BELARUSIAN STATE UNIVERSITY

INFORMATION PACKAGE.
COURSE CATALOGUE

Minsk

2007

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INTRODUCTION

This collection presents the information packages developed in the framework of TEMPUS project «Transformation of educational process at the Belarusian State University on the basis of ECTS compatible technologies» (JEP-UM 24214-2003) for specialities: «mathematics» (specialization – computer mathematics)», «economics», «history», «sociology». ECTS – is a European system of credits and their accumulation, otherwise a European system of credits transfer, applied in higher education for quantitative estimation of the degree of education program mastering. The system appeared in 1989 as a pilot project of the European Commission program EREASMUS, the main aim of the program is academic acknowledgement of the results of studies gained by students at the other universities. The European system of credits transfer presupposes availability of the information package for each speciality published in national language, and English for foreign citizens. The information package includes: a module catalogue (a curriculum with application of credit-module scheme for its development, a short description of all the courses given with indication of the chair and lecturers, seminars and laboratory classes content, recommended literature, credit and exam procedures), grading system at the exams, issued documents of education, information about the faculty, including its address, enrolling procedure both for natives and for foreign citizens, living conditions.

Thus, ECTS is a decentralized system of acknowledgement of the results of studies without taking into account the quality of the knowledge gained. Credit is a unit, it is given approximately for 25–30 hours spent on mastering a subject. It takes into account lectures, workshops, practical training, independent studies of students, writing reports, essays, term or yearly papers, and graduation or degree papers, practical work or internship, exchange programs, and also exams and other forms of knowledge control. The main ECTS thesis – a full-time student gains 60 credits per year. It is possible to add on up to 15 credits for the subjects not directly related to the profession.

The catalogues of the modules listed in the information packages for four professions underwent examination by experts and can be used as patterns. After their application we plan to prepare similar catalogues for the other professions at the basis of the education standards acting in our country, and present them in English also.

The TEMPUS project consortium included, except for Belarusian State University, also Brest State University named after A. S. Pushkin (Belarus), Magdeburg University, Jena University, Bielefeld University, Kassel University, Frankfurt-upon-Oder University (Germany), Malaga University (Spain), Trento University (Italy).

The project participants would like to express their gratitude to their colleagues from the above-mentioned universities for their assistance in the development of the information packages, valuable advice and comments expressed in the course of work, and for their careful expertise.

GENERAL INFORMATION

UNIVERSITY FACTS

The Belarusian State University was founded in 1921 and now it is a prominent educational, scientific, and production complex that includes 17 faculties, the State Institute of Management and Social Technologies, Institute of Business and Administration Technologies, Institute of Theology named after Sts. Cyril and Methodius, the BSU lyceum and law college. Three scientific research institutes, five national scientific centers, and 14 unitary scientific and production enterprises are also in the university structure.
The BSU staff is over 8.500 comprising almost 3.000 lectures, 400 Doctors of Science, 1.600 candidates of science, four academicians, and 12 Corresponding Members of the National Academy of Sciences of Belarus. More than 24.000 students study in 55 specialities on 200 specializations.
The Belarusian State University is the heart of the research realm in the Republic of Belarus – 80 % of research officers in the National Academy of Sciences are the BSU graduates. The significance of the university as a production-innovation center is increasing in the international market, too. Samples of the BSU production were presented at the international fairs and trade exhibitions in Hanover, Essen, Chanchun, Seoul, Beirut, Hoshiden, Johannesburg, Ankara, Warsaw, Vilnius, Kishinev, Astana, and a number of cities in Russia.The BSU was awarded 21 medals and 11 Diploma for its high-tech science intensive production at the international exhibitions in Russian Federation, Lithuania, Poland, and Belarus.

PRE-UNIVERSITY EDUCATION

Pre-University Education program aimed at equipping students with the Russian language, as well as learning strategies and skills which enable them to study professional disciplines. The education is conducted at the Institute of Youth and Education of the Belarusian State University.
Test in Russian for University Studies which is obligatory for all overseas students coming to University is intended to provide eligibility for the undergraduate and post-graduate courses. When test score and level of knowledge in the chosen speciality prove to be insufficient, students enroll for the one-year Pre-University Education Course.
The course comprises studying the Russian language, literature, and subjects on speciality. Teaching is organized along the following profiles: the humanities, economics, natural sciences, technical disciplines. The period of study is ten months (one academic year). Students that complete the course successfully receive a certificate of their eligibility for studies at the BSU and other institutions of higher learning in the Republic of Belarus and Russian Federation.

STUDYING AT THE BSU

The BSU offers educational services in the pre-university, undergraduate, and post-graduate programs on the full-time and correspondence basis.
Teaching is organized in the two official languages of the country – Belarusian and Russian.
Pre-University Education program provides overseas students with a one-year course of preparatory studies.
Undergraduate education is organized in 55 specialities. Bachelor's degree programs last 4–5 years.
Post-graduate courses for Master's degree last one or two years (depending on the preceding degree).
The degree of Candidate of science (Ph.D) requires a 3 years' post-graduate course.
Undergraduate curriculum includes theoretical and applied disciplines, periods of practical work, independent study. Periods of practical work aim at teaching students to apply the acquired knowledge in the chosen profession.
The BSU operates a two semester system of attendance. Learning methods incorporate lectures, seminar discussions, tutorials, workshops, and independent work.
Academic success of students is assessed at the end of each semester in the form of oral and \or written tests (students receive 'pass') and examinations (marks according to a 10-point grading scale).

The academic year is split into the autumn and spring semesters each ending in examination session and vocation periods.

Autumn semester: September – December.
Winter examination session: January.
Winter holidays: two weeks in February.
Spring semester: February – May.
Spring examination session: June.
Summer holidays: July – August.

GETTING AN INVITATION

To receive an invitation to study (a notice of admission to the university) foreign citizens produce to the International Relations Office of the Belarusian State University the following documents:

1. Completed Application Form.
2. Notarized copies of diploma \certificates of education and official transcripts of subjects studied and grades received.
3. Notarized copy of standard medical certificate issued by official health care agency in the applicant's home country.
4. Copy of passport valid for the entire study period.

All the documents issued in a foreign language require a notarized translation into the Belarusian \ Russian or English languages. Documents are to be marked «Application for study» and sent to university by the post service. Documents sent by fax are not considered!

Address:
Belarusian State University,
International Relations Office,
4, Nezavisimosti Ave,
Minsk, 220030,
Republic of Belarus.

APPLICATION DEADLINE:
October, 1

ELIGIBILITY

Eligibility of applicants and expertise of documents is administered by the International Relations Office and Deans of the Faculties. Admitted candidates are granted an official Letter of Invitation required for issuing a students visa in a consular service of the Republic of Belarus in their home countries. The Invitation and visa formalities are subject to fee which is paid at the place of issuing.

ENROLLMENT

The enrollment procedure is administered by the Foreign Students Advisory Service of IRO
(4, Nezavisimosti Ave., room 102).
Foreign citizens produce to the Foreign Students Advisory Service the following documents upon arrival:

1. Application addressed to Rector (naming the speciality of studies);
2. Original documents of completed education (Diploma, Certificates) and official transcripts of subjects studied and grades received;
3. Original of standard medical certificate issued by official health care agency in the applicant's home country;
4. Valid passport with students visa;
5. 6 recent passport-size photographs (4×6 sm).

Foreign citizens are expected to take the admission test at the Institute of Youth and Education at an appointed time. The test evaluates an applicant's

- command of the Russian language;
- competence in the subjects of speciality.

Director of the Institute of Youth and Education decides on the applicants' eligibility for study courses based on the admission test results.
Educational Contract is concluded after the test results are announced. Payment for educational services is made in a bank and an applicant is enrolled to university on receipt.

FEES AND EXPENDITURES

1. Invitation formalities due – $ 35.
2. Meeting and orientation – $ 40.
3. Tuition Fee (in accordance with contract).
4. Accommodation – from $ 20 per month.
5. Registration (Residence Permits) for the period of study in the Republic of Belarus – $ 45.
6. Obligatory Medical Insurance Policy for the period of staying in the Republic of Belarus – $ 85 per year.
7. Obligatory medical examination – $ 55.
8. «Holiday Permit» – $ 45.
9. «Exit Permit» – $ 30.

Payment is made on arrival to the BSU in USD and Belarusian currency (rubles).

TRAVELLING TO BELARUS

Address the Belarusian Consulate in your home country for a student visa. Visa requirements vary for different countries. Detailed information for your region is available from the Ministry of Foreign Affairs of the Republic of Belarus on (http://www.mfa.gov.by)
The convenient way to come to Belarus is by air or by train. Daily trains arriving in Minsk serve several major Eastern and Western cities, including Berlin, Paris, Kiev, Moscow, Prague, Riga, St. Petersburg, Vilnius, and Warsaw. Look up http://www.rw.by for trains schedule.

Minsk has two airports. Minsk I is within the city limits and primarily serves smaller domestic flights. Minsk II is an easy 40-minute drive outside the city and serves international flights. The airlines that service Minsk are: Lufthansa, Austrian Air, LOT, Estonian Air, El Al, and Belavia. The major connecting cities into and out of Minsk are Frankfurt, Vienna, Warsaw, and Moscow.
You can reach city center from the airport by taxi ($30) or shuttle bus ($3).
Buses depart from Minsk-2 Airport to «Centralny» bus station at:
07.10 a.m., 07.40 a.m., 08.10 a.m., 08.50 a.m., 10.45 a.m., 11.15 a.m., 11.45 a.m., 12.45 p.m., 13.50 p.m., 14.20 p.m., 14.50 p.m., 16.00 p.m., 17.05 p.m., 17.30 p.m., 18.40 p.m., 19.20 p.m., 20.00 p.m., 20.50 p.m., 21.40 p.m.
As this schedule is subject to changes browse http://www.minsktrans.by/schedule-suburb.php for information update.
The IRO staff will welcome you at the airport or railway station on your request if you inform us on your arrival time in advance.
Arriving on your own inquire on your reserved residence address. The hostel staff will issue a pass and keys for you and arrange for accommodation.

INTERNATIONAL STUDENTS' HEALTH SERVICE

All foreign nationals entering Belarus must purchase medical insurance for the entire period of staying in the country regardless of any other insurance one might have. The system of medical insurance ensures foreign citizens all type of medical help excluding dentistry.
The BSU International Relations Office personnel can assist with the required medical insurance.

Cost of the insurance varies according to the length of stay.
For further information on medical insurance and foreign insurance companies eligible in the Republic of Belarus browse «Belgosstrakh» on http://www.belgosstrakh.by.

ACCOMMODATION
The BSU has a dedicated service to help you find the accommodation you need. Incoming students should contact the IRO to inquire about the address of the reserved residence before they arrive.
The University has ten student hostels. Foreign students of Pre-University cycle receive accommodation in hostels № 5 and № 7. They move to Faculty hostels after they start the undergraduate program.
About 65 % of the BSU accommodation options comprise rooms shared by 3–4 persons, with common kitchen and toilets on the floor. There are also hostels of block type with kitchen and toilets common for two rooms.
Furniture includes beds, chairs, desks, built-in wardrobes, and book shelves. Pricing depends on the type of accommodation and varies from $20 to $40 per month.
Private rented accommodation in Minsk is relatively easy to find. The cost of $200–$350 is conditioned by comfort and location. The International Relations Office will provide independent advice on real estate agencies.
Visit the following links to learn the city: http://www.kartaminska.by.ru, http://www.minskoldnew.com. http://bymetro.narod.ru

MINSK
Minsk, the capital of Belarus, is today a clean manageable city of beautiful well-kept parks, and wide streets. As the political, economic, cultural, and social center of Belarus, with a population of 1.7 million, the city supports respected academic and cultural institutes of higher learning; modern sports facilities; tranquil botanical gardens; and innumerable museums, theaters, and arenas.
Minsk is replete with outstanding, yet inexpensive opportunities for the performing arts, including topnotch opera, ballet, music, theater, folk music and dance, and even a year-round circus. Art and photographic exhibitions are frequent and varied.
There is little crime in Minsk, yet visiting city outskirts and smaller neighborhoods at late hours is not recommended. It is required that you have an identification and copy of your passport with you.

