MULTIDIMENSIONAL DIGREEN CURRICULUM

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(eds.)

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Multidimensional DiGreen Curriculum

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ABOUT THE CURRICULUM IN THE FRAME OF THE DIGREEN PROJECT

The “Multidimensional DiGreen Curriculum” is the result of the Digital Government for Green Municipalities and Cities – DiGreen project. The project is co-funded by the Erasmus+ Programme of the European Union.

The project has brought together experts from different universities and research institutions in a unique international consortium to address the problems of municipalities and cities. With experts from various countries and familiar with different policy frameworks, communal strategies, higher educational systems, teaching methodologies, and educational approaches, it has been possible to develop a curriculum bridging theory and practice.

The curriculum is usable in its entirety or at the level of particular specific modules for higher education covering digitalization and climate neutrality topics either as:

- a stand-alone course,
- or incorporated into existing courses.

The curriculum is well-balanced and available for non-technical study programmes across different countries for integrating digitalization and climate neutrality topics into higher education.

The Multidimensional DiGreen Curriculum focuses mainly on understanding the digitalization of the society, international comparison and analysis of the digitalization and climate neutrality in public policy.

The present and future digital skills of students and communal employees, respecting green sustainability are at the forefront of this curriculum.

The curriculum interconnects all the project results developed and produced as part of the DiGreen project with the overall intention to transfer communal good practice and theory into higher education.

The Multidimensional DiGreen Curriculum is available online, in English and in all project consortium national languages (Slovak, Italian, German, Romanian).

ABOUT THE PROJECT | PROJECT RESULTS | PROJECT TEAM

GENERAL DESCRIPTION OF THE COURSE IN THE FRAME OF THE DIGREEN PROJECT

University:	
Faculty:	
Department	
Course name:	Multidimensional DiGreen Curriculum
Course type:	Lecture/Practice
Recommended course-load (hours):	28/28
Recommended course-load (hours) per week:	2/2
Course method:	present / online blended hybrid
Number of ECTS credits	5
Conditions for course completion and Assessment methods	During the semester, the students collect a maximum of 100 points for the following activities: Test (maximum points 30) Active class participation (maximum points 10) Individual Works - report, presentation, essay (maximum points 30) Group works - report, presentation, project tasks (maximum points 30)
Course level:	bachelor

Recommended literature:	Ručinská, S., Bernhart, J., Cecon, F. & Dumitrescu, G. C. (eds.) 2024. *Exploring Digital and Green Concepts. Knowledge Base for Cities and Municipalities*. 1st edition. Prague: Wolters Kluwer ČR, a. s., 2024, 208 p., ISBN 978-80-286-0048-8. Cecon F., Decarli P., Dumitrescu G.C. & Ručinská S. (eds.). 2023. *DiGreen Handbook of DIGITAL good Practice. Solutions for cities and municipalities*. Bolzano: Eurac Research, 2023, 140 p., ISBN 978-88-98857-86-9 Cecon F., Dumitrescu G.C., Fečko M. & Maffei D. (eds.). 2023. DiGreen *Handbook of GREEN good Practice. Solutions for cities and municipalities*. Bolzano: Eurac Research, 2023, 128 p., ISBN 978-88-98857-90-6
Course language:	English
Provides:	
Date of last modification:	
Approved:	

CONTENT OF THE MULTIDIMENSIONAL DIGREEN CURRICULUM

Week 1	
Topic	**Trends and challenges on public administration**
Short content description	Basic understanding.

Week 2	
Topic	**Effective knowledge management**
Short content description	The knowledge management cycle. Knowledge capture. Knowledge organization. Knowledge storage and retrieval. Knowledge sharing and collaboration. Knowledge transfer and learning. Knowledge maintenance and updating.

Week 3	
Topic	**Digitalization and digital transformation**
Short content description	Digital strategy of the European Union. Artificial intelligence. Virtual reality. Internet of things (IoT). Big data. Cloud-Technology. Blockchain. Digital governance. Digital public services.

Week 4	
Topic	**Data management**
Short content description	Big data. The Regulation on harmonised rules on fair access to and use of data. Internet of things devices. General data protection regulation (GDPR).

Week 5	
Topic	**Public integrity**
Short content description	Digital technologies and transparency and openness, ethical management, accessibility of sources. Integrity-based approach. Smart applications open new dimensions in identifying and reporting unethical behaviour. The digital aspect of the integrity-based approach and management. Anticorruption. Open data for local governments. Open government partnership. Open data benefits.

Week 6	
Topic	**Climate neutrality and sustainability**
Short content description	Greenhouse effect. Climate neutrality. Sustainability. Pillars of sustainability. Role of public administration in the fight against climate change and achieving climate neutrality. Tackling global warming and its consequences.

