

**Syllabus**  
**selective component of VK**

**City planning and transport**

Discipline name:	<b>City planning and transport</b>
Level of higher education:	<b>First (undergraduate)</b>
Course page in Moodle:	<a href="https://dl2022.khadi.kharkov.ua/course/view.php?id=3197">https://dl2022.khadi.kharkov.ua/course/view.php?id=3197</a>
The volume of the educational component	<b>4 credits (120 hours)</b>
Form of final control	<b>Test</b>
Consultations:	<b>on schedule</b>
Name of the department:	<b>Department of Road Design, Geodesy and Land Management</b>
Language of instruction:	<b>English</b>
Course leader:	<b>Fomenko Halyna Romanivna, Candidate of Technical Sciences, Associate Professor</b>
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**Summary of the educational component:**

**The goal is** to prepare specialists for the independent solution of professional problems related to the development and preparation of solutions for the planning of urban areas, street and road networks, bridges and engineering structures on them, the principles of solving transport issues in the construction and reconstruction of cities, drainage and improvement.

**Subject:** training of specialists for independent solution of professional problems related to the planning of urban areas, building bridges and engineering structures on them, the issue of transport systems and the formation of a street and road network for the placement of engineering networks and urban improvement.

**The main tasks of studying the discipline are:**

- issues of organization and regulation of transport and pedestrian traffic in settlements;
- acquisition of skills in the main areas of planning and organization of engineering surveys for the design of new and reconstruction of existing roads and area facilities.

**Prerequisites for studying the educational component:**

Higher mathematics; Informatics.

**Competences that the applicant acquires:**

**General competencies:**

- Ability to apply knowledge in practical situations.
- Ability to use information and communication technologies.

**Special (professional) competencies:**

Ability to apply regulatory legal acts, regulatory and technical documents, reference materials in professional activities.

Ability to monitor and assess the planning qualities of territories.

**Learning outcomes:**

To convey to specialists and non-specialists information, ideas, problems, solutions, own experience and argumentation.

To carry out engineering improvement of urban areas and water areas.

### Thematic plan

Topic number	Title of topics (LK, LR, PR, SZ, SR)	Number of hours	
		Full-Time	Correspondence
1	LC – Basics of planning settlements. Functional zones of the city: rural industrial areas and recreational areas	2	1
	PR – Building a scheme of functional zoning of the urban area	2	1
	CP – Study of the material of the topic 1. Features of planning structures of cities	5	9
2	LC – The importance of transport in the development of cities and urban agglomerations	2	1
	CP – Study of the material of the topic 2. Classification of urban roads and squares, their main characteristics	4	9
3	LC – Transport network of cities	2	–
	PR – Calculation of the parameters of the city street in red lines and the design of an architectural transverse profile	2	1
	CP – Study of the material of the topic 3. Features of the formation of traffic flows in cities	5	9
4	LC – Planning schemes of street and road networks in settlements. Classification of streets, roads and squares.	2	–
	CP – Study of the material of the topic 4 Features of planning schemes	2	–
5	LC – Street and road network of cities	2	1
	CP – Study of topic material 5. Determining the parameters of elements of city streets	4	9
6	LK – Stages of planning design	2	–
	PR – Calculation and construction of the working transverse profile of the city street and the vertical layout of the city street section	2	2
	CP – Study of the material of the topic 6. Construction of architectural and working transverse profiles of city streets	4	9
7	LC – Vertical planning, calculations of earthworks volumes	2	–
	CP – Study of the material of the topic 7. Vertical planning methods	4	9
8	LC – Organization and regulation of traffic in settlements	2	1
	PR – Calculation and construction of the working transverse profile of the city street and the vertical layout of the city street section	4	–
	CP – Study of the material of the topic 8. Schemes of two-level interchanges in cities	4	9
9	LC – Organization of pedestrian traffic in cities and its features	2	–
	CP – Study of the material of the topic 9. Organization of pedestrian crossings and pedestrian streets	4	–
10	LK – Planning of separate lanes, technical and green lanes, bicycle lanes and sidewalks. Organization of pedestrian traffic and crossings.	2	–
	CP – Study of topic material 10. Aboveground and underground pedestrian crossings	5	9
11	LC – Pavements of city streets and roads	2	–
	PR – Construction of horizontal imperfect system drainage	2	–