CITY TRANSPORT
Minsk has a well-developed network of public transportation that is inexpensive and reliable, although often crowded at rush hours. It operates from 5:30 a.m. to 1 a.m. In addition to a modern metro, the system includes buses, trolley buses, and trams. Monthly and decade passes are available. Public transport tickets can be obtained from kiosks or transport conductors.
Taxi services are available 24 hours a day, but require some Russian language to call the radio dispatcher or to give the driver instructions. Fares should be metered or negotiated in advance. Tipping is not customary or expected.

COMMUNICATIONS
The country code for Belarus is 375; the city code for Minsk is 17.
Some areas of Minsk have been updated to touch-tone dialing, but most of the country is still on the pulse dial system.
Calls from telephone booths require calling cards which can be used for local and long-distance calls (from universal phone booths). There is also a wide network of communication service in Minsk.

CLOTHING
Clothing requirements are relatively informal, but must take into consideration the weather. Winters are wet, windy, and cold. Icy sidewalks can be slick. Spring and autumn are sometimes rainy. Summer temperatures are usually mild.

A supply of warm indoor winter clothing is recommended. Winter outdoor wear should include warm hats, scarves, gloves, wool socks, insulated waterproof boots with good tread, and a heavy coat.

MONEY

The official currency of Belarus is the Belarusian ruble. Currency is issued in denominations ranging from 10 to 100,000 rubles. There are no coins. Money changing booths and kiosks are found on most major streets and in banks, larger restaurants, department stores, and markets. There is a growing number of ATM's throughout Minsk. These accept Eurocard/Mastercard and VISA and a few will distribute foreign currency.

ECTS BSU CO-ORDINATOR

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INFORMATION ON DEGREE PROGRAMMES

CURRICULUM: COMPUTER MATHEMATICS
BACHELOR AND MASTER OF SCIENCE DEGREE

FIRST YEAR

№	Code	Modules	HPW		Control		ECTS		
			Sem. 1	Sem. 2	CT	EX	Sem. 1	Sem. 2	In year
1	MA	Mathematical analysis I	4/4/0	4/4/0	1, 2	1, 2	8	8	16
2	AZ	Algebra and theory of numbers I	2/2/0	3/3/0	1, 2	1, 2	4	6	10
3	AG	Analytical geometry	2/2/0	2/2/0	1, 2	1, 2	4	4	8
4	PI	Programming and informatics I	2/0/2	2/0/2	–	1, 2	4	4	8
5	CM	Computer mathematics I	1/0/1	1/0/1	–	2	3	2	5
6	EF	Introduction into speciality	2/0/0	–	1	–	3	–	3
7	DM	Discrete mathematics	–	2/1/0	2	–	–	2	2
8	CP+ SLFA	Computer practical training I + ERWS I	0/2/2	0/2/2	2	2	4	4	8
In semester			28	31			30	30	
In year					9	10			60

Remarks to the plan

HPW	Hours per week Lectures / Practical lessons / Laboratory lessons during the semester of 17 weeks
HPW*	Hours per week Lectures / Practical lessons / Laboratory lessons during the semester 9 of 14 weeks
CT	Credit test, Semester N
EX	Examination, Semester N
ERWS	Educational + research work of a student
ECTS	European Credit Transfer System

SECOND YEAR

№	Code	Modules	HPW		Control		ECTS		
			Sem. 3	Sem. 4	CT	EX	Sem. 3	Sem. 4	In year
1	MA	Mathematical analysis II	4/4/0	4/4/0	3, 4	3, 4	8	8	16
2	AZ	Algebra and theory of numbers II	2/2/0	2/2/0	3, 4	3, 4	4	4	8
3	PI	Programming and informatics II	2/0/2	2/0/2	3, 4	–	3	3	6
4	CM	Computer mathematics II	1/0/1	1/0/1	4	–	2	2	4

5	DGT	Differential geometry and topology	2/2/0	3/3/0	3, 4	3, 4	4	4	8
6	DG	Differential equations	2/2/0	2/2/0	3, 4	3, 4	4	4	8
7	CP+ SLFA+ SA	Computer practical training II + ERWS II + Research project I	0/2/2	0/2/2	4	4, 4	5	5	10
In semester			28	31			30	30	
In year					9	10			60

THIRD YEAR

№	Code	Modules	HPW		Control		ECTS		
			Sem. 5	Sem. 6	CT	EX	Sem. 5	Sem. 6	In year
1	NM	Methods of computations I	1/0/1	1/0/1	5, 6	–	2	2	4
2	VO	Variation calculus and methods of optimization I	2/1/0	–	5	–	3	–	3
3	TFKV	Theory of functions of complex variable	2/2/0	2/1/0	5	5, 6	4	3	7
4	FAIG	Functional analysis and integral equations I	2/2/0	2/2/0	5	5, 6	5	3	8
5	WTS	Theory of probabilities and mathematical statistics I	–	2/2/0	6	–	–	4	4
6	GMPh	Equations of mathematical physics I	–	2/2/0	6	–	–	4	4
7	Mod	Computer modeling I	1/0/2	–	–	5	4	–	4
8	AF	Natural-science discipline I	1/0/2	–	5	–	3	–	3
9	CGA	Computer graphics and animation Ia Computer graphics and animation Ib	–	2/0/2 1/0/1	–	6 6	–	5	5
10	SAIS	Methods of system analysis and informational systems designing I	–	1/0/1	6	–	–	2	2
11	BP	Practical training I	–	4 Weeks	–	6	–	4	4
12	SLFA+ SA	ERWS III + Research project II	0/2/0	0/2/0	6	6	8	4	12
In semester			21	27			29	31	
In year					10	9			60

FOURTH YEAR

№	Code	Modules	HPW		Control		ECTS		
			Sem. 7	Sem. 8	CT	EX	Sem. 7	Sem. 8	In year
1	CM	Computer mathematics III	1/0/1	1/0/1	7, 8	–	2	2	4
2	NM	Methods of computations II	2/0/2	2/0/2	7	8	3	4	7
3	FAIG	Functional analysis and integral equations III	2/2/0	–	–	7	4	–	4
4	WTS	Theory of probabilities and mathematical statistics II	2/2/0	–		7	4	–	4
5	GMPh	Equations of mathematical physics II	2/2/0	–	–	7	4	–	4
6	TM	Theoretical mechanics	2/2/0	2/2/0	7	8	3	4	7
7	OF	Operation research	–	2/1/0	–	8	–	3	3
8	ML	Mathematical logic	–	2/1/0	8	–	–	3	3
9	Mod	Computer modeling II	1/0/1	1/0/1	8	7	2	2	4
10	CGA	Computer graphics and animation II	–	2/0/2	8	8	–	4	4
11	SAIS	Methods of system analysis and informational systems designing III	1/0/1	1/0/1	8	7	2	2	4
12	SLFA+ BDiss	ERWS IV + Bachelor thesis	0/2/0	0/2/0	8	8	6	6	12
In semester			28	26			30	30	
In year					9	10			60

FIFTH YEAR

№	Code	Modules	HPW*		Control		ECTS		
			Sem. 9	Sem. 10	CT	EX	Sem. 9	Sem. 10	In year
1	CM	Computer mathematics IV	1/0/1	–	9	–	2	–	2
2	VO	Variation calculus and methods of optimization II	2/2/0	–	–	9	4	–	4
3	Ph	Physics	2/1/1	–	9	–	4	–	4
4	Mod	Computer modeling III	1/0/1	–		9	2	–	2
5	AF	Natural-science discipline II	1/0/1	–	9	–	2	–	2
6	CGA	Computer graphics and animation III	1/0/1	–	9	–	2	–	2
7	VCM	Advanced computer mathematics I	2/1/1	–	–	9	4	–	4

8	SAIS	Methods of system analysis and informational systems designing III	2/1/1	–	–	9	4	–	4
9	BP	Practical training II	–	10 Weeks	–	10	–	10	10
10	SV	Graduate examination I	–	1/0/0		10	–	6	6
11	Dip	Graduation thesis	–	10 Weeks	–	10	6	14	20
In semester			24				30	30	
In year					4	7			60

SIXTH YEAR

№	Code	Modules	HPW		Control		ECTS		
			Sem. 11	Sem. 12	CT	EX	Sem. 11	Sem. 12	In year
1	Mod	Computer modeling IV	1/0/1	–	–	11	5	–	5
2	AF	Natural-science discipline III	2/1/1	–	11	–	5	–	5
3	CGA	Computer graphics and animation IV	1/0/1	–	11	–	5	–	5
4	VCM	Advanced computer mathematics II	2/1/1	–	11	11	8	–	8
5	SAIS	Methods of system analysis and informational systems designing IV	2/1/1	–	–	11	7	–	7
6	SV	Graduate examination II		2/0/0	–	12		10	10
7	MDiss	Master thesis		12 Weeks	–	12		20	20
In semester			16				30	30	
In year					3	5			60

DISCRIPTION OF COURSES

Lectures: 68 Practical: 68 Laboratory: 0	MA. 1	Mathematical analysis I	ECTS: 8
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of function theory Dubatovskaja M. V.		
Goal	Basis creation for mastering basic concepts and methods of modern mathematics. Mastering of the course «Mathematical analysis» allows students to solve theoretical and applied problems of modern analysis independently		
Precedence	Foundations of algebra and analysis principles within the framework of secondary school		

Contents	Elements of logistics and the set theory. The conception of real numbers. Limit. Continuity of one-variable functions. Differential calculus of functions of one real variable
Teaching methods	Lectures and practical training, independent tests (laboratory work)
Literature	1. Zorich V. A. Mathematical analysis. M.: Nauka, 1981. Vol. 1. 2. Demidovich B. P. Collection of tasks and exercises in mathematical analysis. M.: Nauka, 1977. 3. Rudin U. Foundations of mathematical analysis. M.: Mir, 1976.
Examination	Colloquium, credit test, examination
Recommended for	First year students of the specialization Computer mathematics
Notes	The given literature is required during the whole course

Lectures: 68 Practical: 68 Laboratory: 0	MA. 2	Mathematical analysis I	ECTS: 8
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of function theory Dubatovskaja M. V.		
Goal	Basis creation for mastering the basic concepts and methods of modern mathematics. Mastering of the course «Mathematical analysis» allows students to solve theoretical and applied problems of modern analysis independently		
Precedence	Theory of limit, differential calculus, foundations of set theory and analytic geometry		
Contents	Indefinite integral. Define Riemann integral. Improper integral. Usage of a define Riemann integral. Curvilinear integral. Differential calculus of multivariable functions		
Teaching methods	Lectures and practical training, independent tests (laboratory work)		
Literature	1. Zorich V. A. Mathematical analysis. M.: Nauka, 1981. Vol. 1. 2. Demidovich B. P. Collection of tasks and exercises in mathematical analysis. M.: Nauka, 1977. 3. Rudin U. Foundations of mathematical analysis. M.: Mir, 1976.		
Examination	Colloquium, credit test, examination		
Recommended for	First year students of the specialization Computer mathematics		
Notes	The given literature is required during the whole course		

Lectures: 68 Practical: 68 Laboratory: 0	MA. 3	Mathematical analysis II	ECTS: 8
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of function theory Dubatovskaja M. V.		
Goal	Basis creation for mastering the basic concepts and methods of modern mathematics. Mastering of the course «Mathematical analysis» allows students to solve theoretical and applied problems of modern analysis independently		

Precedence	Differential calculus of multivariable functions, the theory of limits, set theory, integral calculus of one-variable functions
Contents	Implicit reflections. Extremums of multidimensional functions. Number series. Functional sequences and series, power series. Improper parameter-dependent integrals. Fourier series theory
Teaching methods	Lectures and practical training, independent tests (laboratory work)
Literature	1. Zorich V. A. Mathematical analysis. M.: Nauka, 1981. Vol. 1. 2. Demidovich B. P. Collection of tasks and exercises in mathematical analysis. M.: Nauka, 1977. 3. Rudin U. Foundations of mathematical analysis. M.: Mir, 1976.
Examination	Colloquium, credit test, examination
Recommended for	First year students of the specialization Computer mathematics
Notes	The given literature is required during the whole course

