

Use Of Indorcad In Design Of Motorways And Geodesic Works In Uzbekistan

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Abstract

This article will highlight the advantages of IndorCAD software. of this program options are shown. Shows about sections of IndorCAD software related to topography. The stages of obtaining longitudinal and transverse profiles, the procedure for obtaining reports of the designed highway are studied.

Keywords: *highway, IndorCAD software, topography, topographic plan, ESRI shp file, 4K719 highway, AutoCAD, turning angles, straight lines and curves*

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1. Introduction

IndorCAD program is the main software product of IndorSoft company, which accompanies the life cycle of the object during the design stage of infrastructure objects. The capabilities of the system implement the concept of information modeling (BIM), which allows creating not only a set of drawings and descriptions of the future building object, but also its information model, which serves as a common source of knowledge during the design process.[1]

IndorCAD software provides the following options:

- processing of geodetic data obtained by different methods: leveling, tacheometric camera, GPS camera;
- based on the processed data, create digital relief models, edit them, display them in different

views (isolines, solid model, slopes, etc.) for visual analysis;

- using traditional geometric elements (circular arcs and clothoids) and modern computational mathematics tools (Bezier curves of the 3rd and 5th degree, as well as interpolation splines) in plan and longitudinal profiles observation
- merge multiple projects into one, which allows you to split a complex project into several smaller ones, process them, and then glue the projects together will give;
- perform parallel transmission of the route, change the azimuth of its initial direction;
- of the earth top part design (bends), that's it including of roads spline feature took into account without;
- standard and individual cladding and cross profiles designing;
- 3D view of both the existing surface and the projected one show;
- display all projections of the projected object on the screen at the same time;
- Drawings, statements and tables for later editing in IndorDraw and Microsoft Excel Create;
- A rich ActiveX interface allows you to create your own extension modules and system additions to perform individual tasks will give.

Topographic plan preparation system. IndorCAD/Topo topographic plan preparation system for preparation of topographic plans of various scales and later in other software products designed for the formation of three-dimensional digital relief and situational models for the use of models. The system can also be used in quarrying to calculate the volumes between two surfaces, calculate the volume of bulk materials and etc

Initial information. As the initial data for creating a digital terrain model, you can use geodetic survey data, raster (scanned) maps and plans, maps on the Internet, DWG files, as well as terrain data obtained from other software products through exchange file formats. your use possible IndorCAD/Topo different different geodetic tools formats, Receive GPS image files, ESRI image files, laser scanning data (oblocator), elevation data from the Internet , etc. does.

