisation (10) Digital architecture (10) Algorithmic Planning and Analysis (10)	Tools and Media (5)
2 Spatial analysis			
3 Spatial visualisation			
4 Interactive and strategic visualisation			
5 Open-source tools in planning			
6 Spatial planning support systems and simulation			

Thematic and subject synergies in master curricula of TU Wien with contents of the DANUBIAN_SMCs Teaching Modules

Curriculum	Spatial Planning		
Faculty	Faculty of Architecture and Planning		
Modules TU WIEN	WM8 Digital Analysis and Visualisation (18 ECTS)	WM1 Global Development of cities and Metropolitan Regions (18 ECTS)	WM 3 Masters' project Spatial Planning (12 ECTS)
Module DANUBIAN_SMCs			
Danubian_SMCs core topic			
Planning and teaching in/for DSMCs		European Instruments of spatial development (3) Global learning: policies, institutions, and actors on global scale (3) International urbanization (3)	Masters' project Spatial Planning (12 ECTS)
Sensing and Mapping the city topics/issues			
1 Geo data management	Geo data management (3) Spatial analysis (3) Spatial visualisation (3)		Masters' project Spatial Planning (12 ECTS)
2 Spatial analysis			
3 Spatial visualisation			
4 Interactive and strategic visualisation			
5 Open-source tools in planning			
6 Spatial planning support systems and simulation	Web-based GIS and app development (3) Agent based spatial simulation and visualisation (3) Traffic/transport modelling (3)		



<i>Curriculum</i>	<i>Cartography (international Master)</i>		<i>Geodesy and Geo-information</i>
<i>Faculty</i>	<i>Faculty of Mathematics and Geo-informatics</i>		
Modules TU WIEN	Cartographic Theories and Application (9 ECTS)	Location Based Services & Multimedia Cartography (10 ECTS)	Applied Cartography (7.5 ECTS)
Module DANUBIAN_SMCs	Danubian_SMCs core topic		
Planning and teaching in/for Danubian Small and Medium-sized Cities			
Sensing and Mapping the city topics/issues			
1 Geo data management	Theoretical Cartography (3)	Multimedia Cartography and Geo-Communication (2.5)	
2 Spatial analysis			
3 Spatial visualisation			
4 Interactive and strategic visualisation	Cartographic Interfaces (3) Cartographic Information Systems (3)		
5 Open-source tools in planning		Location Based Services (4.5)	Location Based Services (4.5)
6 Spatial planning support systems and simulation		Programming cartographic tasks (3)	Programming cartographic tasks (3)



Module 3. Inclusive design: Cities for all

IV. Module 3. Inclusive design: Cities for all

University responsible of the module: Slovak University of Technology in Bratislava / STU

Contributors: Ľubica Vitková, Katarína Smatanová

IV. Module 3. 1. Introduction

The creation of an inclusive environment is one of the pillars on which the principle of a sustainable city is based. Therefore, it cannot be missing from the syllabi of the study programs of architectural schools. The main aim of the module is to develop students' ability to analyse and evaluate social problems, and cultural and economic characteristics of the area. The module is focused on teaching methods that support the skills to shape a sustainable environment with an emphasis on social inclusion and thus its richness and viability. The module further focuses on teaching methods leading to the development of skills necessary to shape, guide and promote a sustainable environment with an emphasis on social diversity. Special attention is paid to international cooperation and its positive inspiration through the international educational program.

The area of social inclusion is an important part of teaching urbanism at the schools of Architecture, Urban and Landscape planning. This follows the aim to design a sustainable city via creating an inclusive environment. The topic of social inclusion has become an important part of the current urban agenda (Habitat III, national strategies of states) and therefore it cannot be omitted in the syllabi of the architecture, Urban Design and Spatial planning study programmes. The presented module focuses on aforementioned issues both within theoretical subjects, as well as through the teaching of studio work.

The added value of the module preparation is the realisation of the project Erasmus + CREATIVE DANUBE. Within the project, we tested the methodology of social inclusion in the teaching of urban planning. Within the project, through the workshop on the real sites of Danube small and medium size cities.

The module focuses on development of the students' ability to create a socially sustainable environment through the design of viable communities, the formation of quality public spaces, or an environment that supports local culture and economy, while integrating different groups of residents and visitors. As part of the teaching, we also reflected on the impacts of the Covid 19 pandemic on society, which resulted to the new requirements for shaping the environment. In this context, we have focused mainly on the concept of the city of short distances.

IV. Module 3. 2. The context of social sustainability in urban planning and spatial planning

Social integration is a topical issue, especially in countries with a high degree of social diversity and, more recently, with an increase in migrant inflow. It is studied in the professional circles of political, economic, social, and cultural sciences. Moreover, it is especially relevant in the field of architecture, urbanism and spatial planning, i.e. the disciplines that shape the environment. Social inclusion and a sense of belonging have been identified as key values inseparable from creating social sustainability in urban communities. Inclu-

sion is based on accepting diversity in terms of gender, nationality, race, language, social background, performance or disability. On the contrary, social exclusion can be seen as the opposite of social inclusion. It represents a lack of resources, rights, goods and services for certain groups of the population, as well as their exclusion from participating in the normal economic, social, cultural or political activities that are available to the majority of people in.

Researchers - urban planners, sociologists have been dealing with the topic of social inclusion and diversity since the 1960s, with the turning point being the publication and activities of Jane Jacobs. This issue became a serious agenda for sustainable urban development in the following period.

In post-socialist countries in general, the topic began to be recognized as an integral part of spatial planning and architecture only in the early 1990s. After all, the socialist establishment tried to build a classless society and its goal was egalitarianism, which was reflected on the construction of uniformed cities, characterised by massive and uniformed housing estates. After the democratisation of society topics such as the issue of marginalised groups, the migration, shrinking cities (outflow of residents from peripheral regions and cities), or the differentiation of society came to the fore.

Inclusion and diversity are two poles of the same issue. Diversity can be perceived either as a "source of possible conflict and tension",



Students project, Co-working in Bratislava Old Town - For good life. (Project of Podešva, D., 2020)

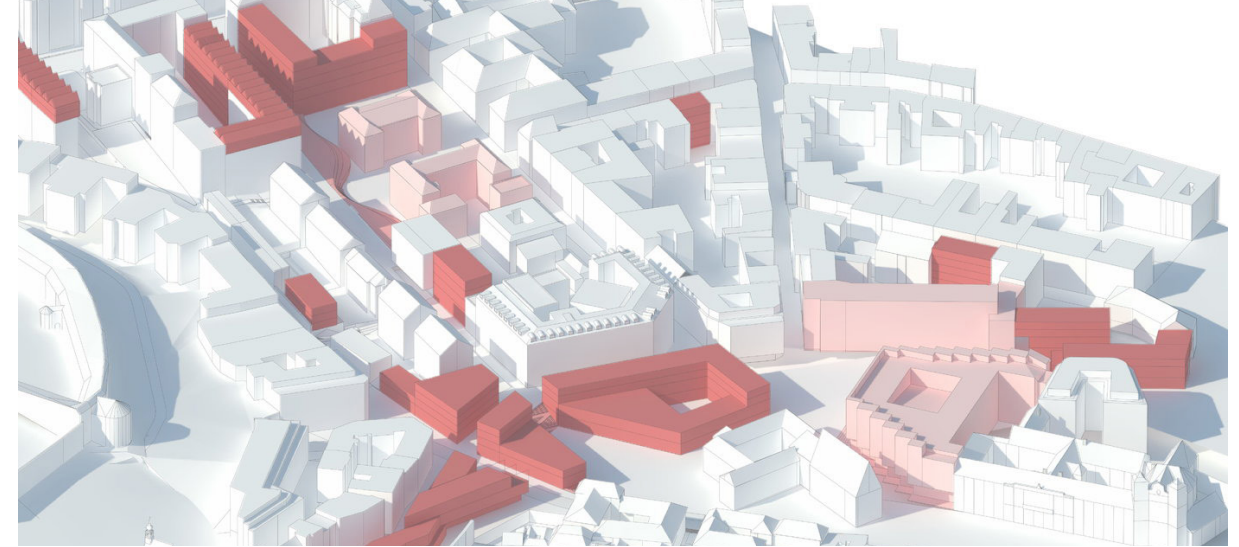
or as a positive value that can lead to sustainable growth of the locality and society.

The role of architects and urban planners is to create sustainable settlements that are based on an inclusive environment without social and spatial fragmentation and segregation.

Diversity is important to examine it in a wider context. We also strive for this in our teaching process. Diversity is a fundamental feature of systems and perceived as the base of their stability.

Therefore, socially sustainable development is based on a harmonious civil society that creates an environment conducive to the coexistence of culturally and socially diversified groups. Social integration contributes to improving the quality of life of all segments of the population. The following is essential for social balance:

- To provide facilities and services accessible to all groups of the population in suitable distance, what support integrity of communities.
- To eliminate spatial segregation and social polarisation, what support vitality of environment;



- To facilitate accessibility of urban transport for all groups of the population, including handicapped, what support the effective city operation;

- To provide employment with the diversity of economic activities, what supports the viability of the city, and its public spaces.

IV. Module 3. 3. Issues of social inclusion in education

The aim of the module is, graduates are able to adequately formulate, design and guide progressive approaches to a sustainable environment of our cities.

The module is realised both through theoretical subjects with practical verification of knowledge within exercises, but especially through design studio work, as crucial of architectural and planning learning.

a. Basis for the social inclusion module teaching

The theoretical background is focus on:

- The field of universal design;
- Within the teaching related to social housing, also has its place.
- The topic of social inclusion in the context of urban scale is reflected in several areas of the theory of urbanism (participation, public spaces, creating communities and neighbourhoods);
- The studio seminar is focused on mastering the principles of research in the aforementioned issue.

The practical part:

- Urban design studio.



Student projects. Transformation of rural settlements around the Danube based on co-living and co-farming. The concepts of self-sufficiency, food security settlements. (Projects of J. Hruška, J., Fillo, M., Chrišteľová, I., 2021)

b. The application of the topic - social inclusion in studio teaching

The studio is focused on the issue of sustainability in the context of energy sustainability, social and cultural sustainability, and operational and spatial efficiency of urban structures. The complexity of the issue is supported by interdisciplinary penetrations.

From the point of view of social sustainability, the main topics applied in studio work include:

- Developing and supporting communities. The complex, diversified and multifunctional environment is one of the pillars of the city of short distances. This concept eliminates the demands on transport and the resulting undesirable phenomena and support city vitality;
- Well-connected and accessible city and its parts;
- Safety and crime prevention in urban environment;

- Self-service city (in terms of sustainable local economy);
- Sustainable tourism, sustainable farming, creative city as support for local communities;
- Marginalised communities and their inclusion;
- And others.

Due to the focus of the studio, there is an ideal connection between education, research and practice, when the topics and localities are linked to real and current problems of specific cities and municipalities.

IV. Module 3. 4. Teaching methods focused on social inclusion

a. The object of the methodology

The project "Creative Danube" within the Erasmus + program, which focused on the transformation of small and medium-sized towns on the Danube, which are characterised by a high rate of migration, economic stagnation and thus a change in their demographic structure. On the other hand, these cities and regions are rich in underused cultural and natural heritage, which represents significant potential for their transformation and development. At the same time, the given area is characterised by the intertwining of ethnics and cultures, due to their border position between the states of the Danube region.

Within the elaboration of the aforementioned

topics focused on social inclusion, it is important that the teaching focuses on capturing the first impressions related to the context via mastering the theory and key concepts related to social sustainability in urbanism and architecture.

The teaching methodology is focused on:

- Observation and analyses related to the context of the environment and with the involvement of local government representatives, residents, interest groups, entrepreneurs; application of innovative methods in data collection and mapping (including specific methodologies and the use of digital tools);
- Formulation of the problem and specifying the focus of the work;
- Last but not least in the educational process is important the support of experimentation and feedback during the design process.



b. Evaluation is linked to several areas

Transport evaluation is focused on the development, accessibility, approachability and barrier-free of public transport (rail, bus, boat), including the location of public transport stops, bicycle transport, and static transport. The evaluation of public spaces is focused on the degree of their accessibility, the degree of activity of the ground floor, the degree of barrier-free movement, the degree of safety and the intensity of occupancy of public spaces.

Evaluation of the demographic structure of the population and the degree of social inclusion, respectively diversity monitors following aspects, which are:

The gender, age, educational, social, national structure; The degree of diversity and exclusion of social groups; The structure of economic activities, the rate of employment, trades and the rate of growth or regression; The degree of openness of self-government; Structure of cultural and educational institutions, interest associations; Population involvement and natural formation of communities.

The evaluation of urban structures is focused on their character in terms of: compactness, openness, permeability; in terms of their diversity - spatial and functional; in terms of their safety; in terms of "exclusion".

In terms of social inclusion and diversity, it is also necessary to examine socio-cultural development, memory and the relationship to the place. It is also important to examine the structure and behaviour of visitors.

c. Design studio

- The teaching methods of the design studio are aimed at:
- Learning in an interdisciplinary and international team;



Student projects. Transformation of rural settlements around the Danube based on co-living and co-farming. The concepts of self-sufficiency, food security settlements. (Projects of Hruška, J. Fillo, M. Chriašteľová, I., 2021)

- Learning through simulate the real process of creation and planning (participation, communication with experts, with representatives of local governments and stakeholders);

- Learning by doing.