Lectures: 68 Practical: 68 Laboratory: 0	MA. 4	Mathematical analysis II	ECTS: 8
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of function theory Dubatovskaja M. V.		
Goal	Basis creation for mastering the basic concepts and methods of modern mathematics. Mastering of the course «Mathematical analysis» allows students to solve theoretical and applied problems of modern analysis independently		
Precedence	Integral calculus of one-variable functions, differential calculus of multivariable functions, the basic concepts of differential geometry and topology		
Contents	Integral calculus of multivariable functions. Field theory. Differential forms calculus		
Teaching methods	Lectures and practical training, independent tests (laboratory work)		
Literature	1. Zorich V. A. Mathematical analysis. M.: Nauka, 1981. Vol. 1. 2. Demidovich B. P. Collection of tasks and exercises in mathematical analysis. M.: Nauka, 1977. 3. Rudin U. Foundations of mathematical analysis. M.: Mir, 1976.		
Examination	Colloquium, credit test, examination		
Recommended for	First year students of the specialization Computer mathematics		
Notes	The given literature is required during the whole course		

Lectures: 34 Practical: 34 Laboratory: 0	AZ. 1	Algebra and number theory I	ECTS: 4
Lecturer	Candidate of physics and mathematics sciences, associate professor of the department of higher algebra Kursov V. V.		
Goal	Systematical exposition of the basic facts, concerning algebraic objects and comprising the basic knowledge, which is necessary for studying the most of		

	other mathematical disciplines as well as presenting the specific examples of the methods of investigation of real problems, which are based on the process of transition to abstract concepts
Precedence	Foundations of algebra within the framework of secondary school
Contents	Divisibility of integers. The theory of congruences. Complex field. Permutations and substitutions. Algebraic structures. Polynomial in one variable. Polynomial in several variables
Teaching methods	Lectures and practical training, tests
Literature	1. Milovanov M. V., Tyshkevich R. I., Fedenko A. S. Algebra and analytic geometry. Pt. 1. Minsk, 1984. 2. Milovanov M. V., Tolkachev M. M., Tyshkevich R. I., Fedenko A. S. Algebra and analytic geometry. Pt. 2. Minsk, 1987. 3. Kurosh A. G. The course of higher algebra. M.: Nauka, 1965 (and later editions). 4. Faddeev D. K. The lectures on algebra. M.: Nauka, 1984.
Examination	Tests, final test, examination
Recommended for	First year students of the specialization Computer mathematics
Notes	The given literature is necessary during the whole course

Lectures: 51 Practical: 51 Laboratory: 0	AZ. 2	Algebra and number theory I	ECTS: 6
Lecturer	Candidate of physics and mathematics sciences, associate professor of the department of higher algebra Kursov V. V.		
Goal	Systematical exposition of the basic facts, concerning algebraic objects and comprising the basic knowledge, which is necessary for studying the most of other mathematical disciplines as well as presenting the specific examples of the methods of investigation of real problems, which are based on the process of transition to abstract concepts		
Precedence	Vectors and operations on them, the conception of basis, algebraic structures		
Contents	Determinants. Vector spaces. Subspaces. Linear mapping of vector spaces. The system of linear equations. Isomorphism of vector spaces. Invariant subspaces. Eigenvectors and eigenvalues. Jordan normal form		
Teaching methods	Lectures and practical training, tests		
Literature	1. Milovanov M. V., Tyshkevich R. I., Fedenko A. S. Algebra and analytic geometry. Pt. 1. Minsk, 1984. 2. Milovanov M. V., Tolkachev M. M., Tyshkevich R. I., Fedenko A. S. Algebra and analytic geometry. Pt. 2. Minsk, 1987.		

	3. Kurosh A. G. The course of higher algebra. M.: Nauka, 1965 (and later editions). 4. Faddeev D. K. The lectures on algebra. M.: Nauka, 1984.
Examination	Tests, final test, examination
Recommended for	First year students of the specialization Computer mathematics
Notes	The given literature is necessary during the whole course

Lectures: 34 Practical: 34 Laboratory: 0	AZ. 3	Algebra and number theory II	ECTS: 4
Lecturer	Candidate of physics and mathematics sciences, associate professor of the department of higher algebra Kursov V. V.		
Goal	Systematical exposition of the basic facts, concerning algebraic objects and comprising the basic knowledge, which is necessary for studying the most of other mathematical disciplines as well as presenting the specific examples of the methods of investigation of real problems, which are based on the process of transition to abstract concepts		
Precedence	Matrices and operations on them, the concept of determinant, vector subspaces, linear mapping of vector spaces, the concept of space E^n		
Contents	Bilinear and quadratic forms. Euclidean and unitary spaces. Linear operators of Euclidean and unitary spaces		
Teaching methods	Lectures and practical training, tests		
Literature	1. Milovanov M. V., Tyshkevich R. I., Fedenko A. S. Algebra and analytic geometry. Pt. 1. Minsk, 1984. 2. Milovanov M. V., Tolkachev M. M., Tyshkevich R. I., Fedenko A. S. Algebra and analytic geometry. Pt. 2. Minsk, 1987. 3. Kurosh A. G. The course of higher algebra. M.: Nauka, 1965 (and later editions). 4. Faddeev D. K. The lectures on algebra. M.: Nauka, 1984.		
Examination	Tests, final test, examination		
Recommended for	Second year students of the specialization Computer mathematics		
Notes	The given literature is necessary during the whole course		

Lectures: 34 Practical: 34 Laboratory: 0	AZ. 4	Algebra and number theory II	ECTS: 4
Lecturer	Candidate of physics and mathematics sciences, associate professor of the department of higher algebra Kursov V. V.		
Goal	Systematical exposition of the basic facts, concerning algebraic objects and comprising the basic knowledge, which is necessary for studying the most of other mathematical disciplines as well as presenting the specific examples of the methods of investigation of real problems, which are based on the process of transition to abstract concepts		
Precedence	Foundations of theory of numbers, algebraic structures (groups, a ring, a field)		

Contents	Groups and theirs primary properties. Theorems about group homomorphism. The theory of rings. The theory of fields
Teaching methods	Lectures and practical training, tests.
Literature	1. Milovanov M. V., Tyshkevich R. I., Fedenko A. S. Algebra and analytic geometry. Pt. 1. Minsk, 1984. 2. Milovanov M. V., Tolkachev M. M., Tyshkevich R. I., Fedenko A. S. Algebra and analytic geometry. Pt. 2. Minsk, 1987. 3. Kurosh A. G. The course of higher algebra. M.: Nauka, 1965 (and later editions). 4. Faddeev D. K. The lectures on algebra. M.: Nauka, 1984.
Examination	Tests, final test, examination
Recommended for	Second year students of the specialization Computer mathematics
Notes	The given literature is necessary during the whole course

Lectures: 34 Practical: 34 Laboratory: 0	AG. 1	Analytic geometry	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of geometry, topology and teaching methods Kononov S. G.		
Goal	1. Studying of vectors in E^3 space as classes of equivalent directed segments and their application for the study of straight lines and planes. 2. Familiarization with the basic method in analytical geometry, i.e. the coordinates method. 3. Studying of new geometric objects – the second order figures on a E^2 plane and in E^3 space		
Precedence	Foundations of geometry and algebra within the framework of secondary school		
Contents	Vectors and coordinates. Straight line on a Euclidean plane. A plane and a straight line in a three-dimensional Euclidean space. Second order figures on a Euclidean plane and in three-dimensional Euclidean space		
Teaching methods	Lectures and practical training		
Literature	1. Kostrikin A. I., Manin U. I. Linear algebra and geometry. M: Nauka, 1986. 320 p. 2. Milovanov M. V., Tolkachev M. M., Tyshkevich R. I., Fedenko A. S. Algebra and analytic geometry. Mn.: Vyshejshaja shkola, 1984. Pt. 1. 302 p.; 1987. Pt. 2. 269 p. 3. Modenov P. S., Parhomenko A. S. Collection of tasks and exercises in analytic geometry. M: Nauka, 1976. 384 p.		
Examination	Credit test, examination		
Recommended for	First year students of the specialization Computer mathematics		

Lectures: 34 Practical: 34 Laboratory: 0	AG. 2	Analytic geometry	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of geometry, topology and teaching methods Kononov S. G.		

Goal	1. Familiarization with new in comparison with elementary geometry spaces: multidimensional Euclidean, affine, projective, and study of figures typical for these spaces: linear (κ-dimensional planes) and quadratic. 2. To master the basic method of investigation in analytic geometry – the coordinates method. 3. Systematic study of geometric transformations, carrying out group-theoretical view on geometry
Precedence	Vectors and operations on them, figures of the first and the second order on a plane and in space
Contents	Affine transformations of a E^2 plane and E^3 space. Affine n-dimensional space A^n. Point n-dimensional Euclidean space E^n. Quadrics in affine space. Quadrics in Euclidean space. Projective plane and projective space
Teaching methods	Lectures and practical training
Literature	1. Kostrikin A. I., Manin U. I. Linear algebra and geometry. M: Nauka, 1986. 320 p. 2. Milovanov M. V., Tolkachev M. M., Tyshkevich R. I., Fedenko A. S. Algebra and analytic geometry. Mn.: Vyshejshaja shkola, 1984. Pt. 1. 302 p.; 1987. Pt. 2. 269 p. 3. Modenov P. S., Parhomenko A. S. Collection of tasks and exercises in analytic geometry. M.: Nauka, 1976. 384 p.
Examination	Credit test, examination
Recommended for	First year students of the specialization Computer mathematics

Lectures: 34 Practical: 0 Laboratory: 34	PI. 1	Programming and the Information Theory I	ECTS: 4
Lecturer	Candidate of physics and mathematics sciences, associate professor of the department of numerical methods and programming Alenskiy N. A.		
Goal	Teaching the methods of solving scientific, technical and information problems, acquisition by the students the skills of work on contemporary computing systems, the study of new information technologies		
Basic courses	Section «Foundations of algorithmization and programming» of school course «Information science»		
Contents	Algorithms and the basis of language C++. Modern Integrated Development Environment systems. Functions. The basic concepts of the Object Oriented Programming. Simple data types. Arrays (without pointers)		
Teaching methods	Lectures and laboratory lessons		
Literature	1. Kernigan B. and other. Language of programming C. M.: Finances and statistics, 1992. 2. Podbel'skiy V. V., Fomin S. S. Programming in the language C. M.: Finances and statistics, 1999. 600 p. 3. Shildt H. Self-study of C++. 3d ed. St. Petersburg: BKHV, 2002. 688 p.		
Examination	Examination		
Recommended for	Students of the first year, specialization Computer mathematics		

Lectures: 34 Practical: 0 Laboratory: 34	PI. 2	Programming and the Information Theory I	ECTS: 4
Lecturer	Candidate of physics and mathematics sciences, associate professor of the department of numerical methods and programming Alenskiy N. A.		
Goal	Teaching the methods of solving scientific, technical and information problems, acquisition by the students the skills of work on contemporary computing systems, the study of new information technologies		
Basic courses	Types of algorithms and their realization in language C++, operations and operators in C++ language, algorithms for work with one-dimensional arrays and matrices, programming by using independent functions and classes		
Contents	Structured types of data. Pointers. Input, output, operations with files. Pointers and dynamic memory. Modern technologies and methods of programming		
Teaching methods	Lectures and laboratory studies		
Literature	1. Kernigan B. and other. Language of programming C. M.: Finances and statistics, 1992. 2. Bases of algorithmization and programming. Language C: Textbook for the students BGUIR/Demidovich Ye. N. Mn., 2001. 440 p. 3. Podbel'skiy V. V. Language C++: Teaching aid. M.: Finances and statistics, 2000. 560 p.		
Examination	Examination		
Recommended for	Students of the first year, specialization Computer mathematics		

Lectures: 34 Practical: 0 Laboratory: 34	PI. 3	Programming and the information theory II	ECTS: 3
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of numerical methods and programming Romanchik V. S.		
Goal	Teaching the methods of solving scientific, technical and information problems, acquisition by the students the skills of work on contemporary computing systems, the study of new information technologies		
Basic courses	Pointers and their relationship with arrays, structures and other data types, work with dynamic memory		
Contents	Object-oriented programming. A general characteristic of system C++ Builder. Input/output. The console application. Operating components. Work with the text. Graphic opportunities. Work with local databases. The distributed applications and sockets		

Teaching methods	Lectures and laboratory studies
Literature	1. Alenskiy N. A. Bases of programming in language C++: textbook/ GUO «APO». Mn.: APO, 2005. 148 p. 2. Arnold K., Gosling J., Holms D. Language of programming Java. 3d ed. M.: Viliams, 2001. 624 p. 3. Arnush C. Master independently in Borland C++5. M.: Binomial, 1997. 719 p.
Examination	Final test
Recommended for	Students of the second year, specialization Computer mathematics
Remarks	For the control of knowledge intermediate and final testing is used

Lectures: 34 Practical: 0 Laboratory: 34	PI. 4	Programming and the Information Theory II	ECTS: 3
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of numerical methods and programming Romanchik V. S.		
Goal	Teaching the methods of solving scientific, technical and information problems, acquisition by the students the skills of work on contemporary computing systems, the study of new information technologies		
Basic courses	Object-oriented programming, bases of algorithmization, basic knowledge of Internet technologies		
Contents	The organization of computer networks and the Internet. Protocols. Addressing. Work with the Internet. Browsers. E-mail. Hypertext documents. HTML language. Java language. Applets and applications. Basic types and classes. Processing of events. Use of packages of classes of Java language. Creation of interactive Web-pages. Technology of the development of Internet-applications		
Teaching methods	Lectures and laboratory lessons		
Literature	1. Blinov I. N., Romanchik V. S. Java 2. Practical manual. Mn.: University press, 2005. 400 p. 2. Nouton, Shildt. Java 2. 2000. 3. Arnolds K., Gosling J., Holms D. Language of programming Java. 3d ed. M.: Viliams, 2001. 624 p.		
Examination	Final test		
Recommended for	Students of the second year, specialization Computer mathematics		
Remarks	For the control of knowledge intermediate and final testing is used		

Lectures: 17 Practical: 0 Laboratory: 17	CM. 1	Computer Mathematics I	ECTS: 3
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of differential equations Shcheglova N. L.		

