

### 3. Educational program

#### 3.1. Profile of the educational program "Land Management and Cadastre", specialty 193 "Geodesy and Land Management "

<b>1 – General Information</b>	
<b>Full name of IHE and structural unit</b>	State University of Trade and Economics Faculty of Restaurant, Hotel and Tourism Business Department of Design and Engineering
<b>Level of higher education and qualification name in the original language</b>	Master's degree specialty "Geodesy and Land Management"
<b>Official name of the educational program</b>	«Land Management and Cadastre»
<b>Compliance with the standard of higher education of MES of Ukraine</b>	Compliance with Standards of Higher Education of MES in Ukraine
<b>Diploma type and volume of the educational program</b>	Master's degree, unitary, 90 credits ECTS
<b>Accreditation</b>	-
<b>Cycle/Level</b>	NFQ of Ukraine – level 7, FQ-EHEA – second cycle, EQF-LLL – level 7
<b>Preconditions</b>	Having a complete general secondary education/ junior specialist degree
<b>Language(s) of instruction</b>	Ukrainian
<b>Duration</b>	1 year 4 months
<b>Educational Program Link</b>	<a href="https://knute.edu.ua">https://knute.edu.ua</a>
<b>2 –Educational program aim</b>	
Training of highly qualified specialists having in-depth knowledge of geodesy, geoinformation systems used in land management, land monitoring and protection, land management, land legislation, state land cadastre, scientific foundations of land management sufficient for successful performance of professional duties in the field of land management and cadastre	
<b>3 - Characteristics of the educational program</b>	
<b>Subject area</b>	<i>Objects of study and activity:</i> territorial formation, assessment, registration of real estate objects and rights to them, their accounting, land use planning and land resources management . <i>Learning goals:</i> training of highly qualified specialists capable of solving complex tasks in the field of land management and cadastre, which involves the acquisition of theoretical foundations and practical skills in professional, project and research activities.

	<p><b>Theoretical content of the subject area:</b> concepts and principles of land cadastre management, as well as their information support, expert activity on the assessment of land and real estate, monitoring and protection of land, management activities in the field of land relations.</p> <p><b>Methods, techniques and technologies:</b> a system of professionally oriented methods, standardized techniques and technologies for managing land management production.</p> <p><b>Tools and equipment:</b> information and communication systems, devices and equipment (specialized equipment, computer equipment and software, etc).</p>
<b>Educational program orientation</b>	The program has an applied orientation. It is based on well-known provisions, the results of modern scientific research and new knowledge of land management and cadastre necessary for the future professional activity of masters in land management and cadastre, who are able to solve certain problems and tasks under conditions of mastering the system of competencies.
<b>The main focus of the educational program</b>	<p>Aimed at training highly qualified specialists with the necessary theoretical and practical knowledge in the field of land management, the ability to use specialized software and modern geodetic devices to solve professional tasks, the study of organizational and management tools in the field of land management and cadastre, the correct methodical application of acquired knowledge and the latest technologies in professional and scientific activity. At the current stage of the development of land relations in Ukraine and the lifting of the moratorium on agricultural land, the issues of integrity, legality, rational use and protection of land are especially relevant. To solve these tasks, competent specialists are needed at all hierarchical levels of management in the land management industry.</p> <p>Keywords: land management, cadastre, land use management, geodesy, geoinformation systems and technologies, land assessment.</p>
<b>Specific requirements</b>	The educational and professional program is developed on the basis of a student-centered approach. It provides an opportunity to carry out multidisciplinary training of specialists and guides further professional and scientific growth in the field of land management, topographical and geodetic activity, land and real estate evaluation, land resources management in the market economy.
<b>4 –Career opportunities and further learning</b>	
<b>Career opportunities</b>	Professional activity in the field of land relations and topographic-geodetic activity at enterprises, institutions, organizations of various forms of ownership in the positions defined by the current edition of the National Classifier of Ukraine DK 003: 2010 “Classifier of professions”. Graduates can work in public and private institutions, research institutions, in the field of land management, cadastre, state control over the use and protection of land, provision of topographical and geodetic activities, as well as state and executive authorities in the field of land relations
<b>Further learning</b>	Continuation of studies of higher education students to obtain the educational and scientific degree of doctor of philosophy. Acquisition of additional qualifications in the postgraduate education system.

