



Developing a Training Course in 'Urban Environment under Climate Change' for Experts from Municipal Organizations.

Training Development Plan and an Interactive Module

Group B11





Developers

Dmytro Diadin, PhD, Head of Department of Urban Environmental Engineering and Management, O. M. Beketov National University of Urban Economy in Kharkiv

Olena Drozd, PhD, Associate Professor, Department of Urban Environmental Engineering and Management, O. M. Beketov National University of Urban Economy in Kharkiv

Olena Voloshyna, PhD, Associate Professor, Department of Meteorology and Climatology, Odessa State Environmental University

Anna Bohushenko, Master (Earth Sciences), Odessa State Environmental University

Kateryna Husieva, Senior Inspector of the Foreign Relations Department, PhD (Geography), Odessa State Environmental University





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Overview



The advanced training course in 'Urban Environment under Climate Change' is intended to be studied by specialists in municipal economy as a climate-dependent economic sector.





The content of the course implies mastering the theoretical material and development of practical skills to apply the acquired background for addressing topical climate-related challenges of sectoral enterprises.

The course is aimed at professional development of the municipal service experts, that increases and / or expands opportunities to analyze the climate change impact on the urban environment, develop, implement and assess the effectiveness of innovative approaches to climate change adaptation in order to ensure standard quality of urban components in the context of global climate change.

Course duration is **6 academic weeks**. Course volume is **3 ECTS credits (90 academic hours)**. **18 hours** are assigned for lectures, **18 hours** - for practical classes, and **54 hours** - for independent work.



Audience Description

- The primary audience of this advanced training course is specialists in the municipal economy as a climate-dependent economic sector, in particular, **the staff of municipal services** and representatives of **enterprises involved in the field of municipal economy**





Expected Impacts

Training goals: formation of new and / or improvement of previously acquired knowledge, skills and abilities for application in professional activities related to the field of urban ecology, climatology and sustainable resource management in urban systems in the context of global climate change.

The course will help improve the capacity of institutions, the staff of which have studied it, to develop and implement effective measures to adapt the activity of these institutions to modern climate change on the basis of analysis of the climate change impact on the urban environment.





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Learning
Needs



Learning
Outcomes



Professional competencies

- Ability to **develop applied projects** independently and / or in a team through creative application of existing ideas and generation of new ones.
- Ability to **make informed decisions** by means of critical comprehension of environmental issues and application of an interdisciplinary approach.
- Ability to **analyze and prognosticate the climate change effects** for industry, municipal services and the population within the urban area.
- Ability to **identify risks and assess the consequences** of climate change impact on the components of urban systems based on local and global environmental monitoring data (including meteorological observations, remote sensing data, etc.).
- Ability to **substantiate, develop and implement efficient technological and organizational solutions** and innovative actions on adaptation of the urban environment components to climate change.



Learning Outcomes

Upon completion of the training, the learners are to be able to:

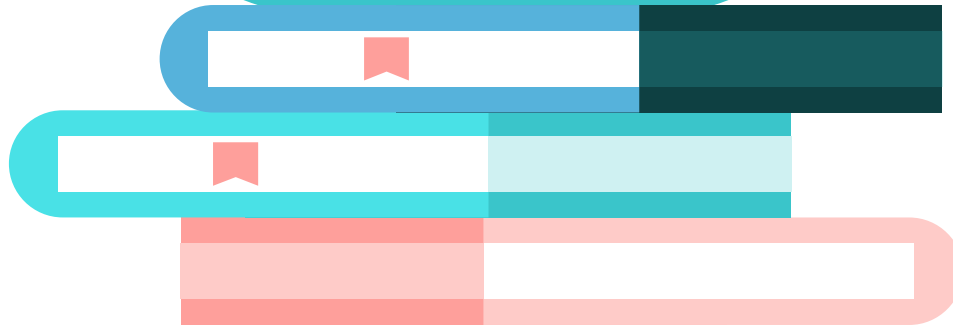
1. demonstrate awareness of the essence of climate change processes;
2. explain the peculiarities of modern assessment of the main components of the urban environment;
3. differentiate, classify and rank the factors of climate change impact on the urban environment
4. assess the possible consequences of climate change for industry, municipal services and the population, with regard to geographical, economic, demographic and social aspects
5. analyze and select the best ways to mitigate the climate change impact on the urban economy, using teamwork skills
6. implement measures to adapt the components of the urban environment to climate change, using organizational and decision-making skills