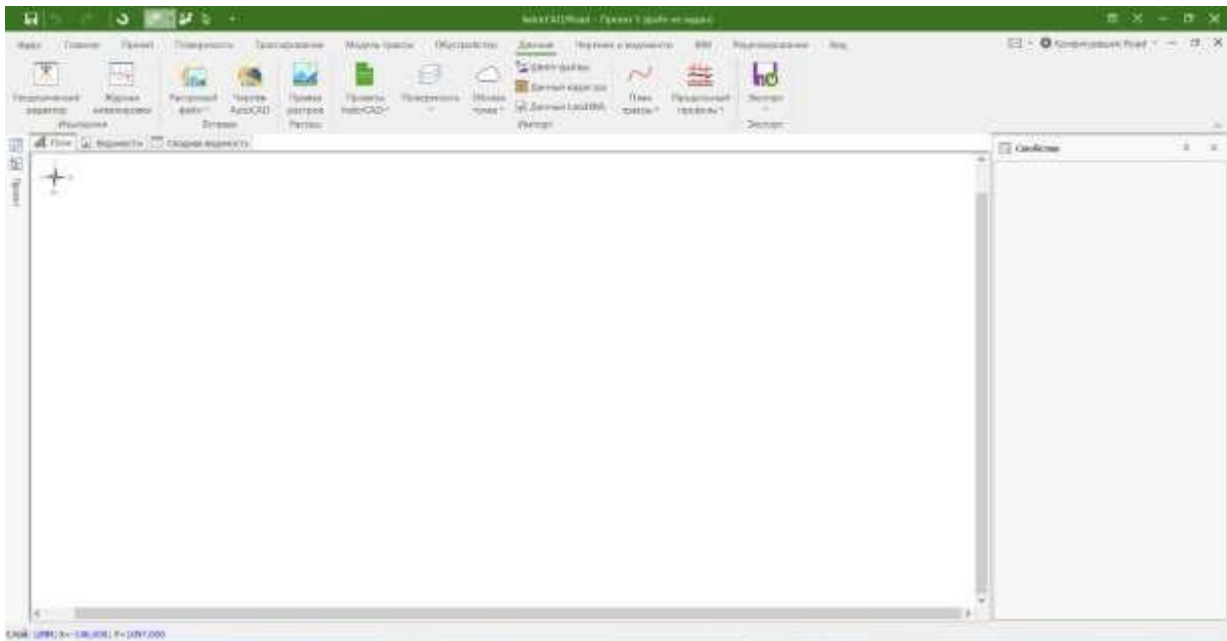


Figure 1. Add initial data

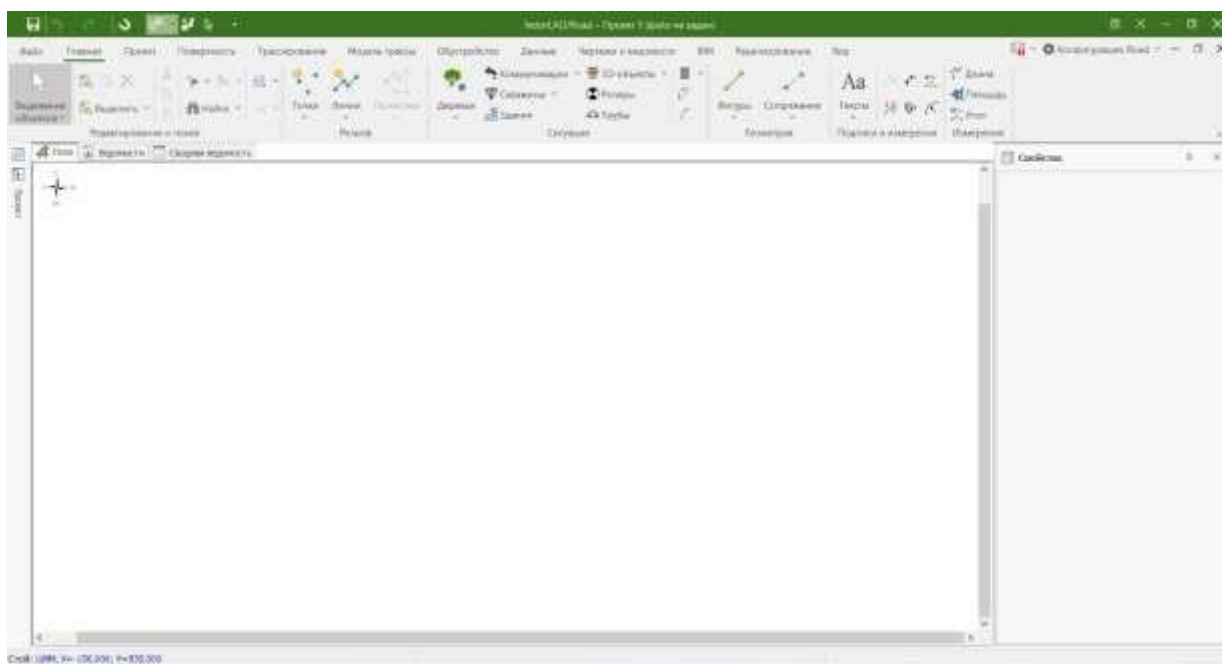


Figure 2. Main menu section

In the main menu consists of creating plans, including editing initial data, making additions, etc. Field research works .txt being him we **Primary data** from the department download we can and we create a topoplan through the main menu. Our example is highway 4K719, located in the Ukureni Chirchik district will be

