



Land Governance Master programmer

Discipline ***“URBAN INFRASTRUCTURE”***

Responsible university

Kiev National University of
Construction and Architecture

Course is developed by

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URBAN INFRASTRUCTURE

Integrative module

Total ECTS - 5

Is studied in

2st years

3st term

for Technical Universities



Basis for learning

Описать какие дисциплины необходимо изучит перед этим курсом (В СЛУЧАЕ НЕОБХОДИМОСТИ)



Aim and objectives of the course

The course provides an introduction to environmental and economy aspects of the planning and management of urban infrastructure, dealing with different types of infrastructure systems, such as energy supply, water supply, sewerage and waste disposal, heating, transportation and telecommunications.



URBAN INFRASTRUCTURE

Total hours	Classroom total/ hours	lectures	practice	Exam/ hours	individual student's work	% of class rooms
180	64	32	32	54	62	0,4



Course syllabus

# #	Topic	Number of hours		
		Total	Lecture	Practice
1	Urban systems		2	2
2	Planning structure of Urban area		2	2
3	What infrastructure is		2	2
4	Social infrastructure		2	2
5	Transportation infrastructure		6	6
6	Engineering and communication infrastructures		4	4
7	Planning of urban territory and infrastructure. Responsible authorities		4	2



Course syllabus

##	Topic	Number of hours		
		Total	Lecture	Practice
8	Ownership to object of infrastructure		2	2
9	Infrastructure financing		2	2
10	Impact of the infrastructure on the eco-urban system		4	4
11	Legislation which regulate infrastructure questions		2	-
	Total		32	32



Structure of the lectures

Topic #1– “Urban systems”

2 hours

What urban areas is. Approaches for definition of urban areas. Principles of evolution of the urban area. The history of infrastructure as a part of the history of urban planning

Topic #2 “Planning structure of Urban area”

2 hours

The main structural element of urban areas (dwelling and industry districts, recreation area etc.) their interaction and interdependence



Structure of the lectures

Topic # 3 “What infrastructure is”

2 hours

History of the term. Infrastructure as main component of urban areas and indicator of their evolution. Types of infrastructure.

Topic # 4 “Social infrastructure”

2 hours

What social infrastructure is and main it's components (public health service, educational and research system, sports and recreational service, cultural and public-service institutions, tourism infrastructure etc.) Requirement for their location.



Structure of the lectures

Topic # 5 “Transportation infrastructure ”

6 hours

What transportation system is and main it's components (roads and highways networks (including bridges, tunnels), waterway, airports, seaports, transit systems, pedestrian zones). The main principals formation of transportation system. Planning and management.

Urban transportation systems and their use and their relation to settlement patterns and energy use in the context of sustainability

Requirements for location of transportation facilities and their impact to environment



Structure of the lectures

Topic # 6 “Engineering and communication infrastructures ”

6 hours

What engineering system is and main it's facilities (electrical power network, gas pipelines, district heating system, water-supply system, sewerage and waste disposal system). Communication systems. The main principals and requirements of their formation, planning and management.

Sustainable urban energy systems for space heating, electricity supply and demand, and their relation to land use, including environmental impacts

Modern technology for energy supply and sewerage and waste utilization



Structure of the lectures

Topic # 7 “Planning of urban territory and infrastructure. Responsible authorities”

4 hours

Distribution of responsibility in planning and management between the private and the public sector in urban infrastructure provision.
Regulation and supervision.

including the role of the municipality, technical systems to be considered, organisation of co-operation with other actors, pricing strategies, and co-operation with industry

Topic # 8 “Ownership to object of infrastructure”

2 hours

Who can be owners of different object of infrastructure? Legislation which regulate this question.



Structure of the lectures

Topic # 9 “Infrastructure financing” 2 hours

The sources of financing of the different kind of infrastructure facilities.
State, municipal budget and private investment.

Topic # 10 “Impact of the infrastructure on the eco-urban system” 4 hours

Two direction of impact – positive and negative.

The economic and social significance of urban infrastructure systems
for society and human environment.

The impact to natural resource state and ecology system (Disturbance
of natural ecosystems . ..); and human environment (noise, smell,
vibration, electromagnetic interference, atmospheric pollution by
detrimental impurities, etc. ..);

Impact of the infrastructure on the land value and land management



Structure of the lectures

Topic # 11 “Legislation which regulate the infrastructure questions” 2 hours

The lecture give an understanding that infrastructure regulation include legal, planning, ecology, financing, technology questions and infrastructure provision can be solved efficiently only on comprehensive approach.

Main legislation documents should be given.



Exercises

Main tasks

To analyze conditions of infrastructure provision for part of urban area which is specified by teacher

To appreciate the quality of infrastructure provision

To propose ways for improvement



List of literature

3 sources of *literature*

1. Books

- Traditional approaches for infrastructure formation

1. Scientific article and other publication in periodical

- New methods, approaches and technology

2. Internet

- New methods, approaches and technology