IV. Module 3. 5. Innovative tools

Innovative teaching methods will be applied especially in connection with the evaluation of the environment. The innovative methods and tools are:

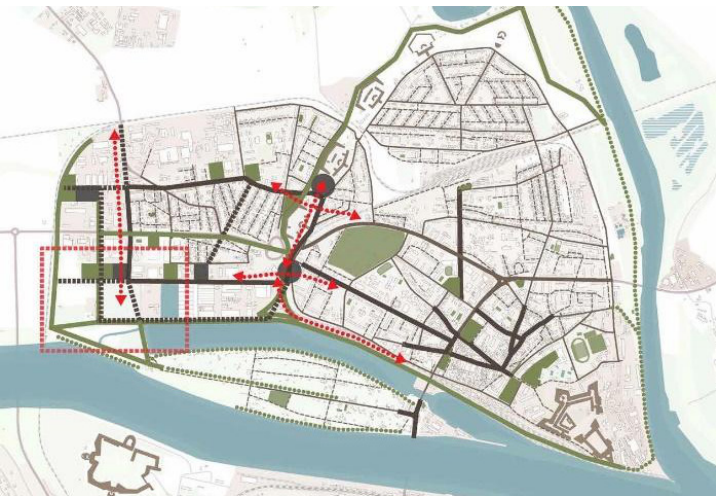
- Platform for emotional mapping

- "Place-making" tools

- Mapping via Smartphones tested via Creative Danube project

IV. Module 3. 6. Examples of assignments

Urban design studio focus to the inclusive development as output of the project DANURB+ (Interreg DTP) CREATIVE DANUBE "Innovative teaching for inclusive development in small and medium Danube cities" (Erasmus+), realised at the Faculty of architecture and Design Slovak university of Technology in Bratislava (Studio Vitková, L., Špaček, R., Smatanová, K.)



Application of the concept of the city of short journeys. Komárno as a city of well-connected and functional communities (Project of Podešva, D., 2021).

References

1. Jacobs, J. (2002). The Death and Life of Great American Cities. New Your, Random House, (1961).
2. Polese, M.; Stren, R., The Social Sustainability of Cities. Diversity and the Management of Change. Toronto – Buffalo – London: University of Toronto Press.
3. Čerešňová, Z., Rollová, L. (2015). Implementation of inclusive strategies in education. World Transactions on Engineering and Technology Education, 13, 2, 392-396 p.

4. Vitková, L., Silači, I., Michalka, L., (2017). The current topic of practice and research and its reflection in the pedagogical process. Global journal of engineering education, 19, 3, 180-185

5. Smatanová, K., Fazli, M. (2019). Afghanistan - No place for independent (urban) plans? Arhitektúra a urbanizmus, 53, 3-4, 146-155 p.

6. Vitková, L., Smatanová, K., Šeligová, A., - Urban, J. (2018) Educational approaches to the analytical part of urban design. In World Transactions on Engineering and Technology Education. 16, 3, s. 206-211 p.

7. Burda, I., Dymnicka, M. (2019). Student competitions as a socio-spatial tool for planning urban structures. World Transactions on Engineering and Technology Education. 17, 4, 465-470 p.

8. Nováček, O., Diežka, M. (2019) Liquid spaces: Understanding of urban spatial networks through the human data. IOP Conference Series: Materials Science and Engineering, WUM-CAU, Prag, 603 p.

9. Poikalo, K. Kuikkaniemi, H. Honko, H. (2015). My Data – A Nordic Model for human-centered personal data management and processing. Finnish Ministry of Transport and Communication, Helsinki. Available at: <https://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/78439/MyData-nordic-model.pdf>

10. Kasala, V., Smatanova, K. (2019). Community engagement as a sustainable tool in trans-

forming mass housing urban structures. Case study of Petržalka estate, Bratislava, Slovakia. IOP Conference Series: Materials Science and Engineering, WUMCAUS, Prag, 603 p.

11. Danubian Small & Medium Cities: Sensing and Mapping the City. Available at: <https://danubiansmcs.project.tuwien.ac.at/>

12. Krklješ, M., Reba, D., Carević, Tomić M., Medenica Todorović R., Nedučin D. (2021): Experiences with the implementation of international projects during the Covid-19 pandemic. XXVII Skup Trendovi Razvoja, "On line nastava na univerzitetima", Novi Sad, 363-366 p..

13. Young, I. M. (2003). City Life and Difference." In: S. Campbell, S. S. Fainstein (eds.) Readings in Planning Theory. 2nd Edition. Blackwell Publishing, 336-355 p.

14. Lorens, P. - Goledzinowska, A. (2020). Shaping the competence of future spatial policy-makers for small-and medium-sized towns. World Transactions on Engineering and Technology Education, 18, 1, 34-39 p.

15. Taylor, N. (1999) Town Planning: „Social“, not just „Physical“?, In C. H. Greed (ed.) Social Town Planning. London a New York: Routledge, 29-43 p.

16. Vitková, L., Kasala, V., Lemac, O., Nováček, O. (2021). Urban design teaching and social inclusion. In World Transactions on Engineering and Technology Education. Vol. 19, 3, 324-330. p. ISSN 1446-2257



Module 4. Urban acupuncture based on participatory place-making

IV. Module 4. Urban acupuncture based on participatory place-making

University responsible of the module: University of Novi Sad / UNS

Contributors: Milena Krklješ, Darko Reba, Marina Carević Tomić, Ranka Medenica Todorović, Olivera Marković, Aleksandra Milinković and Stefan Škorić

IV. Module 4. 1. Introduction

“Urban acupuncture is not a ready-made solution but the strategy towards the interventions.”

A focus area of the planning discipline is the revitalization of urban areas. One of the strategies is large-scale urban renewal, which has been performed many times. These approaches have not always led to the desired results. New insights, among which urban acupuncture, have shown different effects when the community gets a greater influence in the projects. This new approach also brings benefits and challenges.

If this kind of community planning approach is a portent for future urban planning, it is interesting to expose these benefits and challenges.

In the year 2050, the world population is projected to have grown from 6.82 billion to 9.15 billion inhabitants. The expectations are that more than 70% of the world's population will live in cities (Hens, 2010). However, this expectation shows strong differences worldwide. The increase of the population will cause cities to grow according to this growth pattern. However, in Europe the emigration is expected to increase relative



Work of urban acupuncture of Manuale de Sola Morales in Groningen

to the immigration, causing a shrink of certain cities. This social impact makes it obvious that we must take a critical look at the planning of the cities and prepare ourselves for new developments within these cities. It is expected that growing cities will expand into the hinterland. On the counterpart, the shrinking cities will result into a vacancy of housing. In various parts of the urban fabric, a need for revitalization will occur, caused by the shifts of the population. In the meanwhile, the economic prosperity of Europe has gone into a deception since the economic crisis of the last decennia. Budgets are running low and governmental plans are cancelled to save money. In the last decades the urban planning system in Europe has been focused on a growth orientated planning but given the current economic circumstances this focus has become unjustifiable.

Within the Danubian_SMCs project the teaching team from University of Novi Sad has already enabled students to acquire the skills and competences that are needed to address Urban acupuncture and main topics related to it.

IV. Module 4. 2. Urban acupuncture: reviving cities through targeted renewal

Cities throughout the world, irrespective of their age, location, and economic vitality, are faced with several essential problems which are arguably endemic to the very concept of urbanization. From the provision of clean water and sanitation to the availability of cost-effective and efficient transportation, many of these problems correlate rather predictably with population density. Some problems, however, prove far more abstract in both their



Casagrande's 34-meter-long woven bamboo structure

causes and effects, as is the case with urban decay. Perhaps even more elusive is a reliable solution to such problems that is economically, ethically, and environmentally sound. A handful of progressive urban renewalists, however, have developed an adaptable framework which they believe may finally provide the answer. While it is not immediately clear who first coined the term urban acupuncture, there does seem to be a broad consensus on its basic tenets. First, proponents argue that urban revitalization must begin at the hyperlocal level. Borrowing from the concepts of acupuncture, they advocate a targeted (small-scale) approach to “healing” the (large-scale) malady of urban decay. They argue that large-scale revitalization projects are not only less effective, but they are increasingly less feasible, as municipal budgets tighten. Above all, however, proponents suggest that cities must be treated as living organisms, requiring solutions as dynamic as life itself.

It is since the last decennia that there is a frequently reference to the concept of urban acupuncture. Nevertheless, there is no clear opinion about who coined the term first. In total there are

three main figures who addressed the theory of urban acupuncture. Firstly, in the manifesto of Frampton, the Spanish architect Manuel de Solà-Morales is cited for his concept of urban acupuncture. The projects of de Solà-Morales started around the 1970's. Secondly, the Brazilian Jaime Lerner states that he applied urban acupuncture to his projects, as is evident by his speech at a TED conference in 2007 (Lerner, J., 2007). Thirdly, a more recent figure that has revived the concept of urban acupuncture is the Finnish architect Marco Casagrande. These three pioneers all have a good track record. Lerner is the former president of the UIA-international Union of Architects (2002-2005) and was nominated in 2010 by Time magazine among one of the 25 most influential thinkers in the world (Time, 2010). De Solà-Morales was president of the jury for the 2008 European prize for Urban Public Space. In 2013, Casagrande won the European prize for architecture (The European centre, 2013). The visions of these three figures upon urban development are obviously of a major influence.

IV. Module 4. 3. Principles, tasks and topics of the module

The quest regarding the understanding of the theory of urban acupuncture is a difficult one. Scientific sources are hardly present. The descriptions of the visions of the three pioneers are therefore mainly based on snippets. The visions of the three described pioneers, however, do not provide us with a concrete method to apply successful urban acupuncture. This is also ascertained by the British architect

Parsons, who wrote a work on urban acupuncture. There Parsons indicates that there are no precise rules to apply urban acupuncture but just a set of principles (Parsons, A., 2011). By taking a critical look at the descriptive visions of the pioneers, an interpretation can be made of these principles. Taking a critical stance allows an explanation of these principles of urban acupuncture. The theorists mention the application of principles in their visions; however, they do not explain which principles are needed. The theorists do not indicate the same set of principles, but we can make of principles as main tasks and topics of urban acupuncture:

a. Determination of the sensitive point

The first principle that is to be stated is the ‘determination of the sensitive point’. This principle is stated by Solà-Morales, as he notes that the first step in the application of urban acupuncture is to decide the location of the sensitive point: “As in therapeutic acupuncture, the location of the sensitive point is the first step in the strategic treatment of the urban skin” (De Solà-Morales, M., 2008, pp 24). Both Morales as Casagrande mention that this point should be a point where there is little energy. Hans Ibelings mentions that the work of De Solà-Morales consists of a large extent of interventions at points where there is little energy, if any at all’ (De Solà-Morales, M., 2008, pp 11). De Solà-Morales states that the skin of a city is not a flat envelope. He finds it a qualitative membrane of differences that can be adjusted by either rough or smooth interventions. After looking insistently and with

sufficient attention at the urban skin it will reveal its caverns, its sensitive point. One can then question which things need adding, removing, or modifying, or how to better rearrange them (De Solà-Morales, M., 2008, pp 26).

Casagrande explains the sensitive point in a slightly different way. He compares the sensitive point with a pile of compost in his project of Treasure Hill; 'I needed to make a plan how to tune this same energy towards construction, like turning over the compost that has been the smelly part of the farm just to become the most fertile top soil. I was careful to manipulate these hidden energy flows and the small elements that I introduced to Treasure Hill can be compared to the needles in acupuncture. I call this urban acupuncture' (Casagrande, M., 2006). As for Lerner, he mentioned the aim to cure energy flows on sick or painful areas in his book *Acupuntura Urbana*. So, we can speak of the sensitive point, as a point where there is a lack of energy or faced with a blockage in the energy flow.

Slovenia Ljubljana, space for relaxation and looking to the river and market on the other side.



b. Scenario

The second principle is that of the necessity of a scenario. This principle is proclaimed by Lerner. He asserts that every city in the world can be improved within three years, but the responsibility and design of the city are decisive here. Every city has a design: "...but to make it happen, sometimes you have to propose a scenario and to propose a design, an idea that appeals on the large majority so they will help you to make it happen" (Lerner, J., 2007). He mentions that we need a scenario for the city, the state, and the country. Good scenarios will create commitment from the population. By their co-responsibility the better the practices will get and subsequently results into a domino effect, causing a better quality of life and solidarity (Lerner, J., 2011).

c. Quick act

The need for a quick act is the third principles to be noted. Conventional planning processes take a long time; therefore, Lerner insists on having a 'spark', which brings the process into motion. He states that we don't have all the time to keep on planning (Lerner, J., 2007). The principle of a quick act should not be confused with acting quickly. Urban acupuncture is about generating a process. This contemporary form of urban planning shifts away from the permanence. Instead, it opens the doors for flexibility and changeability. The quick act is clearly showcased in the intervention of Lerner at Rua das Flores.

d. Participation

The fourth principle of urban acupuncture is the need for participation. The agents of transformation are not merely the traditional decision makers anymore, but also the people themselves. Urban acupuncture challenges the traditional gaze upon the hierarchical decision-making processes. It recognized the need for the integration of local understandings and knowledge to increase the changes on successful interventions. Lerner states that: "We cannot be so prepotent on having all the answers. It is important to start and having the contribution of people; they could teach you if you are not in the right track" (Lerner, J., 2007). The participation can lead to different perspectives and new outcomes for solutions.

d. Educating

The fifth principle of urban acupuncture is educating. There is a need to understand how society perceives the built environment. This knowledge allows the intervention to be educated and in turn enhances the possibility of success (Parsons, A., 2011). Parsons makes this notion, when he explains that we need to read the city like society does. It is then that the correct interventions can take place. The principle of educating works in two ways. Not only is there a need for the understanding of the society's perspectives, but it is also important to transfer knowledge towards the society. Lerner mentions that besides getting educated by the people it is also important to teach them, in specific the children. If we want

to think about sustainability, it is important to think about the cities and the children. When they are getting the essence of sustainability, they can pass this knowledge on.

e. Holistic approach

The sixth principle is the need for a holistic approach. This principle is distinctive for the approach of urban acupuncture, as it shifts away from conventional planning processes. No longer does a problem get treated by a casual solution, but instead it uses creative responses to the challenges of revitalization. This task for revitalization does not remain to the vision of architects or urban planners, urban designers or artists. All these disciplines have to share their visions in order to create a cross-over strategy. In combination with the participation of citizens, a holistic approach is established. Casagrande calls this cross-disciplinary act, the violation of copy rights. This holistic view also refers to all the elements that need to be evaluated at the site, after understanding the society's perspectives. These elements encompass the ecological, economic, cultural, infrastructural, historical and political, according to Parsons who states that: "To understand one in isolation will not enable a successful intervention" (Parsons, A., 2011).

