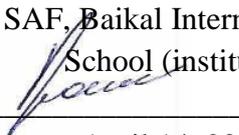




**MINISTRY OF SCIENCE AND HIGHER EDUCATION
OF THE RUSSIAN FEDERATION**
Federal State Budgetary Educational Institution of Higher Education
"IRKUTSK STATE UNIVERSITY"
SAF, Baikal International Business School (Institute)
Strategic and Financial Management Department



APPROVED:
Dean of SAF, Baikal International Business
School (institute)



N.B. Grosheva
April 14, 2025

Syllabus

Discipline Б1. О.13 Applied Programming and Database Tools

Major 27.03.05 Innovatics

Specialization: Management of Innovative and IT Projects and Products

University Degree: Bachelor

Full time

Approved by the Academic and Methodological Council of Baikal International Business School (institute) Protocol № 4 March 26, 2025

Recommended by the Strategic and Financial Management Department Protocol № 9 March 21, 2025

Chairperson  V.M. Maksimova

Department
Chair



N.B. Grosheva

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I. Goal and Objectives of the Discipline (Module)

Goal: Formation of theoretical knowledge and practical skills in the use of programming tools and working with databases (DB), demonstration of the effective use of working with databases in solving applied problems in the management of innovative and IT projects and products.

Objectives of the discipline:

1. Formation of the basic concept: data, data processing, data relations, data structure, database, query language, interfaces.
2. Training in the basics of designing database structures.
3. Database management.
4. Development of skills in the use of SQL and other queries of query languages to work with data;
5. Interfaces and reports from the database.
6. Database integration in applications.

II. Place of the Discipline in the CPEP Structure

Academic discipline (module) Б1.О.13 Applied Tools for Programming and Working with Databases belongs to the mandatory part of the bachelor's program of the Federal State Educational Standards of Higher Education for the major 27.03.05 Innovatics. The discipline is studied in the 2nd year in the 4th semester.

To study this academic discipline, it is necessary to have knowledge, skills and abilities formed by the previous disciplines: Б1.О.24 Information Technology.

The list of subsequent academic disciplines that require knowledge, skills and abilities formed by this academic discipline: Б1.О.15 Digital Marketing, Б1.В.04 Business Process Management: Digital Technologies, Б1.В.17 Information Technologies in the Management of Innovative Projects, Б3.01 (Д) Preparation of Final Paper and its Defense.

III. Requirements for the Discipline Learning Outcomes

The process of mastering the discipline is aimed at the formation of competencies of GPC-7; GPC-8; GPC-10 in accordance with the Federal State Educational Standards of Higher Education and Educational Programs of Higher Education in the direction of 27.03.05 Innovation

3.1. List of planned learning outcomes in a discipline (module) correlated with indicators of competence achievement

Competence	Competency Achievement Indicators	Learning outcomes
GPC-7. Able to understand the principles of modern information technology and use them to solve professional problems	GPC-7.1 Is able to use data processing methods in the database (design, interfaces, reports, visualization) to support decision-making	Knows how to use the database when solving on local, network and Internet platforms with computer support for decision-making
GPC-8. Able to solve professional problems based on the history and philosophy of innovations, mathematical methods and	GPC- 8.3. Possesses the skills of computer modeling of innovative processes and visualization of analysis results	Can apply the concept of a database to model innovative processes and visualize analysis results

models for innovation management, computer technologies in the innovation sphere		
GPC-10. Able to develop algorithms and computer programs suitable for practical application	GPC-10.1. Knows the basics of algorithmization and the principles of building effective algorithms	Can embed the concept of the database when building effective algorithms
	GPC-10.2. Can implement algorithms in one of the programming languages	Knows the basics of interfacing DBMS with programming languages
	GPC-10.3. Masters methods of evaluating and optimizing code to solve practical problems	Able to use SQL

IV. Contents and Discipline Structure

The volume of the discipline is 3 credits 108 hours, including 8 hours (CT) for summative assessment

Form of summative assessment : credit with grade

4.1 The content of the discipline, structured by topic, indicating the types of classes and the number of academic hours allocated for them