Goal	The skills of work in the environment of operational system Windows, development of the skills to organize educational and research work using modern numerical and symbolical mathematical packages
Basic courses	The bases of computer science within the limits of a course of high school: the minimal configuration of a personal computer, its modern technical characteristics, the concept of the software
Contents	Introduction in computer technologies. Operational system Windows: the object-oriented approach, the basic technological mechanisms. Teamwork of Appendices. A technique of acquaintance with new Appendices. The typical operating procedure with Documents. Processing the text information. Work with spreadsheets. Numerical mathematical package MathCAD. The interface. Structure of the Document. Input, editing, formatting of expressions. Ways of defining and calculating variables and functions. Work with files, vectors, matrices. The solution of the equations and systems. Symbolical calculations: commands and operators. Drawing and animation. Elements of programming. Symbolical mathematical package MapleV. The interface, structure. Expression as basis of symbolical packages. The basic types of expressions: an atom, a list, a set, a function. Work with parts of an expression. Local substitutions. The built-in functions of transformation of the expressions, the solutions of the equations and systems. Functions of the user. The elementary procedures. Means of programming. Methods of debugging the programs. Specialized packages. Drawing and animation
Teaching methods	Lectures, laboratory lessons
Literature	1. Shafrin Yu. ABC of computer technologies. M.: Publishing of the Institute of the Psychotherapy, 2000. 2. Pliss A. I., Slivina N. A. Mathcad: Mathematical practical book. M.: Finance and statistics, 2003. 3. Heck A. Introduction to Maple. Springer, 2003.
Examination	Test, presentation of the laboratory works
Recommended for	Students of the first year specializing in Computer mathematics

Lectures: 17 Practical: 0 Laboratory: 17	CM. 2	Computer Mathematics I	ECTS: 2
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of differential equations Shcheglova N. L.		
Goal	The development of the skill to independently acquire and extend computer and mathematical knowledge with its further use during analysis of mathematical models of wide range of research and applied problems		
Basic Courses	Computer mathematics: the basics of computer technologies		
Contents	Symbolic mathematical package Mathematica. The structure of the package. The peculiarities of the interface. Help system. The scenario of work: accumulation of knowledge during the Session, their storing between the Sessions. Notepad metaphor. Cells as the main objects of Notepad. Everything is an expression. Types of expressions. The analysis of structure of the expression. Patterns as the expressions, describing the sets of expressions.		

	A symbol as the basic means of calculations. Properties and attributes of a symbol. Global rules of transformations. The different possibilities of their association with a symbol. Conditions of executing these rules, or options of a symbol. The functions determined by the user. Local transformation rules. Programming based on the local transformation rules. Functional programming. Pure and anonymous functions. Operator Apply and the set of operators Map. The possibilities of successive application of function to the result of its operation. Constructions controlling the course of computation: branching and iteration. The order of computation of the expression. The main cycle of the package. The principles of localization of the variables. Contexts. Packages. Graphics and animation
Teaching methods	Lectures, laboratory lessons
Literature	1. Stephen Wolfram. The Mathematica Book. Fourth Edition. Cambridge, Universitiy Press, 1999. 2. Vorobiev E. M. Introduction to «Mathematica». M.: Finance statistics, 1998. 3. Goloubeva L. L., Malevich A. E., Scheglova N. L. Computer mathematics. Symbolic mathematical package Mathematica. A series of lectures. Mn.: BSU, 2005.
Examination	CIW, presentation of laboratory works, examination
Recommended for	Students of the first year specializing in Computer mathematics

Lectures: 17 Practical: 0 Laboratory: 17	CM. 3	Computer Mathematics II	ECTS: 2
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of differential equations Goloubeva L. L.		
Goal	Development of the skill to independently acquire and extend computer and mathematical knowledge with its further use during analysis of mathematical models of wide range of research and applied problems		
Basic Courses	Computer mathematics, Algebra and theory of numbers		
Contents	Numeric package MATLAB. Structure of the package. Interface of the system. Command window. Workspace. History command. Current directory. Editor-debugger of files. Figures. Help system. Real time work. Everything is an array. Types of data. Hierarchy of data. Data presentation. Vectors, matrices, tensors. Operations with data. Symbolic arrays, structures, cells. Programming of M-scripts and M-functions. Functions, determined by the user. Types of functions. Primary functions, subfunctions, private functions. Local and global variables. Object-oriented programming, classes and objects. Classes, determined by the user. Constructor. Properties and methods. Basic methods included in the MATLAB canonical classes. The basics of high-level and descriptive graphics. Handle graphics objects. Hierarchy of graphics objects. Determining the values of a graphics object property. Data input and output. Exporting data to MAT-files. Importing data from MAT-files. Binary data. ASCII data. Reading formatted data from a file. Writing formatted data to a file.		

	Creating graphical user interfaces (GUIs) using GUIDE, the MATLAB graphical user interface development environment. Programming callbacks events for GUI components. Setting component properties, i.e. the property inspector. The Layout Editor. GUIDE templates. Interaction of MATLAB environment with external applications
Teaching methods	Lectures, Laboratory lessons
Literature	1. Potemkin V. G. MATLAB 5. x. – the system of engineering and scientific computation. Vol. 1–2. M.: DIALOG-MIFI, 1999. 2. Martynov N. N. Introduction to MATLAB 6. KUDIT-IMAGE, 2002. 3. Rudra Pratap. Getting started with MATLAB: version 6. Oxford: Oxford Univ. Press, 2002.
Examination	CIW, presentation of laboratory works, final test
Recommended for	Students of the second year specializing in mathematics, Computer mathematics

Lectures: 17 Practical: 0 Laboratory: 17	CM. 4	Computer Mathematics II	ECTS: 2
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of differential equations Malevich A. E.		
Goal	Modeling. Mathematical and computer modeling. Computer systems of mathematical modeling. Matlab, Simulink, Stateflow, VRML		
Basic Courses	Mathematical analysis, Linear Algebra and analytic geometry, Computer mathematics, Matlab		
Contents	System. Model. Modeling. Dynamic system. Phase space. The computer package for modeling dynamic systems Simulink. Operational environment and user interface. Datum, signal, block. The library of blocks. Scientific, mathematical and computer models. Continuous and discrete dynamic systems. Transformation of a scientific model into a mathematical model and vice versa. Units of measure and «the theory of dimensions». Dynamic systems with control. Events. The event response of the system. Controlling signal. Enabled blocks. Triggered blocks. Complicated systems. Subsystem. System hierarchy. Decomposition of the system into relatively independent subsystems. Interaction of the subsystems. Assembling the model of the complicated system from the (sub)models of its subsystems. Concealing the internal structure of the submodel. The means of extension of the library of standard blocks. Finite state machine. State diagram. Event, state, switch (change). Introduction to the unified modeling language UML. The computer package Stateflow. User interface and basic skills needed to work with the package Stateflow. Its connection to Simulink and Matlab. The language describing the systems controlled by the events accepted in Stateflow. Debugging the model in Stateflow. Virtual reality. Virtual reality modeling language VRML / X3D. Description, projection and creation of the three-dimensional scenes. Basic nodes and event routing in VRML. Script usage in VRML. Usage of VRML in Simulink. Virtual Reality Toolbox. User interface. Projection and development of user interface. Three-dimensional interface		
Teaching methods	Lectures and laboratory works		

Literature	1. Benkovich E. S. and others. Practical modeling of dynamic systems. SPb.: BHV-Petersburg. 2. Cherny I. V. SIMULINK: the environment for creating the engineering applications. M.: DIALOG-MIFI. 3. Rambo J., Jacobson A., Buch G. UML: special reference book. SPb.: Piter.
Examination	Examination + Reports on 7 laboratory works
Recommended for	Students of the second year of the specialization Computer mathematics

Lectures: 17 Practical: 0 Laboratory: 17	CM. 7	Computer Mathematics III	ECTS: 2
Lecturer	Doctor of physics-mathematics sciences, professor of the department of differential equations Sadovsky A. P.		
Goal	Acquiring the basic concepts of the polynomial ideals' theory, Groubner basis and methods of calculating the ideals' manifolds, ideals' radicals by means of computer algebra		
Basic courses	Algebra and the theory of numbers, analytical geometry, mathematical analysis, fundamentals of the theory of function of complex variable, ordinary differential equations		
Contents	Affine manifolds and ideals. Monomial ordering. The algorithm of division in a polynomial domain with many variables. Monomial ideals. Gilbert's theorem of basis. Groubner basis and its properties. Bukhberger's criterion. Bukhberger's algorithm of calculation of Groubner basis. Minimal Groubner basis. Reduced Groubner basis. Syzygies of ideal's basis. Excluding ideals. The theorem of exclusion. Resultants. Generalized resultants. The theorem of continuation. Gilbert's theorem of noughts. Radical ideals. Radicals of ideals. Correspondence between affine manifolds and ideals		
Teaching methods	Lectures, laboratory works		
Literature	1. Cox D., Littell J., O'shy D. Ideals, manifolds and algorithms. An introduction into calculus aspects of algebraical geometry and commutative algebra. M.: Mir, 2000. 687 p. 2. Adams W., Loustaunau P. An introduction to Grobner Bases. American Mathematical Society. Providence, 1994. 289 p. 3. Prosolov V. V. Polynomials. M.: MCNMO, 2000. 336 p.		
Examination	Test + presentation of laboratory works		
Recommended for	Students of the fourth year of MMF		

Lectures: 17 Practical: 0 Laboratory: 17	CM. 8	Computer Mathematics III	ECTS: 2
Lecturer	Candidate of physics-mathematics sciences, doctor of technical sciences, professor of the department of differential equations Lipnitskij V. A.		
Goal	Studying the main regulations of the theory of Galois fields and applying it in the theory of antijamming codes and cryptography		
Basic courses	Algebra and number theory		
Contents	Rings. Polynomials and fields. Rings. Devisors of zero and inverse elements. Ideals and operations on them. Principal and maximal ideals. Factor rings.		