f. Small scale

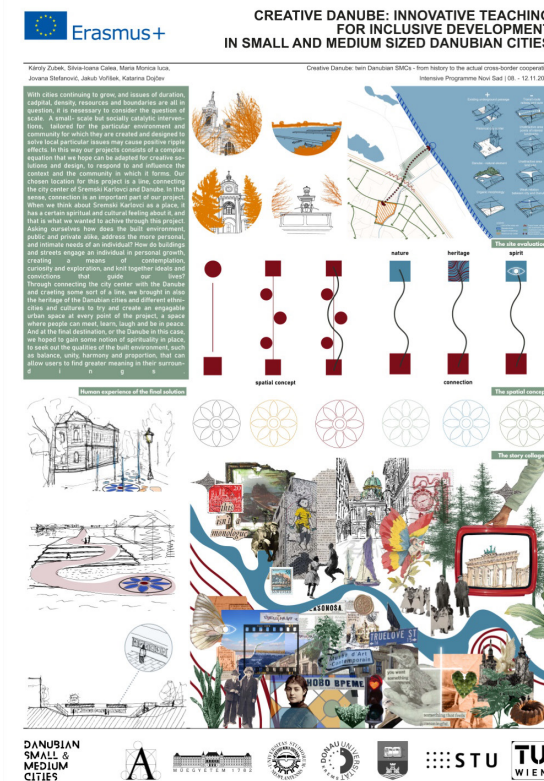
A prominent feature of urban acupunctural intervention is that they are of small-scale. It is, however, hard to define small-scale. De Solà-Morales mentions that scale is relative, with its respective proportions of the transformations that are being proposed (De Solà-Morales, M., 2008, pp 77). He notes that the impact that an intervention makes is important (De Solà-Morales, M., 2008, pp 64). Therefore, big physical changes might encompass projects that are irrelevant. With small pinpricks, urban acupuncture aims for a big impact. Scale is not bounded to size either, as it can also refer to financial input.

g. Creating places

Urban acupuncture is about reassess places. The awareness of the meaning of a place has emerged within this contemporary planning strategy. Projects involving urban acupuncture create meaningful places. As Solà-Morales notes: places that before were none. This may be due to a lack of energy, or because

their energy flow is experiencing a blockage. To Solà-Morales urban acupuncture is about looking at the richness of places and above all; the potential richness. Thus, it is the same as just solving problems. The creation of a place exists out of the clarification and the wealth of significance (De Solà-Morales, M., 2008, pp 72). According to Ibelings, the interventions of Morales unleash a heightened potential.

Students' ideas developed during the workshop in Novi Sad considering the methodology of urban acupuncture.



IV. Module 4. 4. Teaching methods focused on innovative tools

Specific and innovative approach to teaching and education in urban design is to have students work on real project and spaces in interdisciplinary planning teams, which is completely different to the strict separation of disciplines. This allows students to address different planning strategies, approaches and results. The need for holistic planning processes of urban acupuncture encourages students to develop projects, approaches and ideas for future development of urban environment.

Curricula of the master's at the universities of the Danubian_SMCs project ensure that students acquire cognitive and practical skills in addition to technical and methodological competencies. By working in groups of different sizes or individually social competencies and self-competencies are strengthened.

In the "Urban acupuncture" topics within the Danubian_SMCs teaching module, mainly methodical and technical competencies are deepened. Students learn how to independently develop small scale projects of urban acupuncture and make it usable. In doing so, analytical, and evaluative competencies are to be developed, which enable the students to independently compile spatially relevant intervention. They learn applications of all principles of urban acupuncture which help them in their future architectural and urban practice.

After completing the module, students will be able to design projects of urban acupuncture and develop appropriate analysis strategies and implement them independently both technically and empirically. In doing so, they proceed in a reflective manner and can critically evaluate the existing and generated data and methods used.

The fundamentals are taught in lectures and hands-on exercises in a few practice lessons. Based on an exercise project, the question of which the students can choose themselves within a

given thematic framework, they deepen their knowledge in independent work in individual or groups of two.

The courses are designed to familiarize students with tools of urban acupuncture, critically evaluate and reflect on their application and possible uses in planning and design.

IV. Module 4. 5. Innovative approach to urban design interventions

Urban acupuncture is not a ready-made solution, there are chances on failure and success. The implementation asks for precise handling. To increase the potential success for future revitalization projects, it is important to highlight the benefits and challenges that exist in urban acupuncture. Urban acupuncture can lead to a greater chance of long-term success, because of its integration of local understanding and knowledge of a place. Citizens are often seen as the eyes on the street, and therefore know which problems exist and which needs are present. Nevertheless, a cross-faculty and cross-disciplinary conception and implementation of the courses (e.g. with computer science, geodesy and geoinformatics) is recommended. The connection and cooperation with existing research and teaching projects (e.g. design studios) is also suitable.

The use of urban acupuncture can also help forcing the shift towards a more participative culture. Urban acupuncture is not the only strategy that works with participation. Similar initiatives have been conducted, within naming it urban acupuncture. Urban acupuncture

can be used to push the hierarchical model of planning into a new planning process. The awareness of the importance of participation can hereby be increased.

Urban acupuncture is based on the application of small-scaled interventions. Therefore, the costs are generally lower than then the previously dominant largescale revitalizations. However, there are two sides of the coin. The usage of participation allows more stakeholders into the planning, which can create uncertain processes. The responsibility of decision-making is no longer at one person, possibly causing projects to take a longer time and leading to higher costs.

The effects of urban acupuncture are aiming for catalytic spin-offs. This can be a great benefit, but also comprises a possible challenge. When the principles of urban acupuncture are treated in a good way and the intervention is successful, it has possibilities to create a catalytic effect. If the principles of urban acupuncture are ignored and the intervention fails to integrate the understandings and knowledge of the citizens, an opposite effect might occur. Urban acupuncture can therefore not be seen as a simple approach. A variety of factors might backfire. The participatory processes could be conceived as promises, which eventually might not be kept. The process searches for tailor-made solutions and therefor asks for micromanagement. Each case is a unique one that needs their own analyses of the existing character and cultures. One must be aware of the cohesion within the society, in order to commit good participatory processes. Taking

the 8 principles into account and being aware of the benefits and challenges that the theory brings, the most successful urban acupuncture can be achieved.

References

1. De Sola Morales, M. (2008). A Matter of Things. Rotterdam, NAI Publishers, 208 p.
2. Ellin, N. (2006) 'Integral urbanism'. New York: Taylor & Francis, 118 p.
3. Frampton, K. (2000). Seven Points for the millennium, an ultimate manifesto. Published in: The Journal of Architecture, 5:1, 21-33, DOI, 21-29 p.
4. Koolhaas, R. and Mau, B. '(1995) 'S,M,L,XL'. Rotterdam: Monacelli Press, 969 p.
5. Casagrande, M. et al. (2008). Third generation city. The Third Infoscape: Michel De Certeau, Gilles Clément, Marco Casagrande and the re-creation of our cities. Available at: <http://thirdgenerationcity.blogspot.se/> (accessed: 8 februari 2014)
6. Lerner, J. (2011). Urban acupuncture. Available at: <http://blogs.hbr.org/> (accessed: 9 februari 2014)
7. Creighton, J. (2005) The Public Participation Handbook: Making Better Cities through Citizen Involvement. San Francisco, Jossey-Bass, 208 p.
8. Reba, D., Carević Tomić, M. and Kisin, I. (2019). "Public Participation In Studies Of Urban Acupuncture" in Kostreš, M. and Hanson, H. Participatory Processes In Urban Planning. Novi Sad, Faculty of Technical Sciences

Short term integration of Danubian_SMCs topics in curricula at University of Novi Sad, Faculty of Technical Sciences:

The following table shows where DANUBIAN_SCMS related topics and methods can be integrated in existing master courses, at University of Novi Sad, Faculty of Technical Sciences.

The issues of the thematic complex of "Urban Acupuncture" are arranged in rows in the first column. Other columns name the teaching module within the curricula and the cells are filled with names and ECTS of actual courses.

Non-exclusive assignment to cells is based on module and course descriptions available at ftn.uns.ac.rs

Curriculum	Architecture		Regional Development Planning and Management
Faculty	Faculty of Technical Sciences		
Modules UNS FTN Module DANUBIAN_SMCs	Architectural design (60 ECTS)	Urban design and phenomena of contemporary city (60 ECTS)	
Danubian_SMCs core topic			
Planning and teaching in/for DSMCs	Methodology of architectural work analysis (7)	Urban design of complex programs (6) Strategies and Methods in Urban Design and Architecture (5)	Contemporary Theories, Methods and Technologies in Urban Planning (6) Metropolitan Regions - Development and Strategies (4)
Urban acupuncture topics/issues			
1. Determination of the sensitive point 2. Scenario 3. Quick act 4. Participation 5. Educating 6. Holistic approach 7. Small scale 8. Creating places	Composition in design (4)	Urban Acupuncture (4)	Participatory processes in urban and regional planning (5)



Module 5. Urban renewal of DSMCs

IV. Module 5. Urban renewal of DSMCs

University responsible of the module: University of Belgrade / UBGD

Contributors: Jelena Marić, Danijela Milovanović Rodić, Aleksandra Djukić, Branislav Antonić

IV. Module 5. 1. Introduction

The increase in pollution, resistance to the consequences of climate change, insufficient protection and degradation of natural values and cultural heritage cause a decline in the quality of life of people in cities across the planet and represent key challenges faced by the profession and those responsible for their design, planning and management. The development of cities is characterized by the global mobility of people, rising gap between the poor & the rich and the overpopulated centres & declining peripheries, the weakening of social ties, the accelerated changes in structures and the way they are used. On a global level, the neoliberal discourse presses and shapes societies and states around the world, focusing development on economic growth, market rationality, deregulation, privatization, individualism, competitiveness, entrepreneurship and competition.

In that context, the position and role of architects and planners in urban design, planning and governance, and their competencies in this process, ought to evolve together with changes to (a) global and local development contexts, and (b) development-related concepts emerging in response to challenges posed by these settings. The contemporary global development context is increasingly complex issues across all areas and aspects of development.

The aim of the module URBAN RENEWAL OF DSMCs is to pro-

vide students with different views on mentioned quickening spatial, environmental, social, economic and cultural changes, different approaches of the urban fabrics and spaces (re)development and different design solutions for their sustainable renewal. The outcome of the learning process is the acquisition of qualifications required for participation in multi- and interdisciplinary teams on the development of strategies, plans, projects and urban renewal studies in the management and planning processes of local community development.

The module is based on knowledge from the fields of technical-technological and social-humanistic sciences and arts, and is designed to enable multi- and interdisciplinary thinking and action for students from different educational backgrounds. The condition for attending classes on the module is the completion of basic graduate academic studies (bachelor) architecture, urban planning, urban design, urban sociology, urban landscape design, spatial planning, urban economy and urban law.

IV. Module 5. 2. The context of the urban renewal in urban planning and spatial planning

The concept of urban renewal is based on the premise that the development of cities should be based on the renewal of already built parts of the city, their regeneration, development of new services, contents and forms, instead of further expansion at the expense of arable land, construction of new settlements on the outskirts of the city area and traffic infrastruc-

ture. This concept of development, which is mentioned in the literature and in practice under different names as Urban renewal, Urban rehabilitation and Urban regeneration and development, implies the renewal of space, but also the economic and social renewal of the communities that live in them.

The second premise, on which the concept of urban renewal is based, is that the processes of formulation of solutions, their implementation and monitoring must include experts from different disciplines, competent institutions, but also citizens who are affected by the changes. The reasons lie in the increasing polarization between ideas about desirable development and ways to achieve them between political and business elites, experts and citizens. The number of topics and territories where such problems are manifested is increasing.

Urban renewal can be caused by economic transition or demands & requirements arising from a new lifestyles. Some of the causes are the age and bad condition of housing stock, changes in ownership or the way the existing facilities are used. Spaces that have been abandoned by residents or economic entities (brownfield areas), areas of abandoned industrial and military complexes, areas of former shipyards and industrial ports, as well as catering and tourist complexes are very often areas have attractive locations in the urban fabric, they are large enough and well accessible by traffic.

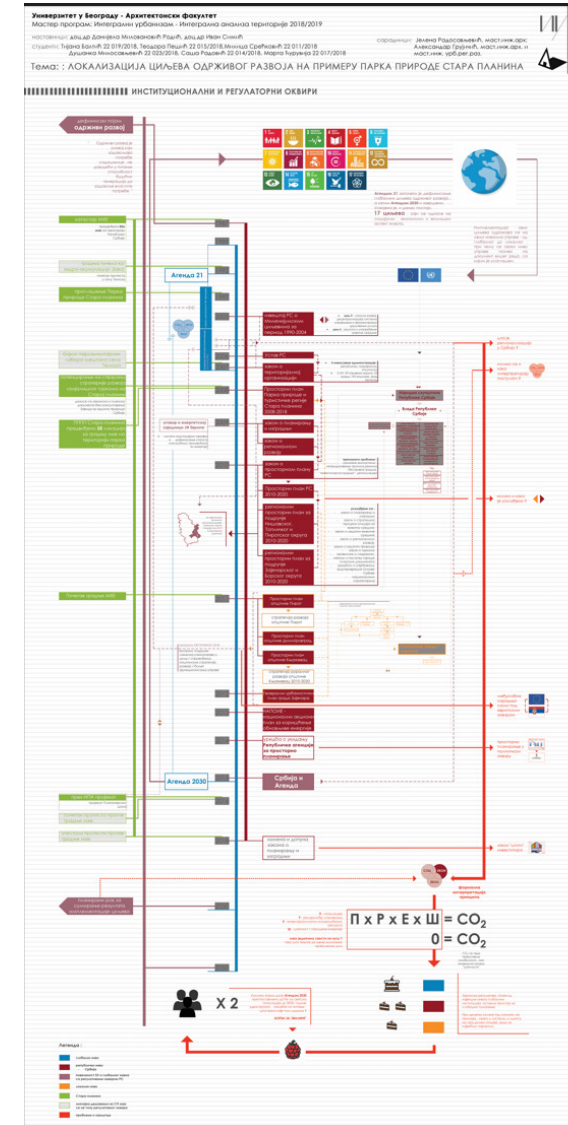
Renewal and improvement of the quality of residential districts, according to the examples of European cities, are often followed by raising the quality of infrastructure, creating new public open spaces and adapting buildings to the needs and standards of modern life (energy renovation, enabling access for people with reduced mobility, dealing with idle traffic, planning accompanying contents of former 'dorm room'). One of the important goals of urban renewal is the prevention of social and social segregation and the creation of problematic areas of urban poverty. Accordingly, the approach to urban renewal must be comprehensive, from basic infrastructural-form renewal, through solving socio-economic issues, all the way to concern for environmental protection and the creation of sustainable urban processes.

