EDUCATIONAL PROGRAMME
DIGITAL ECONOMY

1- GENERAL INFORMATION	
Full Name of the Higher Education Institution and Structural Unit	State University of Trade and Economics Faculty of Information Technologies Department of Digital Economy and Systems Analysis
Level of Higher Education and Name of Qualification in the Original Language	Second (Master's) Level of Higher Education Qualification – Master in Economics
Field of Knowledge	C Social Sciences, Journalism, Information, and International Relations
Subject Area	C1 Economics and International Economic Relations (by specializations)
Name of the Educational Programme	Digital Economy
Restrictions on Modes of Study	No restrictions apply
Compliance with the Higher Education Standard of the Ministry of Education and Science of Ukraine	Complies with the Higher Education Standard of the Ministry of Education and Science of Ukraine (Order No. 382 dated March 4, 2020)
Type of Diploma and Scope of the Educational Programme	Master's Diploma, Single Degree Scope of the Educational and Professional Programme – 90 ECTS credits Standard Duration of Study – 1 year and 4 months
Accreditation Status	Certificate of Accreditation for the Specialty UD 11015993, valid until 01.07.2026, issued by the Accreditation Commission of the Ministry of Education and Science of Ukraine.
Cycle, Level of Higher Education	NQF of Ukraine – Level 7, FQ-EHEA – Second Cycle, EQF-LLL – Level 7
Entry Requirements for the Educational Programme	Освітній ступінь бакалавра (6 рівень НРК) або вищий рівень Bachelor's Degree (Level 6 of the NQF) or a Higher Level
Language(s) of Training	Ukrainian, English
Duration of the Educational Programme Validity	Until the approval of a revised version of the Educational and Professional Programme
Website Address for the Permanent Placement of the Educational Programme Description	https://knute.edu.ua/

2- PURPOSE OF THE EDUCATIONAL PROGRAMME
The programme aims to train Master's in Digital Economy who are capable of

developing and analysing mathematical models for the advancement of various spheres of economic activity in the digital space, as well as implementing and utilizing digital technologies for the effective functioning of complex economic objects, processes, and systems.

3- CHARACTERISTICS OF THE EDUCATIONAL PROGRAMME

Subject Area

Object of Study and Professional Activity: contemporary economic processes and phenomena, scientific methods of normative, quantitative, and institutional analysis, and the toolkit for developing international, national, regional, sectoral economic policies, as well as enterprise economics.

Learning Goals: to prepare highly qualified professionals in economics who possess modern economic thinking, theoretical knowledge, and practical skills, and who are capable of solving complex research, innovation, and management tasks and problems related to the functioning of economic systems at various levels, characterized by uncertainty of conditions and requirements.

Theoretical Content of the Subject Area: general laws and trends of economic development; motivation and behavior of market participants; theories of microeconomics, macroeconomics, and international economics; modern quantitative methods of economic process analysis; institutional and interdisciplinary analysis; patterns of contemporary socio-economic processes; and theories of economic management for various production systems and sectors of the economy.

Methods, Methodologies, and Technologies: general scientific and specialized methods of inquiry and research; mathematical, statistical, and qualitative methods of economic analysis; sociological methods, expert evaluation, and surveys; economic and mathematical modeling and forecasting; information and communication technologies, specialized software; methods of conducting research and presenting research findings.

Tools and Equipment: modern information and communication equipment, information systems, and software products used in economic activities.

Orientation of the Educational Programme

Educational and Professional, Applied, Research-Oriented

Main Focus of the Educational Programme

Specialized education in the field of knowledge "Social Sciences, Journalism, Information, and International Relations" under the specialty "Economics," with an in-depth study of the theoretical and practical foundations of modeling complex economic systems in the digital space and their information support in the context of the digital economy; foundations of mathematical modeling and the application of digital technologies for managerial decision-making.

Keywords: economic systems, economic processes, mathematical modelling of the digital economy, information systems, information technologies, digital space, digital technologies.

Programme Features

The programme’s professional and practical training includes the study of educational components that provide theoretical knowledge and practical skills in

mathematical modelling and the development of information management systems for complex economic processes in the digital space.