Figure 3. Topoplan created using IndorCAD software

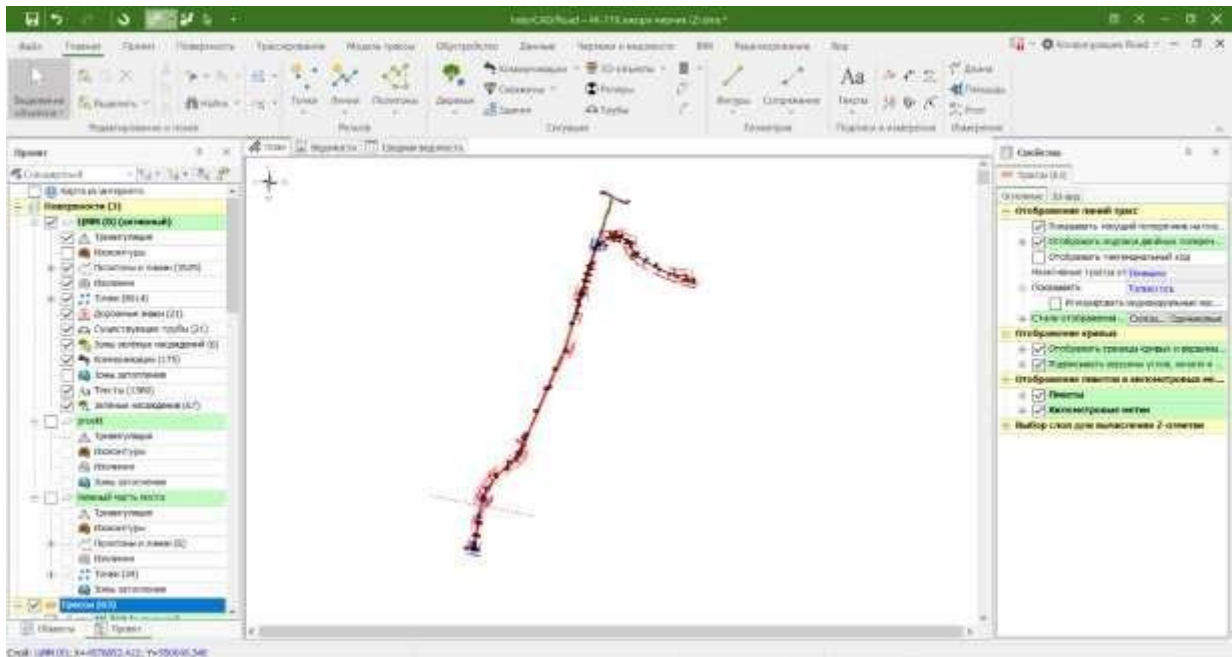


Figure 3. Topoplan created using IndorCAD software

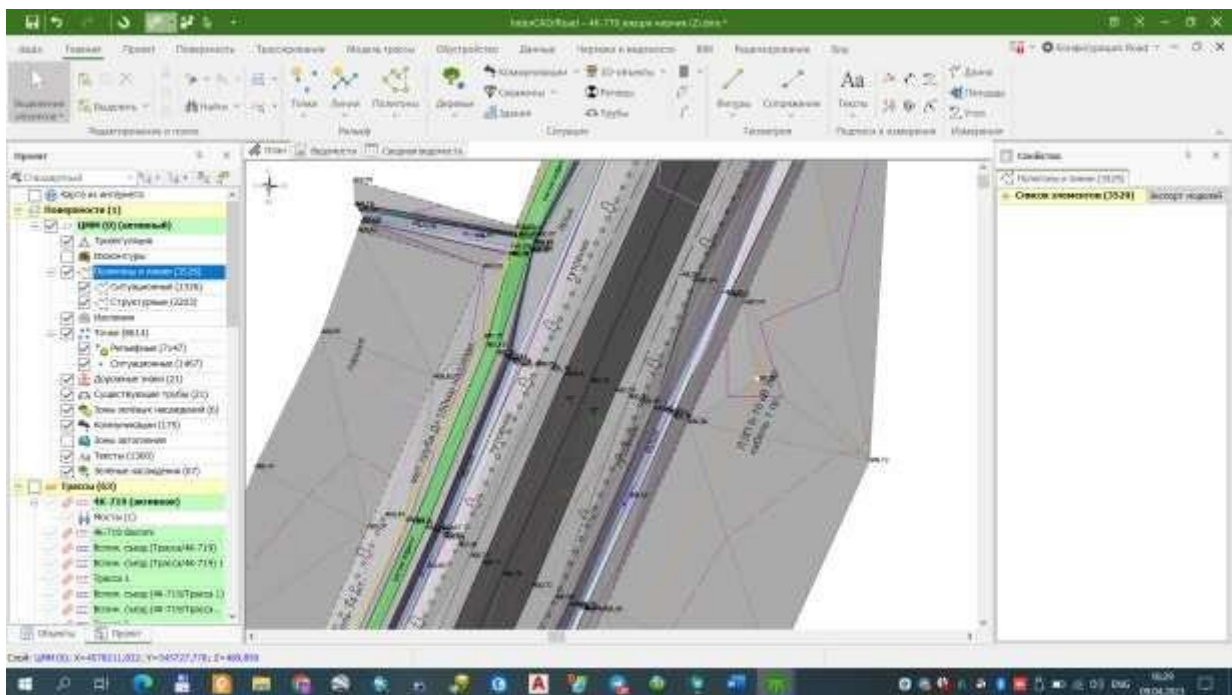


Figure 4. A small scale view of the topoplan.