The prerequisites for starting the urban renewal procedure are the readiness of the city administration and citizens to embark on a complex process of city renewal that will last for years. So, over time, significant financial resources are also needed to carry out certain parts of the reconstruction, as well as expert knowledge that will lead to the goal as quickly as possible with rational spending of money.

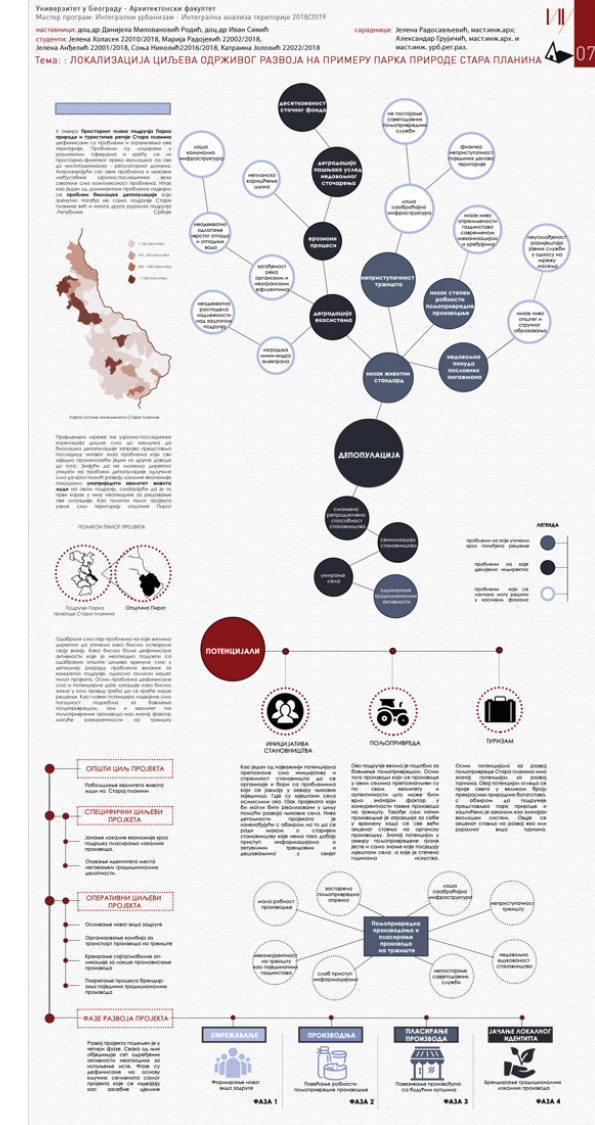
An integral approach to the urban renewal of small and medium-sized Danube cities implies that in the process of formulation, implementation and monitoring of sustainable solutions for deprived urban areas and communities, we have to integrate:

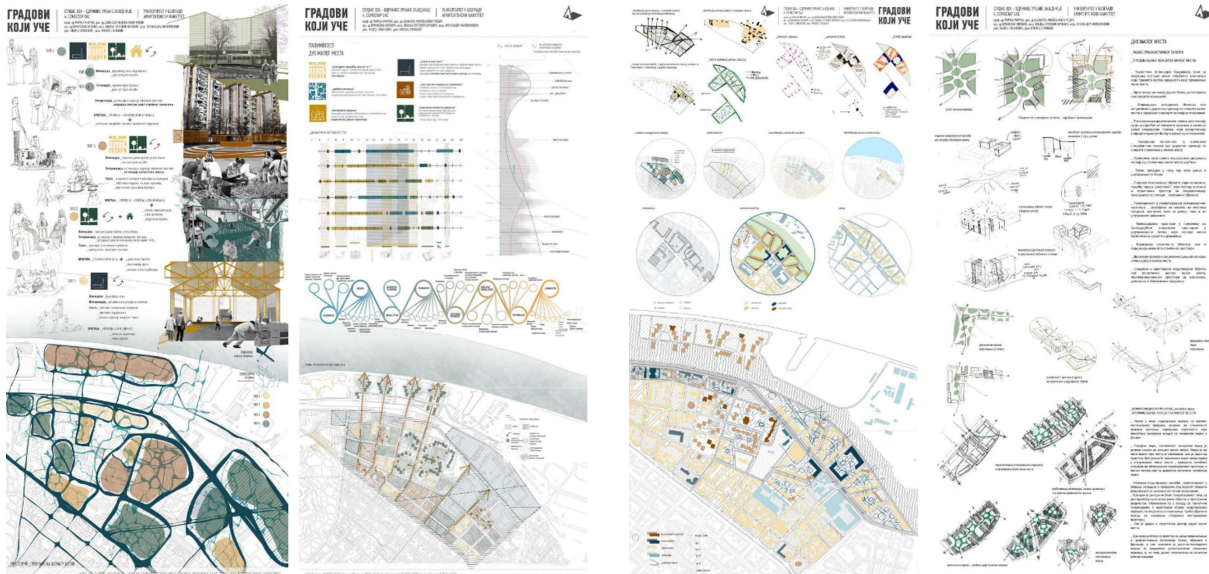
1. various topics, such as quality of life, protection of cultural and natural heritage, urban mobility, social inclusion, urban resilience, etc. and challenges, such as the aging of the population, the outflow of young people, the lack of jobs, the weakening of urban-rural ties, the deterioration of social and technical infrastructure, the loss of identity, the increase in pollution, etc.
2. traditional professional instruments, such as architectural and urban projects and plans, with a new generation of pub-

Understanding the territory: integrated analyses of the regulatory framework and public policies. Defining the "space" for change



Understanding the territory: problems and development potentials analyses. Defining development concept and goals setting.





Understanding the territory: integrated spatial, social, economical, ecological, cultural and institutional analyses. Operationalisation of the urban renewal concept – programming.

lic policy documents, such as national and local strategies and action plans for sustainable development, economic development, housing, tourism development, agriculture, energy, cultures, etc.; with a special focus on European urban development policies and new urban agendas;

3. different spatial levels, from neighbourhood and block levels, through city districts, city as a whole, municipal, regional or state territory, European regions, etc.;

4. different levels of administration from the local, municipal and city levels, through province, regional to the national and supranational levels;

5. different actors and institutions in the public, private and civil sectors in a search for the carriers and initiators of urban renewal and development;

6. different types of financing of urban renewal projects apart from budgets - projects can be implemented within different types of public-private and public-civil partnership and support of the EU and other international financial instruments and donor programs etc.

To attain integrated urban renewal, good urban governance have to be put into practice by means of cross-cutting policy instruments that facilitate rule of law, availability of information and transparency of the decision-making process, responsiveness in relation to citizens' demands in a "reasonably short term", orientation towards reaching a consensus using new forms of communication (in addition to information, various forms of consultation and cooperation) with the community, inclusiveness and capacity building for the participation of vulnerable groups.

IV. Module 5. 3. Issues of urban renewal in education

The module provides students with:

- understanding the values on which the urban renewal approach is based,
- acquiring knowledge about various theories and development concepts based on those values, as well as the conditions that influence their choice, and
- mastering the knowledge and skills required for the design and application of methodological procedures by adapting various theories and principles of renewal and regeneration of cities,



Integrated project for sustainable urban renewal on different spatial level.

d. mastering knowledge and skills for

e. mastering the knowledge and skills of producing different types of solutions at different spatial and problem levels with the aim of regeneration and transformation of DSMCs.

Theoretical teaching takes place in the form of multimedia interactive lectures and consultations, and practical is «studio driven», because the focus is on the application of theoretical knowledge to concrete tasks in individual and group work. The knowledge check is carried out during and after the end of active classes.

As part of theoretical classes, sociological, economic, spatial, cultural and environmental aspects of urban renewal, motives of urban renewal, heterogeneity of city zones, zones of different standard of living and quality of built space, poor areas and areas of lower standard of living, the role of values and norms in assessment of the quality of life in the city area, interest groups in the city area, economic and political position of interest groups, public institutions and decision-making processes, decision-making public, public good and interest, criteria for making development decisions and plans, interests and property rights of the local population, types partner relations of actors in urban renewal.

Practical teaching is aimed at deepening and perfecting the knowledge and skills needed to formulate sustainable solutions for urban regeneration and renewal. The aim of the teaching is to build on the existing knowledge in the urban planning subjects of the basic studies, as well as to understand the modern methods and techniques of improving the organization of the urban structure. The focus of the subject is on the integral approach to the regeneration of the main cities on a concrete example in accordance with the positive practice of the renewal of European cities.

Integral projects of urban renewal can be carried out in differ-

ent ways, such as: significant transformations of large areas, rehabilitation of the city center, less flexible actions - individual projects, transformation of “brownfield” areas - abandoned production facilities, warehouses and former military complexes, transformation of spaces with points city projects of national significance.

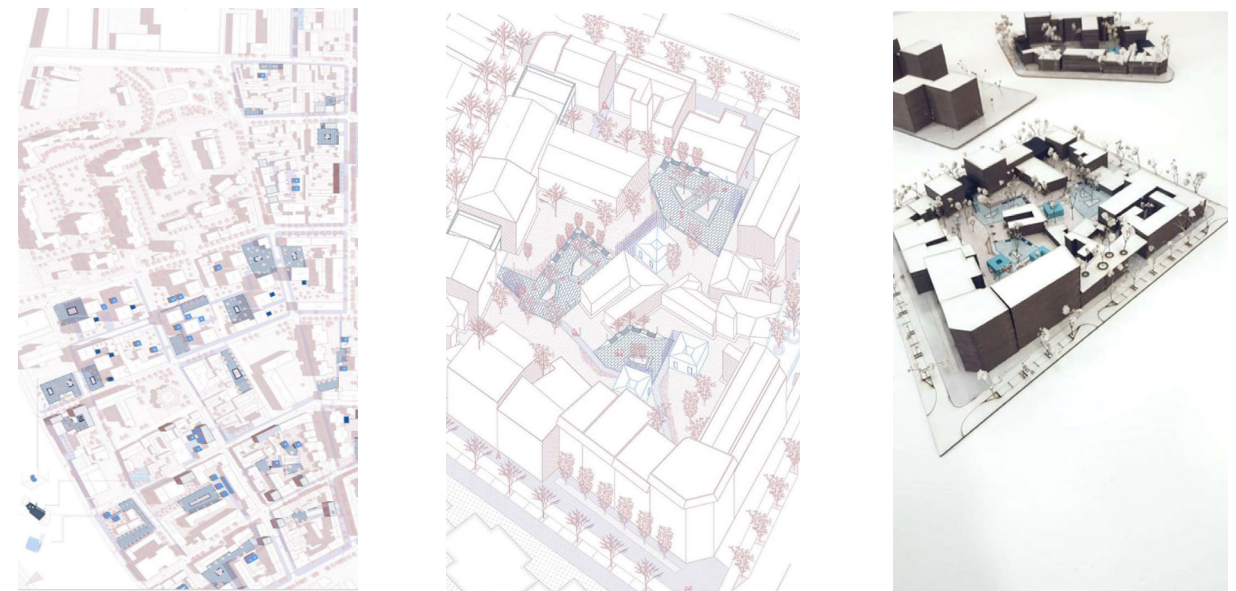
IV. Module 5. 4. Teaching methods focused on urban renewal

The key strategic precept of the proposed education model is the creation of a flexible platform for introducing professional experiences from various disciplines (natural sciences, social sciences and humanities, and arts)

and fields (academia, practitioners, public institutions, international bodies, activists, the market, etc.) into the teaching process in its entirety. The process of developing urban renewal integrated projects, has to allow sound professional dialogue and practice-oriented learning through collaboration, not only for students but for all involved. This can make the teaching process a testing ground for the re-assessment of existing urban governance ideas, concepts, and instruments, and the introduction of new ones into practice

The production process is primarily intended to develop solutions rooted in professional practice that benefit in terms of quality and complexity from the involvement of a multi-

Integrated project for sustainable urban renewal on different spatial level.



tude of different stakeholders. Knowledge creation is directly conditioned by the thematic framework, which is selected so as to represent the most up-to-date professional experiences and issues of importance to the profession globally, whilst at the same time corresponding to the current issues faced by practice in Serbia. At the same time, the overall thematic framework provides a platform for permanent communication between all actors during the development of students' projects. Knowledge is constructed in the process of developing solutions through an exchange of professional experiences from various fields. Different forms of organised discussion – such as meetings, group debates, and workshops – create a broad-based working environment and create space for open professional dialogue. Moreover, collaboration by students attending different study programmes and coming from a variety of professional contexts can make a major contribution to the quality of the teaching and learning process.