4- EMPLOYABILITY AND FURTHER EDUCATION OPPORTUNITIES FOR GRADUATES

Employability

Graduates are qualified to engage in professional activities related to the development and implementation of effective solutions for the digitalization of the economy, based on economic and mathematical methods and models, using computer technologies and information systems.

According to the Classification of Occupations **DK 003:2010**, as amended by the Order of the Ministry of Economic Development and Trade of Ukraine No. 259 dated February 15, 2019, graduates may hold the following positions:
1210 – Heads of Enterprises, Institutions, and Organizations
1236 – Heads of Computer Services Departments
1238 – Project and Programme Managers
1473 – Information Services Managers
213 – Professionals in Computing
2139 – Other Computing Professionals
2419.2 – Professionals in Business Efficiency, Production Rationalization, Intellectual Property, and Innovation
2433 – Information and Information Analysis Professionals
2441 – Economics Professionals

Further Education Opportunities

Graduates of this educational programme have the right to continue their studies at the third (educational and scientific) level of higher education and to obtain additional qualifications within the system of adult education.

5- TEACHING AND ASSESSMENT

Teaching and Learning

A balanced combination of classroom-based learning (lecture-discussions, small-group practical sessions, independent work with information sources, and consultations with instructors), distance learning, and self-directed study based on problem-based, interactive learning and self-education principles.

Assessment

Assessment of students' learning outcomes is carried out in accordance with the "Regulations on the Assessment of Learning Outcomes of Students and Postgraduate Students at the State University of Trade and Economics" and includes the following control measures: ongoing assessment, final assessment, and attestation.
Ongoing assessment is conducted during practical/laboratory sessions and based on the completion of independent assignments. It involves evaluating students' theoretical knowledge and acquired practical skills demonstrated during laboratory or practical tasks.
Final assessment refers to procedures aimed at determining whether the student's learning outcomes meet the requirements of the educational programme for a specific educational component. It is conducted at the university in the form of credit tests and examinations.

Students' learning outcomes at the State University of Trade and Economics are assessed on a 100-point scale, where: 60–100 points – satisfactory learning outcomes that entitle the student to earn ECTS credits; 0–59 points – unsatisfactory learning outcomes that do not entitle the student to earn ECTS credits.

6- PROGRAMME COMPETENCIES	
Integral Competence	
The ability to identify and solve complex economic *modelling tasks*[1] and problems related to the management of the digital economy, to make relevant analytical and managerial decisions in the field of economics or in the learning process, which involves conducting research and/or implementing innovations and *applying information technologies* under conditions of uncertainty and changing requirements..	
General Competencies (GC)	
GC1	Ability to generate new ideas (creativity).
GC2	Ability for abstract thinking, analysis, and synthesis.
GC3	Ability to motivate people and work towards a common goal.
GC4	Ability to communicate with representatives of other professional groups at various levels (including experts from other fields of knowledge/types of economic activity).
GC5	Ability to work in a team.
GC6	Ability to design and manage projects.
GC7	Ability to act based on ethical considerations (motives).
GC8	Ability to conduct research at the appropriate level.
Special (Professional, Subject-Specific) Competencies (SC)	
SC1	Ability to apply scientific, analytical, and methodological tools to justify development strategies of economic entities and the related managerial decisions.
SC2	Ability to engage in professional communication in the field of economics in a foreign language.
SC3	Ability to collect, analyze, and process statistical data and scientific-analytical materials necessary for solving complex economic problems and to draw well-founded conclusions based on them.
SC4	Ability to use modern information technologies, methods, and research techniques for studying economic and social processes, appropriate to the defined research needs.
SC5	Ability to identify key trends in socio-economic and human development.
SC6	Ability to formulate professional tasks in the field of economics and solve them by selecting appropriate directions and relevant methods, taking into account available resources.
SC7	Ability to justify managerial decisions aimed at the effective development of business entities.
SC8	Ability to assess potential risks and the socio-economic consequences of managerial decisions.
SC9	Ability to apply a scientific approach to the development and