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Content Scope







The advanced training course in 'Urban Environment under Climate Change' consists of the following sections:



1. Urban environment and climate change: a general idea on climate change, the main components of the urban environment, and urban microclimate.
2. The climate change impact on the components of the urban environment: vulnerability of urban areas to climate change, and assessment of urban vulnerability to climate change.
3. Adaptation of the urban environment to climate change: ways to adapt the urban environment to climate change, and mitigation of climate change effects in urban areas.



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Learning Solutions, Delivery Modes, Learning Strategies and Activities





A method of **online learning** with the possibility of conducting asynchronous and synchronous activities was chosen for this course.

This method seems to be the most optimal, given that urban economy professionals, who are the target group of the course, should already have developed skills of independent work, and training is aimed at meeting the learning needs of the individual employee. This is also justified, because **it allows the learner to study without giving up his/her work.**





Learning strategies such as student-centered and problem-oriented learning will be used.

This is necessary so that the learners could study the course, according to their pace and priorities in the scope of the tasks. Such individual approach will allow learners to achieve the intended learning outcomes faster, because they will have the motivation to show initiative and develop constructive suggestions in the learning process.





The **main types of learning activities** include online lectures and workshops, video lectures, group and individual practical tasks, etc.

The practical work involves an independent task of essay type and group case studies, during which group interaction is provided by means of the BBB system on the online platform for the course.

The teacher provides a general explanation of the theoretical content during the lectures, acts as a moderator during the workshops and advises on the performance of practical tasks. Learners acquire relevant competencies and skills through active participation in the discussion during classes, group and individual tasks, consultations with the teacher and independent work with literature sources.



Learning Assessment

A variety of methods will be used to assess the course learners.

An **oral quiz** will be conducted to test the initial background.

Current indicators of mastering the course will be obtained through **self-control tests** and fulfilment of **practical tasks** on each of the topics.

The final level of course performance will be determined by the results of a defence of **group and individual tasks** and an **online integrated test** with open-ended questions, with regard to weight factors for each type of activities (0.2 for the test, 0.3 for practical tasks, and 0.5 for individual assignments).



Learning Assessment

These activities will make it possible to adequately assess the achieved learning outcomes, since they are aimed at identification of both theoretical knowledge and practical skills acquired by learners according to the full range of issues addressed in the course, and require a creative and analytical approach to their implementation.

Thus, **LO1 & LO2** will be evaluated during group practical tasks (of case study type) and an individual assignment (a written essay), **LO3 & LO4** – group practical tasks (a case study in the form of a presentation), **LO5 & LO6** – a group practical task (a case study) and an individual assignment (an essay in the form of a presentation and defense).



Learning Assessment

Criteria for assessment of an integrated test: the test consists of 50 questions, the correct answer to 30-37 questions corresponds to a sufficient (threshold) level, 38-45 questions – a good (typical) level, and 46-50 - a very good (excellent) level.

Criteria for assessment of practical tasks are as follows:

- a threshold level (includes finding a minimally justified successful solution to the problem)
- a normal / good level (contains finding a well-substantiated and competently outlined successful solution to the problem)
- a very good level (provides finding a successful solution to the problem with comprehensive substantiation and innovative suggestions)

Criteria for assessment of independent work (individual assignments) are similar to group practical tasks, but involve both an assessment by the teacher and a peer-review.