<b>5 –Training and assessment</b>	
<b>Teaching and learning</b>	Student-centered learning, self-learning, problem-oriented learning. Lectures, practical classes in specialized laboratories, independent work based on textbooks, study guides and lecture notes, training through practical training and professional internship, consultations with teachers, preparation for the defense of the qualification work.
<b>Assessment</b>	Written exams, practice; scientific presentations, current control, course projects, qualification work, etc. According to the Regulation on the organization of the educational process of students, the Regulation on the evaluation of students and postgraduates' studying results at SUTE.
<b>6 –Program competences</b>	
<b>Integral Competence (IC)</b>	The ability to solve complex specialized tasks and practical problems during professional activities in the field of land management and cadastre in the learning process, which involves the application of modern geo-information technologies, theoretical knowledge and methods of legal-normative, ecological, economic analysis of land resources management to ensure rational use and land protection and guarantee of property rights.
<b>General Competence (GC)</b>	GC 1. Ability to write and speak Ukrainian and foreign languages. GC2. Ability to learn to perceive acquired knowledge in the field of land management, land and urban cadastre, rational use of land resources and land protection and integrate them with existing ones. GC3. Ability to be critical and self-critical to understand the factors that have a positive or negative impact on communication, and ability to determine and take into account these factors in specific communication situations. GC4. Ability to plan and manage time when performing professional tasks.. GC5. Ability to produce new ideas, to show creativity and ability to system thinking when solving multifactorial tasks of rational use and protection of land, keeping cadastral records of land and restrictions. GC6. Ability to search and critically analyze information from various statistical, scientific, etc. sources when solving professional tasks. GC7. Be focused on safety when performing work. GC8. Ability to think in a flexible way that allows one to understand and solve problems and tasks while maintaining a critical attitude to established scientific concepts. GC9. Ability to apply knowledge in practice. GC10. Availability of research skills.. GC11. Availability of project development and management skills. GC12. Ability to work both individually and in a team. GC13. Ability to communicate effectively on professional and social levels.. GC14. Striving to increase one's own potential for further training and development of advanced innovative technologies to solve rational use and land accounting.. GC15. Awareness of the legally defined responsibility for the quality of the work performed.

<b>Professional Competence (PC)</b>	<p>PC1. Knowledge of scientific concepts, theories and methods necessary for understanding the principles providing the basis for land management and cadastre management; management of land resources and other types of real estate; sustainable land development.</p> <p>PC2. Knowledge of basic regulatory and legal acts and reference materials, current standards and technical conditions, instructions and other regulatory documents in professional activity.</p> <p>PC3. Knowledge of the technical characteristics of computer equipment necessary to ensure the operation of software products used in the field of land management and cadastre and related industries.</p> <p>PC4. Knowledge of specialized software and GIS systems in the field of land management, state land and urban cadastre, creation and use of geospatial data bases, monitoring and land protection.</p> <p>PC5. Knowledge of professional and civil safety when performing tasks of professional activity.</p> <p>PC6. Knowledge of modern technological processes and systems of technological preparation of production.</p> <p>PC7. Ability to apply and integrate knowledge and understanding of disciplines related to the field of land management and cadastre.</p> <p>PC8. Ability to use and implement new technologies in the field of land management and cadastre.</p> <p>PC9. Ability to understand and take into account social, ecological, ethical, economic aspects that influence decision-making in the field of land management.</p> <p>PC10. Ability to apply professional knowledge and practical skills to solve typical problems in the field of land management and cadastre.</p> <p>PC11. Ability to use knowledge and skills to calculate an a priori assessment of the accuracy of expected results and perform applied professional tasks of assessment activities.</p> <p>PC12. Ability to identify, classify and describe digital models in the field of land management and cadastre by using analytical methods and methods of modeling processes in the market of land and other real estate.</p> <p>PC13. Ability to investigate the problem and identify constraints, including those caused by issues of sustainable development and impact on environment, evaluate the impact of negative factors on the effectiveness of land resources management.</p> <p>PC14. Ability to argue the choice of methods for solving specialized problems in the field of land management and cadastre, critically evaluate the results obtained and defend the decisions made.</p> <p>PC15. Use of appropriate terminology and forms of expression in professional activities related to land management and cadastre.</p>
<b>7 – Program learning outcomes (PLO)</b>	
	<p>PLO 01. Use the technical Ukrainian language orally and in writing and be able to communicate in one of the foreign languages in the circle of land management and cadastre specialists;</p> <p>PLO 02. Know the theoretical foundations of geodesy, land management, cadastre, real estate assessment and state land and urban planning cadastres;</p> <p>PLO. Know the regulatory and legal principles of ensuring rational use, protection, accounting and assessment of land at the national, regional, local and economic levels, procedures for state registration of land plots, other real estate objects and restrictions on their use;</p> <p>PLO 04. Use methods of information collection in the field of geodesy, land management, cadastre, its systematization and classification in accordance with the assigned project or production task;</p>