№	Discipline Section/ Theme	Semester	Total hrs	Of these, practical Preparation	Types of Educational Activities, Including Self-Study, Practical Sessions, and Workload (in hrs)				Formative Assessment Formats; Summative Assessment Formats
					Teacher Contact Hrs			Self-Study	
					Lectures	Practical Sessions	Consultations, Monitoring, Assessment		
1	2	3	4	5	6	7	8	9	10
1	Data, information, data processing. Computer data processing. From files to databases.	4	8	4	4	2		2	Oral questioning
2	Database in EXCEL and its SWOT	4	6	4	2	2		2	Oral questioning
3	Basic concepts of the database: Tables, relationships, links, indexes. Examples.	4	8	4	4	2		2	Oral questioning
4	An integral part of Microsoft Office is Microsoft Access. Basic concepts. Database development	4	18	12	6	6	2	4	Oral questioning
5	Requests. SQL Language	4	16	10	6	6	1	3	Oral questioning
6	Generating reports	4	9	7	2	4	1	2	Oral questioning

7	Input Interfaces	4	9	7	2	4	1	2	Oral questioning
8	Access integration in EXCEL	4	9	7	2	2	1	4	Oral questioning
9	Python and SQLite. Database development, queries, interfaces, reports	4	13	9	4	4	1	4	Oral questioning
10	Integrate Python into Office	4	9	7	2	2	1	4	
	Intermediate certification	4							Credit with a grade

4.2. Plan for Out-of-Class Student Self-Study of the Discipline

Semester	Section, Themes	Self-Study			Assessment Tool	Educational and methodological support
		Type of Self-Study	Deadlines.	Workload (hours)		
4	Data, information, data processing. Typical data processing operations. Computer data processing. From files to databases. The main concern of the developer is the separation of access. File-server, client-server technologies	Study of literature and methodological materials for the section of the course.		2	Oral questioning	References from the list (section V)
4	Database in EXCEL	Problem solving.		2	Oral questioning	References from the list (section V)
4	Database structures: Tables, relationships, links, indexes. Examples.	Study of literature and methodological materials for the section of the course. Problem solving.		2	Oral questioning	References from the list (section V)

Semester	Section, Themes	Self-Study			Assessment Tool	Educational and methodological support
		Type of Self-Study	Deadlines.	Workload (hours)		
4	An integral part of Microsoft Office is Microsoft Access. Basic concepts. Database development	Study of literature and methodological materials for the section of the course. Problem solving.		4	Oral questioning	References from the list (section V)
4	Requests. Universal tool - SQL language	Study of literature and methodological materials for the section of the course. Problem solving.		3	Oral questioning	References from the list (section V)
4	Generating reports	Study of literature and methodological materials for the section of the course. Problem solving.		2	Oral questioning	References from the list (section V)
4	Input Interfaces	Study of literature and methodological materials for the section of the course. Problem solving.		2	Oral questioning	References from the list (section V)
4	Access integration in EXCEL	Study of literature and methodological materials for the section of the course.		3	Oral questioning	References from the list (section V)
4	Python and SQLite. Database development, queries, interfaces, reports	Problem solving.		4	Oral questioning	References from the list (section V)
4	Integrate Python into Office	Study of literature and methodological materials for the section of the course.		4	Oral questioning	References from the list (section V)
Total amount of independent work in the discipline (hour)				29		

4.3. Learning Content

1. Data, information, data processing. Typical data processing operations. Computer data processing. Types of computer data. Data files. Problems of computer data protection. From files to databases. The main concern of the developer is the separation of access. File-server, client-server technologies
2. Database in EXCEL. Features and pros of EXCEL. Purpose of EXCEL. Weaknesses.
3. Database structures: Tables, relationships, links, indexes. Examples.
4. An integral part of Microsoft Office is Microsoft Access. Basic concepts. Database development
5. Requests. A universal tool is the SQL language. Language Basics
6. Generating reports using the query language
7. Input Interfaces
8. Access integration in EXCEL
9. Python and SQLite. Database development, queries, interfaces, reports
10. Integrate Python into Office

4.3.1. List of Practical Sessions

№	No sections and topics	Name of practical and laboratory work	Workload (hours)		Assessment Tools	The competencies being formed. (indicators)*
			Total hours	Of these, practical Preparation		
1	2	3	4	5	6	7
1	1	Data Processing Technologies, Typical Operations	2	2	Oral questioning	GPC-7.1
2	2	"Correct EXCEL tables"	2	2	Problem solving, oral questioning	GPC-7.1
3	3	Database Design Basics: Tables, Relationships, Indexes	2	2	Problem solving, oral questioning	GPC-7.1, GPC-10.1; GPC-10.2
4	4	MS Access database.	6	6	Problem solving, oral questioning	GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3
5	5	SQL Queries	6	6	Problem solving, oral questioning Oral questioning	GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3
6	6	Generating reports	4	4	Problem solving, oral questioning	GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3