	Polynomial ring and its properties. The basics of the field theory. Field characteristics. Minimal fields. Extensions of fields. The theory of finite fields. Homomorphism and automorphism of fields. Galois group. Norm and trace. Equations in finite fields. Linear noise combating codes. Hamming metric and code distance. Methods of decoding noise combating codes. Cryptosystems AES, McElience, McElience-Sidelnikov
Teaching methods	Lectures and practical training
Literature	1. Lipnitsky V. A. Modern applied algebra. Mathematical basics of information security: noise and unauthorized access. 2005. 2. Cheremushkin A. V. The lectures on the arithmetic algorithms in cryptography. 2002. 3. Merlos-Saragosa R. The art of noise combating coding. Methods, algorithms, application. 2005.
Examination	Final test
Recommended for	Students of the fourth year, specializing in Computer Mathematics

Lectures: 14 Practical: 0 Laboratory: 14	CM. 9	Computer Mathematics IV	ECTS: 2
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of differential equations Malevich A. E.		
Goal	Mathematical and computer modeling of complicated systems. The further forming of the skills of abstract mathematical thinking and the ability to apply it to the specific problems		
Basic Courses	Algebra and number theory, Analysis. Differential equations. Differential geometry and topology. Discrete mathematics. Computer mathematics		
Contents	Computer systems as the means of intensification of mathematical research. Computer systems for preparing mathematical manuscripts: LaTeX, Mathematica. Analysis and modeling of complicated systems. Abstraction of main parameters. Nonlinear dynamic systems. Specific features and bifurcations. Stability and the domain of application of models. The mathematical theory of the growth of the Earth population. Neural networks. Neuron models. Networks architecture. Training of the network. Back-propagation algorithm. Genetic algorithms. The presentation of genetic information. Genetic operators. Haploid and diploid populations. The systems of automatic control. Fuzzy logic		
Teaching methods	Lectures, independent work		
Literature	1. Arnold V. I. Rigid and soft mathematical models. M.: MCNMO, 2004. 2. Haykin S. Neural networks: full course. M.: Williams, 2006. 3. Hrennikov A. Y. Modeling of the thinking processes in the p-adic coordinate systems. M.: Fizmatlit, 2004		
Examination	Examination + Reports on 7 laboratory works		
Recommended for	Students of the fifth year		

Lectures: 34 Practical lessons: 0 Laboratory lessons: 0	EF. 1	Introduction to specialty	ECTS: 3
Lecturer	Candidate of physics-mathematics sciences, associate professor of the chair of differential equations Malevich A. E.		
Goals	To study set and rate theory, algebraically structures, to teach the means of representing mathematical objects in computer programs and solution algorithms of routine problems		
Basic Courses			
Contents	Features of mathematics as science. Its maintenance and methods of research. Objective and virtual realities. A computer as means of intensifying scientific work. Computer mathematical packages and computer mathematics. Empty set, universal set. Operations on sets: association, crossing, difference. Addition of sets. The Cartesian product of sets. The Cartesian product of the family of sets. Binary relations. Properties of reflexivity, symmetry, antisymmetry, transitivity of binary relations. The relation of equivalence, classes of equivalent elements, factor set. Images and prototypes of elements and subsets. A composition of mappings (complex function), property of associatively of a composition of mappings. Injective, surjective, bijective mappings. Inverse mappings, unidirectional inverse mappings. Algebras with one operation: a semigroup, a monoid, a group. Algebras with two operations: a ring, a field. Vector space. Matroid. System of independent subsets. Greedy algorithms. Coding. Huffman code		
Teaching methods	Lectures		
Literature	1. Novikov F. A. Discrete mathematics for programmers. SPb.: Piter, 2000. 2. Kononov S. G., Tyshkevich R. I., Yanchevskiy V. I. Introduction into mathematics. Mn., 2003. Pt. 1–3. 3. Corman T., Laserson Ch., Riwest R. Algorithms: construction and analysis. M.: MCNMO, 1999.		
Examination methods	Credit test		
Recommended for	The first year students specializing in computer mathematics		

Lectures: 34 Practical: 17 Laboratory: 0	DM. 2	Discrete mathematics	ECTS: 2
Lecturer	The candidate of physical and mathematical sciences, associate professor of the department of the equations of mathematical physics of the faculty of Mechanics and Mathematics BSU Metelsky J. M.		
Goal	Introduction to basic sections of discrete mathematics and its applications		
Precedence	Introduction to mathematics (the principles of the set theory and the theory of mappings)		
Contents	Introduction into combinatorial analysis. Rules of sum and product. Permutations and combinations. Binomial theorem. The properties of binomial coefficients. Polynomial theorem. Method of inclusion and exclusion. Recurrence relations. Fibonacci numbers. Systems of different representatives. Hall theorem. Systems of general representatives.		

	Introduction into the theory of graphs. Isomorphism of graphs. Labeled graphs. Connection between the number of points, ribs and the components of a graph. Bipartite graphs. Kening theorem. Wave algorithm. Trees. Finding the framework of minimal weight. Independence and coverings. Estimation of the independence number. Apical and rib coverings. Matching in bipartite graphs. Euler graphs. Criterion of Euler graphs. Hamiltonian graphs. Sufficient conditions of the graph to be Hamiltonian. Apical and rib coloration of graphs. Elements of the coding theory. The concept of coding. General scheme. Alphabetical coding. Makarov theorem about one-for-one alphabetical coding. Self-correcting code
Teaching methods	Lectures and laboratory classes
Literature	1. Emelichev V. A., Melnikov O. I., Sarvanov V. I., Tyshkevich R. I. Lectures on graph theory. M.: Nauka, 1990. 2. Rybnikov K. A. Introduction to combinatorial analysis. M.: Publishing house MSU, 1972. 3. Yablonsky S. V. Introduction to discrete mathematics. M.: Nauka, 1986.
Examination	Credit test
Recommended for	First year students of the faculty of Mechanics and Mathematics, BSU

Lectures: 34 Practical: 34 Laboratory: 0	DGT. 3	Differential geometry and topology	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of geometry, topology and mathematical teaching methods Timohovich V. L.		
Goal	Mastering the fundamental notions of metric and topological spaces, compactness, connectivity, fundamental group, curves, surfaces and invariants, connected to them (curvatures of different kinds), the bases of the theory of smooth manifolds. Mastering the basic topological and geometrical methods of solving problems		
Precedence	Algebra and the theory of numbers (concept of basic algebraic structures). Analytic geometry (notion of a vector, basis, reference, motions). Mathematical analysis (differentiability, derivatives of multivariable functions, Taylor expansion)		
Contents	Parametrized curves in E (E^n). Natural parametrization. Curves. Tangent. Osculating plane. Curve orientation. Curvature and the vector of curvature. Frene basis and reference. Torsion. Natural equation of a curve. Invariants of curves in E^n. Parametrized surfaces in E^3 (E^n). Surfaces. Local (curvilinear) coordinates on a surface. Curves on a surface. Tangent space to a surface, tangent plane, normal line. Surface orientation. First fundamental form of a surface. Normal curvature. Second fundamental form of a surface. Basic functional of a surface and its properties. Euler formula. Principal directions. Principle curvatures. Types of points on a surface. Asymptotic directions on a surface. Inner geometry of a surface. Lines of curvature. Geodesic lines and their properties. Riemann metric on a surface. Lobachevski plane. The definition of smooth manifold. Open submanifolds.		

	Diffeomorphism. Tangent plane to a manifold. Smooth vector fields on a manifold. Module of a vector field. Lie algebra of vector fields. Lie groups. Lie groups of transformations of classic spaces (affine group, group of motions)
Teaching methods	Lectures, practical studies
Literature	1. Belko I. V., Burdun A. A., Vedernikov V. I., Fedenko A. S. Differential geometry (edited by A. S. Fedenko). Mn.: Publishing house of BSU, 1982. 2. Collection of tasks in differential geometry (edited by A. S. Fedenko). M.: Nauka, 1979. 3. Mischenko A. S, Fomenko A. T. The course of defferential geometry and topology. M.: Publishing house of MSU, 1980. 4. Postnikov M. M. Linear algebra and differential geometry. M.: Nauka, 1979.
Examination	Test, examination
Recommended for	Students of the second year, specialization Computer mathematics

Lectures: 51 Practical: 51 Laboratory: 0	DGT. 4	Differential geometry and topology	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of geometry, topology and mathematical teaching methods Timohovich V. L.		
Goal	Mastering the fundamental notions of metric and topological spaces, compactness, connectivity, fundamental group, curves, surfaces and invariants connected to them (curvatures of different kinds), the bases of the theory of smooth manifolds. Mastering the basic topological and geometrical methods of solving problems		
Precedence	Algebra and the theory of numbers (concept of basic algebraic structures). Analytic geometry (notions of a vector, basis, reference, motion). Mathematical analysis (differentiability, derivatives of multivariable functions, Taylor expansion)		
Contents	Metric space. Topological space. Comparison of topologies. Subspace and induced topology. Closed sets and closure. Boundary and interior of a set. Converging sequences. Separation axioms. Continuous mapping and its properties. Homeomorphism. Product of spaces. Continuous mapping in a product. Concept of bundle space. Converging sequences in a product. Concept of a topological group. Compact topological space and its elementary properties. Compactness criteria of a metric space. Complete metric space and its elementary properties. Compactness criterion of a complete metric space. Completion of a metric space. Connected space and its elementary properties. Connected components. Irreducibility. Noether spaces. Factor spaces and factor topology, elementary constructions. Topological groups of transformations. Concept of homotopy. Fundamental group and its elementary properties		
Teaching methods	Lectures, practical studies		
Literature	1. Kononov S. G., Prasolov A. V., Timohovich V. L. Trale A. E., Fedenko A. S. Topology. Mn.: Vyshejshaya shkola, 1990. 2. Aleksandryan R. A., Mirzahanyan E. A. General topology. M.: Vysshaya shkola, 1979.		

	3. Sinyukov N. S., Matveenko T. I. Topology. Kiev: Vischa shkola, 1984. 4. Borisovich Y. G., Bliznyakov N. M., Israilevich Y. A., Fomenko T. N. Introduction to topology. M.: Vysshaya shkola, 1980. 5. Massi U., Stolings G. Algebraic topology: Introduction. M.: Mir, 1977.
Examination	Test, examination
Recommended for	Students of the second year, specialization Computer mathematics

Lectures: 34 Practical: 34 Laboratory: 0	DG. 3	Differential Equations	ECTS: 4
Lecturer	Doctor of physics-mathematics sciences, professor of the department of differential equations Gromak V. I.		
Goal	Studying the basic types of differential equations and methods of their integration, obtaining the skills of construction and analysis of mathematical models based on the theory of differential equations, learning the basic analytical, qualitative and asymptotical methods of the theory of differential equations		
Basic courses	Algebra and number theory, analytical geometry, mathematical analysis, foundations of the theory of complex variable functions and functional analysis		
Contents	Introduction into the theory of differential equations. Differential equations of the first order. Differential equations of higher orders. Normal systems of differential equations. Problems of solutions existence Normal systems of differential equations. General properties of the solutions of the systems of differential equations. Partial differential equations of the first order		
Teaching methods	Lectures and practical training		
Literature	1. Bibikov Yu. N. The course of ordinary differential equations. M.: Vys'shaya schkola, 1991. 2. Matveev N. M. The methods of integration of ordinary differential equations. Minsk: Vysheyshaya schkola, 1974. 3. Fedoruk M. V. Ordinary differential equations. M.: Nauka, 1985.		
Examination	Final test + examination		
Recommended for	Second year students of mechanics and mathematics faculty		

Lectures: 34 Practical: 34 Laboratory: 0	DG. 4	Differential Equations	ECTS: 4
Lecturer	Doctor of physics-mathematics sciences, professor of the department of differential equations Gromak V. I.		
Goal	Studying the basic types of differential equations and methods of their integration, obtaining the skills of construction and analysis of mathematical models based on the theory of differential equations, learning the basic analytical, qualitative and asymptotical methods of the theory of differential equations		

Basic courses	Algebra and number theory, analytical geometry, mathematical analysis, foundations of the theory of complex variable functions and functional analysis
Contents	Linear differential equations. Linear differential systems. Lyapunov stability of solutions of differential equations. Autonomous systems of differential equations
Teaching methods	Lectures and practical training
Literature	1. Bibikov Yu. N. The course of ordinary differential equations. M.: Vys'shaya schkola, 1991. 2. Matveev N. M. The methods of integration of ordinary differential equations. Minsk: Vysheyshaya schkola, 1974. 3. Fedoruk M. V. Ordinary differential equations. M.: Nauka, 1985.
Examination	Final test + examination
Recommended for	Second year students of mechanics and mathematics faculty

Lectures: 17 Practical: 0 Laboratory: 17	NM. 5	Numerical Methods I	ECTS: 2
Lecturer	Candidate of physics-mathematics sciences, associate professor of the Department of Numerical Methods and Programming Ignatenko M. V.		
Goal	Construction of mathematical models, determination of their role and significance; knowledge of the basic principles of the development of numerical methods for typical and new mathematical models; study and development of the theory and applications of numerical methods, their computer realizations; analysis of reliability of numerical results, their interpretation and introducing		
Basic courses	Studying of the discipline is based on the knowledge of university courses on algebra, geometry, the mathematical analysis, functional analysis, ordinary, partial derivative and the integral equations		
Contents	Introduction. On some problems of numerical mathematics. On the contents and purpose of calculating experiment in interpretation of A. A. Samarskij. Interpolation and approximation of functions. Chebyshev's system of functions. Interpolating by using generalized polynomials. Algebraic interpolation. Construction of interpolating polynomial in Lagrange form. Finite differences. Newton's interpolating polynomial. Chebyshev's polynomials. Trigonometric interpolation. Fourier transformations. Spline interpolation. Numerical differentiation. Approximate calculation of integrals		
Teaching methods	Lectures, laboratory lessons		
Literature	1. Bakhvalov N. S., Zhidkov N. P., Kobelkov G. M. Numerical methods. M.: Nauka, 1987. 597 p. 2. Krylov V. I., Bobkov V. V., Monastyrnyj P. I. Calculating methods. Vol. 1. M.: Nauka, 1976; Calculating methods. Vol. 2. M.: Nauka, 1977. 3. Krylov V. I., Bobkov V. V., Monastyrnyj P. I. The elements of calculating methods. Differential equations. Minsk: Nauka i Tehnika, 1982. 286 p. The elements of calculating methods. Partial differential equations. Minsk: Nauka i Tehnika, 1986. 311 p.		

