3. Educational program.

Guarantor of the educational program – Hamalii, V. F., Doctor of Physical and Mathematical Sciences, Professor, Professor of Digital Economy and Systems Analysis

3.1. Profile of the educational program in the specialty 051 "Economics" (Majoring in Digital Economy)

1 – General information	
Full name of HEI and structural institutional subdivision	State University of Trade and Economics, Faculty of Information Technologies, Department of Digital Economy and Systems Analysis
The degree of higher education and the name of the qualification in the language of the original	Master's degree Specialty "Economics" Specialisation "Digital Economy"
Official title of the educational programme	"Digital Economy"
Type of diploma and duration of educational program	Master's degree, unitary, 90 ECTS credits, duration of study is 1 year 4 months
Availability of accreditation	The initial accreditation is scheduled for 2026.
Cycle / level	NQF of Ukraine - level 7 FQ-EHEA - the second cycle EQF-LLL- Level 7
Prerequisites	Completion of a Bachelor's degree
Language(s) of instruction	Ukrainian, English
Duration of educational program	2 years
Internet address of the continuous placement of the outline of the educational programme	https://knute.edu.ua
2 – Objectives of the educational program	
To train Masters in Digital Economy, capable of creating and studying mathematical models of development of various spheres of economic activity in the digital space, implementation and use of digital technologies for the efficient functioning of complex economic objects, processes and systems.	
3 - Features of the educational programme	
Subject area (field of knowledge, specialty, specialization (if available))	Field of knowledge 05 "Social and behavioural studies" Specialty 051 "Economics" Specialisation "Digital Economy".

<table>
<tr><td>The focus of the educational program</td><td>Educational and professional. Emphasis is placed on the study of theoretical and practical principles of modelling complex economic systems in the settings of digital space and the information support of those systems in the digital economy.</td></tr>
<tr><td>The main expected outcome of the educational programme and specialisation</td><td>Professional education in mathematical modelling and digital technologies in economy.
Keywords: economic systems, economic processes, mathematical modelling of digital economy, information systems, information technologies, digital space, digital technologies.</td></tr>
<tr><td>Specifics of the programme</td><td>The cycle of professional and practical training includes disciplines that are intended to master the theoretical knowledge and practical skills of mathematical modelling and the creation of information systems for managing complex economic processes in the digital space.</td></tr>
<tr><td colspan="2">4 – Emplability of graduates and their suitability for further training</td></tr>
<tr><td>Emplability of graduates</td><td>The sphere of professional activity of graduates is related to producing and implementating of effective solutions to the problems of digitalisation of the economy on the basis of economic and mathematical methods and models using computer technology and information technology.
List of economic activities that the Master in Digital Economy is supposed to be able to perform:
<table>
<tr><td>Code in Classifier of Occupations DK 009: 2010</td><td>Name of the type of economic activity</td></tr>
<tr><td>62.02</td><td>Consulting on informatisation</td></tr>
<tr><td>63.11</td><td>Data processing, posting of information on web sites and related activities</td></tr>
<tr><td>63.12</td><td>Web portals</td></tr>
<tr><td>85.42</td><td>Higher Education</td></tr>
</table>
Positions that Masters in Digital Economy are capable of holding:
<table>
<tr><td>Code in DK 003:2010</td><td>Name of Position</td></tr>
<tr><td>1210.1</td><td>Head of the computer (information and computing) centre</td></tr>
<tr><td>1210.1</td><td>The head of the enterprise (institution, organization) (information security sphere)</td></tr>
<tr><td>2131.1</td><td>Researcher-consultant (computer systems)</td></tr>
<tr><td>2131.2</td><td>Computer Communications Analyst</td></tr>
<tr><td>2131.2</td><td>Computer Communications Analyst</td></tr>
<tr><td>2433.1</td><td>Researcher-consultant (computer systems)</td></tr>
<tr><td>3121</td><td>Specialist in IT</td></tr>
</table></td></tr>
</table>

	Provided that the relevant experience is acquired the one can adapt to the following areas of related occupational activities such as marketing, international economy, education and research.
Further training	Opportunity to do the postgraduate course in the specialties which are as follows: 051 – Economics; 121 - Software Engineering; 122 - Computer Science; 123 - Computer Engineering; 124 - System analysis; 125 - Cybersecurity; 126 - Information systems and technologies.
5 – Instruction and assessment	
Teaching and learning	Problem-based learning, self-study, learning through practical training.
Assessment	Ongoing control, written exams, defense of qualifying work. Assessment is carried out in accordance with the "Regulations on the assessment of learning outcomes of students and postgraduate students", "Regulations on the organisation of the educational process of students"
6 – Programme-specific competencies	
Integrative competence	Ability to identify and solve complex modelling problems and problems of digital economy management, to make appropriate analytical and managerial decisions in the field of economics or in the learning process, involving research and / or innovation and application of information technology under uncertain conditions and requirements.
General competencies	GC1. Ability to generate new ideas (creativity). GC2. Ability for abstract thinking, analysis and synthesis. GC3. Ability to motivate people and move towards a shared goal. GC4. Ability to communicate/liaise with representatives of other professional groups of different levels (with 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 on the basis of ethical considerations (motives). GC8. Ability to conduct research at the appropriate level.