Training Storyboard

Learner timeline					
<p>Module 1: Urban Environment and the Climate Change</p>	<p>Learning type: Acquisition</p> <ul style="list-style-type: none"> reading multimedia, websites, digital documents and resources listening to podcasts, webcasts watching animations, videos 	<p>Learning type: Collaboration</p> <ul style="list-style-type: none"> small group projects using online forums, wikis, chat rooms, etc. for discussing others' outputs building a joint digital output 	<p>Learning type: Discussion</p> <ul style="list-style-type: none"> online tutorials seminars email discussions discussion groups discussion forums web-conferencing tools 	<p>Learning type: Investigation</p> <ul style="list-style-type: none"> using online advice and guidance analysing the ideas and information in a range of digital resources using digital tools to collect and analyse data comparing digital texts using digital tools for searching and evaluating information and ideas 	<p>Learning type: Production</p> <ul style="list-style-type: none"> producing and storing digital documents representation of design performances, artefacts animations models, resources, slideshows photos, videos, blogs, e-portfolios
<p>Module 2: Climate Change Impact on the Urban Environment Components</p>	<p>Learning type: Acquisition</p> <ul style="list-style-type: none"> reading multimedia, websites, digital documents and resources listening to podcasts, webcasts watching animations, videos 	<p>Learning type: Collaboration</p> <ul style="list-style-type: none"> small group projects using online forums, wikis, chat rooms, etc. for discussing others' outputs building a joint digital output 	<p>Learning type: Discussion</p> <ul style="list-style-type: none"> online tutorials seminars email discussions discussion groups discussion forums web-conferencing tools 	<p>Learning type: Investigation</p> <ul style="list-style-type: none"> using online advice and guidance analysing the ideas and information in a range of digital resources using digital tools to collect and analyse data comparing digital texts using digital tools for searching and evaluating information and ideas 	<p>Learning type: Production</p> <ul style="list-style-type: none"> producing and storing digital documents representation of design performances, artefacts animations models, resources, slideshows photos, videos, blogs, e-portfolios
<p>Module 3: Urban Environment Adaptation to Climate Change</p>	<p>Learning type: Acquisition</p> <ul style="list-style-type: none"> reading multimedia, websites, digital documents and resources listening to podcasts, webcasts watching animations, videos 	<p>Learning type: Collaboration</p> <ul style="list-style-type: none"> small group projects using online forums, wikis, chat rooms, etc. for discussing others' outputs building a joint digital output 	<p>Learning type: Discussion</p> <ul style="list-style-type: none"> online tutorials seminars email discussions discussion groups discussion forums web-conferencing tools 	<p>Learning type: Investigation</p> <ul style="list-style-type: none"> using online advice and guidance analysing the ideas and information in a range of digital resources using digital tools to collect and analyse data comparing digital texts using digital tools for searching and evaluating information and ideas 	<p>Learning type: Production</p> <ul style="list-style-type: none"> producing and storing digital documents representation of design performances, artefacts animations models, resources, slideshows photos, videos, blogs, e-portfolios



Learning Resources and Tools

The following **resources** will be used:

- 41 Mandatory resources
- 24 Recommended resources
- 7 Databases

The following **tools** will be used:

- the Moodle-based Research-and-Education Platform
<https://re.climed.network/>



Training Evaluation

For evaluation of the effectiveness of training, the following levels will be used, according to Kirkpatrick model:

Level 1 - Reaction

A survey among the course participants will be conducted one week after training. The questions of the questionnaire will be aimed at quantitative assessment (evaluation of the teacher's work, usefulness and availability of the provided material, adequacy of information, quality of technical support, etc. on a scale from 0 to 5).

Level 2 - Learning

Online quizzes will be conducted to test the knowledge, skills and abilities acquired during the training.



Training Evaluation

Level 3 - Behavior

As a result of the training, the specialists who studied the course and their managers will be offered online questionnaires (post-course feedback), aimed at quantifying the improvement of work efficiency after training. *Examples of questions for learners:* how successfully the acquired knowledge and skills are applied in the workplace, what percentage of the acquired knowledge is applied, whether the acquired knowledge influenced the learner's behavior in the workplace, etc. *Examples of questions for managers:* how successfully the learner applies the new knowledge, skills and abilities in the workplace, how his/her behavior has changed, whether it has affected the effectiveness of the unit.

Level 4 - Results

Within 1-2 months after the end of the training, the analysis of information on the group of specialists who received training and the group of specialists who had not been trained (a control group) will be conducted.