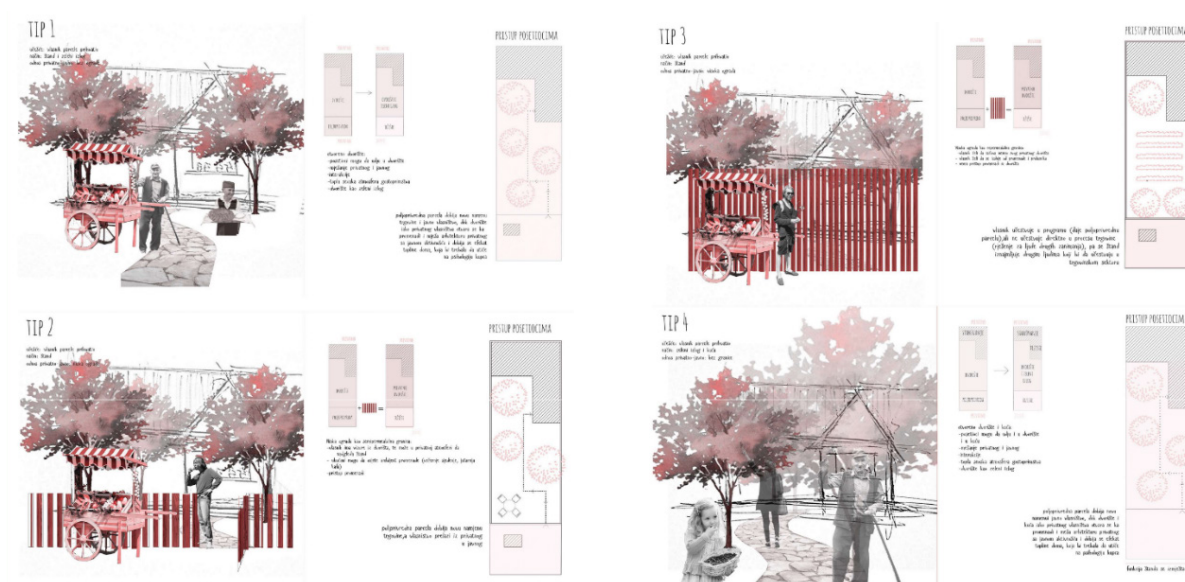
It is desirable to provide support to the teaching process by national and international professional organisations in order to promote and facilitate collaboration and provide the relevance of the thematic framework.

The task should be rooted in the local context - it allow students to come up with valuable solutions for practice and develop professional experience.

IV. Module 5. 5. Innovative tools

Cooperation in the process of identifying problems, needs and ideas for development, formulating solutions and evaluating development options with key stakeholders - representatives of public institutions, civil society organizations, residents of the area.

Participation in classes by experts in the field of urban renewal. Organization of exhibitions, round tables, debate clubs, public forums and workshops at the faculty and in the subject area.



Integrated project for sustainable urban renewal on different spatial level.

IV. Module 5. 6. Examples of assignments

Below we present the results achieved in the different study programs at Belgrade University's Faculty of Architecture with similar thematic and education model and as proposed. The common goal of all programs is to build the capacity of future planning professionals to allow them to better face the socio-economic context of the post-socialist transition. The papers contain the presentation of the development and regulatory context, research and critical analysis of current problems of urban renewal and proposal of solutions to problems in the domain of planning, designing or management of urban renewal.

Projects concern solving current problems, but also prevention and strengthening of communities and society as a whole to face the future. Projects can concern short-term or long-term goals, they can be large or small (in terms of the size of the area, the number of people involved or affected, the amount of money needed for implementation, the time needed to develop the project or for its implementation, etc.), be one-time or intended for repetition/duration over a longer period, such that they result in different effects and types of products, intended for a specific group of people or a specific area.



Module 6. Danube urban-rural landscape and blue-green infrastructure(BGI)

IV. Module 6. Danube urban-rural landscape and blue-green infrastructure(BGI)

University responsible of the module: "Ion Mincu"
University of Architecture and Urbanism from Bucharest / UAUIM

Contributors: Mihaela Hărmănescu, Angelica Stan, Sorin Vasile Manea

IV. Module 6. 1. Introduction

Green and blue infrastructure (GBI) is defined by the European Commission as a 'strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem service'.

Green and blue infrastructure (GBI) is defined as a network of landscape components, which include green areas and water bodies. Such as infrastructure, available within an urban space, it provides diverse environmental, economic, and social benefits to people and other living organisms.

The topic of blue - green infrastructure (BGI) is now a well-established concept in urban, environmental planning, policy, research, and design, while awareness and understanding of its potential benefits for ecology and society have increased. In a changing climate, the main constraints for BGI implementation are not technological, rather, they involve shifts in vision, policy, design, and the urban planning culture (Dreiseitl & Wanschura 2016). Considering BGI as a smart solution for today's needs of cities, we can say that a single area of land can offer multiple benefits, providing ecosystems, a stream of valuable, eco-

nomically important goods and services, such as clean water and air, carbon storage, pollination etc, and also playing a central role in fighting climate change impacts by protecting cities against floods and other environmental disasters, being a highly valuable policy tool to promote sustainable development and smart growth (Andreucci 2013) by meeting multiple objectives and addressing various demands and pressures.

Also, the healthy condition of our small and medium cities on the Lower Danube is far more complicated to achieve and cannot be reached only by good strategic discourse and academic inputs. In societies with a fable eco-friendly education it is very important to start with the beginning in order to make all different sectors of the society to deeply understand that "if these natural powerhouses are damaged, it is not just our biodiversity that suffers but society as a whole" (EU 2013). Even though there are things that are well known at the level of UE, into the local administration of SMCs on Danube shores, there is still missing knowledge about the benefits of blue - green infrastructure.

IV. Module 6. 2. The context of the blue-green infrastructure in urban planning and spatial planning

Using a strategic approach to building BGI ensures a clear focus for individual initiatives and local-scale projects so that these can be scaled up to the point where, collectively, they will make a real difference. In this way, BGI becomes much more than the mere sum of its

parts; it is also a means of bringing different sectors together in order that they may decide together on local land use priorities in a transparent, integrated and cooperative way.

A very important aspect of BGI capacity building is that it should not be understood as a top-down planning tool, but as being essentially based on the involvement of the population and on the individual and local community initiative. No such plan will be successful and will not be consistently pursued in time, to reach the level of expected ecosystem services, if it is not assumed by the population and internalized within the local community. This, in small and medium-sized cities, may seem easier to achieve than in large cities, given the ability of smaller populations and of different sectors of societal life to join a cause. Along the lower Danube, we can say that it is not very easy to implement such projects. Besides the financial aspect, of the financing of such projects, considered in relation to the reduced local budgetary capacity, is the aspect of assuming them as priority and to start to build not only in the physical plane, but especially and more important, in the social plane, in education of citizens to accept and value such interventions.

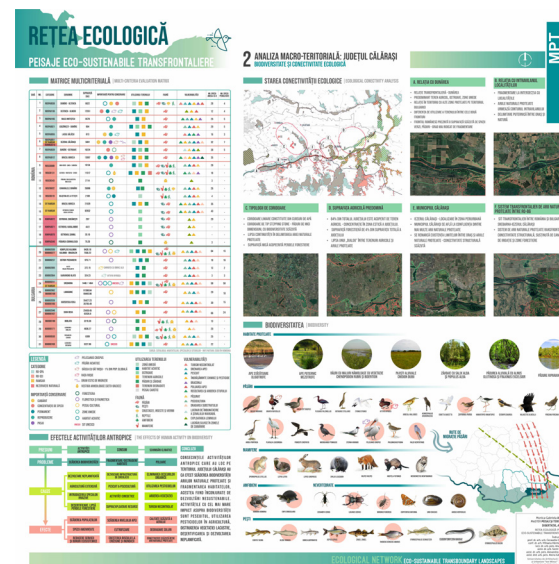
Thus, BGI is essential to spatial planning to support the transition to greater climate resilience and a challenge of Danubian SMCs urban regeneration and the potential of nature-based solutions (NbS).

The role of urban and landscape planners should include also the spreading of the main

discourse of BGI positive impact on local urban and rural environment and identifying possible development scenarios that enhance the specific spatial potential within the project focused on smaller towns along the Danube (Joklová V et al. 2019).

Among the huge range of benefits- environmental, climate change adaptation and mitigation benefits, social, economic, cultural benefits – we mention those which are especially related to abandoned urban lands in these territories:

- (Re)creating a healthy provision of urban clean water
- Removal of pollutants from air and water
- Protection against soil erosion
- Flood alleviation
- Rainwater retention
- Improvement of land quality
- Mitigation of land takes and soil sealing
- Strengthening ecosystems resilience
- Carbon storage and sequestration
- Mitigation of urban heat island effect
- Disaster prevention (e.g. storms, forest fires, landslides)
- Improved habitats for wildlife
- Landscape permeability
- Better health and human wellbeing
- Creation of jobs
- Diversification of local economy
- More attractive, greener cities attracting young people
- Higher property values and local distinctiveness
- More integrated transport and energy solutions
- Enhanced tourism and recreation opportunities



Ecological Network (Dissertation project of Monica Amuza, MPT 2019-2021)

IV. Modue 6. 3. Issues of the blue-green infrastructure in education

This thematic module introduces some key questions addressed to the BGI challenges at different scales (detail, mezzo, macro) and of the multitude of diverse societal, environmental, ecological, climate change adaptation and mitigation, biodiversity and economic benefits enhanced by this.

It highlights the urgency to achieve the SDGs, particularly:

Goal 6: Ensure availability and sustainable management of water and sanitation for all;

Goal 11: Make cities and human settlements inclusive, safe resilient and sustainable;

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

This is addressed not only to the students but can be adapted to the public administration, consultants and SME representatives from the fields of architecture/urbanism, landscape planning, construction., ecology and water management.

The students are exposed to a variety of topics around GBI and NBS, gaining insight into how societies work with nature and can incorporate ecosystem-based solutions to become more resilient and sustainable. The module is realised both through theoretical subjects with practical verification of knowledge within exercises, but especially through design studio work, as crucial of architectural and planning learning. From this approach as a base knowledge, the regional and local developers could be able to work closely with scientific experts, which ensured that technical aspects of the design were aligned with aesthetic considerations and vice versa in order to design and implement individual pilot projects. The aims are testing and trying to adapt BGI approach to local conditions is seen as opportunities to build know-how in the field.

a. Basis for the BGI module teaching

Thus, the theoretical background is focus on:

- The challenges of urban regeneration and the potential of nature-based solutions
- BGI: Principles, Tools, Applications and Policies
- Valuing the benefits of BGI - the role of perception and understanding GBI value in SMCs context
- Climate Adaptation and the role of water and endogenous resources in urban design and planning
- Highlighting the green values to make cities more liveable, sustainable and resilient
- BGI as essential topic to spatial planning to support the transition to climate resilience - Green Infrastructure, Green Urbanism, Smart Growth and Sustainable Communities
- BGI and Biodiversity: Landscape Ecology, connectivity and the changing form of urban greening.

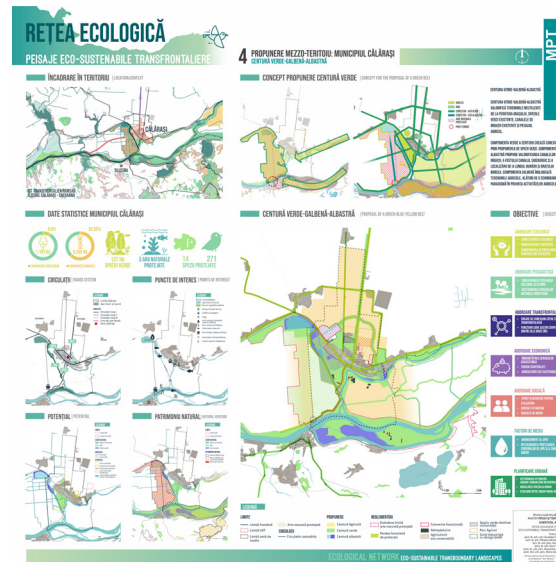
The practical part:

- Urban design studio reflects the application of theoretical knowledge.

b. The application of the topic - BGI in studio teaching

Spatial planning practices –strategies, development plans, green system plans, action plans etc. - should enable interactions between different land uses to be investigated over a large geographical area. Strategic level of spatial planning at the scale of the small and medium cities situated on the Lower Danube can especially help to:

- locate the best places for habitat enhancement projects by using BGI (e.g. involving restoration or re-creation of



Ecological Network (Dissertation project of Monica Amuzu, MPT 2019-2021)

habitats) to help reconnect healthy ecosystems, improve landscape permeability or improve connectivity between protected areas

- guide infrastructure developments away from particularly sensitive nature areas and instead towards more robust areas where they might additionally contribute to restoring or recreating BGI features as part of the development proposal;
- creating connected zones on the Danube's shores, creating recreational public facilities both related to the city's urban front and to the natural river ecosystems
- identify multi-functional zones where compatible land uses that support healthy ecosystems are favored over other more destructive single-focus developments

IV. Module 6. 4. Teaching methods focused on module

The module teaching method is based on lectures, debates and practical exercises. The students are aimed to acquire analytical and conceptual skills related to the design of BGI, the ability to work with nature and use the natural potentials of cities and the countryside. Multimedia & online tools will be used. During the practical work, the students work individually or in small multidisciplinary groups.

Except the theoretical methods. according to the developed methodology in DANUBIAN_SMCs project, the most important are: Critical

Thinking Session, Mapping Resources through Exploration, Living Lab, walking tours, SWOT analysis, Problem-solving based project, Greater community engagement, Scenario planning based project, Co-evaluation, Story+web (GIS) map.

IV. Module 6. 5. Innovative tools

The thematic module features the innovative tools in the field of urban planning and landscape, (geo spatial) open data, which help in mainstreaming the concept, designing, planning and strategies of BGI.

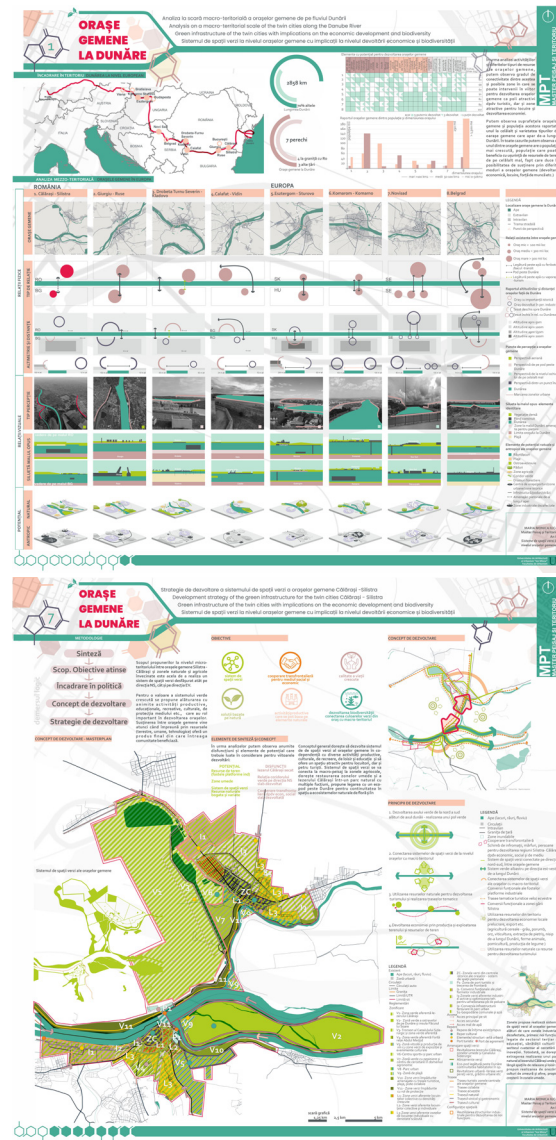
Also, a cross – disciplinary is recommended as economy, computer science and environmental science.

