Federal State Autonomous Educational Institution for Higher Education
PEOPLES' FRIENDSHIP UNIVERSITY OF RUSSIA
(RUDN University)

Faculty of Economic

COURSE SYLLABUS

COMPUTER SCIENCE

Recommended by the Didactic Council for the Education Field of
38.03.01 Economics

The development of the discipline is carried out within the framework of the implementation of the main professional educational program of higher education:

International Economic Relations
(name (profile/specialization))

2024

1. COURSE GOALS

The purpose of the discipline "Computer science" is the study of information processes occurring in society, methods and means of obtaining, transforming, transmitting, storing and using information related to the use of information technologies.

2. LEARNING OUTCOMES

Studying the discipline "Computer science" is aimed at the formation of the following competencies (part of competencies) among students:

Table 2.1. List of competencies formed in students when studying the discipline (results of mastering the discipline)

Competence code	Competence	Competence indicators
GC-1	Able to search, critical analysis and synthesis of information, apply a systematic approach to solve tasks	GC -1.1 Know how to search information to solve the task for various types of requests
		GC -1.2. Able to analyze and contextually process information to solve tasks with the formation of their own opinions and judgments
		GC -1.3 Able to offer options for solving the problem, analyzes the possible consequences of their use
GC-12	Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data	GC -12.1 Know how to search for the necessary sources of information and data, perceives, analyzes, memorizes and transmits information using digital means, as well as using algorithms when working with data received from various sources in order to effectively use the information received to solve problems
		GC -12.2 Able to evaluate information, its reliability, builds logical conclusions based on incoming information and data
GPC-5	Able to understand the principles of operation of modern information technologies and use them to solve problems of professional activity	GPC-5.1 Know how to use modern information technologies and software, incl. domestic production, to solve the problems of the digital economy
		GPC-5.2 Recognizes and takes into account the sources of threats, compliance with information security requirements
		GPC-5.3 Able to choose modern information technologies and software in solving problems of professional activity

3. COURSE IN HIGHER EDUCATION PROGRAMME STRUCTURE

The discipline "Computer science" refers to the part formed by the participants of the educational relations of block B1 of the EP.

Within the framework of the EP, students also master other disciplines and / or practices that contribute to the achievement of the planned results of mastering the discipline "Computer science".

Table 3.1. List of Higher Education Program (me) components / disciplines that contribute to expected learning/training outcomes

Code	Competence	Previous disciplines/modules, practices*	Subsequent disciplines/modules, practices*
GC-1	Able to search, critical analysis and synthesis of information,	-	Mathematics (part 1) Mathematics (part 2) Microeconomics

Code	Competence	Previous disciplines/modules, practices*	Subsequent disciplines/modules, practices*
	apply a systematic approach to solve tasks		Macroeconomics Institutional economy World economy International economic relations Statistics Economical geography Economic and mathematical modeling Economics of interstate territorial disputes History of financial turmoil in the global economy Creativity and innovation in business Fundamentals of Scientific Research Business climate and regulation of foreign investment in the Russian Federation Technological revolutions and economic growth Corporate Fraud Audit Basics Emotional intelligence Cities in the global economy Modern financial transactions Ecosystems in business Neuromarketing Introductory internship Technological internship Project-technological internship Undergraduate practice Final state examination procedures Degree thesis procedures
GC -12	Able to: search for the necessary sources of information and data, perceive, analyze, memorize and transmit information using digital means, as well as using algorithms when working with data received from various sources in order to effectively use the information received to solve problems; evaluate information, its reliability, build logical conclusions based on incoming information and data	-	Econometrics "Project analysis" (part 2) Introduction to the digitalization of business process accounting Skills and technologies of public presentations Data storytelling Fundamentals of trading in the stock market Creativity and innovation in business Fundamentals of Scientific Research insurance business Modern financial transactions Digital technologies in management Fundamentals of financial forecasting "Smart cities": Russia and the world Design thinking Business on the Internet Digital banking The Economics of Digital Markets Project-technological internship Undergraduate practice Final state examination procedures Degree thesis procedures
GPC-5	Able to understand the principles of operation of modern information	-	Economic and mathematical modeling

Code	Competence	Previous disciplines/modules, practices*	Subsequent disciplines/modules, practices*
	technologies and use them to solve problems of professional activity		Introduction to the digitalization of business process accounting Skills and technologies of public presentations Data storytelling Training: working with international statistics Emotional intelligence Big Data: basics of data analysis Digital technologies in management Ecosystems in business Neuromarketing Business Process Modeling Global war for consumers in global commodity markets "Smart cities": Russia and the world Personal branding Business on the Internet Phygital technologies in economics Geographic Information Systems: Visualization of Spatial Data The Economics of Digital Markets Undergraduate practice Final state examination procedures Degree thesis procedures

4. COURSE WORKLOAD AND LEARNING ACTIVITIES

The total labor intensity of the discipline "Computer science" is 4 credit units.