Workplace specific (professional, subject) competencies	WC1. Ability to use scientific, analytical, methodological tools to justify the development strategy of economic entities and related management decisions. WC2. Ability to communicate professionally in the field of the economy using a foreign language. WC3. Ability to collect, analyse and process statistical data, scientific and analytical materials that are necessary to solve complex economic problems, to draw sound conclusions based on them. WC4. Ability to use modern information technologies, methods and techniques of research of economic and social processes, adequate to the specified research needs. WC5. Ability to identify key trends in socio-economic and human
	development. WC6. Ability to formulate and solve professional problems in the field of the economy choosing the appropriate directions and appropriate methods for their solution, taking into account available resources. WC7. Ability to justify management decisions for the effective development of economic entities. WC8. Ability to assess possible risks, socio-economic consequences of management decisions. WC9. Ability to apply a scientific approach to the design and fulfilment of effective projects in the socio-economic sphere. WC10. Ability to design scenarios and strategies for the development of socio-economic systems. WC11. Ability to plan and design projects in the field of the economy, to ensure its information, methodological, material, financial and personnel support. *WC12. Ability to study methods and tools for modelling economic processes and systems in the digital space and the development of technologies for implementation them through software.* *WC13. Ability to perform research in the field of modelling, informatisation and digitalisation of the economy.* *WC14. Ability to think systematically, apply systems analysis methodology to study complex problems of different nature, methods of formalising and solving systemic problems that have conflicting goals, uncertainties and risks.* *WC15. Ability to carry out the intelligent multidimensional analysis of data along with their operational analytical processing and visualisation of analysis results in the process of solving applied problems of the digital economy.*
7 – Expected programme learning outcomes	
	1. Formulate, analyse and synthesise solutions to scientific and practical problems.

	2. Consider, justify and make effective decisions on the development of socio-economic systems and management of economic entities. 3. Communicate fluently on professional and scientific issues using the state and foreign languages orally and in writing. 4. Design socio-economic projects and a system of integrated actions for their implementation, taking into account their goals, expected socio-economic consequences, risks along with either legislative, resource-related or/and other constraints. 5. Follow the principles of academic integrity. 6. Evaluate the results of their work, demonstrate leadership skills and ability to manage personnel and work in a team. 7. Choose effective methods of managing economic activity, justify the proposed solutions based on relevant data and scientific and applied research. 8. Collect, process and analyse statistical data, scientific and analytical materials needed to solve complex economic problems. 9. Make effective decisions under uncertain conditions and requirements that require the use of new approaches, methods and tools for socio-economic research. 10. Apply modern information technologies and problem-specific software in socio-economic research and management of socioeconomic systems. 11. Identify and critically evaluate the state and trends of socioeconomic development, form and analyse models of economic systems and processes. 12. Justify management decisions for the effective development of economic entities, taking into account the goals, resources, constraints and risks. 13. Assess possible risks, socio-economic consequences of management decisions. 14. Design scenarios and strategies for the development of socioeconomic systems. 15. Organise the process of design and fulfilment of socioeconomic projects taking into account information, methodological, material, financial and personnel support. 16. *Develop and analyse models of digitalisation of economic processes and implement them in the digital space through software.* 17. *Be aware of and understand modern methods of research of mathematical models and algorithms of data search, information retrieval and knowledge in the field of economics.*
8 – Resource support for the implementation of the programme	
Human resources	Specialists who train Masters in “Digital Economy” educational program are expected to have the expert level knowledge and professional skills in the field of mathematical modelling and modern information technology.

	It is possible that foreign specialists and practitioners are involved in teaching of disciplines of the training cycle.
Infrastructure and technical support	The basis of infrastructure and technical support consist of computer laboratories with modern hardware and software resources that provide quality training for Masters doing educational programme in “Digital Economy”.
Information and instructional and methodological support	General scientific and programme specific sources of information on the digital economy, educational and methodological and monographic literature, information resources of the department of distance learning support and the Internet.
9 – Academic mobility	
National credit systembased mobility	National credit system-based mobility is carried out in accordance with the signed agreements on academic mobility.
International credit system-based mobility	International credit system-based mobility is carried out through signing agreements on international academic mobility (Erasmus +), double graduation, long-term international projects involving student education, double degree, etc.
Training of foreign seekers of higher education	Prerequisite and specifics of the educational program in the context of teaching foreign citizens is knowledge of the Ukrainian language at a level not lower than B1.