Examination	Final test
Recommended for	Students of the third year of specialization Computer mathematics, Mathematical methods in economics, industrial and pedagogical departments

Lectures: 17 Practical: 0 Laboratory: 17	NM. 6	Numerical Methods I	ECTS: 2
Lecturer	Candidate of physics-mathematics sciences, associate professor of the Department of Numerical Methods and Programming Ignatenko M. V.		
Goal	Construction of mathematical models, determination of their role and significance; knowledge of the basic principles of development of numerical methods for typical and new mathematical models; study and development of theory and applications of numerical methods, their computer realizations; analysis of reliability of numerical results, their interpretation and introducing		
Basic courses	Studying of the discipline is based on the knowledge of university courses on algebra, geometry, the mathematical analysis, functional analysis, ordinary differential, partial and integral equations		
Contents	General view of interpolating quadrature formulas. Newton-Kotes quadrature formulas. Composite quadrature formulas. Gauss' quadrature formulas. Monte-Carlo method		
Teaching methods	Lectures, laboratory lessons		
Literature	1. Bakhvalov N. S., Zhidkov N. P., Kobelkov G. M. Numerical methods. M.: Nauka, 1987. 597 p. 2. Krylov V. I., Bobkov V. V., Monastyrnyj P. I. Calculating methods. Vol. 1. M.: Nauka, 1976; Calculating methods. Vol. 2. M.: Nauka, 1977. 3. Krylov V. I., Bobkov V. V., Monastyrnyj P. I. The elements of calculating methods. Differential equations. Minsk: Nauka i Tehnika, 1982. 286 p. The elements of calculating methods. Partial differential equations. Minsk: Nauka i Tehnika, 1986. 311 p.		
Examination	Final test		
Recommended for	Students of the third year of specialization Computer mathematics, Mathematical methods in economics, industrial and pedagogical departments		

Lectures: 34 Practical: 0 Laboratory: 34	NM. 7	Numerical Methods II	ECTS: 3
Lecturer	Candidate of physics-mathematics sciences, associate professor of the Department of Numerical Methods and Programming Kravchuk A. I.		
Goal	Construction of mathematical models, determination of their role and significance; knowledge of the basic principles of development of numerical methods for typical and new mathematical models; study and the development of the theory and applications of numerical methods, their computer realizations; analysis of reliability of numerical results, their interpretation and introducing		
Basic courses	Study of the discipline is based on the knowledge of university courses on algebra, geometry, mathematical analysis, functional analysis, ordinary differential, partial and integral equations		

Contents	Vector norms. Matrix norms. Convergence of matrix geometrical progression. Direct methods of solution of linear algebraic systems. Gauss method. Square root method or Cholesky method. Iteration methods of the solution of the systems of linear algebraic equations. General concepts of the theory of iteration methods. Simple iteration method. Iteration methods of the solution of systems of linear algebraic equations. General implicit method of simple iteration. Simple iteration method for systems of linear algebraic equations with matrices having diagonal prevalence. Seidel method. Consecutive relaxation method. Double layer iteration methods of variation type. Calculation of eigenvalues of a matrix. Power method of calculating maximal by absolute value eigenvalue of a matrix. Power method of calculating the second by absolute value eigenvalue of the matrix. Triangular power method. Iteration method of rotation for the complete problem of eigenvalues (method of Yakobi). Method of A.M. Danilevsky. Problem statement. Simple iteration method for the solution of the systems of non-linear equations. Newton method of the solution of systems of linear algebraic equations
Teaching methods	Lectures, colloquiums, laboratory lessons
Literature	1. Bakhvalov N. S., Zhidkov N. P., Kobelkov G. M. Numerical methods. M.: Nauka, 1987. 597 p. 2. Kalitkin N. N. Numerical methods. M.: Nauka, 1978. 512 p. 3. Krylov V. I., Bobkov V. V., Monastyrnyj P. I. Calculating methods. Vol. 1. M.: Nauka, 1976; Calculating methods. Vol. 2. M.: Nauka, 1977.
Examination	Final test
Recommended for	Students of the fourth year of specialization Computer mathematics, Mathematical methods in economics, industrial and pedagogical departments

Lectures: 34 Practical: 0 Laboratory: 34	NM. 8	Numerical Methods II	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of numerical methods and programming Kravchuk A. I.		
Goal	Construction of mathematical models, determination of their role and significance; knowledge of the basic principles of development of numerical methods for typical and new mathematical models; study and development of the theory and applications of numerical methods, their computer realizations; analysis of reliability of numerical results, their interpretation and introducing		
Basic courses	Study of the discipline is based on the knowledge of university courses on algebra, geometry, mathematical analysis, functional analysis, ordinary differential, partial and integral equations		
Contents	Nets and net functions. General theory of difference equations. Methods of the solution of Cauchy problem. Introductory notices. Euler's method of the solution of Cauchy problem for systems of ordinary differential equations of the 1st order. Runge-Kutta method of the solution of Cauchy problem for systems of ordinary differential equations of the 1st order. On multi-step methods. Net methods for the solution of boundary problems for ordinary differential equations. Integration-interpolation method. Difference sweep method. Setting up the problem. General concepts in the theory of difference		

	schemes: on choosing a net, on net functions space and net norms, on the replacement of differential operator by difference operator; on convergence and precision of difference schemes; on stability of difference schemes. Construction and investigation of difference approximations for equations of parabolic type. Two point scheme with parameter. Approximation, stability, convergence, A. A. Samarsky theorem on the link between convergence, approximation and stability. A. A. Samarsky theorem on stability of double-layer difference schemes with parameter. Construction and investigation of difference approximations for the equations of hyperbolic type. Difference scheme with parameter
Teaching methods	Lectures, colloquiums, laboratory lessons
Literature	1. Bakhvalov N. S., Zhidkov N. P., Kobelkov G. M. Numerical methods. M.: Nauka, 1987. 597 p. 2. Kalitkin N. N. Numerical methods. M.: Nauka, 1978. 512 p. 3. Krylov V. I., Bobkov V. V., Monastyrnyj P. I. Calculating methods. Vol. 1. M.: Nauka, 1976; Calculating methods. Vol. 2. M.: Nauka, 1977.
Examination	Examination
Recommended for	Students of the fourth year of specialization Computer mathematics, Mathematical methods in economics, industrial and pedagogical departments

Lectures: 34 Practical: 17 Laboratory: 0	VO. 5	Variation Calculus and Methods of Optimization I	ECTS: 3
Lecturer	Doctor of physics-mathematics sciences, associate professor of the department of the theory of mathematical methods of management Lebedev A. V.		
Goal	Familiarizing of students with methods of optimization, formation of their skills in solving optimization problems. Optimization theory gives some techniques for the construction of adequate mathematical models and solving actual problems		
Basic courses	Studying the discipline is based on the knowledge of university courses in algebra, geometry, mathematical analysis, functional analysis and differential equations		
Contents	Introduction to the theory of extremum problems. Linear extremum tasks. Nonlinear tasks of optimization		
Teaching methodology	Lectures, practical lessons		
Literature	1. Galiev E. M., Tihomirov V. M. Summary of the extremal problems theory. M.: MSU, 1989. 2. Vasiliev F. P. Calculus of approximations of extremal problems. M.: Nauka, 1980. 3. Elster K.-H. Introduction in nonlinear programming. M.: Nauka, 1985.		
Examination procedure	Final test		
Recommended for	Third year students specializing in computer mathematics, mathematical methods in economics, industrial and pedagogical departments		

Lectures: 28 Practical: 28 Laboratory: 0	VO. 9	Variation Calculus and Methods of Optimization II	ECTS: 4
Lecturer	Doctor of physics-mathematics sciences, professor of the department of the theory of mathematical methods of management Lebedev A. V.		
Goal	Goal of the course is to familiarize students with methods of optimization, form their skills in solving optimization problems. Optimization theory gives some techniques for the construction of adequate mathematical models and solving actual problems		
Basic courses	Studying the discipline is based on the knowledge of university courses in algebra, geometry, mathematical analysis, functional analysis and differential equations		
Contents	Calculus of variations. Elements of differential calculus in normalized spaces. Optimal control		
Teaching methods	Lectures, practical lessons		
Literature	1. Galiev E. M., Tikhomirov V. M. Summary of the extremal problems theory. M.: MSU, 1989. 2. Vasiliev F. P. Calculus of approximations of extremal problems. M.: Nauka, 1980. 3. Elster K.-H. Introduction in nonlinear programming. M.: Nauka, 1985.		
Examination	Examination		
Recommended for	Fifth year students specializing in computer mathematics, mathematical methods in economics, industrial and pedagogical departments		

Lectures: 34 Practical: 34 Laboratory: 0	TFKV. 5	Theory of Function of Complex Variable	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of the theory of functions Zhorovina T. N.		
Goal	Mastering the theory of conformal mappings of simply connected domains, the theory of residues and its application to solving integrals, analytic continuation. Acquaintance with the theory of Riemann surfaces		
Basic courses	Mathematical analysis (differential and integral calculus, the theory of series); Topology (open, closed sets, connection, compactness); algebra, geometry		
Contents	Introduction, object of TFKV. Complex numbers, fundamental definitions and formulas. Expanded complex plane, stereographical projection. Topology of complex plane, of region, of region with border. Complex sequences and series, convergence. Functions of complex variable, univalence, limit and continuity. Differentiability of functions of complex variable, conditions of Cauchy-Riemann, analyticity. Geometric sense of the argument and the absolute value of the derivative. Harmonic functions and their connection to analytic functions. Conformal mapping, basic principles and tasks of the theory of conformal mapping, the Riemann theorem. Elementary analytical functions, properties and conformal maps: linear and linear fractional maps, power and general power functions, Joukowski function, exponential and logarithmical functions, trigonometrical and hyperbolical functions of complex variable.		

	Curvilinear integrals on the complex plane, properties. Integral Cauchy theorem for singly connected and multilinked domain and consequence. The existence of antiderivative analytical function. Cauchy integral formula, integral of Cauchy type, analytical properties of integral of Cauchy type
Teaching methods	Lectures and laboratory studies, controlled independent work
Literature	1. Sidorov Y. V., Fedoryuk M. F., Shabunin M. I. Lectures on TFCV. M.: Nauka, 1989. 2. Shabat B. V. Introduction to the theory of functions and complex analysis. Pt 1. M.: Nauka, 1976. 3. Lavrentiev M. A., Shabat B. V. Methods of the theory of functions of complex variable. M.: Nauka, 1973.
Examination	Final test, examination
Recommended for	Students of the third and fifth years specializing in Computer mathematics, mathematical methods in economics, industrial and pedagogical departments

Lectures: 34 Practical: 17 Laboratory: 0	TFKV. 6	Theory of function of Complex Variable	ECTS: 3
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of the theory of functions Zhorovina T. N.		
Goal	Mastering the theory of conformal mappings of simply connected domains, the theory of residues and its application to solving integrals, analytic continuation. Acquaintance with the theory of Riemann surfaces		
Basic courses	Mathematical analysis (differential and integral calculus, the theory of series), topology (open, closed sets, connection, compactness)		
Contents	Series of functions of complex variables. Properties of series sum of analytical functions. Expansion of analytic function in series. Cauchy inequality for series coefficients. Liuvilles theorem. Some properties of analytical functions: infinite differentiability, Morery theorem, Weierstrass theorem on uniformly convergent series. Analytical functions approach, Runge theorem. Zeros of analytic function, uniqueness theorem. Laurent series, its convergence domain. Laurent expansion of analytic function, Cauchy inequalities for series coefficients. Isolated singular points of analytical functions, classification, Sokhotsky and Picard theorems. Entire and meromorphic functions, properties. Residues and their calculations. The main theorem about residues, theorem on total sum of residues. Jordan lemma. Different residues theory applications to integral calculus. Analytic continuation. Simple cases of analytic continuation. Complete analytical function. Theorem on monodromy. The notion of Riemann surface of complete analytical function. The main elementary many-valued functions of complex variables. Singular points of complete analytical function. Analytic continuation across the domain boundary. Riemann-Schwarts symmetry principle. Principles of conservation of domain, boundaries. Polygonal domain reflection. Cristophel- Schwarts formula		
Teaching methods	Lectures and laboratory lessons, controlled independent work		
Literature	1. Shabat B. V. Introduction to the theory of functions and complex analysis. Pt 1. M.: Nauka, 1976. 2. Lavrentiev M. A., Shabat B. V. Methods of the theory of functions of complex variable. M.: Nauka, 1973.		