TABLE 4.1. Types of academic activities during the period of the HE program(me) mastering

Type of educational work		**TOTAL,** *academic hours*	**Semester**	
			1	**2**
Contact academic hours		*34*	*34*	
including:				
Lectures				
Lab work		34	34	
Seminars (workshops/tutorials)				
Self-study (ies), academic hours		*92*	*92*	
Evaluation and assessment academic hours		*18*	*18*	
Overall labor intensity of the discipline	*academic hours*	**144**	***144***	
	credit units	**4**	**4**	

5. COURSE MODULES AND CONTENTS

Table 5.1. The content of the discipline (module) by types of educational work.

Course Modules and Contents	Modules and Topics (Units/Themes)	Type of educational work *
Section 1. Information, Informatics, Information Technologies	Topic 1.1. The concept of informatics and the information society. Information and its properties	LC, LR
	Topic 1.2. Measures and units of representation, measurement and storage of information. Number systems. Fundamentals of Algebra Logic.	LC, LR
	Topic 1.3. Technical basis of information technologies. Personal computer. Pc core units.	LC
	Topic 1.4. Computer Software Structure	LC
	Topic 1.5. Understanding the Operating System and Operating Environment	LC, LR
Section 2. Microsoft Office.	Topic 2.1. General information about Microsoft Office.	LC
	Topic 2.2. Microsoft Word Text Editor	LC, LR
	Topic 2.3. PowerPoint Basics	LC, LR
Section 3. Computer networks and the Internet	Topic 3.1. Computer Networks	LC
	Topic 3.2. Essential Internet Services	LC
	Topic 3.3. Internet Security	LC
Section 4. Legal Help Systems	Topic 4.1. Basics of working with legal help systems	LC, LR
Section 5: Creating Spreadsheets	Topic 5.1. Create spreadsheets	LC
	Topic 5.2. Calculations Cell names Relative and absolute references.	LR
	Topic 5.3: Formats: Custom format. Data validation.	LR
Section 6. Calculation, processing and analysis of data.	Тема 6.1. Условное форматирование. Имена диапазонов	LC, LR
	Тема 6.2. Вычисления. Тригонометрические функции.	LR
	Тема 6.3. Специальная вставка. Функции округления. Массивы. Матрицы	LR
Section 7. Organize your data with Excel spreadsheets. Excel functions.	Topic 7.1 Statistical functions.	LC, LR
	Topic 7.2 Logic functions	LR
Section 8. Create charts to visualize your data.	Тема 8.1 Построение диаграмм для визуализации данных	LC, LR
	Тема 8.2 Функции Даты и времени. Текстовые функции.	LR
Section 9. Pivot Tables and Pivot Charts.	Topic 9.1 VLOOKUP functions, GPR, INDEX, MATCH	LC, LR
	Topic 9.2 Sorting, Autofilter, Advanced Filter, Subtotals: Formulas for working with a list of data	LR
	Topic 9.3 PivotTables and PivotCharts: Consolidation	LR
Section 10. Solving problems with what-if analysis.	Topic 10.1 Lookup Table: Parameter Selection. Script Manager. Find a Solution. Financial functions	LC, LR
Section 11. Create and use macros to automate your work.	Topic 11. 1 Basics of regression analysis	LC
	Topic 11.2 Creating and Editing Macros. Running Macros. Using Macros. Creating User-Defined Functions	LR

* - is filled only in the **full-time** form of training: LC - lectures; LR - laboratory work; SC - seminar classes

6. CLASSROOM EQUIPMENT AND TECHNOLOGY SUPPORT REQUIREMENTS

Table 6.1. Logistics of discipline

Name of special placements and placements for independent work	Equipment of special placements and placements for independent work	List of licensed software. Details of the confirming document
Lecture Hall	Auditorium for conducting lecture-type classes, equipped with a set of specialized furniture; whiteboard (screen) and technical means of multimedia presentations.	Windows, Microsoft Office, 7 Zip archiver.