[1] Курсивом наведені загальні, спціальні (фахові, предметні) компететності та програмні результати навчання, які відображають фокус освітньої програми

	implementation of effective projects in the socio-economic sphere.
SC10	Ability to develop scenarios and strategies for the development of socio-economic systems.
SC11	Ability to plan and develop projects in the field of economics, and to ensure their information, methodological, material, financial, and human resource support.
SC12	*Ability to research methods and tools for modeling economic processes and systems in the digital space and to develop technologies for their software implementation.*
SC13	*Ability to conduct scientific research in the fields of modeling, informatization, and digitalization of the economy.*
SC14	*Ability for systems thinking and the application of systems analysis methodology to investigate complex problems of various nature, including methods of formalization and solving systemic tasks involving conflicting goals, uncertainties, and risks.*
SC15	*Ability to perform intelligent multidimensional data analysis and rapid analytical processing, including visualization of analysis results, in the process of solving applied problems in the digital economy.*
7- PROGRAMME LEARNING OUTCOMES	
1	Formulate, analyze, and synthesize solutions to scientific and practical problems.
2	Develop, justify, and make effective decisions regarding the development of socio-economic systems and the management of economic entities.
3	Communicate fluently on professional and scientific matters in both the national and a foreign language, orally and in writing.
4	Develop socio-economic projects and a system of comprehensive actions for their implementation, taking into account their goals, expected socio-economic outcomes, risks, legal, resource, and other constraints.
5	Adhere to the principles of academic integrity.
6	Evaluate the results of one's own work, demonstrate leadership skills, and the ability to manage personnel and work in a team.
7	Select effective methods for managing economic activities and justify proposed decisions based on relevant data, as well as scientific and applied research.
8	Collect, process, and analyze statistical data and scientific-analytical materials necessary for solving complex economic tasks.
9	Make effective decisions under uncertain conditions and requirements that demand the application of new approaches, methods, and tools of socio-economic research.
10	Apply modern information technologies and specialized software in socio-economic research and in the management of socio-economic systems.
11	Identify and critically assess the state and trends of socio-economic development, and develop and analyze models of economic systems and processes.
12	Justify managerial decisions aimed at the effective development of business entities, taking into account goals, resources, constraints, and risks.

13	Assess potential risks and the socio-economic consequences of managerial decisions.
14	Develop scenarios and strategies for the development of socio-economic systems.
15	Organize the development and implementation of socio-economic projects, taking into account information, methodological, material, financial, and human resource support.
16	*Develop and analyze models of the digitalization of economic processes and implement them through software solutions in the digital space.*
17	*Know and understand modern methods for researching mathematical models and algorithms for intelligent data analysis, information retrieval, and knowledge acquisition in the field of economics.*

8- RESOURCE SUPPORT FOR PROGRAMME IMPLEMENTATION

Human Resource Support

Fully complies with the Licensing Requirements for conducting educational activities. The Educational and Professional Programme "Digital Economy" is delivered by academic and teaching staff holding academic degrees and/or academic titles, by current Ukrainian legislation. These staff members possess a sufficient level of scientific and professional qualifications, subject-specific knowledge, and professional skills in the fields of mathematical modelling and modern information technologies. The educational process also involves practitioners, representatives of professional associations, and international partners. All academic and teaching staff undergo in-service training or professional development every five years.

Material and Technical Support

Fully complies with the Licensing Requirements for conducting educational activities. For the convenience of higher education seekers, the university provides a corporate distance learning system and an automated educational process management system “MIA: Education.” The university is equipped with modern computer laboratories with specialized software, operates an Educational and Scientific Business Simulation Centre, and offers access to a Smart Library. All necessary conditions are in place to ensure inclusive learning for persons with disabilities. The State University of Trade and Economics also provides appropriate social and domestic infrastructure.

Information and Educational-Methodological Support

For each educational programme, the university develops an ECTS Information Package.

Each student, through his/her account in the “MIA: Education” automated educational management system, can view and generate their his/her study plan, access the curriculum, see earned grades by course, check the class schedule, and communicate with participants in the educational process.

Course syllabi, working programmes, and assessment criteria for educational components are available on the university’s corporate distance learning platform.