IndoreCAD program AutoCAD from the program advantage it is each one drawn lines are drawn only through existing or newly created points (i.e. points with existing height). This program contains geodesic conditional symbols. Reports are generated automatically. All reports

Drawings and records

taken from the department.

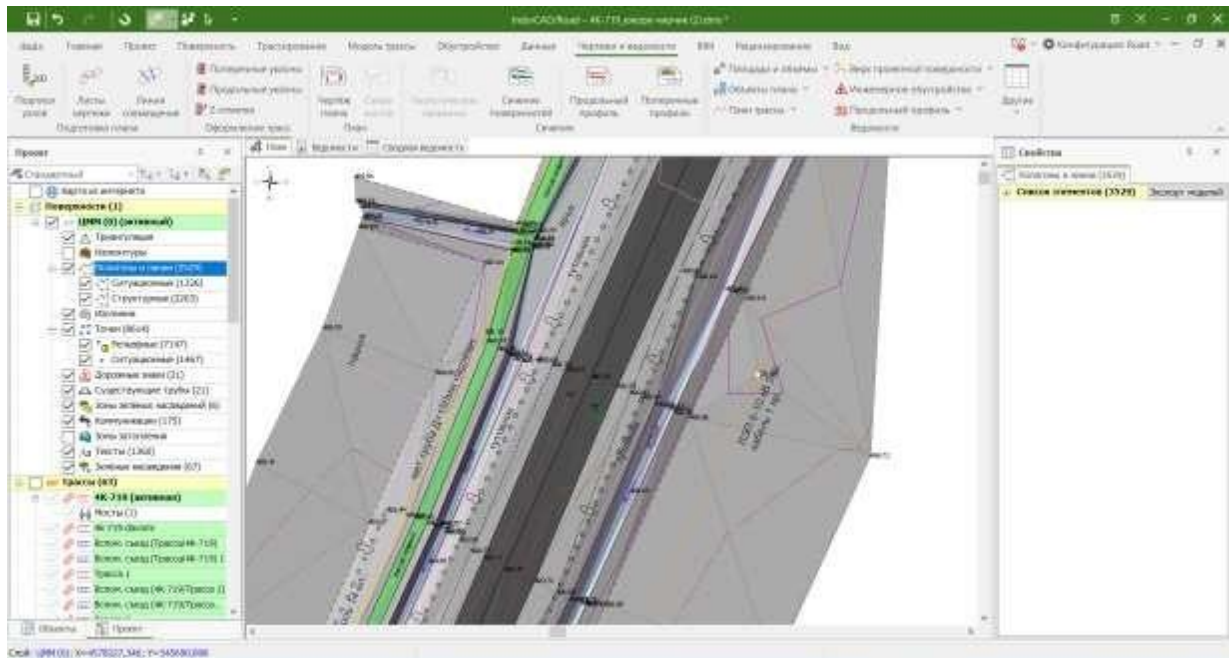


Figure 5. Department of receipt of reports.