	CP – Study of the material of the topic 11. Determination of economic efficiency of pavement design	5	8
12	LC – Transport facilities and drainage	2	–
	CP – Study of the material of the topic 12. Structures on underground networks	4	8
13	LC – Organization of drainage from urban areas	4	–
	PR – Calculation of water reduction of the urban area	2	–
	CP – Study of the material of the topic 13. Disposal of waste cleaning its effectiveness	4	8
14	LC – Traffic flows and their impact on the ecological state of urban areas	2	–
	CP – Study of the material of the topic 14. Features of environmental monitoring of urban areas	4	8
15	LC – Engineering improvement of urban areas and water areas	2	–
	PR – Hydraulic calculation of the tray of the carriageway of a city street	2	–
	CP – Study of the material of the topic 15. Construction and installation of tram tracks	4	8
16	LC – Sanitary improvement of urban areas and water areas	2	–
	CP – Study of the material of the topic 16. Improvement of urban areas	4	–
<b>TOTAL by discipline</b>		120	120

### Teaching Methods:

- verbal (lectures, explanations, narration, conversation, discussion, work with a book, etc.);
- visual (method of illustration and demonstration);
- practical tasks.

### Grading system and requirements:

#### Current success

**1** The current success of applicants for the performance of educational types of work in training sessions and for the performance of tasks of independent work is assessed using a four-point scale of grades, followed by recalculation into a 100-point scale. During the assessment of current performance, all types of work provided for by the curriculum are taken into account.

**1.1** Lectures are evaluated by determining the quality of the specified tasks.

**1.2** Practical classes are assessed by the quality of the control or individual task, the performance and design of practical work.

**1.3** Laboratory classes are assessed by the quality of the implementation of reports on the performance of laboratory work.

**1.4** Seminars are evaluated by the quality of the individual task / abstract.

**2** Evaluation of the current performance of applicants for higher education is carried out at each practical lesson (laboratory or seminar) on a four-point scale ("5", "4", "C", "2") and recorded in the journal of accounting for academic performance.

– "excellent": the applicant perfectly mastered the theoretical material, demonstrates deep knowledge of the relevant topic or academic discipline, the main provisions;

– "good": the applicant has well mastered the theoretical material, owns the main aspects from primary sources and recommended literature, reasonably teaches it; has practical skills, expresses his reasoning about certain problems, but assumes certain inaccuracies and errors in the logic of presenting theoretical content or in the analysis of practical;

– "satisfactory": the applicant has mainly mastered the theoretical knowledge of an academic topic or discipline, is oriented in primary sources and recommended literature, but unconvincingly answers, confuses concepts, uncertainly answers additional questions, does not have stable knowledge; answering questions of a practical nature, reveals inaccuracies in knowledge, does not know how to evaluate facts and phenomena, connect them with a future profession;

– "unsatisfactory": the applicant has not mastered the educational material of the topic (discipline), does not know scientific facts, definitions, is almost not oriented in primary sources and recommended literature, there is no scientific thinking, practical skills are not formed.

**3** The final score for current activities is recognized as the arithmetic average sum of points for each lesson, for individual work, current tests according to the formula:

$$K^{nomou} = \frac{K1 + K2 + \dots + Kn}{n},$$

where  $K^{nomou}$  – is the final assessment of success based on the results of current control;

$K1, K2, \dots, Kn$  – assessment of the success of the measure of current control;

$n$  – the number of measures of current control.

Scores are converted to points according to the recalculation scale (Table 1).

**Table 1** – Recalculation of the average score for current activities into a multi-point scale

4-point Scale	100-point Scale	4-point Scale	100-point Scale	4-point Scale	100-point Scale	4-point Scale	100-point Scale
<u>5</u>	<u>100</u>	<u>4,45</u>	<u>89</u>	<u>3,90</u>	<u>78</u>	<u>3,35</u>	<u>67</u>
<u>4,95</u>	<u>99</u>	<u>4,4</u>	<u>88</u>	<u>3,85</u>	<u>77</u>	<u>3,3</u>	<u>66</u>
<u>4,9</u>	<u>98</u>	<u>4,35</u>	<u>87</u>	<u>3,80</u>	<u>76</u>	<u>3,25</u>	<u>65</u>
<u>4,85</u>	<u>97</u>	<u>4,3</u>	<u>86</u>	<u>3,75</u>	<u>75</u>	<u>3,2</u>	<u>64</u>
<u>4,8</u>	<u>96</u>	<u>4,25</u>	<u>85</u>	<u>3,7</u>	<u>74</u>	<u>3,15</u>	<u>63</u>
<u>4,75</u>	<u>95</u>	<u>4,20</u>	<u>84</u>	<u>3,65</u>	<u>73</u>	<u>3,1</u>	<u>62</u>
<u>4,7</u>	<u>94</u>	<u>4,15</u>	<u>83</u>	<u>3,60</u>	<u>72</u>	<u>3,05</u>	<u>61</u>
<u>4,65</u>	<u>93</u>	<u>4,10</u>	<u>82</u>	<u>3,55</u>	<u>71</u>	<u>3</u>	<u>60</u>
<u>4,6</u>	<u>92</u>	<u>4,05</u>	<u>81</u>	<u>3,5</u>	<u>70</u>	from 1,78 to 2,99	from 35 to 59
						Reassembly	
<u>4,55</u>	<u>91</u>	<u>4,00</u>	<u>80</u>	<u>3,45</u>	<u>69</u>	from 0 to 1,77	from 0 to 34
<u>4,5</u>	<u>90</u>	<u>3,95</u>	<u>79</u>	<u>3,4</u>	<u>68</u>	Re-study	