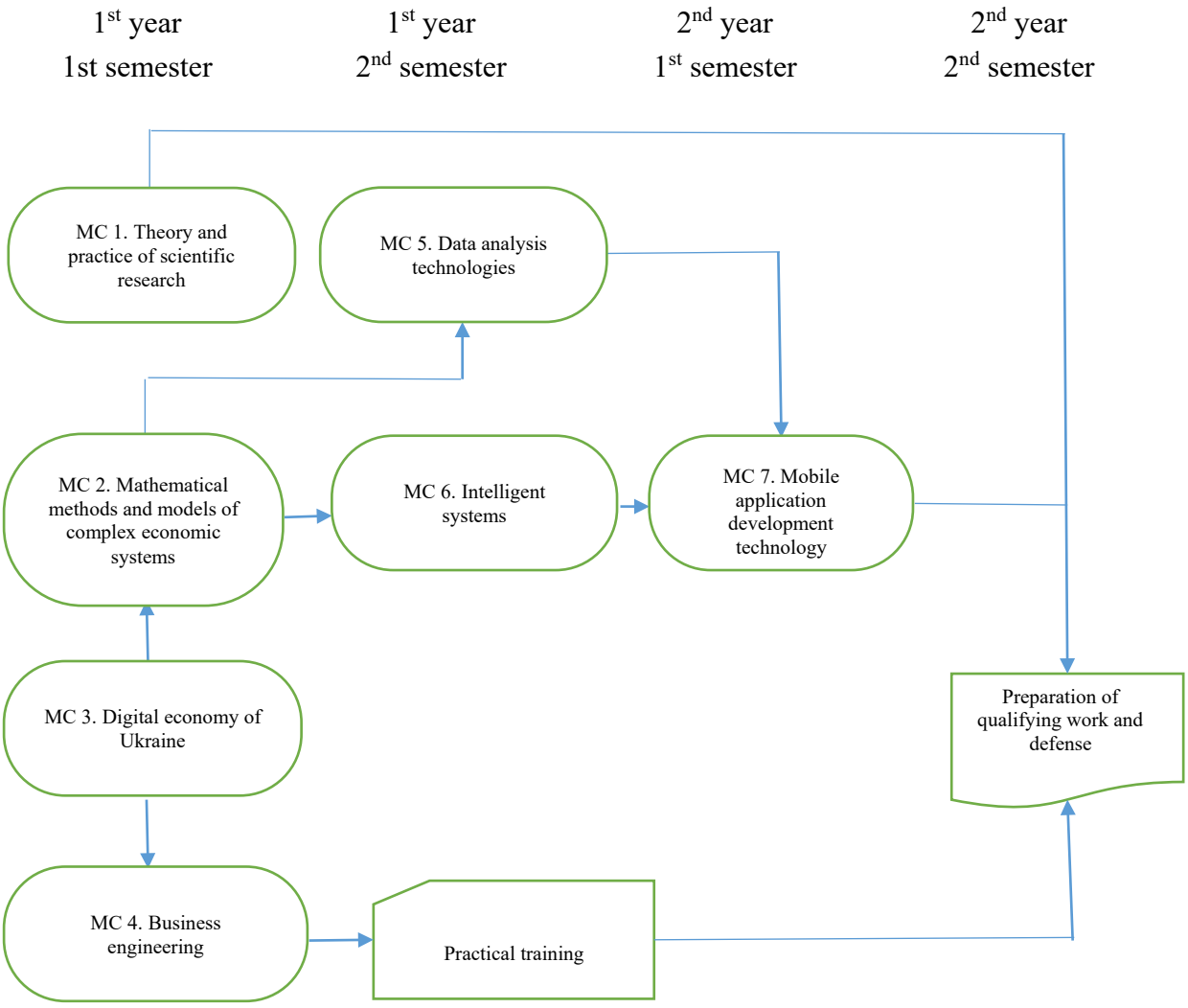
3.2. List of components of the educational program (EP) and their logical sequence