Name of special placements and placements for independent work	Equipment of special placements and placements for independent work	List of licensed software. Details of the confirming document
Computer Lab	Computer class for conducting classes, group and individual consultations, current control and intermediate certification, equipped with personal computers (in the amount of 21 pieces), a whiteboard (screen) and technical means of multimedia presentations.	Windows, Microsoft Office, 7 Zip archiver, Garant System, Consultant plus
For independent work of students	Auditorium for independent work of students (can be used for seminars and consultations), equipped with a set of specialized furniture and computers with access to the EIOS.	Computer with Internet access

7. RECOMMENDED SOURCES FOR COURSE STUDIES

Main reading(sources)

1. Informatics for economists: Textbook / Under vol. Ed. V.M. Matyushka. - 2nd ed. revised and additional – M.: INFRA-M, 2016. – 460 p. + Add. Materials http://lib.rudn.ru/MegaPro2/UserEntry?Action=Rudn_FindDoc&id=446425&idb=0

2. Gomonov K.G., Reshetnikova M.S., Silla N.A., Shevtsova N.A. Economic informatics. Tutorial. – M.: RUDN University, 2021. – 157 p.

3. Revinova S.Yu., Reshetnikova M.S., Gremyakina N.A. Laboratory workshop on informatics for economists. RUDN University, 2015. (electronic version: http://lib.rudn.ru/ProtectedView/Book/ViewBook/5277).

Additional (optional) reading (sources)

1. Economic informatics: textbook and workshop for secondary vocational education / Yu. D. Romanova [and others]; edited by Yu. D. Romanova. - Moscow: Yurayt Publishing House, 2021. - 495 p. - (Professional education). — ISBN 978-5-534-13400-1. — Text: electronic // Educational platform Urayt [website]. — URL: https://urait.ru/bcode/477105

2. Computer science. In 2 volumes. Textbook for High Schools / Ed. Trofimova V.V. - 3rd ed. revised and additional - Moscow: Yurayt Publishing House, 2021. - 406 p. Electronic access: https://urait.ru/viewer/informatika-v-2-t-tom-2-470745#page/2

3. Informatics for economists: a textbook for universities / V. P. Polyakov [and others]; edited by V.P. Polyakov. - Moscow: Yurayt Publishing House, 2021. - 524 p. - (Higher education). — ISBN 978-5-534-11211-5. - Text: electronic // EBS Yurayt [website]. — URL: https://urait.ru/bcode/468654.

4. Informatics for the humanities: textbook and workshop for academic undergraduate students / Ed. G.E. Kedrovoy. - M. : Yurayt, 2017. - 439 p. - (Bachelor. Academic course). - ISBN 978-5-534-01031-2: 1019.00.

Resources of the information and telecommunications network "Internet":

1. RUDN ELS and third-party ELS, to which university students have access on the basis of concluded agreements:

- RUDN Electronic Library System - RUDN EBS http://lib.rudn.ru/MegaPro/Web
- ELS "University Library Online" http://www.biblioclub.ru
- EBS Yurayt http://www.biblio-online.ru
- ELS "Student Consultant" www.studentlibrary.ru
- EBS "Lan" http://e.lanbook.com/
- EBS "Trinity Bridge"

2. Databases and search engines:

- electronic fund of legal and normative-technical documentation http://docs.cntd.ru/
- Yandex search engine https://www.yandex.ru/

- Google search engine https://www.google.ru/
- abstract database SCOPUS http://www.elsevierscience.ru/products/scopus/

Educational and methodical materials for independent work of students when mastering the discipline / module *:

1. A course of lectures on the discipline "Informatics".
2. Laboratory workshop on the discipline "Informatics"

* - all educational and methodological materials for independent work of students are placed in accordance with the current procedure on the page of **the discipline in TUIS**!

8. EVALUATION TOOLKIT & GRADING SYSTEM FOR ASSESSING THE LEVEL OF FORMATION OF COMPETENCIES IN THE COURSE

Evaluation materials and a grading system* for assessing the level of formation of competencies (part of competencies) based on the results of mastering the discipline "Computer science" are presented in the Appendix to this Course Syllabus of the discipline.

DEVELOPERS:

Доцент, кафедра Экономико-математического моделирования		**Ревинова С.Ю.**
Доцент, кафедра Экономико-математического моделирования		**Решетникова М.С.**
position, educational department	signature	name and surname.

Head of the Higher Education Program(me)
Doctor of Economics, Professor of International economic relations **I.V.Andronova**