№	No sections and topics	Name of practical and laboratory work	Workload (hours)		Assessment Tools	The competencies being formed. (indicators)*
			Total hours	Of these, practical Preparation		
7	7	Input Interfaces	4	4	Problem solving, oral questioning	GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3
8	8	Access integration in EXCEL	2	2	Problem solving, oral questioning	GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3
9	9	Python and SQLite.	4	4	Problem solving, oral questioning	GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3
10	10	Integrate Python into Office	2	2	Problem solving, oral questioning	GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3

4.3.2. List of topics (questions) submitted for independent study by students within the framework of student self-study (SSS)

<i>№</i>	<i>Topic</i>	<i>Task</i>	<i>Competency Being Formed</i>	<i>CAI</i>
<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1	<i>Data Processing Technologies, Typical Operations</i>	<i>Reading literature and methodological materials on the topic, studying the basic concepts and tools, solving problems.</i>	<i>GPC 7</i>	<i>GPC-7.1</i>
2	<i>"Correct ECXEL tables"</i>	<i>Reading literature and methodological materials on the topic, studying the basic concepts and tools, solving problems.</i>	<i>GPC 7</i>	<i>GPC-7.1</i>

Nº	Topic	Task	Competency Being Formed	CAI
3	<i>Database Design Basics: Tables, Relationships, Indexes</i>	<i>Reading literature and methodological materials on the topic, studying the basic concepts and tools, solving problems.</i>	<i>GPC 7, 8, 10</i>	<i>GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3</i>
4	<i>MS Access database.</i>	<i>Reading literature and methodological materials on the topic, studying the basic concepts and tools, solving problems.</i>	<i>GPC 7, 8, 10</i>	<i>GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3</i>
5	<i>SQL Queries</i>	<i>Reading literature and methodological materials on the topic, studying the basic concepts and tools, solving problems.</i>	<i>GPC 7, 8, 10</i>	<i>GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3</i>
6	<i>Generating reports</i> 4	<i>Reading literature and methodological materials on the topic, studying the basic concepts and tools, solving problems.</i>	<i>GPC 7, 8, 10</i>	<i>GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3</i>
7	<i>Input Interfaces</i>	<i>Reading literature and methodological materials on the topic, studying the basic concepts and tools, solving problems.</i>	<i>GPC 7, 8, 10</i>	<i>GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3</i>
8	<i>Access integration in EXCEL</i>	<i>Reading literature and</i>	<i>GPC 7, 8, 10</i>	<i>GPC-7.1; GPC-8.3; GPC-</i>

<i>N^o</i>	<i>Topic</i>	<i>Task</i>	<i>Competency Being Formed</i>	<i>CAI</i>
		<i>methodological materials on the topic, studying the basic concepts and tools, solving problems.</i>		<i>10.1; GPC-10.2; GPC-10.3</i>
9	<i>Python and SQLite.</i>	<i>Reading literature and methodological materials on the topic, studying the basic concepts and tools, solving problems.</i>	<i>GPC 7, 8, 10</i>	<i>GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3</i>
10	<i>Integrate Python into Office</i>	<i>Reading literature and methodological materials on the topic, studying the basic concepts and tools, solving problems.</i>	<i>GPC 7, 8, 10</i>	<i>GPC-7.1; GPC-8.3; GPC-10.1; GPC-10.2; GPC-10.3</i>

4.4. Guidelines for Organizing Student Self-Study

Independent work of students is carried out using e-learning and distance learning technologies. Educational and methodological materials for self-study are available to students through electronic library systems and the Hecadem Internet learning system, which presents materials of lectures and practical tasks, interactive forms of training, examples of tasks. Each student receives authorized access to the system. The Hecadem Internet Learning System is a platform for distance learning and learning using digital technologies of the Baikal International Business School of ISU. Available at: <https://edu.buk.irk.ru>.

Independent work consists of:

- in the student's independent preparation for the lecture – reading the notes of the previous lecture, watching the video version of the lecture (if any). This helps to better understand the material of the new lecture, relying on previous knowledge;
- in preparation for practical classes on the main and additional sources of literature;
- independent study of individual topics or issues from textbooks or manuals, from sources on the Internet and on the electronic portal of the university;
- in preparation for current control and intermediate certification.