3.2.1 List of components of EP

Reference code of a discipline	Components of the educational program (academic disciplines, course projects (works), practices, qualification exam, qualification paper)	Number of ECTS credits
Compulsory components of EP		
MC 1.	Theory and practice of scientific research	6
MC 2.	Mathematical methods and models of complex economic systems	6
MC 3.	Digital economy of Ukraine	6
MC 4.	Business engineering	6
MC 5.	Data analysis technologies	7,5
MC 6.	Intelligent systems	7,5
MC 7.	Mobile application development technology	6
Total credits allocated to mandatory components:		**45**
Selective components of EP		
EC 1.	Enterprise Java programming	6
EC 2.	Life safety	6
EC 3.	Security of information systems and networks	6
EC 4.	Biometric authentication technologies in information systems	6
EC 5.	Public financial strategy	6
EC 6.	Contract law	6
EC 7.	Information policy of the state	6
EC 8.	Information wars	6
EC 9.	Cryptographic methods of information protection	6
EC 10.	Methods of video information processing	6
EC 11.	Basics of cybersecurity	6
EC 12.	Applied systems analysis	6
EC 13.	Stochastic models in the economy	6
EC 14.	Internet of Things security technology	6
EC 15.	Project Management	6
EC 16.	Financial ecosystems	6
EC 17.	Digital technologies in advertising	6
Total credits allocated to elective components:		**24**
Practical training		
Practical training		9
Qualifications		
Preparation of qualifying work and defense		12
CREDITS IN TOTAL TO COVER EDUCATIONAL PROGRAM		**90**

Exam is supposed to be the form of final control for all components of the educational program.

3.2.2 Structural and logical scheme of EP



3.3. Mode of certification of seekers of higher education

Certification is carried out in the mode of public defense of the qualification work. Qualification work is expected to involve solving a complex specialised task or a practical complex task or problem in the economic field that requires research and/or innovation and is characterised by uncertainty of conditions/settings and requirements. There should be no academic plagiarism, falsification or writing off in the qualification work. Qualification work must be published on the official website or in the repository of the higher education institution. Publication of qualification works containing information with limited access should be carried out in accordance with the requirements of current legislation.

3.4. Matrix of compliance of program competencies with the mandatory components of the educational program

Components / Competencies	MC 1	MC 2	MC 3	MC 4	MC 5	MC 6	MC 7
GC 1.	+			+	+		+
GC 2.		+				+	
GC 3.				+			
GC 4.	+		+				
GC 5.				+			+
GC 6.	+		+	+			+
GC 7.	+	+				+	
GC 8.	+	+			+		
WC 1	+		+	+			
WC 2					+		
WC 3		+			+		
WC 4					+	+	+
WC 5			+				
WC 6		+		+			
WC 7		+	+	+			
WC 8		+					
WC 9	+						
WC 10			+				
WC 11				+			
WC 12		+					+
WC 13	+				+	+	+
WC 14	+				+	+	
WC 15					+	+	

3.5. Matrix of compliance of program competencies with the elective components of the educational program

Components Competencies	EC1	EC2	EC3	EC4	EC5	EC6	EC7	EC8	EC9	EC10	EC11	EC12	EC13	EC14	EC15	EC16	EC17
GC 1.	+														+		+
GC 2.					+		+					+	+				
GC 3.															+	+	
GC 4.			+	+		+		+	+						+		+
GC 5.	+	+								+					+		+
GC 6.										+					+		
GC 7.		+				+		+			+						+
GC 8.			+	+	+		+		+		+	+	+	+		+	
WC 1					+		+								+	+	
WC 2	+																
WC 3								+			+		+	+	+		+
WC 4	+		+	+					+	+	+			+			+
WC 5					+	+	+	+								+	
WC 6												+	+		+		
WC 7													+		+		
WC 8		+	+	+	+	+			+		+		+			+	
WC 9												+			+		
WC 10					+		+									+	
WC 11												+			+		
WC 12												+					
WC 13	+						+			+							+
WC 14												+	+				
WC 15													+				

3.6. The matrix of providing program learning outcomes to be drawn from the relevant mandatory components of the educational program

Components Programme expected learning outcomes	MC 1	MC 2	MC 3	MC 4	MC 5	MC 6	MC 7
1					+		
2		+		+			
3	+		+		+		
4			+	+			
5	+						
6				+			+
7		+					
8					+		
9		+				+	
10					+	+	+
11			+				
12		+		+			
13		+	+	+			
14			+	+			
15				+			+
16						+	+
17					+	+	

3.7. The matrix of providing program learning outcomes to be drawn from the relevant elective components of the educational program

Components Programme expected learning outcomes	EC1	EC2	EC3	EC4	EC5	EC6	EC7	EC8	EC9	EC10	EC11	EC12	EC13	EC14	EC15	EC16	EC17
1												+			+		
2						+	+								+	+	
3							+	+									+
4					+	+	+	+			+			+	+		
5						+	+										
6	+		+	+					+	+					+		
7					+		+						+				
8	+		+	+					+	+				+	+		
9						+		+			+		+				
10	+		+	+					+	+				+	+		+
11					+			+				+				+	
12		+				+					+		+		+		
13		+									+	+	+				
14					+		+									+	
15															+		+
16	+		+	+					+	+				+			+
17				+								+		+			

Change registration sheet

#	Date	Items to have been amended	Initiator of an amendment	Surname, initials of the person in charge of making changes	Signature