IV. Module 6. 6. Examples of assignments

Within the Master "Territory and Landscape" (MPT), UAUIM, the dissertation project is the research on the relationship between the Territory and the Landscape in all its components (ecological, natural, anthropic/constructed and cultural), on a wider territory of a landscape with particular valences, respectively an imposed territory, on a theme of research chosen by the master's student, which can fit into the proposed theme, in agreement with the project coordinators and the guidance team. The study mainly aims at the sensitive reading of the landscape and its complete and complex-integrated understanding, including its spatial, ecological, historical-evolutionary, technical, environmental and cultural aspects. Also, considering its interdisciplinary side, the project focuses not only on the analysis of the landscape and the proposal of feasible compositional and spatial solutions, but also on the analysis and interpretation of data taking into account the components: environmental, ecological and sustainable resilient, social, economic, mobility and transport, legislative framework, etc. (based on sector-specific analysis tools).

Monica Amuza: Ecological Network.

The project investigates the role of connectivity for the creation



Twin cities (Dissertation project of Maria Monica Iuca, MPT 2019-2021)

of a functional and coherent territorial system of natural habitats. The model chosen for the development of this system is the ecological network. Ecological networks, a tool for ecological conservation and reconstruction, consist of a system of well-connected elements: core areas, ecological corridors, buffer zones and transition areas. At national level, there is still no concrete model for the development of an ecological network. Without biodiversity, the resilience of ecosystems is affected and they become vulnerable to ecological disasters or new diseases. Climate change is also increasing the vulnerability of ecosystems in the absence of any measure to protect nature. Biodiversity conservation means coherent, functional and well-connected ecosystems that ensure the movement of species between them.

Ecological connectivity and biodiversity conservation are two internationally recognized topics, which can be seen through numerous publications and efforts to achieve the conservation goals. In Romania, the interest for these topics is timidly reflected in the existing legislation or in urban planning. Protected natural areas are considered individually, without an overview image in order to place them in a well-connected system. Although many of the protected natural areas are included in the European ecological network Natura 2000, the aspect of connectivity is present mostly on paper rather than in reality.

The territory chosen for the detailing of the ecological network is the municipality of Călărași. The aim is to consider the unused



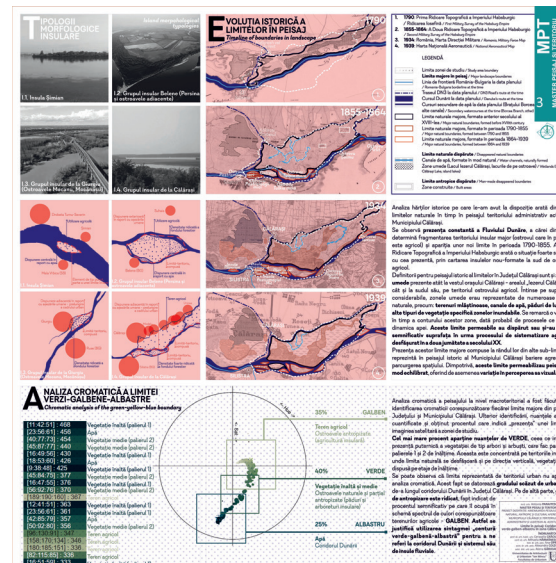
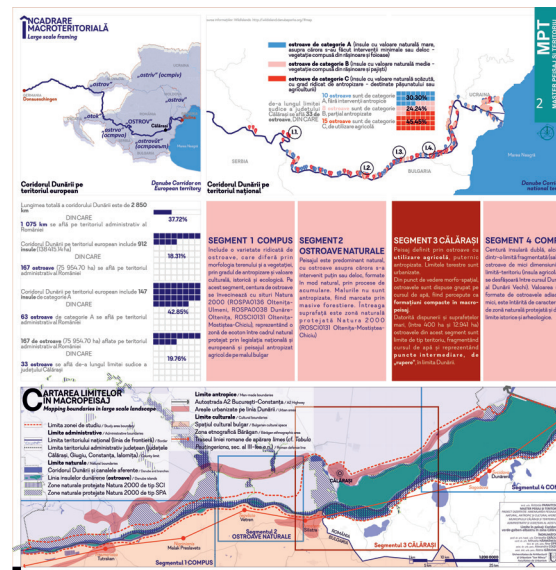
periurban lands and take advantage of the location next to the natural area, lezerul Călărași, in order to develop a green-yellow-blue belt. The three components of the belt create connections between green spaces, watercourses, irrigation canals and agricultural land.

The local intervention proposes a series of regulations that aim to ensure the achievement of the conservation goals and the development of eco-tourism in the area. lezerul-Călărași is part of the lezer Călărași-Srebarna trans-boundary site and has the greatest potential for trans-boundary cooperation, both for ecological connectivity and from a socio-cultural point of view. The proposal establishes a protection regime that regulates the permitted and prohibited activities within the protected natural area. The main objective of this proposal is to develop an eco-logical network that will become a model for the cities located along the Danube.

Maria Monica Iuca, *Twin cities*. The project studied the typologies of landscapes of twin cities along the Danube, especially in Romania the green-yellow-blue system from Giurgiu-Ruse to Călărași Silistra with a length: approx. 122 km with left-to-right study of the river 5-10 km.

The idea was to connect twin cities in a green public route system that includes the Danube River, islands, nature reserves, agricultural areas, forests, wetlands, etc. and to give a new configuration of the space on the Danube from the urban landscape to the natural / agricultural landscape - the transition be-tween different landscape sequences.

The student has studied the green systems of city of Călărași in relation with city of Silistra and the use of natural and artificial lands, canals and lakes in the green system and proposed a strategy of development for the green infrastructure between the twin cities with implication of the economic and biodiversity fields. On one hand, the project re-designs a living area and details a model for a green neighborhood that integrates natural based solutions to achieve ecological systems in the city and a sustainable society.



Limits in the landscape. The green-yellow-blue corridor in the Călărași area (Dissertation project of Antonia Panaitescu, MPT 2019-2021)

Antonia Panaitescu, *Limits in the landscape*. Shape changes in the Danube landscape – varying with the season or at great periods of time – reveal the dynamism of the landscape of lim-its. On the other hand, this feature is also cer-tified by the sole presence of ostroave (fluvial island formed as a result of an accumulation process) . This project explores the island’s landscape (in Călărași County and Călărași Municipality area), identifying it with a physi-cal boundary, perceptible on all levels of land-scape (micro-, macro- and mezzo-). In all the analyzed situations, islands become physical and visual barriers, backgrounds and buffer zones.

Riparian islands belt is a geographical expression typical for Lower Danube (Danube along the Romanian-Bulgarian border), given the high number of islands in this area (approx. 200 islands) and the specific terminology – frequent use of the term ostrov for riparian islands in the Eastern Europe.

Through the project, sensitive reading of the regional and local environment of Călărași is done by using two main filters: visual and physical crossing, using the sight and movement. Considering the indicators based on field observation (opacity, height, continuity, dynamism), the study of Danube and ostroave (with agricultural or forestry profile) leads to identifying the strongest boundaries which have the strongest impact in the development of Călărași Municipality. Consequently, the proposal (development strategy, programmes and projects) is based on six pillars:


- Sustainable amelioration of natural boundaries which obstructs the physical crossing of the landscape;
- Raising the permeability of boundaries in landscape – physically and visually;
- Transformation of main landforms (ostroave, Danube, Borcea Branch) in “territory-boundaries” in Călărași Municipality’s landscape;
- Enhancement of the green-yellow-blue belt as a natural, cultural and productive landscape resource in Călărași Municipality’s landscape;
- A sustainably developed link between Călărași Municipality and ostroave by raising the urban area’s resilience.
- Vertical variation of boundaries in the landscape, using visually dynamic urban interventions.

References

1. Andreucci, MB (2013) Progressing Green Infrastructure in Zubir S.S, Brebbia C. A. (eds) *The Sustainable City VIII* (2 Volume Set). Urban Regeneration and Sustainability pp 413 - 422 doi:10.2495/SC130351
2. Beatley, T. (2000) *Green Urbanism: Learning from European Cities*. Washington DC, Island Press.
3. Bell, S., Fleming, L.E., Grellier, J., Kuhlmann, F., Nieuwenhuijsen, M.J., & White, M.P. (Eds.). (2021). *Urban Blue Spaces: Planning and Design for Water, Health and Well-Being* (1st ed.). Routledge. <https://doi.org/10.4324/9780429056161>
4. Benedict, M.A. & McMahon, E.D. (2002) *Green Infrastructure: Smart Conservation for the 21st Century*. Renewable Resources Journal, Autumn Edition, 12-17.

5. Benedict, M.A. & McMahon, E.D. (2006) *Green Infrastructure: linking landscapes and communities*. Washington, DC, Island Press.
6. Blackman, D. & Thackray, R. (2007) *The Green Infrastructure of Sustainable Communities*. North Allerton, North Yorkshire, England’s Community Forests. www.roomfor-design.co.uk.
7. Dreiseitl, H & Wanschura, B., eds. (2016). *Strengthening Blue-Green Infrastructure in our cities enhancing blue-green infrastructure & social performance in high density urban environments*, Liveable Cities Lab, Ramboll.
8. European Commission (2021): *Green and Blue Infrastructures*. Available at: https://knowledge4policy.ec.europa.eu/glossary-item/green-blue-infrastructures_en
9. European Comision (2020) *The EU Strategy on Green Infrastructure*. Available at: https://ec.europa.eu/environment/nature/ecosystems/strategy/index_en.htm
10. European Commision – EC (2013) *Building a Green Infrastructure for Europe*, Luxembourg, Publication Office of the European Union. Doi:10.2779/54125
11. EUROPEAN COMMISSION – EC (2011) *EU Strategy for the Danube Region (EUSDR)*. Available at: <http://www.danube-region.eu/attachments/article/590643/EUSDR-EN.PDF>.
12. Fábos, J.G. (2004) *Greenway planning in the United States: its origins and recent case*

- studies. *Landscape and Urban Planning*, 68(2-3), 3 21-342.
13. Gill, S.E., Handley, J.F., Ennos, A.R. & Pauleit, S. (2007) *Adapting cities for climate change: The role of green infrastructure*. *Climate Change and Citie.*, 33(1), 115-133.
14. Joklová V, Djukic, A, Hărmănescu, M, Janková, J (2019) *Conceptual approaches to environmental quality and liveability in smaller cities*. In: Benko, M, Pavel, G., Vitkova, L (Eds) *Book on the unexplored cultural heritage in communities by the Danube*, INTERREG- DAN-UrB, Gasset, Praha pp 104-112
15. Mell, I.C. (2009) *Can Green Infrastructure promote urban sustainability? Proceedings of the ICE - Engineering Sustainability*, 162(ES1), 23-34.
16. Stan, A., Harmanescu, M (2021). *Abandoned lands in small and medium sized cities situated on Southern and Lower Danube’s urban fronts, as opportunity to enhance the river urban green infrastructure (UGI) in Urban Services to Ecosystems: Green Infrastructure Benefits from the Landscape to the Urban Scale*, Catalano, C., Andreucci, M.B., Guarino, R., Bretzel, F., Leone, M., Pasta, S. (Eds.), Springer: Nature. DOI: 10.1007/978-3-030-75929-2_19
17. Tzoulas, K., Korpela, K., Venn, S., Yli-Pelkonen, V., Kazmierczak, A., Niemele, J. & James, P. (2007) *Promoting Ecosystem and Human Health in Urban Areas using Green Infrastructure: A Literature Review*. *Landscape and Urban Planning*, 81, 167-178.

A map of the Danubian region in Europe, showing the Danube River and its tributaries. The river is highlighted in a darker blue, and several circular markers are placed along its course. The countries labeled on the map are Austria, Hungary, Italy, Slovenia, Croatia, Romania, Serbia, and Bulgaria. The text 'Module 7. Multilevel stakeholder cooperation and involvement for sustainable projects in Danubian urban-rural regions' is overlaid on the right side of the map.

Module 7. Multilevel stakeholder cooperation and involvement for sustainable projects in Danubian urban-rural regions

IV. Module 7. Multilevel stakeholder cooperation and involvement for sustainable projects in Danubian urban-rural regions

University responsible of the module: Budapest University of Technology and Economics / BME

Contributors: Bálint Kádár, Melinda Benkő

IV. Module 7. 1. Introduction

The goals of the Danubian_SMCs project and the related projects such as DANUrB DTP interreg project was to develop methods involving the academic discipline of urban planning and spatial planning which can effectively enhance the liveability and attractivity of small and medium cities by the river Danube. Every settlement needs urban and spatial planning in order to develop in a systematic, comprehensive and sustainable way, but there are characteristics that can define specific needs and challenges for small and medium cities along the river Danube in Central and Eastern Europe. Such specificities formulated characteristic analysis and intervention logics that work more effectively in these regions, and a set of tools within the rich toolboxes of urban and spatial planning that can have more advantageous effects if used here.

One important tool that present and future planners, designers and project managers should know how to use for sustainable projects in Danubian urban-rural regions is stakeholder involvement at different levels. In regions away from large economic and power centres local cooperation of stakeholders and their joint action to work with their own resources – mainly

heritage related resources – can be a key to sustainable development. Planners, architects and other professionals must have a strong knowledge of, and live connection with the local stakeholder ecosystems in order to be able to deliver strategies, plans and designs with an optimal impact.