The university’s electronic repository provides full-text access to scientific and educational literature of the State University of Trade and Economics, as well as manuscripts of qualification papers and dissertations for academic degrees.

For the convenience of students, a Course Catalogue has been developed, enabling them

to choose elective educational components under the curriculum.
9- ACADEMIC MOBILITY
National Credit Mobility
National credit mobility is carried out within the framework of cooperation memoranda concluded between the State University of Trade and Economics and other higher education institutions (or research institutions) in Ukraine, in accordance with national legislation.
International Credit Mobility
The university has concluded cooperation agreements between the State University of Trade and Economics and foreign higher education institutions, under which partner exchanges and student studies are conducted within international programmes and projects under the Erasmus+ programme.
Education of International Students
It is conducted in accordance with the requirements of the current legislation.

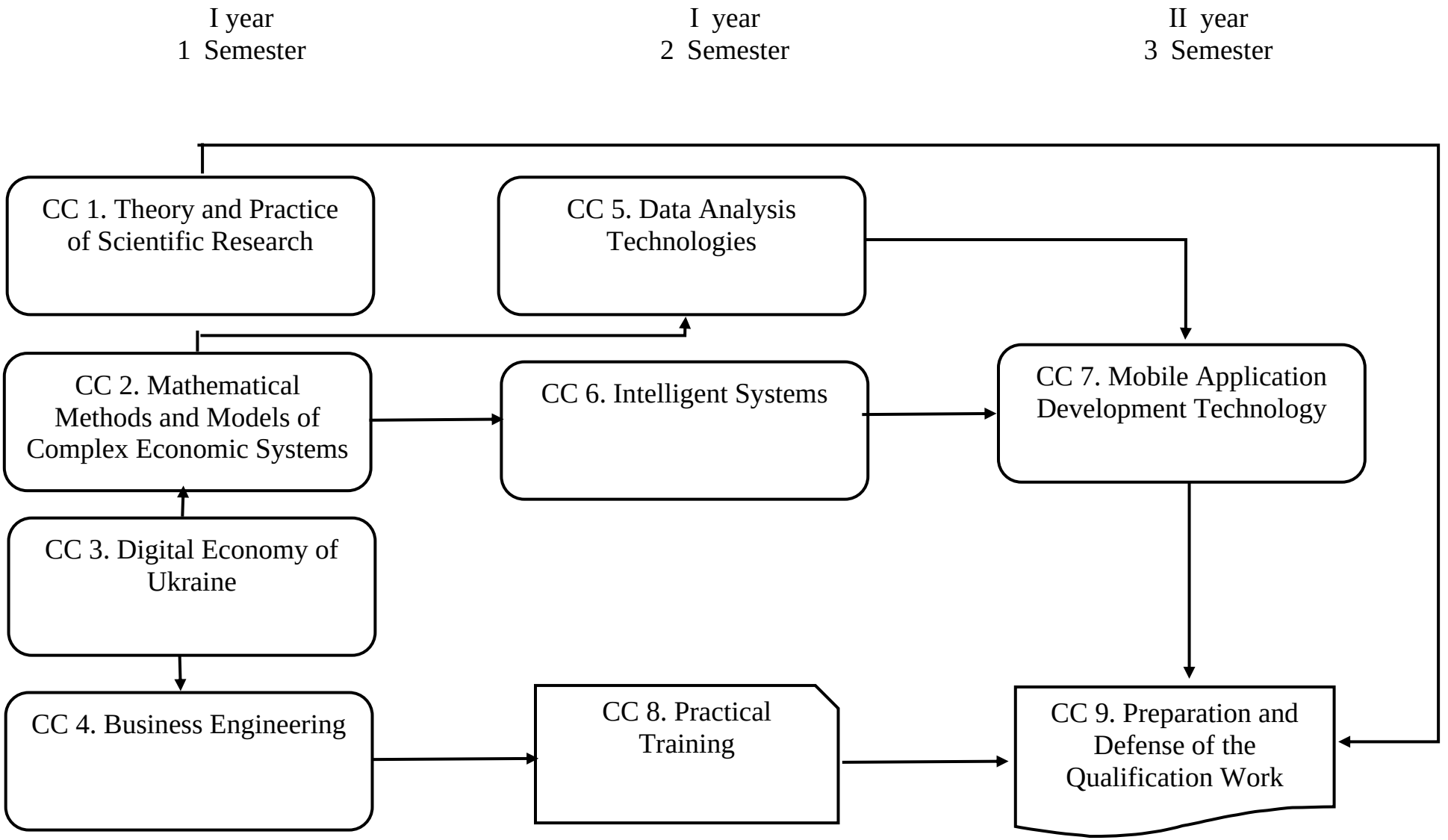
2. LIST OF EDUCATIONAL PROGRAMME COMPONENTS AND THEIR LOGICAL SEQUENCE

2.1. List of Programme Components

Code	Educational Programme Components	ECTS Credits	Form of Assessment
Compulsory Components			
CC 1.	Theory and Practice of Scientific Research	6	Exam
CC 2.	Mathematical Methods and Models of Complex Economic Systems	6	Exam
CC 3.	Digital Economy of Ukraine	6	Exam
CC 4.	Business Engineering	6	Exam
CC 5.	Data Analysis Technologies	7,5	Exam
CC 6.	Intelligent Systems	7,5	Exam
CC 7.	Mobile Application Development Technology	6	Exam
CC 8.	Practical Training	9	Credit (Pass/Assessment)
CC 9.	Preparation and Defense of the Qualification Work	12	Defense
Total Volume of Compulsory Components		**66**	
Elective Components			
EC 1.	Educational Component 1	6	Exam
EC 2.	Educational Component 2	6	Exam
EC 3.	Educational Component 3	6	Exam
EC 4.	Educational Component 4	6	Exam
Total Volume of Elective Components		**24**	