Control over independent work is carried out when the student performs tasks from the fund of assessment materials of the discipline. When performing independent work, the student must also take into account the criteria for evaluating the completed task (section 8 of this program). In the course of independent work control, both the actual knowledge, skills and abilities of students are assessed, as well as the depth of understanding and the ability to isolate and interpret integral semantic structures, as well as the skills of independent search for the necessary information on

the topic of the lesson and its critical assessment.

V. Educational, Methodological, and Information Support for the Discipline

a) Required Reading

1. Gordeev, S. I. Organization of databases: a textbook for universities / S. I. Gordeev, V. N. Voloshina. - 2nd ed., ispr. Moscow: Yurayt Publishing House, 2025. — 691 p. — (Higher Education). — ISBN 978-5-534-21115-3. — Text : electronic // Educational platform Yurayt [site]. — URL: <https://urait.ru/bcode/559377>
2. Sovetov, B. Ya. Sovetov, V. V. Tsekhanovsky, V. D. Chertovskoy. — 4th ed., revised and supplemented — Moscow : Yurayt Publishing House, 2025. — 403 p. — (Professional Education). — ISBN 978-5-534-18784-7. — Text : electronic // Educational platform Yurayt [site]. — URL: <https://urait.ru/bcode/563146>
3. Sovetov, B. Ya. Sovetov, V. V. Tsekhanovsky, V. D. Chertovskoy. — 4th ed., revised and supplemented — Moscow : Yurayt Publishing House, 2025. — 403 p. — (Higher Education). — ISBN 978-5-534-18479-2. — Text : electronic // Educational platform Yurayt [site]. — URL: <https://urait.ru/bcode/559898>
4. Struzhkin, N. P. Databases: Designing: Textbook for Higher Educational Institutions / N. P. Struzhkin, V. V. Godin. — Moscow : Yurayt Publishing House, 2025. — 477 p. — (Higher Education). — ISBN 978-5-534-00229-4. — Text : electronic // Educational platform Yurayt [site]. — URL: <https://urait.ru/bcode/560310>
5. Struzhkin, N. P. Databases: design. Practicum: a textbook for secondary professional education / N. P. Struzhkin, V. V. Godin. — Moscow : Yurayt Publishing House, 2025. — 291 p. — (Professional Education). — ISBN 978-5-534-08140-4. — Text : electronic // Educational platform Yurayt [site]. — URL: <https://urait.ru/bcode/565155>

b) Databases, Search and Reference Systems, and Information Systems

1. EBS ECZ "Bibliotech". State Contract No 019 dated 22.02.2011 Bibliotech LLC. License Agreement No 31 dated 22.02.2011 Access address: <https://isu.bibliotech.ru/> Validity: from 22.11.2011 indefinitely.
2. EBS "Rukont" Contract No 98 dated 11/13/2020; Act No bK-5415 dated 11/14/20 Valid until 11/13/2021. access: <http://rucont.ru/>
3. EBS "Lan Publishing House". LLC "Lan Publishing House". Information letter No 128 dated 09.10.2017 Validity period: indefinite. Access address: <http://e.lanbook.com/>
4. EBS "National Digital Resource "Rukont". Central Design Bureau "Bibkom". Contract No 04-E-0343 dated 12.11.2021 Access address: <http://rucont.ru/>
5. EBS "Ibuku.ru/ibooks.ru". LLC "Ibux". Contract No 04-E-0344 dated 12.11.2021; Act dated 14.11.2021. Access address: <http://ibooks.ru>
6. Electronic Library System "EBS Yurayt". LLC "Electronic Publishing House Yurayt". Contract No 04-E-0258 dated 20.09.2021. Available at: <https://urait.ru/>