Week 7	
Topic	**Strategies and important papers and documents in the area of climate neutrality and sustainability**
Short content description	Strategies and important papers and documents in the area of climate neutrality and sustainability.

Week 8	
Topic	**Communal digital and green transition**
Short content description	Trends and challenges on public administration. Tools and strategies for self-government in the area of digitalization and green transition. Process management as a prerequisite for digitalization. Efficiency and quality in the public administration. Process map.

Week 9	
Topic	**Strategic planning in public administration**
Short content description	Defining a vision. Creating a mission. Information on why and how the organization operates. Setting objectives. Developing a strategy, methodology and framework for executing the strategy. Tactics and specific projects and activities. Implementation of the strategic plan.

Week 10	
Topic	**Effective municipal communication**
Short content description	Forms of communication. Smart devices and technologies. AI and communication. Digital tools and real-time interactivity. Video conferencing market. Cultural and linguistic differences and sensitivities in a globalised world. e-mail users. Mobile phone users. Cybersecurity and municipal communication. Chatbot, smart apps.

Week 11	
Topic	**Public engagement in modern municipalities and cities**
Short content description	Policymakers and their decisions. Public policy goals. Critical thinking. Digitalised information and data. Open data. Management of data and information necessary for the decisions, including collection, storage, back-up, processing, and sharing of gathered evidence.

Week 12	
Topic	**Public administration resilience**
Short content description	Disaster risk reduction. Ability to build and increase the capacity for learning and adaptation. Minimum threshold condition when exposed to shocks and stresses.

Week 13	
Topic	**Building smart cities**
Short content description	The role of IoT in urban development. AI-based solutions. Open data for local governments. Open data benefits.

Week 14	
Topic	**Food waste management**
Short content description	Roles of municipalities in food waste management. Food waste prevention. Enabling factors and hindering factors for municipal food waste management.

LEARNING METHODS OF THE "MULTIDIMENSIONAL DIGREEN CURRICULUM"

The Multidimensional DiGreen Curriculum uses different learning methods that help teachers and students achieve learning outcomes, mainly lectures, class discussions, project assignments, group work, and expert lectures.

Students gain knowledge and skills by working for an extended period of time to investigate and respond to complex questions, problems, or challenges. The results will be presented as a report, presentation, or essay.

Group work allows students to apply the learned knowledge while enhancing creative thinking, critical thinking and problem-solving skills within a group context.

The content of the curriculum, directly and indirectly, leads students to think critically about digital and green transition in their local communities. Thus, students can share their experience on challenges and issues relevant for almost every topic of the Multidimensional DiGreen Curriculum.

LEARNING OUTCOMES OF THE "MULTIDIMENSIONAL DIGREEN CURRICULUM"

Two sets of **learning outcomes** apply to the Multidimensional DiGreen Curriculum, set of knowledge-based learning outcomes and a set of competence-based learning outcomes, based on the LOUIS tool developed within the Aurora Competence Framework.

The knowledge-based learning outcomes are as follows. By successfully completing the Multidimensional DiGreen Curriculum the students will be able to:

- understand and explain trends, challenges and issues of digital and green transitions that must be reflected by the municipalities and cities,
- apply the knowledge achieved through the course in solving key challenges and issues of digital and green transformation of municipalities and cities for the benefit of local communities.

The Multidimensional DiGreen Curriculum focuses on several competencies that have been formulated in alignment with the Aurora Competence Framework (LOUIS) which is based on the VALUE rubrics developed by the AAC&U. http://www.aacu.org/value/index.cfm. For each of the competencies, the table below shows progressive descriptors, that allow us to assess on what level student have mastered each of the competencies. Curriculum focuses on development of four competences (further details in table):

- civic engagement - civic communication,
- critical thinking - influence of context & assumptions,
- creative thinking - solving problems,
- teamwork - fosters constructive team climate.

Competence: Civic engagement			
Level 1 →	**Level 2 →**	**Level 3 →**	**Level 4**
Communicates in civic context, showing ability to do one of the following: express, listen, and adapt ideas and messages based on others' perspectives.	Communicates in civic context, showing ability to do more than one of the following: express, listen, and adapt ideas and messages based on others' perspectives.	Effectively communicates in civic context, showing ability to do all of the following: express, listen, and adapt ideas and messages based on others' perspectives.	Tailors communication strategies to effectively express, listen, and adapt to others to establish relationships to further civic action.

Competence: Critical thinking			
Level 1 →	**Level 2 →**	**Level 3 →**	**Level 4**
Shows an emerging awareness of present assumptions (sometimes labels assertions as assumptions). Begins to identify some contexts when presenting a position.	Questions some assumptions. Identifies several relevant contexts when presenting a position. May be more aware of others' assumptions than one's own (or vice versa).	Identifies own and others' assumptions and several relevant contexts when presenting a position.	Thoroughly (systematically and methodically) analyzes own and others' assumptions and carefully evaluates the relevance of contexts when presenting a position.