PLO 05. Use methods and technologies of land management design, territorial and economic land management, land use and protection planning, cadastral surveys and maintenance of the state land cadastre;

PLO 06. Develop projects of land management, land management and cadastral documentation and documentation on land evaluation, draw up maps and prepare cadastral data using geoinformation systems;

PLO 07. Compile the results of topographical and cadastral data using geoinformation technologies, computer software tools and data base tracing systems;

PLO 08. Use of technologies and methods of planning and monitoring of geodetic, topographic and cadastral data and computer processing of the surveys results in geoinformation systems;

PLO 09. Possess the methods of land management design, territorial and economic land management, land use planning and protection, taking into account the influence of a number of socio-economic, ecological, landscape, nature protection and other factors;

PLO 10. Possess the methods of organization of topographic-geodetic and land management production from field measurements to management and implementation of topographic and land management products based on the use of knowledge of the basics of legislation and production management;

PLO 11. On the basis of the current land legislation, cadastral land registration, statistical reporting, planning and cartographic materials, as well as the existing demand for land plots, be able to: analyze the potential of the city's spatial resources; to determine the quantitative and qualitative indicators of demand for territorial support by business entities; determine the location and formation of the necessary territorial complexes and objects;

## **8 – Resource support for program implementation**

<b>Academic staff</b>	<p>Scientific and pedagogical workers, who are recognized professionals with experience in research, management, innovation activities, are involved in conducting lectures on academic disciplines: candidates of sciences and doctors of sciences. External experts from the land management industry are involved in conducting classroom studies, including specialists of the State Enterprise "Kyiv Institute of Land Management", the Main Department of the State Geocadastr of Ukraine, the ME "Kyiv Institute of Land Relations", the association "Land Union of Ukraine".</p>
<b>Facilities</b>	<p>Laboratory of automated design systems.  Laboratory of integration systems for managing business processes.  Laboratory of digital technologies.  The scientific laboratories equipped with geodetic, navigational, aeronautical devices and specialized software - ArcGis 10.0, Digitals, Gis - 6, necessary accessories and devices.</p>

<b>Informational, Teaching and Learning Materials</b>	Use of the virtual educational environment of SUTE, software: GraphisoftArchiCAD 23; Autodesk AutoCAD 2023; CorelDraw 2020; SketchUp 19.2.222; Microsoft Vizio 2019; AdobePhotoshop 21.2.4.; AdobeAfterEffects CC 2020; ArcGis (ArcMap), Digitals, Agisoft PhotoScan Pro, Planar, QGIS, PostgreSQL/PostGIS. Author's developments of the teaching staff..
<b>9 – Academic Mobility</b>	
<b>National Credit Mobility</b>	National credit mobility of students of higher education, scientific and scientific-pedagogical workers, including training, internship, conducting scientific research, teaching and professional development is organized on the basis of partnership agreements on cooperation between SUTE and institutions of higher education in Ukraine: Agreement with the State Service of Ukraine on Geodesy, Cartography and Land Management; Agreement with the Institute of Land Use; Agreement with Kyiv Department of Land Resources.
<b>International Credit Mobility</b>	It is within the framework of the EU Erasmus + program, based on bilateral agreements between SUTE and higher education institutions of partner countries.
<b>Training of Foreign Students</b>	Training of foreign citizens is possible.