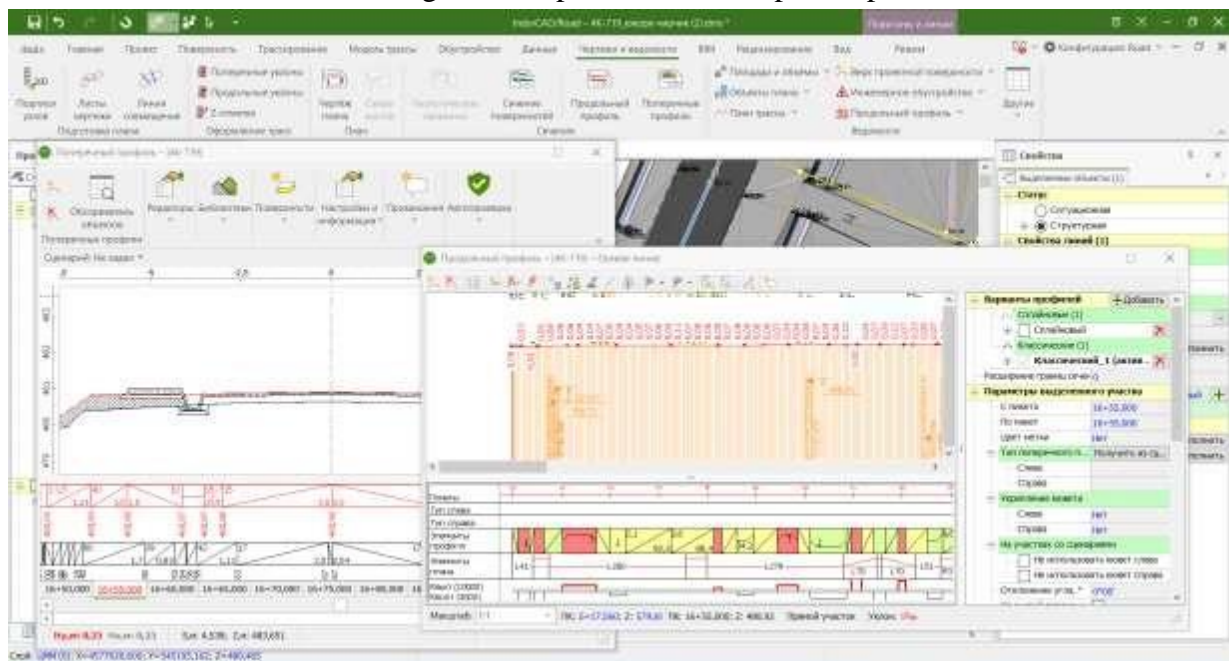


Figure 6. Longitudinal and transverse profiles.

Through this program, we will be able to automatically obtain a number of necessary data for the analysis work. Among them are the list of curvature elements breakdown (Table 1), the list of turning angles, straight lines and curves of the route plan (Table 2)

VU1 Curvature Elements Discrimination Record

Password:

Project name:

Object: 4K-719

R, m = 3000.00 U_{gol} = K, m = 33.51
 0°38'24"
 T1, m = 16.76 T2, m = 16.76 D, m = 0.00
 L1, m = 0.00 L2, m = 0.00 B, m = 0.05

PK+	S, m	dX, m	dY, m	Reminder
0+41,237	0	0	0	of the curve Beginning
0+48,000	6.76	-0.01	6.76	
0+56,000	14.76	-0.04	14.76	
0+74,748	0	0	0	of the curve ending
0+64,000	10.75	0.02	10.75	
0+57,992	16.76	0.05	16.76	

																					3"	8'			
VU10	4	35	34,498	0°16'01"		3000.00	6.99	6.99	0.00	0.00	13.97	0.01	0.00	35	27,511	35	27,511	35	41,485	35	41,485				
																						15°52'12"	SW: 15°52'	336.48	278.69
VU11	4	38	70,975		1°56'24"	3000.00	50.80	50.80	0.00	0.00	101.58	0.43	0.01	38	20,179	38	20,179	39	21,762	39	21,762				
																						17°48'36"	SW: 17°49'	743.58	692.79
CT	5	46	14,548																						

These reports play a very important role in the design process, as well as in the execution of geodetic works. Coordinates are also displayed in each report. This is a great relief for surveyors.

Summary. The IndorCAD program is very convenient and perfect for designing other linear structures and performing geodetic work. How many highway design works through this program done and now too done is coming This from the program received automatic way using data in geodetic works, construction works are being completed quickly. In the design of linear constructions and geodetic works, the IndorCAD program is much better than other programs such as AutoCAD, Topomatik Robur comfortable

References.