## Final assessment

**1** The applicant for higher education receives credit at the last lesson in the discipline based on the results of the current assessment. The average score for current activities is converted into points on a 100-point scale, according to the recalculation table (Table 1).

Applicants for higher education who have an average current grade in a discipline lower than "3" (60 points) in the last lesson can increase their current score by passing tests in the discipline.

Assessment of knowledge of applicants by testing is carried out on a scale:

- "Excellent": at least 90% of correct answers;
- "Very good": from 82% to 89% of correct answers;
- "Good": from 74% to 81% of correct answers;
- "Satisfactory": from 67% to 73% of correct answers;
- "Satisfactory enough": from 60% to 66% of correct answers;
- "Unsatisfactory": less than 60% of correct answers.

**2** The condition for obtaining the test is:

- working out all missed classes;
- the average current score in the discipline is not lower than "3" (60 points).

**3** For the implementation of individual independent work and participation in scientific events, applicants are awarded additional points.

**3.1** Additional points are added to the sum of points scored by the higher education student for current academic activities (for disciplines for which the test is the final form of control), or to the final grade in the discipline for which the exam is the final form of control.

**3.2** The number of additional points awarded for different types of individual tasks depends on their volume and significance:

- prizes in the discipline at the international / all-Ukrainian competition of scientific student works – 20 points;
- prizes in the discipline at the All-Ukrainian Olympiads – 20 points;
- participation in the international / all-Ukrainian competition of scientific student works – 15 points
- participation in international / all-Ukrainian scientific conferences of students and young scientists – 12 points;
- participation in all-Ukrainian olympiads in the discipline – 10 points
- participation in olympiads and scientific conferences of KhNADU in the discipline – 5 points;
- implementation of individual research (educational and research) tasks of increased complexity – 5 points.

**3.3** The number of additional points may not exceed 20 points.

**4** The result of training is evaluated (*choose the right one*):

- on a two-point scale (credited/not credited) according to table 2;
- on a 100-point scale (for differentiated standings) according to Table 3.

The final score, together with additional points, cannot exceed 100 points.

**Table 2** – Scale of transfer of points to the national grading system

On a 100-point scale	On a national scale
from 60 points to 100 points	enrolled
less than 60 points	unaccounted for

**Table 3** – Scale of assessment of applicants' knowledge based on the results of the final control in the discipline

Score in points	National scale score		ECTS score	
	Exam	Passed	Score	Criteria
90-100	Perfectly	Enrolled	A	The theoretical content of the course is mastered entirely, without gaps, the necessary practical skills of working with the mastered material are formed, all the training tasks provided by the training program have been completed, the quality of their implementation is estimated by the number of points close to the maximum
80–89	Well	Enrolled	B	The theoretical content of the course is mastered entirely, without gaps, the necessary practical skills in working with the mastered material are mainly formed, all the training tasks provided by the training program have been completed, the quality of most of them is estimated by the number of points close to the maximum
75-79			C	The theoretical content of the course is mastered entirely, without gaps, some practical skills of working with the mastered material are not sufficiently formed, all the training tasks provided by the training program have been completed, the quality of none of them is assessed by the minimum number of points, some types of tasks are performed with errors
67-74	Satisfactory		D	The theoretical content of the course is partially mastered, but the gaps are not significant, the necessary practical skills in working with the mastered material are mainly formed, most of the training tasks provided by the training program have been completed, some of the tasks performed may contain errors
60–66			E	The theoretical content of the course is partially mastered, some practical skills of work are not formed, many of the training tasks provided by the training program have not been completed, or the quality of some of them is estimated by the number of points close to the minimum.