Competence: Creative thinking			
Level 1 →	**Level 2 →**	**Level 3 →**	**Level 4**
Only a single approach is considered and is used to solve the problem.	Considers and rejects less acceptable approaches to solving problem.	Having selected from among alternatives, develops a logical, consistent plan to solve the problem.	Not only develops a logical, consistent plan to solve problem, but recognizes consequences of solution and can articulate reason for choosing solution.

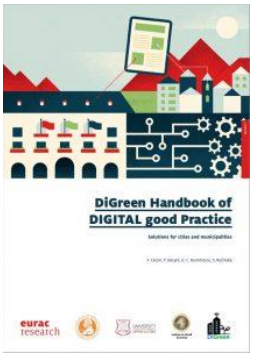
Competence: Teamwork			
Level 1 →	**Level 2 →**	**Level 3 →**	**Level 4**
One of the following: - Treats team members respectfully (polite, constructive), or - With positive tone and body language, or - By expressing confidence, or - By providing assistance.	Two of the following: - Treats team members respectfully (polite, constructive), or - With positive tone and body language, or - By expressing confidence, or - By providing assistance.	Three of the following: - Treats team members respectfully (polite, constructive), or - With positive tone and body language, or - By expressing confidence, or - By providing assistance.	All of the following: - Treats team members respectfully (polite, constructive), or - With positive tone and body language, or - By expressing confidence, or - By providing assistance

RECOMMENDED LITERATURE OF THE "MULTIDIMENSIONAL DIGREEN CURRICULUM"

The study material for the Multidimensional DiGreen Curriculum aligns with the findings and results developed and produced within the DiGreen project. All materials are free available via the official project website.

Ručinská, S., Bernhart, J., Cecon, F. & Dumitrescu, G. C. (eds.) 2024. *Exploring Digital and Green Concepts. Knowledge Base for Cities and Municipalities*. 1st edition. Prague: Wolters Kluwer ČR, a. s., 2024, 208 p., ISBN 978-80-286-0048-8.

The publication was developed as a knowledge base and a part of the Project Result 3: Crosscutting teaching and education DiGreen concept.



Cecon F., Decarli P., Dumitrescu G.C. & Ručinská S. (eds.). 2023. *DiGreen Handbook of DIGITAL good Practice. Solutions for cities and municipalities*. Bolzano: Eurac Research, 2023, 140 p., ISBN 978-88-98857-86-9

The handbook was developed as a source of good practice and a part of the Project 1: Handbook of DIGITAL Good Practice - Cities and Municipalities as the Source for Viable Solutions.

Cecon F., Dumitrescu G.C., Fečko M. & Maffei D. (eds.). 2023. DiGreen *Handbook of GREEN good Practice. Solutions for cities and municipalities*. Bolzano: Eurac Research, 2023, 128 p., ISBN 978-88-98857-90-6.

The handbook was developed as a source of good practice and a part of the Project Result 2: Handbook of GREEN Good Practice - Cities and Municipalities as the Source for Viable Solutions.

Week 1	
Topic	**Trends and challenges on public administration**
Sources	▪ Exploring Digital and Green Concepts, Chapter 1.3 Trends and challenges of the communal digital and green transition.

Week 2	
Topic	**Effective knowledge management**
Sources	▪ Exploring Digital and Green Concepts, Chapter 2.3 Empowering municipalities with effective knowledge management.

Week 3	
Topic	**Digitalization and digital transformation**
Sources	▪ Exploring Digital and Green Concepts, Chapter 1.1 Digitalisation and digital transformation, ▪ Exploring Digital and Green Concepts Chapter 3.4 Safeguarding digital governance: Balancing technology and human factors, ▪ Exploring Digital and Green Concepts Chapter 3.6 Digital public services: redefining citizen-official interactions, ▪ DiGreen Handbook of DIGITAL Good Practice.

Week 4	
Topic	**Data management**
Sources	▪ Exploring Digital and Green Concepts, Chapter 3.3 Data management for smooth technological and sustainable growth.

Week 5	
Topic	**Public integrity**
Sources	▪ Exploring Digital and Green Concepts, Chapter 2.7, Public integrity as a complex communal level guide, ▪ Exploring Digital and Green Concepts, Chapter 3.1 Open data for local governments.

Week 6	
Topic	**Climate neutrality and sustainability**
Sources	▪ Exploring Digital and Green Concepts, Chapter 1.2 Climate neutrality and sustainability, ▪ DiGreen Handbook of GREEN Good Practice.

Week 7	
Topic	**Strategies and important papers and documents in the area of climate neutrality and sustainability**
Sources	▪ Exploring Digital and Green Concepts, Chapter 1.2 Climate neutrality and sustainability.