1. Boykov Vladimir Nikolaevich, Petrenko Denis Aleksandrovich, Lyust Sergey Robertovich, Skvortsov Alexey Vladimirovich Sistema automatizirovannogo proektirovaniya avtomobilnykh dorog IndorCAD/Road // Vestn. Tom. Mr. flour 2003. #280.
2. Bakhtiyar Ogli, Khalilov Daniyol. "The importance of the Credo_DAT program in geodetic work in the design of highways." IQRO MAGAZINE 2.1 (2023): 635-638.
3. Romanyuk Y., Gulmurzaeva R., Kamalova D. MONITORING THE LANDS OF RURAL SETTLEMENTS ON THE EXAMPLE OF THE KUYICHIRCHIK DISTRICT OF THE TASHKENT REGION //International Journal of World Languages. - 2023. - T. 3. – no. 2.
4. Yulia, R., Roza, G., Dilnoza, K., Nodrahon, A., & Daniyol, X. (2023). Tasks of Planning Rural Settlements in the Republic of Uzbekistan. Journal of Survey in Fisheries Sciences, 10(3S), 2246- 2253.
5. Tarasova Oksana Yurevna, Moskaleva Svetlana Aleksandrovna, Larina Alena Viktorovna Geoekologicheskie aspect projecting avtomobilnyx dorog // Sovremennye problems of territorial development. 2018. #2.
6. Buldakov, S.I. Proektirovanie osnovnykh elementov avtomobilnykh dorog: ucheb, posobie / S.I. Buldakov. - Ekaterinburg: Ural State Forestry University, 2011. - 295 s.
7. Rakhimova, G.A. Osnovy proektirovaniya avtomobilnykh dorog: uchebnoe posobie / I. A. Rakhimova. - Vologda: VoGU, 2014. - 121 s.
8. Spravochnaya encyclopedia drug dealer T. 5. Projection avtomobilnyx dorog / pod ed. G. A. Fedotova, P.I. Pospelova. - M: Informavtodor, 2007. - 1466 s.
9. Fedotov, G. A. Izyskaniya i proektirovanie avtomobilnykh dorog: uchebnik dlya vuzov: v 2 kn. / G. A. Fedotov, P. I. Pospelov. - M: Vyssh. shk., 2011.
10. Album tipovykh proektnykh solution 503-0-48.87: Zemlyanoe canvas avtomobilnyx dorog obshchego polzovaniya. - M: Soyuzdorproekt, 1987.-53 s.

11. Truby vodopusknye kruglye lezobetonnye iz dlennomernyx zvenev otverstiem 1.0; 1.2; 1.4 and 1.6 m pod avtomobilnye dorogi. Album 1: TP 503-7-015.90. - M, 1990. - 28 l.
12. Boykov V.N., Shumilov B. M. Splayny v trasirovanii avtomobilnykh dorog. Tomsk: TsNTI, 2001. 164 s.
13. Skvortsov A.V., Ivanov M.O., Petrenko D.A. System preparation drawing IndoorDrawing // Vestnik TGU. 2003. No. 280. S. 354–357.
14. Skvortsov A.V. Triangulation Delone i yes application Tomsk: Izd-vo Tom. flour 2002. 127 p.
15. Skvortsov A.V., Subbotin S.A. Universalnaya technology autobragenia условных characters // INPRIM-98 (Mater. Mejdunar. conf.). Ch. V. Novosibirsk, 1998. S. 66.
16. Ibragimov, LT, Rakhimov, UA, Yarkulov, ZR, & Ortikov, JU (2022). Improvement of the State Water Cadastre's Management System. INTERNATIONAL JOURNAL ON HUMAN COMPUTING STUDIES.
17. Ochilovich, JD, Toshpulat son, IL, & Sunnatillo son, HS (2021). Systematization and Accounting of Buildings and Structures. International Journal of Human Computing Studies, 3(1), 87-97.
18. Haydarovich, BM, Lazizbek, I., Rakhmanovich, YZ, & Mashrab, P. (2023). Theoretical and Practical Issues of Water Cadastre Management. Web of Synergy: International Interdisciplinary Research Journal, 2(2), 293-298.
19. Khujayerovich, IE Monitoring of Water Resources and Creation of Cards on the Basis of Geographical Information Systems and Technologies. JournalNX, 4-8.
20. Haydarovich, BM, Lazizbek, I., Rakhmanovich, YZ, & Abduazizovich, RB (2023). Description of Natural and Hydrographic Conditions of Kashakadarya Region. Web of Semantic: Universal Journal on Innovative Education, 2(3), 26-31.
21. Ibragimov, LT, Tojidinova, FM, & Rakhimov, BA (2022). Introduction to GIS Application in the Land Cadastre. INTERNATIONAL JOURNAL ON HUMAN COMPUTING STUDIES, 4(12), 5-9.