35–59	Disappointing	Not credited	FX	The theoretical content of the course is partially mastered, the necessary practical skills of work are not formed, most of the provided training programs have not been completed, or the quality of their implementation is estimated by the number of points close to the minimum; with additional independent work on the course material, it is possible to improve the quality of the training tasks (with the possibility of re-compilation)
0–34	Unacceptable		F	The theoretical content of the course has not been mastered, the necessary practical skills of work are not formed, all completed training tasks contain gross errors, additional independent work on the course material will not lead to any significant improvement in the quality of the training tasks (with a mandatory repeated course)

### Course Policy:

- the course involves teamwork, the environment in the audience is friendly, creative, open to constructive criticism;
- mastering the discipline involves the obligatory attendance of lectures and practical classes, as well as independent work;
- independent work involves the study of individual topics of the discipline, which are made in accordance with the program for independent study, or were considered briefly;
- all tasks envisaged by the program must be completed within the prescribed period;
- if the applicant for higher education is absent from the classroom for a good reason, he presents the completed tasks during the independent preparation and consultation of the teacher;
- while studying the course, applicants for higher education must comply with the rules of academic integrity set forth in the following documents: "Rules of academic integrity of participants in the educational process of KhNADU" ([https://www.khadi.kharkov.ua/fileadmin/P\\_Standart/pologeniya/stvnz\\_67\\_01\\_dobroch\\_1.pdf](https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_67_01_dobroch_1.pdf)), "Academic integrity. Verification of the text of academic, scientific and qualification works for plagiarism" ([https://www.khadi.kharkov.ua/fileadmin/P\\_Standart/pologeniya/stvnz\\_85\\_1\\_01.pdf](https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_85_1_01.pdf)), "Moral and ethical code of participants in the educational process of KhNADU" ([https://www.khadi.kharkov.ua/fileadmin/P\\_Standart/pologeniya/stvnz\\_67\\_01\\_MEK\\_1.pdf](https://www.khadi.kharkov.ua/fileadmin/P_Standart/pologeniya/stvnz_67_01_MEK_1.pdf)).
- in case of detection of the fact of plagiarism, the applicant receives 0 points for the task and must re-complete the tasks provided for in the syllabus;
- write-offs during tests and exams are prohibited (including using mobile devices). Mobile devices are only allowed to be used during online testing.

### Recommended literature:

1. O.P. Dziuba, V.P. Polishchuk, O.V. Krasilnikova Transport planning of cities. Textbook. Kiev. Knowledge of Ukraine, 2014.
2. V.V. Didyk, A.B. Pavliv City Planning: Textbook. Lviv: Lviv Polytechnic, 2006.

3. Fomenko G.R. Analysis of air pollution in urban areas / G.R. Fomenko, L.O. Kovalenko // Municipal economy of cities. Scientific and technical collection. Series: Technical Sciences and Architecture. Vol. No. 1 (147), 2019. pp.220-223
4. Fomenko G.R. Influence of parking lots on traffic conditions on main streets / G.R. Fomenko // Collection of scientific works "Bulletin of Kharkiv National Automobile and Highway University". Kharkiv: KhNADU, 2019. Issue 86 Vol.2. pp.99-104.
5. Fomenko G.R. Traffic flows and their impact on the level of pollution of urban highways. / G.R. Fomenko // Scientific journal "Scientific Notes of TNU named after V.I. Vernadsky. Technical Sciences Series, Vol. 31(70) No 3, 2020
6. G.R. Fomenko, E.V. Zakharova Methodical instructions for practical classes on the discipline "Urban Planning and Transport", Kharkiv, 2018.
7. Fomenko G.R. Functional classification of city streets and roads / G.R. Fomenko, N.O. Arsenyeva // Scientific journal "Scientific notes of TNU named after V.I. Vernadsky. Technical Sciences Series, Vol. 31(70) No. 6, 2020, pp. 107-113.
8. Fomenko G.R. Functional classification of highways of Ukraine. / G.R. Fomenko, N.O. Arsenyeva // Scientific journal "Development of Transport" Odessa National Maritime University Issue. 1(6) 2020. pp. 71-79.
9. Fomenko G.R. Features of the development of the functional classification of city streets and roads. / G.R.Fomenko // Bulletin of Kharkiv National University of Construction and Architecture "Scientific Bulletin of Construction" Vol. 103 No 1, 2021. pp.205-212.
10. Fomenko G.R. Influence of topographic and geodetic analysis of the relief on the functional classification of city streets and roads. Innovative technologies in the field of geodesy, land management and design: a collective monograph. Kharkiv : KhNADU. 2021. pp. 74–110.

**Additional sources:**

1. distance course:  
<https://dl2022.khadi.kharkov.ua/course/view.php?id=3032>
2. <http://files.khadi.kharkov.ua>
3. <http://www.nbvv.gov.ua>
4. <http://korolenko.kharkov.com>
5. <http://library.univer.kharkov.ua>

Developer (developers)  
syllabus of the discipline

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