TOTAL VOLUME OF THE EDUCATIONAL PROGRAMME		**90,0**	

Higher education students select elective courses through their account on the “MIA: Education” portal. Descriptions of the courses and their prerequisites are provided in the Course Catalogue of the State University of Trade and Economics.

2.2. Structural and Logical Scheme of the Educational Programme



3. FORM OF QUALIFICATION ASSESSMENT FOR HIGHER EDUCATION STUDENTS

Qualification assessment is conducted in the form of a public defence of the qualification work. The qualification work must involve solving a complex specialised task or a practical challenging problem in the economic field, which requires research and/or innovation and is characterised by uncertainty of conditions and requirements. The qualification work must be free of academic plagiarism, falsification, and copying. It must be published on the official website or in the repository of the higher education institution. The publication of qualification works containing restricted access information is carried out following the requirements of current legislation.

4. MATRIX OF ALIGNMENT OF PROGRAMME COMPETENCIES WITH COMPULSORY COMPONENTS OF THE EDUCATIONAL PROGRAMME

Components / Competencies	CC 1	CC 2	CC 3	CC 4	CC 5	CC 6	CC 7	CC 8	CC 9
GC 1	+			+	+		+		+
GC 2		+				+			+
GC 3				+					
GC 4	+		+						
GC 5				+			+	+	
GC 6	+		+	+			+	+	+
GC 7	+	+				+			
GC 8	+	+			+			+	+
SC1	+		+	+				+	+
SC 2					+			+	+
SC 3		+			+			+	+
SC 4					+	+	+	+	+
SC 5			+					+	+
SC 6		+		+				+	+
SC 7		+	+	+				+	+
SC 8		+						+	+
SC 9	+							+	+
SC 10			+					+	+
SC 11				+				+	+
SC 12		+					+	+	+
SC 13	+				+	+	+	+	+
SC 14	+				+	+		+	+
SC 15					+	+		+	+

5. MATRIX OF ENSURING PROGRAMME LEARNING OUTCOMES BY COMPULSORY COMPONENTS OF THE EDUCATIONAL PROGRAMME

Components / Programme Learning Outcomes	CC 1	CC 2	CC 3	CC 4	CC 5	CC 6	CC 7	CC 8	CC 9
1					+			+	+
2		+		+				+	+
3	+		+		+			+	+
4			+	+				+	+
5	+							+	+
6				+			+	+	+
7		+						+	+
8					+			+	+
9		+				+		+	+
10					+	+	+	+	+
11			+					+	+
12		+		+				+	+
13		+	+	+				+	+
14			+	+				+	+
15				+			+	+	+
16						+	+	+	+
17					+	+		+	+