The aim of the module is to show students how the governance models and stakeholder involvement influence the creation of a sustainable urban and rural environment through planning and design procedures involving at different levels locals. Projects are most of the time designed, developed and implemented in a multi-stakeholder environment, and the module shows to students the values and potentials of stakeholder involvement in public space, building or infrastructure development. Students will have practical knowledge on multi-level governance and project management, on the management of urban and rural commons, on the different challenges of Danubian small and medium cities and regions regarding management, governance and project implementations, and will be familiar with the administrative methods and funding possibilities in such environment, with special regard to EU development funds.

IV. Module 7. 2. The context of stakeholder involvement in the planning and design of projects in urban-rural regions along the Danube

Architects and planners are well aware about the importance of the spatial and social context of their projects. The modules of the

Danubian_SMCs project ensure to give students the knowledge and tools to investigate all contextual givens, however, there are some aspects that cannot be thought along general principles and methods, but must be experienced on-site. The local stakeholder ecosystems, the challenges of standard governance models, the peculiarities of the interpersonal connections affecting the functional decisions made locally are factors that are hard to standardize.

There are patterns regarding the local governance challenges and stakeholder ecosystems that need to be understood in the Danube region, and especially in rural and small peripheral urban areas along the river. These communities are mostly underprivileged respect to larger centres or agglomeration areas, and have an economic dependency from the central government and large economic actors, however, they also have a strong independence in local governance issues, as the decisions regarding their territories have few conflicts of interest with centralized systems, being away from most centres and being peripheral also economically. Local ecosystems usually work with strong stakeholders having influence on local politics and economy. These stakeholders are established families, large entrepreneurs and respected members of the cultural or religious sphere. The invisible network of such stakeholders usually have a strong word in all local decisions, and they are tied to the local heritage and territorial values also in an emotional dimension. Working as an external expert – spatial or urban planner, architectural designer – in these areas means

that some form of collaboration has to be established with such stakeholders, and their influence making ecosystem must be understood. Such ecosystems have some benefits for the planning processes: meaningful stakeholder involvement and participatory processes can be built, deep knowledge of the local context can be more easily obtained, a connection to a wider portion of the community can be granted through key stakeholders, and most of all the sustainability of the projects can be more effectively planned and assured.

Another peculiarity of the context of these regions comes from the historical, cultural and territorial influence of the Danube as a river. Apart from being a wonderful and many times hard to control natural given that defines land use much more decisively than in territories further away from large rivers, the Danube defined a multicultural socio-cultural environment, which is still preserved in many areas. As a cultural-historical highway of commerce and population migration, many different nationalities and cultures live relatively close to each other and well connected. Also, a more peculiar variety of heritage can be found, and it is many times underused and not valorised. Such heritage has a great potential to attract new visitors to communities along the Danube, and it also has the potential to offer a better quality of life to locals. Tangible and intangible heritage related to the Danube and its communities can make the settlements along the river preferred weekend and vacation destination to national and international tourism, and local communities and stakeholder ecosystems can benefit largely from this process if planned professionally but with their deepest involvement.

It is important to note, that such context is the ideal field to maximise the opportunities European integration, the Danube Strategy and EU development funds offer, as these regions are mostly underdeveloped, but with large potentials that are unique enough to create diversified and therefore competitive developments. Planners must be aware of the development funding opportunities, and there is no better area to see all opportunities as the regions along the Danube, with many bor-

der areas, transnational possibilities, cultural heritage revitalization opportunities, all based on strong local ecosystems that are in need of help from EU integration programmes.

IV. Module 7. 3. Issues of the module topic in education

The module complements all other modules in the program, and gives practical knowledge from on-site learning experiences on the local possibilities of stakeholder involvement, cooperative forms of governance and based on these sustainable project planning and implementation working with local heritage valorisation.

The module builds on the following modules:

- Inclusive design: cities for all. This module on stakeholder involvement complements with local field work and contextual thinking, real stakeholder involvement the knowledge gained from the inclusive design module
- Sensing and mapping the city. This module on stakeholder involvement builds on the mapping techniques and tries them out in a localised context, complementing them with on-field analysis
- Sustainability and resilience of Danubian cities and towns. This module on stakeholder involvement builds on the knowledge of the sustainability module, integrating environmental sustainability and SDGs to the work with local stakeholders in valorisation projects.

- Urban acupuncture based on participatory place-making. This module on stakeholder involvement uses the methods thought in the place-making module together with local stakeholder cooperatives, practicing the use of such techniques and projects in local ecosystems.

- Urban renewal of Danube small and medium cities. This module on stakeholder involvement is based on the urban renewal possibilities, implementing these on-site

The module "Multilevel stakeholder cooperation and involvement for sustainable projects in Danubian urban-rural regions" adds to the knowledge of these complementary modules the following issues:

1. Peculiar planning environments and governance systems of urban-rural regions along the Danube

Knowledge of the peculiarities of Danubian SMCs in the context of governance, territorial and legal environments to be found in smaller communities along the Danube must be obtained. Students must be aware of the EU policies and funding opportunities, of the Danube Strategy and other strategies and programmes at a more local level in the region. Students must be aware of the special challenges in local governance in these communities, and of the challenges in democracy, inclusivity and cooperations.

2. Stakeholder ecosystems in the Danube region and possible stakeholder cooperations

Students must gain precise knowledge of the stakeholders and their networks from a given territory, the one they work with during the project. Local and personal experience with stakeholders from the given area is necessary, the understanding of how local stakeholders are embedded in the community, how they cooperate and how these stakeholders form an ecosystem on which a project can build is the issue here.

3. Stakeholder involvement in heritage valorization

Working on local projects where heritage valorisation is a main goal and main value makes stakeholder involvement and community involvement even more important, as the result of the project will be also of public benefit, preserving local heritage and giving value and usability to it. Students must learn how to engage the entire community through key stakeholders, and how to build strong stakeholder cooperation that ensures the sustainability of the project after implementation.

The stakeholders targeted are the following:

- municipalities at the smallest territorial units committed to develop their heritage assets for the benefit of the community, having appropriate administrative units for cultural and project development or having committed personnel
- municipal or other cultural institutions having a stake in heritage conservation and valorization, motivated in the development of intangible or tangible heritage assets in their field of interest or in their handling
- local private entrepreneurs interested in heritage-based service development, committed to local heritage values, owning or willing to handle heritage assets to be developed
- local NGOs or private persons able to manage local cooperation with the aim of developing local heritage assets

The aim of the competences learnt in this module is to help above listed stakeholders in developing heritage based on their own local resources; such process by nature builds on some kind of local stakeholder cooperation, therefore it is an ecosystem building process as well, where the few local resources available for action can be added for maximum impact, where the joint knowledge on the heritage itself, on the project management and design and on the maintenance and sustainability of the project must add together in order to be successful.

The module “Multilevel stakeholder cooperation and involvement for sustainable projects in Danubian urban-rural regions” is a module in the last semester of the study programme, and it complements a planning and/or design studio for students, where the project to be developed focuses on the sustainable development of a heritage asset in a community along the Danube where stakeholder involvement is necessary for the success of the project.

IV. Module 7. 4. Teaching methods focused on stakeholder involvement and cooperation

The approach to teaching and education in the curricula of the master’s at the universities of the Danubian_SMCs project is to have students work on multiscale project designs in interdisciplinary planning teams, which breaks down the strict separation of disciplines and allows them to address multiple different planning phases. The need for holis-

tic planning processes within defined parameters encourages students to develop ideas for sustainable development of our built environment.

By working in groups of different sizes or individually social competencies and self-competencies are strengthened. The module “Multilevel stakeholder cooperation and involvement for sustainable projects in Danubian urban-rural regions” integrates in this approach, based on the following rules:

- The module is integrated with a planning/design course where the goal is to make a project in a community along the Danube valorising local heritage
- Students work in groups of 2-3
- Students – after the theoretical lectures – work on-site in the selected settlements for at least one week
- Students work with key stakeholders building a personal-professional relation.

Theoretical lectures present the different governance models, municipality types and their challenges and the different stakeholder types in urban and rural areas along the Danube. Lectures will present the methods of stakeholder involvement, participation and project design and implementation embedded in the legal environments of Danube countries and the EU. The different European strategies, frameworks and programs will also be taught, with special regard to EU development fund-

ing opportunities. Students will also learn about the theory of commons and the examples of multilevel governance.

Students will also acquire practical knowledge on site, as the learning will partially take place in specific small or medium cities or rural regions along the Danube. Students will have the opportunity to integrate the knowledge of this module into their design courses running parallelly in their academic curricula. They will learn to acquire development possibilities from local stakeholders and to develop a project together with them.

This module consists of lectures and on-site exercises. Lectures are focused on the theory and methods of governance models, urban and rural commons, stakeholder inclusion techniques, policy, governance and funding frameworks of urban and rural areas in Danubian countries. Theoretical knowledge will be used in on-site exercises.

Students will be working on-site in small and medium size cities or rural areas along the Danube, contacting directly local stakeholders and involving them in the creation and implementation of projects (implementation as a theoretical practice exercise). Students will have to map the present stakeholder network, governance structure and potentials for development, including funding possibilities. Students will directly contact stakeholders, analyze their positions and aims, and develop a project together with them. At the end of the course the presentations will also be held on-site together with stakeholders.

IV. Module 7. 5. Tools of cooperative valorization with stakeholder involvement taught

The module will show students practical ways to create local projects based on local heritage involving stakeholders and fostering their cooperation. Students will have to work with at least one of the following:

a. Valorizing heritage through community events and festivals

The most inclusive development possibility of local heritage is the initiation of local events based on the heritage, or the integration of the heritage assets into festivals.

Many intangible heritage assets cannot be physically developed, their valorization is possible only through their integration into an event or service that revives and valorizes the values of such intangible heritage. Folk costumes, dances and music, culinary specialties, stories, traditions, tales and other intangible heritage are most often revived in specific events, festivals or smaller community festivities. These can involve the local community even interactively to keep such heritage as a living part of their identity, even the audience of such festivities can make a connection with traditions and other heritage and feel pride and local attachment through these. Festivals and events can also be used to commercialize heritage, to “sell” local values to tourists. Authentic and site-specific heritage if valorized through a well-managed and advertised event can attract tourists seeking for something out-of-ordinary and authentic. In the most attractive festivals direct revenues can be obtained by tickets, but even in these cases the multiplier economic effects will prevail, local service providers, accommodation and culinary providers will benefit directly. However, valorizing intangible heritage that did and can define the identity of a community is a long-term investment, therefore most events and festivities shouldn't calculate with direct eco-

omic benefits. The most relevant benefit is the living preservation of traditions and therefore the increase of community bonds and identity, increased local pride and quality of living.

Apart from traditions and intangible heritage also tangible heritage assets and specific spaces can be developed through events and festivals. This tool can be the most cost-effective method to preserve a heritage space, putting it on the map, meaning on the mental map of locals and visitors. The community involved will get to know the values of the space where the festivities are held, will get direct experience on how to use it, will associate positive qualities to it and will be more involved in the preservation and development of such spaces. Organizing cultural events associated to a heritage space can be the effective first step of long-term development of that space or asset (second after mapping it). Moreover, the events organized in/by heritage spaces can connect heritage spaces with other intangible local heritage, expressing the cultural richness of local authentic heritage and life. Therefore, even festivals related to specific intangible heritage assets (like a fish soup festival) should be held in heritage spaces with a story (a symbolic square by the river or a building complex with historic or vernacular importance), not just in any place where infrastructure is given.



Example for this tool:

PARTRASZÁLLÁS - JÁNOS VITÉZ ÁTALMEGYEN A DUNÁN – DANUBE DAY FESTIVAL

Location: Hungary, Ráckeve

Description: The DANURB project created in 2018 the “Szigetzu-gi Duna Napok” Danube Days festivals in Ráckeve and the 5 surrounding villages, as a festivity to celebrate the values related to the local culture of the communities between the two branches of the Danube. The festival is a yearly event grew to be self-sufficient, with programs from 3-5 municipalities around Ráckeve. DANURB added an extra event to this Danube Days in 2022, willing to integrate two heritage items to be developed locally. One is the famous children story of János Vitéz, which character was a historic figure at Ráckeve, and very few know how this famous story has origins in this land. The other is a heritage building

from modernism left empty since the end of communism, the MHSZ former military youth club in the prominent central location by the municipal beach, easily accessible and leaning on to the RSD branch of the Danube. The festival included a costumed lice character of János Vitéz, concerts, boat trips, water sports and an exhibition and participatory planning activity inside the MHSZ building, where the event took place. Local stakeholders of cultural entrepreneurship presented themselves and their products. In the evening a party in and out of the building took place.

Why is it a good practice?

The aim of this festival was to unite local intangible heritage, namely the story of János Vitéz, with the revitalization of a heritage space, namely the MHSZ building and connection with many stakeholders interested in the valorization of heritage and identity in Ráckeve. As a result, the local cultural stakeholders initiated the revitalization of the MHSZ building as a cultural and sports hub in the middle of Ráckeve, making planning sessions during the festival.

Intangible heritage: János Vitéz, Small Danube heritage

Tangible heritage: MHSZ building and the municipal beach surrounding it

Stakeholders: Pest County Municipality, Ráckeve Municipality, cultural stakeholder cooperative of Ráckeve





b. Valorizing heritage through community events and festivals

Final development of heritage spaces and buildings can be resource intensive, the restoration of original structures can be more expensive than a normal building development project, therefore communities most of the time cannot start such comprehensive development without external funding. In the meantime, the temporary usage with low-cost structural interventions can bring life to heritage spaces and can also preserve its values and structures from more decay. Most importantly, temporary, but constant usage will put the heritage space on the mental map of locals and visitors and will be integrated to the functional life of communities. This means it will be part of the local life and identity, therefore locals will be ready to make even larger efforts to conserve and develop such heritage.