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Human Resources

The course manager: Dmytro Diadin

Teachers: Dmytro Diadin, Olena Drozd, Olena Voloshyna, Anna Bohushenko, Kateryna Husieva

Developers: Dmytro Diadin, Olena Drozd, Olena Voloshyna, Anna Bohushenko, Kateryna Husieva

External expert: Yurii Rashkevych



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Constraints, Risks, Milestones and Schedule





The main constraints include the time available for training and the technical facilities available to course participants for online training.

The risks to the course:

- The risk that participants will not be able to take the course in the context of the global COVID-19 pandemic owing to health impairment
- Application of new approaches to teaching (online training)
- Technology limitations – possible insufficient computer skills of learners
- Significant schedule constraints (both related to the course itself and the main workplace of the learner), owing to which not all participants may have time to complete the assignments



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Milestones and Schedule

The course syllabus completed: **late August 2021**

Learning needs assessed: **September 2021**

Expected learning outcomes reviewed and approved: **September 2021**

The course syllabus reviewed and corrected: **late September 2021**



Content outline developed: **September 2022**

Learning activities designed: **October 2022**

Assessment plan developed: **early November 2022**

Scheduling of all human, technical, and facility resources and determining the necessary conditions for the course organization: **November 2022**

Learning resources developed and adapted: **December 2022**

Training announced: **January 2023**

Admission of learners to the course: **March 2023** (preliminary date)

Training delivered: **April-May 2023** (depending on the date of enrollment)



Training evaluation complete:

- Kirkpatrick model: level 1: **late May 2023**
- Kirkpatrick model: level 2: **April-May 2023**
- Kirkpatrick model: level 3: **early June 2023**
- Kirkpatrick model: level 4: **early July 2023**

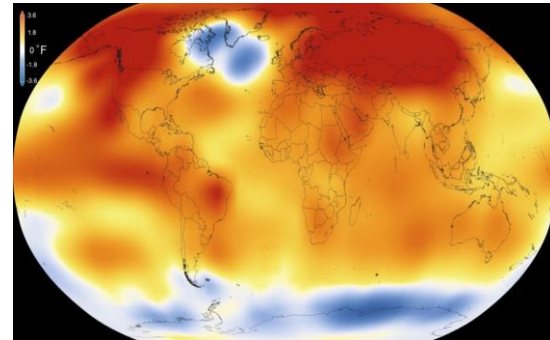


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An Interactive Module

Module 1 'Urban Environment and Climate Change'





Description of the Module

- The **Module 1** 'Urban Environment and Climate Change' of **1 ECTS** is a component of the advanced training course in 'Urban Environment under Climate Change', being intended to be studied by specialists in municipal economy as a climate-dependent economic sector.

The Module consists of the following **topics**:

- 1. A General Idea on Climate Change**
- 2. The Main Components of the Urban Environment**
- 3. Urban Microclimate**



Professional Competencies that students must acquire during the training

- Ability to develop applied projects independently and / or in a team through creative application of existing ideas and generation of new ones.
- Ability to make informed decisions by means of critical comprehension of environmental issues and application of an interdisciplinary approach.
- Ability to identify risks and assess the consequences of climate change impact on the components of urban systems based on local and global environmental monitoring data (including meteorological observations, remote sensing data, etc.).



Learning Outcomes

Upon completion of the training, the learners are to be able to:

- demonstrate awareness of the essence of climate change processes.
- explain the peculiarities of modern assessment of the main components of the urban environment.



Structure of the Module

- Description of the content
- 3 Lectures in .pdf
- Presentations on the lecture topics in .pptx



Анкета для оцінки ефективності навчання, що відпові

My courses (2) ▾ Bookmarks ▾

Module 1

Зміст модуля 1

Mark as done

Лекція 1.1

Mark as done

Лекція 1.2

Mark as done

Лекція 1.3

Mark as done

Презентації за темою лекцій

Mark as done



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Назва курсу: *Урбанізоване середовище в умовах змін клімату*

Модуль 1 *Урбанізоване середовище та зміни клімату*

Лекція 1.1 - Загальне уявлення про зміни клімату

Викладач: Волошина О.В., доцент кафедри метеорології і кліматології ОДЕКУ

Обсяг: 2 академічні години

Зміст лекцій

1.1. Мінливість кліматичної системи

1.2. Зафіксовані показники індикаторів зміни клімату за останні роки на глобальному та регіональному рівнях

1.1. Мінливість кліматичної системи

Глобальна зміна клімату – це одна з найважливіших екологічних проблем, що наразі постала перед людством. На сьогодні впливи зміни клімату вже достатньо задокументовані, зокрема Міжурядовою групою експертів зі зміни клімату – МГЕЗК.