Developed by the working group consisting of

1. Olena Mykolaivna Ivanova – Candidate of Economic Sciences, Associate Professor, Associate Professor of the Department of Digital Economy and Systems Analysis, Educational Programme Coordinator
2. Andrii Anatoliiovych Roskladka – Head of the Department of Digital Economy and Systems Analysis, Doctor of Economic Sciences, Professor
3. Yurii Mykolaiovych Umantsiv – Head of the Department of Economic Theory and Competition Policy, Doctor of Economic Sciences, Professor
4. Volodymyr Fedorovych Hamalii – Professor of the Department of Digital Economy and Systems Analysis, Doctor of Physical and Mathematical Sciences, Professor
5. Anna Oleksiivna Kovtun – First-year student, Group 1-M, Master's Degree Programme, Faculty of Information Technologies, Educational Programme in Digital Economy

Reviews and Feedback from External Stakeholders:

1. Natalia Viktorivna Rallie – Software Development and Testing Specialist at LLC "OMILIA NATURAL LANGUAGE SOLUTIONS UA"
2. Andrii Volodymyrovych Hrabariyev – Chief Economist of the Department of Statistics and Reporting at the National Bank of Ukraine, Candidate of Economic Sciences, Associate Professor.

Appendix

LIST OF RECOMMENDED ELECTIVE COMPONENTS

Code	Educational Components	ECTS Credits
EC 1.	Big Data Analytics	**6**
EC 2.	Methods of Formal System Representation	**6**
EC 3.	Design of Recommender Systems	**6**
EC 4.	Systems Analysis of Complex Economic Systems under Uncertainty	**6**
EC 5.	Knowledge Management	**6**
EC 6.	Project Management	**6**

Change Registration Sheet

No.	Date	Items to be Changed	Change Initiator	Name of Person Responsible for Changes	Signature

Approval Sheet

of the Educational and Professional Programme and Curricula
"Digital Economy"
Second (Master's) Level of Higher Education
State University of Trade and Economics

Approved by
First Vice-Rector for Scientific and Pedagogical Work

_____ Natalia PRYTULSKA
(signature) (first name, last name)

_____ 20_____

Approved by
Vice-Rector for Scientific and Pedagogical Work and International Relations

_____ Anzhelika HERASYMENKO
(signature) (first name, last name)

_____ 20_____

Approved by
Head of the Academic Department of the State University of Trade and Economics

_____ Serhii KAMINSKYI
(signature) (first name, last name)

_____20____

Approved by
Head of the Educational and Methodological Department of the State University of Trade and Economics

_____ Tetiana BOZHKO
(signature) (first name, last name)

_____20_____

Approved by
Dean of the Faculty of Information Technologies, State University of Trade and Economics

_____ Oleksandr KHARCHENKO
(signature) (first name, last name)

_____ 20_____

Approved by
Head of the Department of Digital Economy and Systems Analysis, State University of Trade and Economics

_____ Andrii ROSKLADKA
(signature) (first name, last name)

_____20_____

Approved by
Head of the Specialty Support Group, State University of Trade and Economics

_____Anzhelika HERASYMENKO
(signature) (first name, last name)

_____ 20_____

Approved by
Educational Programme Coordinator, State University of Trade and Economics

_____ Olena IVANOVA
(signature) (first name, last name)

_____ 20____

Approved by
Software Development and Testing Specialist at LLC "OMILIA NATURAL LANGUAGE SOLUTIONS UA"

_____ Natalia RALLIE
(signature) (first name, last name)

_____20_____

Approved by
Chief Economist of the Department of Statistics and Reporting, National Bank of Ukraine

_____Andrii HRABARIYEV
(signature) (first name, last name)

_____ 20_____

Representative of the Student Council of the Faculty / Specialty

_____ Diana VASYLCHENKO
(signature) (first name, last name)
_____ 20____