VI. Material and Technical Support for the Discipline

6.1. Educational and laboratory equipment

Name of special rooms and rooms for independent work	Equipment of special rooms and rooms for independent work	List of licensed software. Details of the supporting document
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<p>Classroom for lecture-type classes</p>	<p>The classroom is equipped with specialized (educational) furniture for 48 students and technical teaching aids that serve to present educational information to a large audience.</p> <p>1.PC HP Elite 8300 SFF i5 3470/4Gb/1Tb/DVD RW/kb/m/DOS/Solenoid Lock and Hood Sensor (RUS)2. Monitor Viewsonic TFT 20" VA2014WM glossy-black 5ms 20 00:1 250cd M/M3. Projector Epson EB-18304. Genius SP-S110 Active Speakers Black5. Aten VS92A Video Splitter 2-port VGA</p> <p>It is equipped with educational and visual aids and electronic presentations that provide thematic illustrations on all topics specified in the work program of the discipline</p>	<p>BASIC SOFTWARE INSTALLATION KIT:Office 2007 Russian OpenLicensePack NoLevel AcademicEdition – agreement with SoftLine Trade Tr026664 dated 17.05.2007Project Standard 2007, Access 2007 – Academic cooperation programs with Microsoft DreamSpark Premium Electronic Software Delivery. – Agreement with CJSC "SoftLine Trade" Tr000023480 dated 19.05.2015 Windows Operating Systems for Licensed OEM Pre-Installation Programs, Academic Cooperation Programs with Microsoft MSDN AA.- Agreement with CJSC "SoftLine Trade" Tr017431 dated 15.05.2008 Windows Operating Systems for Licensed OEM Pre-Installation Programs, Academic Cooperation Programs with Microsoft DreamSpark Premium Electronic Software Delivery. – agreement with CJSC "SoftLine Trade" Tr000031723 dated 05.08.2015Anti-virus programs - Rights to computer programs drWeb Server Security complex protection 120PC (1 license per year) migration with additional purchase(LBW-BC-12M-120:119-C4) – agreement with CJSC "SoftLine Trade" 13982/MOS2957 dated 22.01.2016Archivers WinRAR: 3.x: Standard License - for legal entities 100-199 licenses – agreement with CJSC "SoftLine Trade" No15422/IRK11 dated 05.02.2010Network client part Rights to computer programs Windows Server CAL 2012 Russian OLP NL Akademic Edition Device CAL 120 licenses – agreement with CJSC "SoftLine Trade" 13512/MOS2957 dated 29.10.2015Firewall, Proxy functionality - Right to use computer programs Traffic Inspector GOLD preferential – agreement with CJSC "SoftLine Trade" Tr044356 dated 27.08.2013Right to use computer programs Extension of Traffic Inspector GOLD Special for 1 year – agreement with CJSC "SoftLine Trade" Tr000112196 dated 29.09.2016</p>
<p>Classroom for seminar-type classes</p>	<p>The auditorium is equipped with specialized (educational) furniture for 48 students and technical teaching aids that serve to present educational information to a large audience</p> <p>The demonstration kit</p>	<p>BASIC INSTALLATION KIT:Office 2007 Russian OpenLicensePack NoLevel AcademicEdition – agreement with SoftLine Trade Tr026664 dated 17.05.2007Project Standard 2007, Access 2007 – Academic cooperation programs with Microsoft DreamSpark Premium Electronic Software Delivery. –agreement with SoftLine Trade CJSC Tr000023480 dated 19.05.2015 Windows operating systems under licensed OEM preinstallation programs, Academic cooperation programs with Microsoft MSDN AA.- agreement with CJSC "SoftLine Trade" Tr017431 dated 15.05.2008 Windows operating systems under licensed OEM preinstallation programs, Academic cooperation programs</p>