Temporary use can begin with very simple tools, the cleaning of a place, maintenance of the present structures, caring about the civilized organization of vegetation and about garbage management. Such spaces can be made ready for use with little effort, and the content put into these spaces is the decisive factor to the success of temporary usage. The range of usage goes from regular events and exhibitions to a café or other gastronomic and commercial services. An exhibition and a temporary event don't need much built infrastructure if the heritage space is safe and usable. Many times, paint is the best inexpensive tool to restore the attractiveness of a place, painting some elements, using graphic or artistic paintings can add value in a temporary or alternative way. In other cases some roofs, windows or doors must be restored, even with temporary tools in order to guarantee usability. In such cases more permanent functions, like cafes or event spaces can be already established. Even missing structural elements, like roofs can be added in a fast, inexpensive and effective way with scaffoldings, wooden and tent like structures.

Alternative usage means that a heritage space is re-interpreted, adding new layers of meaning to the existing structures, not

designed in their original forms. These can be graffiti or artistic murals, to add new significance to a public space or less valued building. Such artworks can reflect on the heritage values of the site, other intangible heritage or other values of the community. Alternative usage can be also a not obvious function in a structure intended for other, today obsolete or not attractive purposes. Adding chill-out spaces, gastronomy, or accommodation to heritage related to industry or vernacular culture can bring new visitors or new local appreciation to the place, teaching the users about the heritage values of those assets in an indirect method, while visitors use the spaces in a leisure or other relaxed and appreciated way.

Example for this tool:

VUKOVART

Location: Croatia, Vukovar

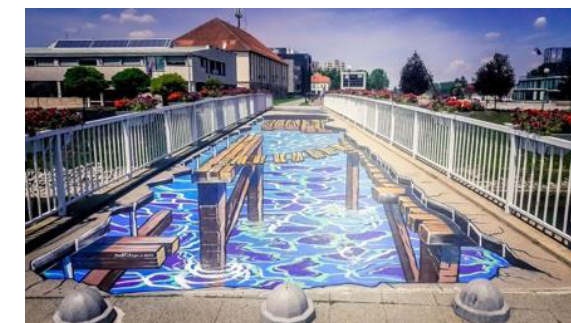
Description: Vukovart is an art project in Vukovar. With the help of Val Kulture Association every year more and more street art appear in the town and makes the urban space more interesting and creates a nice atmosphere with paintings on walls and on pedestrian surfaces, especially on the Promenade of the Vuka creek and on the small bridge.

Why is it a good practice?

It makes Vukovar a more interesting city to visit while valorising the local heritage with the involvement of local stakeholders.

Heritage: Socialist architectural heritage of Vukovar, Local stories of the Danube

Stakeholders: City of Vukovar, VukovART Ngo and festival, Local artist community, Local inhabitants



c. Building camps to show the potential of community action of the heritage assets in place

The main challenge to valorise local heritage assets through extensive development projects is to get the needed funding, and even in the beginning of the process the resources needed in order to start any small-scale development steps are many times not available locally. A tool used by architectural universities and implemented for heritage development by DANUrB is the building camp. This term and method can be used to any organized form of building activity, which relies more on the voluntary work of a group of people than on the availability of financial resources. The method originates in the creative building action of architecture related students, as during their design studies it is beneficial to acquire personal experience on physical building techniques, but they are not ready to make such activities based on their designs on real life projects with predefined needs and customers. Architectural students put considerable amount of energy into the process of designing and building artefacts they can control, therefore building camps using manual and artisanal building techniques were organized to channel these energies into the realization of meaningful works. Building camps can be organized for students of high schools or of other university disciplines, as well as to other types of communities. Some enterprises experiment to turn team building programs into building camp programs, however, architecture university students remain the main actors of building camps all over the world. The involvement of architecture faculties and students into heritage development processes through design and building camps was the novelty of the DANUrB interreg project. Architecture and planning universities became responsible of sections of the Danube in their macro-regions, and took action to plan, design and construct heritage related spaces. The method of building camps included a design process starting with the mapping and exploration of the settlements or places involved and the heritage assets in question. The development of spaces which had the potential

to add value to communities by reinforcing elements of their heritage was always the task, and it should be a starting point to all such building camps. Students and their expert professors made designs that could be implemented in a limited amount of time. Such designs were shown to local communities and stakeholders, and it is advised to include these stakeholders already in this phase, to implement some kind of participatory planning. The main action of building camps occurs in the days of the building process. The camp itself is embedded into the community, relying on the resources of the community in means of accommodation, workspaces and help from stakeholders. The camp should be inclusive, accessible to the community, if possible involving members of the community into the work itself. Local stakeholders should be the suppliers of materials and services to the camp, and they should be involved in the process as deep as possible. The built artefacts should be created for specific stakeholders, or for the whole community managed by specific stakeholders. The finished work should be presented to the community, the participants of the building camp, mostly students should show by their own actions how to use the artefacts and should communicate in person with locals about their work and the way it develops local heritage. The final presentation should be a celebration, connected to some kind of festivity or festival.

The main result of these building camps are not the artefacts. The build designs should be useful, the best functional approach is to create structures for the temporary or alter-

native usage of heritage, or for the festivals themselves. But the main result is not the functionality or special design of these structures or artefacts, but the way they demonstrate to local communities and stakeholders the possibility to transform spaces using local resources, small financial budget, but a lot of voluntary work and community enthusiasm. Students form a community in building camps that can be an example to locals as well, showing how to act together. Local stakeholders and communities will start believing that change is possible, even in a spatial transformative sense. Therefore, these local communities will be enabled to act locally by themselves afterwards, and as they already have a finished – even though temporary or alternative – heritage development project and therefore a space made usable they have a good basis to maintain that space, to value the heritage valorised, and to continue the development with new developments or larger scale interventions.

Building camps can be the method to integrate into the academic curricula the module “Multilevel stakeholder cooperation and involvement for sustainable projects in Danubian urban-rural regions”, as it is an intensive learning programme on-site, that can complement any planning and design based academic semester.



Example for this tool:

PONTIPOLY BUILDING CAMP

Location: Hungary, Ipolydamásd and Szob

Description: Construction of a temporary pontoon bridge from canoes across the river Ipoly, a tributary of the Danube. After the public opening the bridge was dismantled and the building camp moved down the river to Szob. Here the students built public furniture from the wood material of the bridge and installed them on various spots in the town. The new urban furniture designed and built by the students were adopted by local stakeholders who would later take care of the maintenance.

Organizers: Department of Urban Planning and Design at Budapest University of Technology and Economics and the Hungarian Centre of Contemporary Architecture

Heritage: Ipoly river bridges in history, Szob Danube promenade

Stakeholders: Municipality of Ipolydamásd, Chlaba and Szob; Cultural centre of Szob; Entrepreneurs in Szob and Ipolydamásd; communities of the three municipalities



d. Planning a heritage revitalization project with participatory planning and stakeholder involvement

Students will be enabled to undertake larger development projects in their design courses complementing this module.

Larger development projects are resource intensive, but the feasibility of these projects and the sustainability of the results of such depend on the preparation and planning. Technical accuracy and good design is a must, as heritage related development projects are always of public interest and should be always long term developments. But in order to make projects sustainable at the local socio-economic level the inclusion of the widest possible range of stakeholders is needed. It is not enough, if a key stakeholder, like the municipality or a local entrepreneur understands the need to valorize heritage assets and make a good quality project building on its physical and intangible values. A cooperation between stakeholders grants long term sustainability, as the project and its results will not depend on one actor. The inclusion of all possible stakeholders is always beneficial to the project, as more local resources can be integrated in the maintenance period of the project, more ideas will lead to better service design, and most importantly there will be a common valorization of the result, the entire community will feel pride in the completion and operation of it. For this reason, it is beneficial if the design process is open also to the general public of the community making the process and the result a public good. All this is needed

because the development project is based on local heritage assets, which should be a public good, and should have an effect to the identity and everyday life of all of the community.

Participatory planning techniques have a wide literature and can be acquired by all professionals, the other modules in this program give all necessary skills to students. The implementation of these techniques is the responsibility of the module, its teachers and of course the students, but the main holder of the project should be the key stakeholder, or the municipality itself. The students will use the techniques of participatory planning during the design phase, and most importantly should have a direct dialogue between the stakeholders involved.

The stakeholder involvement process has technical steps but is also based on personal communication skills and a personal level of cooperation, therefore the students must learn to be both designers and coordinators of stakeholder involvement, but they should know the community as well, should spend time there, listening first to the local stories and local needs, only after starting to coordinate the participation of locals. The level of involvement cannot be predefined, in some cases stakeholders can contribute to a project physically or in other direct forms, in other cases they will have a key role in the operation of the project results, or simply they will be involved only to grant the inclusiveness of the project. Therefore, the general rule is to listen to their opinions and ideas, and to be transparent an inclusive, accepting also, that

in most of the times stakeholders will not interfere with any of the design decisions if these will be in norm with their needs and opinions.

The steps to take in all projects should be:

- to map the possible stakeholders and local resources related to the project
- to get to know the opinions and doubts of all key stakeholders before the beginning of the project
- to make personal meetings with stakeholders at least once before starting the design, once before finalizing the functional and main decisions and once before finishing the final design



- to make some of the meetings as open to the public as possible, sometimes it is beneficial to make more personal meetings with key stakeholders where decisions are made, and to make more public meetings as open as possible to all of the community where decisions are presented



- to be open to critiques and to new ideas, implementing these as much as possible into the design

Example for this tool:

RÁCKEVE FORMER MHSZ BUILDING VALORIZATION

Location: Hungary, Ráckeve

Description: In the framework of the DANUrB+ project an Action Plan was made for the region of Ráckeve, to the South of Budapest. For the implementation of the ideas several workshops have been held with the participation of local stakeholders, local and regional policy makers, and professionals from the DANUrB partnership. The aim of these workshops was to create stakeholder cooperatives in the region of Ráckeve, and

more specifically to have a participatory decision process for the rehabilitation of an abandoned former Military building at the side of the Danube. For the valorization of the building local workshop was held during the Building Camp organized by BME and KÉK. Furthermore, during the Danube Days, when the building was open to the public for one day, a public voting wall was installed to have a measure of the public's opinion about the new possible functions of the building. Both participatory processes provided valuable insight for the continuation of the valorization activities.

Heritage: MHSZ former military youth club

Stakeholders: Ráckeve municipality; Main cultural institutions; Main sport clubs; general public of Ráckeve



e. Using local, regional and transnational possibilities for larger scale development projects

Many projects valorizing local heritage are too large in scale for the community to develop it by its own resources. If historical reconstruction techniques are required the financial needs can overgrow normal projects, but just because heritage related projects are more important for the public good and planned more to a longer period of operation good design solutions are needed and the resources for this are not easy to acquire. Even if a project has the necessary local funding, for example an entrepreneur can finance a development project counting on commercial valorization, the project can still benefit of more funding which could add to the public use and heritage value with more extensive design and implementation. Therefore, all heritage related projects should have well defined objectives for common goods, value creation and heritage conservation, objectives which can receive fundings because of their cultural or common values. Project holders should evaluate the scale of the project in relation of funding opportunities available at different levels. If the cultural and heritage values are well defined, live connections to other developments can be easily found locally, regionally, or transnationally. Transnational funding possibilities give a good example: if a project adds a transnationally valued level, it can connect to other project elements in a transnational context, making it valid for transborder EU funding calls (Interreg eg.).



Therefore, every project should be constructed with a wider context in mind, connecting its valorized values into networks, enabling it to be not a stand-alone project anymore, but a project element in a project ecosystem.

This thinking has the potential to involve even private funding, businesses looking for good CSR projects, private sponsors of culture, or possibilities of community funding, when local entrepreneurs or the local public sees the common good in a project and takes part in funding it even by micro-funding opportunities.

Example for this tool:

CENTRUM LOUKA

Location: Czech republic, Znojmo

Description: The Louck Monastery is a building complex consisting of many historical buildings, today only partially used. The new social and educational center is built in the oldest part of the Louck Monastery, which is known as the Old School. The new space offers a congress hall, a tourist information center and workshops. You can also regularly visit guided tours of the Church of the Assumption of the Virgin Mary and St. Wenceslas.

Why is it a good practice?

For project development and implementation cross-border cooperation and funding was used, The reconstruction of the Old School building in Louka was carried out as part of the cross-border Czech-Austrian project Center for the Restoration of Common Cultural Heritage (COL) supported by the Interreg V-A Austria-Czech Republic program.

Heritage: The Louck Monastery, Old School building

Stakeholders: Municipality of Znojmo, Municipality of Retz

References

1. Benkő, M., Kádár, B., Gregor, P., Vitkova, L. (2019) Book on Unexplored Cultural Heritage in Communities by the Danube. Praha: Gas-set, 137 p. ISBN: 9788087079638
2. Borch, C., & Kornberger, M. (2015). Urban commons. Rethinking the City. Routledge, 196 p. ISBN 9781138241633
3. Bradford, N. J. (2004). Place matters and multi-level governance: Perspectives on a new urban policy paradigm. Canadian Policy Research Networks.
4. Djukic, A., Stan, A., Kadar, B., Antonic, B. (2022) D+ Atlas: Atlas of hidden urban values along the Danube. Belgrade, Publisher University of Belgrade Faculty of Architecture, ISBN: 978-86-7924-320-1
5. Djukic, A., Kadar, B., (2019) Integrative Strategic Planning and Design for the Strengthening of Identity and Cultural Tourism in the Danube Cities: Smederevo. Publisher University of Belgrade, Faculty of Architecture, ISBN: 978-86-7924-214-3
6. Foster, S. R. (2011). Collective action and the urban commons. Notre Dame L. Rev., 87, 57.
7. LaGRO, James A. Jr. (2013): Site Analysis Informing Context-Sensitive and Sustainable Site Planning and Design. Wiley&Sons, New Jersey, ISBN-13: 978-1118123676
8. Veldpaus, L. (2015). Historic urban landscapes: framing the integration of urban and heritage planning in multilevel governance. Eindhoven University of Technology, Eindhoven. 195 p. Available at: <https://pure.tue.nl/ws/files/3914913/798291.pdf>





Erasmus+

DANUBIAN SMALL & MEDIUM CITIES

ISBN 978-80-227-5282-4

© Spectrum STU Publishing, Slovak
University of Technology in Bratislava, 2023