Week 8	
Topic	**Communal digital and green transition**
Sources	▪ Exploring Digital and Green Concepts, Chapter 2.2 Process management as a prerequisite for digitalisation, ▪ Exploring Digital and Green Concepts, Chapter 1.3 Trends and challenges of the communal digital and green transition, ▪ DiGreen Handbook of DIGITAL good Practice, ▪ DiGreen Handbook of GREEN good Practice.

Week 9	
Topic	**Strategic planning in public administration**
Sources	▪ Exploring Digital and Green Concepts, Chapter 2.1 Strategic planning in public administration.

Week 10	
Topic	**Effective municipal communication**
Sources	▪ Exploring Digital and Green Concepts, Chapter 2.8 Effective municipal communication with the stakeholders, ▪ Exploring Digital and Green Concepts, Chapter 3.7 Modern ways of local communication utilizing ICT, ▪ DiGreen Handbook of DIGITAL good Practice.

Week 11	
Topic	**Public engagement in modern municipalities and cities**
Sources	▪ Exploring Digital and Green Concepts, Chapter 2.4 Public engagement in modern municipalities and cities.

Week 12	
Topic	**Public administration resilience**
Sources	▪ Exploring Digital and Green Concepts, Chapter 2.6 From crisis to continuity: enhancing public administration resilience.

Week 13	
Topic	**Building smart cities**
Sources	▪ Exploring Digital and Green Concepts, Chapter 3.2 Building smart cities: the role of IoT in urban development, ▪ Exploring Digital and Green Concepts, Chapter 3.5 Artificial intelligence as a topic of communal interest, ▪ DiGreen Handbook of DIGITAL good Practice.

Week 14	
Topic	**Food waste management**
Sources	▪ Exploring Digital and Green Concepts, Chapter 4.5 Local significance of food waste management, ▪ DiGreen Handbook of GREEN good Practice.

ABOUT THE PROJECT

Project details
Programme: Erasmus+
Action Type: KA220-HED - Cooperation partnerships in higher education
Call: 2021
Round: Round 1
Field: Higher Education
Project Title: Digital government for green municipalities and cities
Project Acronym: DiGreen
Project number: 2021-1-SK01-KA220-HED-000023505
Duration: 01. 11. 2021 – 31. 10. 2024
Total Budget: 324 810 Euro
National Agency: Slovenská akademická asociácia pre medzinárodnú spoluprácu (Slovak Academic Association for International Cooperation)

Project coordinator
Univerzita Pavla Jozefa Šafárika v Košiciach, Fakulta verejnej správy (Pavol Jozef Šafárik University in Košice, Faculty of Public Administration, Slovakia)

Project partner organisations
Accademia Europea di Bolzano (Eurac Research, Italy)
Institutul de Economie Mondiala (The Institute for World Economy, Romania)
FH OO Studienbetriebs gmbh (University of Applied Sciences Upper Austria, Austria)

Project scope
DiGreen aims to provide professionals working in the municipality/city self-government public bodies and young citizens (students) with a framework to exchange knowledge and digital and green good practices. DiGreen will provide a crosscutting teaching and education DiGreen concept together with a multidimensional curriculum.

DiGreen will facilitate the exchange among an international network of municipalities and cities, municipalities' employees, universities, research institutions and communal practitioners on learning about green digital skills and other environmental and digital issues. The general objective of the DiGreen project is to establish a transnational collaboration between partners involved and apply innovative approaches for addressing their target groups.

Project results
Project result 1.: Handbook of DIGITAL good practice – cities and municipalities as the source for viable solutions.

- The "digital" handbook is a source of good practice in providing digital services at the municipality/city level. Partner municipalities and cities cooperating with the consortium are the primary sources of good examples,
- Project result activities 01.12.2021 – 28.02.2023.

Project result 2.: Handbook of GREEN good practice – cities and municipalities as the source for viable solutions.

- The “green” handbook is a source of good practice for municipalities and cities’ employees as key drivers for a green and sustainable environment. Partner municipalities and cities cooperating with the consortium are the primary sources of good examples,
- Project result activities 01.01.2022 – 31.03.2023.

Project result 3.: Crosscutting teaching and education DiGreen concept.

- The teaching and education concept is an interdisciplinary educational and life-long learning knowledge base that encompasses content for developing knowledge in the field of digitalisation and climate neutrality,
- Project result activities 01.02.2023 – 30.06.2024.

Project result 4.: Multidimensional DiGreen Curriculum.

- The curriculum is usable in its entirety or at the level of particular specific modules for higher education covering digitalisation and climate neutrality topics,
- Project result activities 01.08.2023 – 31.08.2024.

https://bit.ly/digreen-project

ABOUT THE PROJECT

PROJECT RESULTS

PROJECT TEAM