	<p>includes: 1.PC HP Elite 8300 SFF i5 3470/4Gb/1Tb/DVD RV/kb/m/DOS/Solenoid Lock and Hood Sensor (RUS)2. Monitor Viewsonic TFT 20" VA2014WM glossy-black 5ms 20 00:1 250cd M/M3. Projector Epson EB-18304. Genius SP-S110 Active Speakers Black5. Aten VS92A Video Splitter 2-port VGA</p>	<p>with Microsoft DreamSpark Premium Electronic Software Delivery. – agreement with CJSC "SoftLine Trade" Tr000031723 dated 05.08.2015 Anti-Virus Programs - Rights to computer programs drWeb Server Security complex protection 120PC (1 license per year) migration with additional purchase (LBW-BC-12M-120:119-C4) – contract with CJSC "SoftLine Trade" 13982/MOS2957 dated 22.01.2016 Archivers WinRAR: 3.x: Standard License - for legal entities 100-199 licenses – agreement with CJSC "SoftLine Trade" No15422/IRK11 dated 05.02.2010 Network client part Rights to computer programs Windows Server CAL 2012 Russian OLP NL Akademic Edition Device CAL 120 licenses – agreement with CJSC "SoftLine Trade" 13512/MOS2957 dated 29.10.2015 Firewall, functionality Proxy - Right to use computer programs Traffic Inspector GOLD preferential – agreement with CJSC "SoftLine Trade" Tr044356 dated 27.08.2013 Right to use computer programs Extension of Traffic Inspector GOLD Special for 1 year – agreement with CJSC "SoftLine Trade" Tr000112196 dated 29.09.2016</p>
<p>Auditorium for group and individual consultations, current control and intermediate certification</p>	<p>The classroom is equipped with specialized (educational) furniture for 11 students, 5 workplaces, equipped with computers with Internet connection and access to the EIOS of the Federal State Budgetary Educational Institution of Higher Education "ISU". 1.5 Workstations HP compad dc7800SFF Dual Core PE-2180, 4 Gb DDR2 PC6400, 160GB SATA 3.0 HDD2. LCD Monitor 17.0" ViewSonic "VA703m" 1280x1024, 8mc, TCO"03, Silver-Black (D-Sub, MM)3. Printer Hewlett-Packard LaserJet 3055 All-in-</p>	<p>BASIC SOFTWARE INSTALLATION KIT:Office 2007 Russian OpenLicensePack NoLevel AcademicEdition – agreement with SoftLine Trade Tr026664 dated 17.05.2007Project Standard 2007, Access 2007 – Academic cooperation programs with Microsoft DreamSpark Premium Electronic Software Delivery. – Agreement with CJSC "SoftLine Trade" Tr000023480 dated 19.05.2015 Windows Operating Systems for Licensed OEM Pre-Installation Programs, Academic Cooperation Programs with Microsoft MSDN AA.- Agreement with CJSC "SoftLine Trade" Tr017431 dated 15.05.2008 Windows Operating Systems for Licensed OEM Pre-Installation Programs, Academic Cooperation Programs with Microsoft DreamSpark Premium Electronic Software Delivery. – agreement with CJSC "SoftLine Trade" Tr000031723 dated 05.08.2015Anti-virus programs - Rights to computer programs drWeb Server Security complex protection 120PC (1 license per year) migration with additional purchase(LBW-BC-12M-120:119-C4) – agreement with CJSC "SoftLine Trade" 13982/MOS2957 dated 22.01.2016Archivers WinRAR: 3.x: Standard License - for legal entities 100-199 licenses – agreement with CJSC "SoftLine Trade" No15422/IRK11 dated 05.02.2010Network client part Rights to computer programs Windows Server CAL 2012 Russian OLP NL Akademic Edition Device CAL 120 licenses – agreement with CJSC "SoftLine Trade" 13512/MOS2957 dated 29.10.2015Firewall, Proxy functionality - Right to use computer programs Traffic Inspector GOLD preferential –</p>

	One Multifunction Device, one piece.	agreement with CJSC "SoftLine Trade" Tr044356 dated 27.08.2013 Right to use computer programs Extension of Traffic Inspector GOLD Special for 1 year – agreement with CJSC "SoftLine Trade" Tr000112196 dated 29.09.2016
Room for independent work of students	It is equipped with specialized (educational) furniture for 10 students, equipped with computer equipment connected to the Internet and provided with access to the EIOS of ISU 1. Think Centre M80 Series SFF System Unit Included: Intel® Core™ i3-540 Clarkdale 2.93GHz / 1333MHz / Dual Core™ / 4M / 73W / LGA 1156 / 32nm / 4GB PC3-10600 SDRAM x 2 / 250 GB, 7200RPM SATA	BASIC SOFTWARE INSTALLATION KIT: Office 2007 Russian OpenLicensePack NoLevel AcademicEdition – agreement with SoftLine Trade Tr026664 dated 17.05.2007 Project Standard 2007, Access 2007 – Academic cooperation programs with Microsoft DreamSpark Premium Electronic Software Delivery. – Agreement with CJSC "SoftLine Trade" Tr000023480 dated 19.05.2015 Windows Operating Systems for Licensed OEM Pre-Installation Programs, Academic Cooperation Programs with Microsoft MSDN AA.- Agreement with CJSC "SoftLine Trade" Tr017431 dated 15.05.2008 Windows Operating Systems for Licensed OEM Pre-Installation Programs, Academic Cooperation Programs with Microsoft DreamSpark Premium Electronic Software Delivery. – Agreement with CJSC "SoftLine Trade" Tr000031723 dated 05.08.2015 Anti-Virus Programs - Rights to computer programs drWeb Server Security, complex protection 120PC (1 license per year)
	/DVD RW - 10pcs 2. LCD Monitor - 20.0 ViewSonic "VA2013w" 1600x900 Monitor, 5mc, TCO 03, Black (D-Sub) - 10pcs 3. HP LaserJet 5000N, A3, 22ppm, 32 MB, 250&500 sheet feeder, JetDirect 615n prn svr 4. HP LaserJet 5100th, A3, 22ppm, 32 MB, 250&500 sheet feeder, JetDirect 615n prn svr	migration with additional purchase (LBW-BC-12M-120:119-C4) – agreement with CJSC "SoftLine Trade" 13982/MOS2957 dated 22.01.2016 Archivers WinRAR: 3.x: Standard License - for legal entities 100-199 licenses – agreement with CJSC "SoftLine Trade" No15422/IRK11 dated 05.02.2010 Network client part Rights to computer programs Windows Server CAL 2012 Russian OLP NL Akademic Edition Device CAL 120 licenses – agreement with CJSC "SoftLine Trade" 13512/MOS2957 dated 29.10.2015 Firewall, Proxy functionality - Privileged right to use Traffic Inspector GOLD computer programs – agreement with CJSC "SoftLine Trade" Tr044356 dated 27.08.2013 Right to use computer programs Extension of Traffic Inspector GOLD Special for 1 year – agreement with CJSC "SoftLine Trade" Tr000112196 dated 29.09.2016