Dashboard > My courses > B11 > An interactive course > Презентації за темою лекцій

Dashboard Site home Calendar Badges All courses Turn editing on

Презентації за темою лекцій

Mark as done

ClimEd Training 2 - Лекція 1 (1) .pptx
ClimEd Training 2 - Лекція 2 .pptx
ClimEd Training 2 - Лекція 3 (1) .pptx

Download folder Edit

◀ Лекція 1.3

Jump to...

▶ Відеоматеріали



Structure of the Module

- Video materials (files, links)
- Self-control test (20 questions)

Відеоматеріали

Mark as done

Бурі та торнадо в Україні. Чи будуть повторюватися смерчі?

Чому в Україні пересихають річки, горять ліси та дмуть пилові бурі?

Urbanization and the Environment

SINFONIA Bolzano/Bozen - Low Carbon Cities for Better Living

London's Ultra Low Emission Zone | Prize for Cities 2020-2021

THE FUTURE OF CITIES

Urban Heat Islands on The Weat

Basic Urban Wind Effects

UK building melts cars

Тест для самоперевірки

Тест для самоперевірки

ClimEd Training 2

Dashboard > My courses > B11 > An interactive course > Тест для самоперевірки > Preview

Dashboard Site home Calendar Badges All courses Turn editing on

Question 1
Not yet answered
Marked out of 1.00
Flag question
Edit question

Клімат даної місцевості – це

- a. багаторічний режим погоди
- b. умови погоди в даному регіоні, виявлені за невеликий проміжок часу
- c. середній стан атмосфери

Question 2
Not yet answered
Marked out of 1.00
Flag question
Edit question

Глобальне потепління означає

- a. Поступове підвищення, що спостерігається або прогнозується, глобальної середньої температури як один з наслідків зміни астрономічних факторів
- b. Поступове підвищення, що спостерігається або прогнозується, глобальної середньої температури як один з наслідків епохальних змін клімату

Quiz navigation

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20				

Finish attempt ...

Start a new preview

Navigation

- Dashboard
- Site home



Structure of the Module

- 3 group practical tasks
- An individual assignment

Тест для самоперевірки

Практичне заняття: 1.1 - Динаміка змін кліматичних показників (на прикладі окремої території)

Практичне заняття: 1.2 - Оцінка якості атмосферного повітря урбанізованих територій

Практичне заняття: 1.3 - Порівняльна оцінка кліматичних показників на міській та сільській територіях

Самостійна робота 1

Module 2

Практичне заняття: 1.1 - Динаміка змін кліматичних показників (на прикладі окремої території)

Мета роботи – набуття практичних навичок щодо виявлення змін кліматичних показників за два тридцятирічні періоди – 1961-1990 рр. та 1991-2020 рр.

Порядок виконання роботи.

1. Узгодити з викладачем перелік територій, для яких буде проведено порівняльний аналіз.
2. Використовуючи дані Кліматичного кадастру України та дані спостережень на метеостанціях проаналізувати динаміку метеорологічних показників за два періоди з використанням статистичних методів.
3. Візуалізувати отримані дані та виявити тенденції змін динаміки метеорологічних показників окремо для двох періодів – 1961-1990 рр. та 1991-2020 рр.
4. Провести порівняльну оцінку параметрів кліматичних показників за два періоди і виявити особливості їх змін.
5. Результати даної роботи використати при підготовці есе, що є результатом Самостійної роботи №1.

Самостійна робота 1

На основі опрацювання теоретичного матеріалу та ознайомлення з літературними джерелами, підготувати коротке есе в якому сформулювати та обґрунтувати висновки за результатами, отриманими при виконанні практичних завдань 1-3.

Grading summary

Hidden from students	No
Participants	5
Submitted	0
Needs grading	0



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THANK YOU VERY MUCH!

DO YOU HAVE ANY
QUESTIONS?

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