## 2. List of educational program components and their logical order

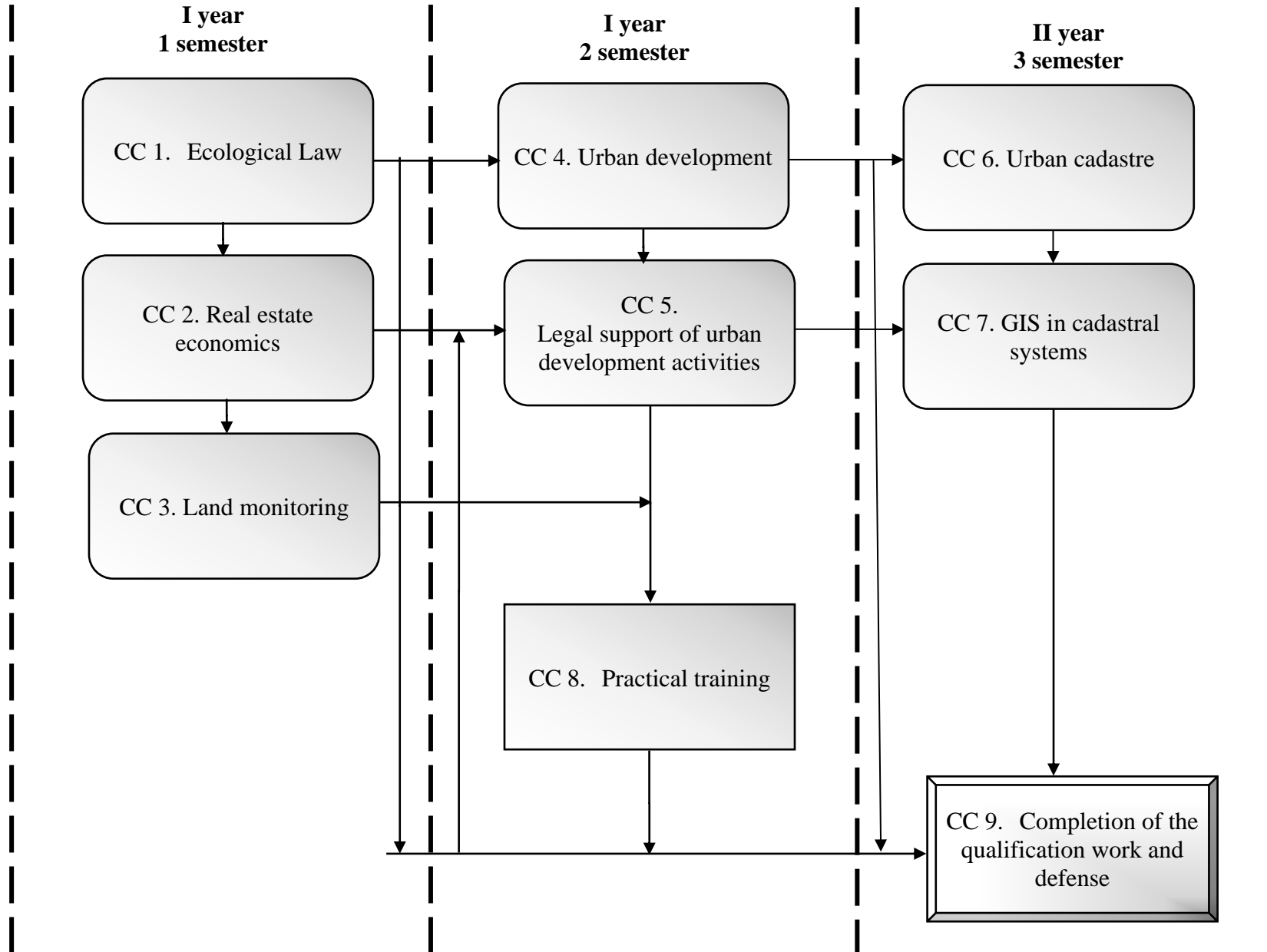
### 2.1. Educational Program components

No	Educational Program components (disciplines, term projects (papers), work-based learning, qualification exam, graduate paper)	Total credits
<b>Compulsory components of EP</b>		
CC 1	Ecological Law	6
CC 2	Real estate economics	6
CC 3	Land monitoring	9
CC 4	Urban development	6
CC 5	Legal support of urban development activities	6
CC 6	Urban cadastre	6
CC 7	GIS in cadastral systems	9
CC 8	Practical training	6
CC 9	Completion of final qualification work and defense	6
<b>Total credits for compulsory components:</b>		<b>66</b>
<b>Optional components of EP</b>		
OC 1.	Administrative Law	6
OC 2.	State ecological policy	6
OC 3.	Environmental legal security of business	6
OC 4.	Economy of Ukraine	6
OC 5.	Housing law	6
OC 6.	Landscape management	6
OC 7.	Constitutional law	6
OC 8.	International agricultural law	6
OC 9.	International environmental management	6

No	Educational Program components (disciplines, term projects (papers), work-based learning, qualification exam, graduate paper)	Total credits
OC 10.	Municipal Law	6
OC 11.	Notarization	6
OC 12.	Business and property valuation	6
OC 13.	Environmental Safety Law	6
OC 14.	Regional state policy	6
OC 15.	Regulation of natural monopolies	6
OC 16.	City management	6
OC 17.	Management of local development projects	6
OC 18.	Management of rural territories development	6
OC 19.	Management and economics of luxury real estate	6
OC 20.	Data analysis technologies	6
OC 21.	Civil and commercial law	6
OC 22.	Artificial Intelligence	6
<b>total credits for optional components:</b>		<b>24</b>
<b>TOTAL SCOPE OF THE EDUCATIONAL PROGRAM</b>		<b>90</b>

\* An exam is the form of final control for all components of the educational program.