6.2. Software

The university is provided with the necessary set of licensed and freely distributed software, including domestic production:

1. Basic installation kit: Office 2010 Services for granting the right to use Microsoft Desktop Edu

- ALNG LicSAPk OLV E 1Y Acdmc Ent., 39 licenses for BSBS ISU. Contract No 03-K-1131 dated 29.11.2021 KOSGU 226.4
2. Project Standard 2007, Access 2007 – ISU Azure Dev Tools for Teaching subscription (Visio, Projekt) 1 Year. Microsoft Corporation, One Microsoft Way, Redmond, WA 98052. Expiration Date March 31, 2023.
 3. Microsoft Project Professional 2010, ISU Azure Dev Tools for Teaching subscription (Visio, Projekt) 1 year. Microsoft Corporation, One Microsoft Way, Redmond, WA 98052. Expiration Date March 31, 2023.
 4. Operating systems Windows'7, Windows'10 Services for granting the right to use the program Microsoft Desktop Edu ALNG LicSAPk OLV E 1Y Acdmc Ent., 39-licenses for BMBS ISU. Contract No 03-K-1131 dated 29.11.2021 KOSGU 226.4
 5. Anti-virus programs - Dr.Web renewal Contract No Tr000582689/03-E-0043 dated February 05, 2021 Invoice No Tr000582689 dated February 08, 2021
 6. WinRAR Archivers: 3.x: Standard Licence - for legal entities 100-199 licenses - annex. No1 to contract No15422/IRK11 of CJSC "SoftLine Trade" dated 05.02.2010
 7. Network client part Rights to computer programs Windows Server CAL 2012 Russian OLP NL Akademik Edition Device CAL 120 licenses - account Tr000051059 CJSC "SoftLine Trade" dated 27.10.2015
 8. Firewall, Proxy functionality - Right to use computer programs Traffic Inspector GOLD preferential account Tr005456 CJSC "SoftLine Trade" dated 27.08.2013
 9. Traffic Inspector GOLD Special* for 5 years Contract RSZ-0000276 dated 16.11.2021 KOSGU 226.4 License renewal

6.3. Technical and Electronic Learning Tools

Multimedia tools and other equipment for presentations of educational material:

1. HP ElliteDesk 800 G4 SFF Intel Core i5 8500(3Ghz)/8192Mb/1000Gb/DVDrw/war 3y/W10Pro +V2 Desktop. ViewSonic 21 Monitor, 5" VA2245a - LED [LED, 1920x1080, 10M: 1 5ms,170gor, 160ver, D-Sub]3. Projector Nec M420X LCD 4200ANSI Lm XGA 2000:1 lamp 3500h. Eco modeHDMI USB Viewer RJ-45 10W 3.6 kg4. Jetbalance JB-115U 2.0 black speakers (4W)5. Video signal splitter Aten VS92A 2-port VGAWead of licensed software used:1. Office 2010 under the program of academic cooperation with Russian Microsoft Desktop Education AllLng License/Software Assurance Pack Academic OLV 1License LevelEEnterprise2. Project Standard 2007, Access 2007 – under the program of academic cooperation with Microsoft DreamSpark Premium Electronic Software Delivery.3. Microsoft Project Professional 2010, Microsoft Visio Professional 2010 under the program of academic cooperation with Microsoft Imagine Standard Electronic Software Delivery with the assistance of the Central Research Center of ISU.