	3. Volkovyssky L. I., Lunts G. L., Aramanovich I. G. Collected problems on the theory of functions of complex variable. M.: Nauka, 1970.
Examination	Examination
Recommended for	Students of the third and fifth years specializing in Computer mathematics, mathematical methods in economics, industrial and pedagogical departments

Lectures: 34 Practical: 34 Laboratory: 0	FAIG. 5	Functional analysis and integral equations I	ECTS: 5
Lecturer	Doctor of physics-mathematics sciences, professor of the department of functional analysis Antonevich A. B.		
Goal	The purpose of the course «Functional analysis and integral equations» is to acquaint students with general principles of functional analysis and examples of their applications. Educational purpose is to state the basis of measure theory, Lebesgue integral and the theory of linear operators in Banach spaces and application of the general theory to integral equations. The developing purpose is further formation of students` skills of abstract mathematical thought and ability to apply it in specific problems		
Precedence	It is obligatory for students to know such fields of mathematics as linear algebra, topology, mathematical analysis and differential equations		
Contents	Theme 1: Measure theory. Preliminary information on the set theory. Rings and semirings of sets. The necessity to reconsider the concept of integral. General notion of measure. Continuation of measure by Lebesgue. Lebesgue measure on a straight line. Lebesgue-Stieltjes measures. Theme 2: Lesbegue integral. Measurable functions. Definition and elementary properties of Lebesgue integral. Limiting transition under the sign of Lebesgue integral. Comparison of Lebesgue integral with Riemann integral. Charges. Radon-Nikodym theorem. Product of measures. Fubini theorem		
Teaching methods	Lectures, laboratory and practical training		
Literature	1. Antonevich A. B., Radyno Y. V. Functional analysis and integral equations. Minsk: BSU, 2003. 2. Kolmogorov A. N., Fomin S. V. Elements of the theory of functions and functional analysis. Moscow: Nauka, 1972.		
Examination	Test, examination		
Recommended for	The third and fourth year students		

Lectures: 34 Practical: 34 Laboratory: 0	FAIG. 6	Functional analysis and integral equations I	ECTS: 3
Lecturer	Doctor of physics-mathematics sciences, professor of the department of functional analysis Antonevich A. B.		
Goal	The purpose of the course «Functional analysis and integral equations» is to present students the general principles of functional analysis and the examples of their applications.		

	Educational purpose is to introduce the basis of the measure theory, the Lebesgue integral and the theory of linear operators in Banach spaces and application of the general theory to integral equations. The developing purpose is further formation of students` skills of abstract mathematical and ability to apply it to specific problems
Precedence	It is obligatory for students to know such fields of mathematics as linear algebra, topology, mathematical analysis and differential equations
Contents	Theme 3: Metric spaces. Definition and examples of metric spaces. Topology of metric spaces. Complete metric spaces. Completion of metric spaces. Extension theorems. Space L1(T,μ). Space Lp(T,μ). The principle of compressing mappings. Integral equations. Application of the principle of compressing mappings to the integral equations. Compact metric spaces and their properties. Theme 4: Normalized vector spaces. Normalized metric spaces. Banach spaces. Linear operators in normalized spaces. Criterion of finite dimensionality of normalized spaces. Equivalent norms. Hilbert spaces. Orthogonality. Projection theorem. Decomposition on orthonormal systems. Complete orthonormal systems in concrete spaces
Teaching methods	Lectures, laboratory and practical training
Literature	1. Antonevich A. B., Radyno Y. V. Functional analysis and integral equations. Minsk: BSU, 2003. 2. Kolmogorov A. N., Fomin S. V. Elements of the theory of functions and functional analysis. Moscow: Nauka, 1972.
Examination	Test, examination
Recommended for	The third and fourth year students

Lectures: 34 Practical: 34 Laboratory: 0	FAIG. 7	Functional analysis and integral equations II	ECTS: 4
Lecturer	Doctor of physics-mathematics sciences, professor of the department of functional analysis Antonevich A. B.		
Goal	The purpose of the course «Functional analysis and integral equations» is to present students the general principles of functional analysis and the examples of their applications. Educational purpose is to present the basis of the measure theory, the Lebesgue integral and the theory of linear operators in Banach spaces and application of the general theory to integral equations. The developing purpose is further formation of students` skills of abstract mathematical and ability to apply it to specific problems		
Precedence	It is obligatory for students to know such fields of mathematics as linear algebra, topology, mathematical analysis and differential equations		
Contents	Theme 5: Linear operators. Spaces of linear limited operators. Strong convergence of the operators. Banach-Shteingauz theorem. Inverse operators. Closed graph theorem. Applications to integral equations. Fourier transform of the functions from the space L1(R). Fourier transform in space L2(R). Theme 6: Conjugate spaces and conjugate operators.		

	Linear limited functionals. Khan-Banach theorem. General form of linear limited functionals in concrete spaces. Conjugate operators. Examples of conjugate operators. Spectrum of the operator. Weak convergence. Reflexive property. Theme 7: Equations with compact operators. Compact operators and their properties. Compactness of integral equations. The Riss-Shauder theory of the equations with compact operators. Fredholm operators. Fredholm integral equations. Conjugate and self-conjugate operators in Hilbert space. Spectrum expansion of compact self- conjugate operator
Teaching methods	Lectures, laboratory and practical training
Literature	1. Antonevich A. B., Radyno Y. V. Functional analysis and integral equations. Minsk: BSU, 2003. 2. Kolmogorov A. N., Fomin S. V. Elements of the theory of functions and functional analysis. Moscow: Nauka, 1972.
Examination	Test, examination
Recommended for	The third and fourth year students

Lectures: 34 Practical: 34 Laboratory: 0	WTS. 6	Probability theory and mathematical statistics I	ECTS: 4
Lecturer	Doctor of physics-mathematics sciences, professor of department of functional analysis Lazakovich N. V.		
Goal	Introduction into the main principles of the theory of probability and its usage. Forming the students' mathematical fundamental skills and ability to apply them in practical tasks		
Precedence	Algebra and number theory, Discrete mathematics, Analytic geometry, Mathematical analysis, Differential equations, Theory of function of complex variable and functional analysis		
Contents	Probabilistic spaces: Terminology of the probability theory. Kolmogorov axiomatics. Examples of probabilistic spaces. Independence: Conditional probabilities. Independence of events. Independence of tests. Limit theorems in Bernoulli scheme. Variates: variates and their random distribution. The variates classification. Multidimensional random variates. Variates independence. Numerical characteristics of variates: Average of distribution and its properties. Moments of random variates. Inequalities. Coefficient of correlation. Conditional expectations		
Teaching methods	Lectures, laboratory training		
Literature	1. Borovkov A. A. Theory of probability. M.: Nauka, 1986. 2. Ventcel A. D. The theory of random processes. M.: Nauka, 1978. 3. Meshalkin L. D. Collection of the theory of probability tasks. M.: MSU, 1963.		
Examination	Credit test, laboratory works presentation		
Recommended for	The third year students of the following specializations G 31 03 01 mathematics, G 31 03 03 mechanics, G 31 03 01 04 mathematical electronics		

Lectures: 34 Practical: 34 Laboratory: 0	WTS. 7	Probability theory and mathematical statistics II	ECTS: 4
Lecturer	Doctor of physics-mathematics sciences, professor of department of functional analysis Lazakovich N. V.		
Goal	Introduction into the main principles of the theory of probability and its usage. Forming the students' mathematical fundamental skills and ability to apply them in practical tasks		
Precedence	Algebra and number theory, Discrete mathematics, Analytic geometry, Mathematical analysis, Differential equations, Theory of function of complex variable and functional analysis		
Contents	Characteristic functions: Definition and elementary properties. Inversion formulas for characteristic functions. Continuity of correspondence between the set of distribution functions and the set of characteristic functions. Limit theorems: Central limit theorem. Convergence of random variates. Law of large numbers. Fundamentals of the theory of random processes: Random process definition. Random processes with independent increments. Correlation theory of random processes. Markov random processes. Elements of the mathematical statistics. Basic concepts and elements of the sampling theory. Estimation of unknown parameters. Verification of statistical hypothesizes. Parametric hypothesizes. Linear regression and least-squares methods		
Teaching methods	Lectures, laboratory training		
Literature	1. Borovkov A. A. Theory of probability. M.: Nauka, 1986. 2. Ventcel A. D. The theory of random processes. M.: Nauka, 1978. 3. Meshalkin L. D. Collection of the theory of probability tasks. M.: MSU, 1963.		
Examination	Credit test, laboratory works presentation, credit		
Recommended for	The fourth year students of the following specializations G 31 03 01 mathematics, G 31 03 03 mechanics, G 31 03 01 04 mathematical electronics		

Lectures: 34 Practical: 34 Laboratory: 0	GMPh. 6	Equations of mathematical physics I	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, associate professor of the chair of mathematical physics Kouleshov A. A.		
Goal	The purpose of the course «Equations of mathematical physics» is to teach students to master the general concepts of the theory of differential equations with partial derivatives and the methods of solution of general boundary problems of mathematical physics. The educational purpose is to teach students to use general methods of mathematical physics and to apply them while studying such disciplines as computing technique, CAD in microelectronics and others		
Precedence	It is obligatory for students to know such parts of general physics as mechanics, thermal conductivity, gravitation and electrostatics, and also such parts of higher mathematics as algebra, geometry, mathematical		

	analysis of real and complex variables and ordinary differential equations. The following parts of functional analysis are optional: general functions theory and theory of linear integral equations
Contents	Theme 1. Introduction. General notions. Statement of boundary problems. Correct and incorrect boundary problems. Adamar Example. Cauchy-Kovalevskaya theorem. Classification and reducing to canonical form of equations in partial derivatives of the second order. Classification of equations in partial derivatives of higher orders. Characteristics of the equations. Characteristic cone. Theme 2. Hyperbolic equations. Derivation of the equation of lateral vibrations of a string. Derivation of the equation of lateral vibrations of a membrane. Statement of boundary problems. Cauchy problem on a line for homogeneous and inhomogeneous equation. D'Alember formula. Generalized problem of Cauchy. Riemann formula. The solution of Cauchy problem in space using averaging-out method. The solution of Cauchy problem on a plane using the lowering method. Poisson's formula. General formal scheme of the method of separating variables for the solution of mixed problems for hyperbolic equations. Energy inequalities, Bessel equation. Cylinder functions. Spherical and some other special functions
Teaching methods	Lectures, training
Literature	1. Tichonov A. N., Samarskij A. A. Equations of mathematical physics. M., 1977. 2. Mihlin S. G. Course of mathematical physics. M., 1968. 3. Collection of problems of equations of mathematical physics (edited by Vladimirov V. S.). M., 1982.
Examination	Credit test
Recommended for	The third year students of the following specializations G 31 03 01 mathematics, G 31 03 03 mechanics, G 31 03 01 04 mathematical electronics