### 3.3. Structural and logical scheme of EP





### **3. Final Assessment**

Certification is carried out in the form of public defense of qualification work.

The master's qualification work must contain an analysis of literary sources and the results of the student's independent creative work, performed by him personally. The topic of the master's qualification work can cover a wide range of issues in the field of land management, cadastre and geoinformatics. The scope and structure of the work is established separately in each individual case, depending on the specifics of the material and taking into account the recommendations of the scientific supervisor.

The qualification work must not contain academic plagiarism, fabrication, falsification and other types of academic dishonesty.

The qualification work must be published on the official website of the institution of higher education or its subdivision, or in the depository of the institution of higher education.

#### 4.1. Program competencies and compulsory components matrix of EP

Components Competences	CC 1	CC 2	CC 3	CC 4	CC 5	CC 6	CC 7	CC 8	CC 9
GC 01	+	+	+	+	+	+	+	+	+
GC 02						+		+	+
GC 03		+		+		+	+	+	+
GC 04								+	+
GC 05	+		+	+	+				
GC 06			+	+		+			
GC 07				+				+	+
GC 08						+		+	+
GC 09	+	+	+	+	+	+	+	+	+
GC10									+
GC 11				+		+			
GC 12								+	+
GC 13		+			+	+			
GC 14						+			
GC15				+		+			
PC 01									+
PC 02							+		
PC 03							+		
PC 04						+	+		
PC 05								+	
PC 06						+			
PC 07						+	+		+
PC 08							+		
PC 09	+	+	+	+	+	+			
PC10						+		+	+
PC11		+							
PC12							+		
PC 13	+			+					
PC14						+		+	+
PC 15						+		+	+

## 4.2. Program competencies and optional components matrix of EP

Components Competences	OC 1	OC 2	OC 3	OC 4	OC 5	OC 6	OC 7	OC 8	OC 9	OC 10	OC 11	OC 12	OC 13	OC 14	OC 15	OC 16	OC 17	OC 18	OC 19	OC 20	OC 21	OC 22	
GC 01																+	+	+	+				
GC 02						+																	
GC 03																+	+	+	+				
GC 04						+																	
GC 05																+	+	+	+	+			+
GC 06						+															+		+
GC 07						+																	
GC 08						+																	
GC 09	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+		+			+
GC10						+																	
GC 11																+	+	+	+				
GC 12																+	+	+	+				
GC 13						+																	
GC 14																+	+	+	+				
GC15																+	+	+	+				
PC01																+							
PC02																							+
PC03																					+		+
PC04																					+		+
PC05						+																	
PC06						+																	
PC07						+																	
PC08																							+
PC09																+	+	+	+				
PC10						+																	
PC11											+												
PC12																					+		
PC13																+	+	+	+				
PC14																+	+	+	+				
PC15																+	+	+	+				

### 5.1. Program learning outcomes (PLO) and Compulsory Components (CC) Matrix of EP

Components Program Learning outcomes	CC 1	CC 2	CC 3	CC 4	CC 5	CC 6	CC 7	CC 8	CC 9
<b>PLO 01</b>		+			+	+			
<b>PLO 02</b>							+		
<b>PLO 03</b>		+			+	+			
<b>PLO 04</b>							+		
<b>PLO 05</b>									
<b>PLO 06</b>						+	+		
<b>PLO 07</b>							+		
<b>PLO 08</b>							+		
<b>PLO 09</b>							+		
<b>PLO 10</b>					+		+		
<b>PLO 11</b>	+	+		+					

## 5.2. Program learning outcomes (PLO) and Optional Components (OC) Matrix of EP

Components Program learning outcomes	OK 1	OK 2	OK 3	OK 4	OK 5	OK 6	OK 7	OK 8	OK 9	OK 10	OK 11	OK 12	OK 13	OK 14	OK 15	OK 16	OK 17	OK 18	OK 19	OK 20	OK 21	OK 22
<b>PLO 01</b>																+	+	+	+			
<b>PLO 02</b>						+																
<b>PLO 03</b>																+	+	+				
<b>PLO 04</b>																				+		+
<b>PLO 05</b>																+	+	+				
<b>PLO 06</b>																+	+	+				
<b>PLO 07</b>																				+		+
<b>PLO 08</b>																						+
<b>PLO 09</b>	+					+																
<b>PLO 10</b>							+															
<b>PLO 11</b>																+	+	+				