VII. Education Technologies

Educational technologies used in teaching the discipline:

- lecture and seminar credit system;
- analysis of situations (tasks, examples);
- learning in cooperation (teamwork, group work);
- information and communication.

Distance learning technologies used in teaching the discipline are implemented with the help of the differentiated Internet learning system of the BMBS ISU "Gekadem".

Names of the topics of classes with an indication of the forms / methods / technologies of teaching:

№	Topic of the lesson	Type of activity	Form / Methods/Technologies of Distance, Interactive Learning	Number of hours
1	2	3	4	5
1	Data, information, data processing. Typical data processing operations. Computer data processing. From files to databases. The main concern of the developer is the separation of access. File-server, client-server technologies	Lecture / Practices	presentations, demonstrations, Discussion	6
2	Database in EXCEL	Lecture / Practices	presentations, demonstrations, discussions,	4
3	Database structures: Tables, relationships, links, indexes. Examples.	Lecture / Practices	presentations, demonstrations, discussion	6
4	An integral part of Microsoft Office is Microsoft Access. Basic concepts. Database development	Lecture / Practices	presentations, demonstrations, discussion	12
5	Requests. Universal tool - SQL language	Lecture / Practices	presentations, demonstrations, discussion	12
6	Generating reports	Lecture / Practices	presentations, demonstrations, discussion	6
7	Input Interfaces	Lecture / Practices	presentations, demonstrations, discussion	6
8	Access integration in EXCEL	Lecture / Practices	presentations, demonstrations, discussion	4
9	Python and SQLite. Database development, queries, interfaces, reports	Lecture / Practices	presentations, demonstrations, discussion	8
10	Integrate Python into Office	Lecture / Practices	presentations, demonstrations, discussion	4
Total hours:				68

VIII. Materials for Formative and Summative Assessment

Materials for formative and summative assessment of students' knowledge:

№	Assessment Tool	topics (sections) checked	Controllable competencies indicators /
1	2	3	4
1	Interview based on the results of tasks	Data, information, data processing. Computer data processing. From files to databases.	GPC-7.1
2	Interview based on the results of tasks	Database in EXCEL and its SWOT	GPC-7.1
3	Interview based on the results of tasks	Basic concepts of the database: Tables, relationships, links, indexes. Examples.	GPC-7.1, GPC-8.3, GPC-10.1-10.3
4	Interview based on the results of tasks	An integral part of Microsoft Office is Microsoft Access. Basic concepts. Database development	GPC-7.1, GPC-8.3, GPC-10.1-10.3
5	Interview based on the results of tasks	Requests. SQL Language	GPC-7.1, GPC-8.3, GPC-10.1-10.3
6	Interview based on the results of tasks	Generating reports	GPC-7.1, GPC-8.3, GPC-10.1-10.3
7	Interview based on the results of tasks	Input Interfaces	GPC-7.1, GPC-8.3, GPC-10.1-10.3
8	Interview based on the results of tasks	Access integration in EXCEL	GPC-7.1, GPC-8.3, GPC-10.1-10.3
9	Interview based on the results of tasks	Python and SQLite. Database development, queries, interfaces, reports	GPC-7.1, GPC-8.3, GPC-10.1-10.3
10	Interview based on the results of tasks	Integrate Python into Office	GPC-7.1, GPC-8.3, GPC-10.1-10.3
	Intermediate certification		GPC-7.1, GPC-8.3, GPC-10.1-10.3
	Credit with a grade		

Formative Assessment materials

Evaluation criteria for Formative and Summative Assessment:

Evaluation criteria	Evaluation
Less than 60% of correct answers	2 (unsatisfactory)
Correct answers are at least 60% and at least 70%	3 (Satisfactory)
Correct answers are more than 70% and at	4 (good)

least 85%	
More than 85% of correct answers	5 (excellent)

Designed by:

Associate Professor B.V. Solsky

The program is compiled in accordance with the requirements of the Federal State Educational Standards of Higher Education for the major 27.03.05 Innovatics, specialization "Management of innovative and IT projects and products".

The program was approved at a meeting of the Department of Strategic and Financial Management on March 21, 2025, Protocol No 9.

Head of the Department



N.B. Grosheva

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