Lectures: 34 Practical: 34 Laboratory: 0	GMPh. 7	Equations of mathematical physics II	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, associate professor of the chair of mathematical physics Kouleshov A. A.		
Goal	The purpose of the course «Equations of mathematical physics» is to teach students to master the general concepts of the theory of differential equations with partial derivatives and the methods of solution of general boundary problems of mathematical physics. The educational purpose is to teach students to use general methods of mathematical physics and to apply them while studying such disciplines as computing technique, CAD in microelectronics and others		
Precedence	It is obligatory for students to know such parts of general physics as mechanics, thermal conductivity, gravitation and electrostatics, and also such parts of higher mathematics as algebra, geometry, mathematical analysis of real and complex variables and ordinary differential equations. The following parts of functional analysis are optional: general functions theory and theory of linear integral equations		

Contents	Theme 3. Parabolic equations. Derivation of the equation of thermal conductivity. Statement of boundary value problems. The theorem on maximal and minimal values of the solutions of equation of thermal conductivity. Correctness of the first mixed problem and the Cauchy problem for equation of thermal conductivity. Solution of the Cauchy problem for the equation of thermal conductivity using the method of integral Fourier transformation. Poisson's formulas. General formal scheme of the method of separating variable solutions of the mixed problems for parabolic equations. Source function. Substantiating the method of separating variables in case of classical and generalized solutions. Heat transfer in bounded and semi-bounded bodies with discontinuous boundary conditions. Paired integral equations. The theory of non-destructive control of thermo-physical characteristics of solid-state bodies. Theme 4. Elliptic equations. Green's integral formulas. Definition and properties of harmonic functions. On the uniqueness of the solutions of Dirichle and Neumann problems. Volume potential. Solid angle. Gauss integral. Lyapynov surface. Surface potential of double layer. Surface potential of single layer. Reducing the problems of Dirichle and Neumann for Laplas equation to the integral equations with weak singularity. Solvability of inner Dirichle problems and outer Neumann problems by the method of Green's function. The method of fictitious charges of the construction of Green's function of Dirichle problems. Poisson's integrals. General formal scheme of the method of separation of variable solutions of the mixed problems for the Poisson equations. Substantiating the method of separating the variables in case of classical and generalized solutions. Liuvill theorem. The behaviour of the derivatives of harmonic functions on the infinity. Variation methods of the solution of the problems of the problems of Dirichle and Neumann
Teaching methods	Lectures, training
Literature	Basic literature: 1. Tichonov A. N., Samarskij A. A. Equations of mathematical physics. M., 1977. 2. Mihlin S. G. Course of mathematical physics. M., 1968. 3. Collection of problems of equations of mathematical physics (edited by Vladimirov V. S.). M., 1982.
Examination	Credit
Recommended for	The fourth year students of the following specializations G 31 03 01 mathematics,G 31 03 03 mechanics,G 31 03 01 04 mathematical electronics

Lectures: 34 Practical: 34 Laboratory: 0	TM. 7	Engineering Mechanics	ECTS: 3
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of engineering mechanics Savchuk V. P.		
Goal	Science liberalizing, improvement of competence level for solving mechanics problems in different fields of professional activity		
Basic courses	Mathematical analysis		

Contents	Fundamental conceptions of kinematics. Velocity of point. Acceleration of point. Uniform and variable motion. Kinematics of point in curvilinear coordinates. Definition and properties of forward movement of solid. Rotation of a solid round the fixed axis. Angular velocity and angular acceleration. Flat- parallel movement of a solid. Geometrical and analytical research. Movement of a solid near the fixed point. Dalamber-Euler theorem. Axoids. Velocities and accelerations of solid's points. Kinematic Euler equations. Motion of a free solid. Shal's theorem. Complicated motion of a point. Complicated motion of a solid. Composition of momentary rotations. General case. Screw. Laws and problems of dynamics of a point. General theorems of dynamics of a point. Rectilinear motion of a point. Rectilinear oscillation of a point. Free, convergent, forced oscillations. Motion of a point in the field of central forces. Bine's formulas. Newton's problem. Artificial satellite. Motion of a constrained point particle. Simple pendulum. Relative motion of a point particle. Relative rest in motion nearby the ground surface. Fuko's pendulum. Basic conceptions and basic dynamical values. Basic theorems of dynamics of system. Dynamics of solids of variable-mass. Meshchersky's equation. Tsyalkovsky's problems
Teaching methods	Lectures and practical training
Literature	1. Appel P. Engineering mechanics: In 2 vol. M.: Phismatgiz, 1960. 2. Buhgolts N. N. Base course of engineering mechanics: In 2 vol. M.: Nauka, 1972. 3. Vilke V. G. Engineering mechanics. M.: Edition of MSU, 1991.
Examination	Final test
Recommended for	Students of the 4th course, specialization Computer mathematics

Lectures: 34 Practical: 34 Laboratory: 0	TM. 8	Engineering Mechanics	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of engineering mechanics Savchuk V. P.		
Goal	Science liberalizing, improvement of competence level for solving mechanics problems in different fields of professional activity		
Basic courses	Mathematical analysis		
Contents	Mass geometry. Inertia tensor, inertia ellipsoid. Rotation of a solid round the fixed axis. Axle pressure. Compound pendulum. Flat movement of a solid. Movement of a solid near the fixed point Dynamic Euler equations. Movement of a heavy solid. Fourth integral problem. Euler, Lagrange, Kovalevskaya cases. Gyroscope elementary theory. Principle of virtual work Dalamber principle. Common dynamic equation. Lagrange equation of the first kind. Lagrange equation of the second kind. Hamilton's canonical equation. Small oscillations of mechanical system. Equilibrium stability. Lejen-Dyrikhle theorem. Variation principals. Hamilton's principle, Gauss principle		
Teaching methods	Lectures and practical lessons		
Literature	1. Appel P. Engineering mechanics: In 2 volumes. – M.: Phismatgiz, 1960. 2. Buhgolts N. N. Base course of engineering mechanics: In 2 vol. M.: Nauka, 1972. 3. Vilke V. G. Engineering mechanics. M.: Edition of MSU, 1991.		

Examination	Examination
Recommended for	Students of the 4th year, specialization Computer mathematics

Lectures: 34 Practical: 17 Laboratory: 0	OF. 8	Research of Operations	ECTS: 3
Lecturer	Doctor of physics-mathematics sciences, professor of the department of the theory of mathematical methods of management Lebedev A. V.		
Goal	Improvement of level of professional skills in research of optimization problems of complicated organizational activity and solution of conflict situations in social and production structures		
Basic courses	Discrete mathematics		
Contents	Introduction into the theory of extremal problems on graphs. Theory of extremal problems on graphs. Optimization problems for streams. Network planning. Introduction into game theory. Games with naught sum. Non-cooperative games. Nesh's balance. Dynamic programming. Scheduling theory. Theory of waiting lines		
Teaching methods	Lectures and practical lessons		
Literature	1. Bahtin V. I., Kovalenok A. P., Lebedev A.V., Lysenko U. V. Research of operations. 2003. 2. Maynika E. Algorithms optimisation on networks and graphs. 1977. 3. Basaker R., Saaty T. Finite graphs and networks. 1974.		
Examination	Examination		
Recommended for	Students of the 3th and 5th years, specialization Computer mathematics, Specialization Mathematical methods in economics, industry and pedagogical specialization		

Lectures: 34 Practical: 17 Laboratory: 0	ML. 8	Mathematical logic	ECTS: 3
Lecturer	Candidate of physics and mathematics sciences, associate professor of department of mathematical physics equations Suprun V. P.		
Goal	Improvement of level of professional skills, analytical skills in questions of research of mathematical bases, structure of proofs, logical bases of programming, logical design of microprocessor and computing technology. Information the students about the subject and method of logistics and its importance for mathematics, mathematical cybernetics, programming and computers		
Precedence	The fundamentals of algebra and the laws of analysis in course of secondary school		
Contents	Introduction: Logistics, its subject and importance. Historical sketch. Subject of logistics and the connection with mathematical cybernetics and programming.		

	Algebra of propositions: Propositions. Logic operations. Definition of formula. Feasibility. Equivalency of formulas. Basic equivalencies. Application of algebra af statements to solving the problems of analysis and synthesis of contactor-relay circuits, contact networks and networks composed of functional elements. Sentential calculus: Symbols. Definition of formula. Axiomatics, rules of inference (rewrite rule, rule of conclusion). Conclusion from hypotheses. Deduction theorem. Monotony. Equivalence. Consistency. Fullness. Independence of axioms system. Predicate logic: Predicates, quantifiers. Definition of formulas. Reduced and normal forms. Problem of solution. Functional calculus: Symbols. Definition of formulas. Collision of variables. Axiomatics. Rules of conclusion. Binding rule by quantifier. Consistency. Duality law. Application of mathematical logic: Turing machine. Definition. Analysis and synthesis. Solving the problems
Teaching methods	Lectures and practical training
Literature	1. Novikov P. S. Elements of logistics. M.: Nauka, 1973. 2. Lavrov I. A., Maksimova L. L. Tasks on set theory logistics, algorithm theory. M.: Nauka, 1984. 3. Klini S. Logistics. M.: Mir, 1973.
Examination	Test, final tests
Recommended for	Students of the 4th course, specialization Computer mathematics

Lectures: 34 Practical: 17 Laboratory: 0	Ph. 9	Physics	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of theoretical and applied mathematics Repchenkov V. I.		
Goal	To improve thorough training of specialists		
Basic courses	Mathematical analysis, analytic geometry, differential equations, engineering mechanics		
Contents	Electric field: structure of matter. elementary, dotty, distributed charge. Coulomb's law. Electric field intensity. Potential. Ostrogradsky – Gauss theorem in differential form. Poisson equation. Conductors and non-conductors in electric field: Conductor in electric field. Free charges. Doublet in electric field. Polarization. Polarization vector. Electric field in non-conductors. Direct electric current: Current density vector, current strength. Ohm's law in differential form. Voltage. Kirhoff rules. Calculation of direct current circuits. Joul-Lents law. Current strength. Magnetic field: Interaction of conductors with current. Amper law. Magnetic field intensity. Magnetic voltage theorem. Lorents' force. Working in magnetic field. Magnetic flux. Magnetics: Magnetic moment. Magnetization. Paramagnetics. Larmorov's precession. Diamagnetics. Magnetic field in matter. Magnetization vector. Ferromagnetics. Electromagnetic induction: Nature electromagnetic induction. Lents' rule. Voltage of induction. Inductance. Energy of magnetic field. Electric oscillations, resonance.		

	Alternating current: Resistor, condenser, inductor in alternating current circuit. Current resonance and voltage resonance. Complex amplitudes, complex impedance. Calculation of alternating current circuits
Teaching methods	Lectures and practical training
Literature	1. Kalashnikov S. G. Electricity. M.: Nauka, 1970. 2. Irodov I. E. Tasks on general physics. M.: Nauka, 1986. 3. Repchenkow V. I. Course, tasks и check questions to part «Electro-magnetism» of course «Physics». Educational methodical textbook for students of MMF. Mn.: Belgosuniversitet, 2001.
Examination	Test, examination
Recommended for	Students of specialization Computer mathematics

Lectures: 17 Practical: 0 Laboratory: 34	Mod. 5	Computer Modeling I Group Analysis of Differential Equations	ECTS: 4
Lecturer	Doctor of physics-mathematics sciences, professor of the department of differential equations Gromak V. I.		
Goal	The purpose of the course is to acquaint students with the methods of the group analysis of differential equations and to teach their use in applications		
Basic courses	It is obligatory for students to master the following courses: algebra, differential geometry, ordinary differential equations and the equations of mathematical physics		
Contents	Definition of the r-parametric local Lie group. Parameters of the groups of Lie transformations. Tangent vector field of the Lie group. Examples of tangent vector fields. Lie theorem. Infinitesimal operator of the Lie group. Reducibility of the single parametric Lie group to the translation group. Invariants of the Lie group. Criterion of invariance. Examples. Invariant manifolds. Criterion of the invariance of a manifold. Continuation of a group and an infinitesimal operator. Coordinates of the first and the second continuation of an infinitesimal operator. Integrating the first order equations with the known single parametric Lie group. Differential invariants. Obtaining the Lie group of a differential equation. Obtaining the differential equation having a given Lie group. Commutator of a pair of infinitesimal operators. Lie algebra of infinitesimal operators. Generalization of Lie groups in multidimensional case		
Teaching methods	Lectures, laboratory lessons		
Literature	1. Olver P. Application of Lie groups to differential equations. M.: Mir, 1983. (In Russian) 2. Ovsyannikov Group analysis of differential equations. M.: Nauka, 1978. (In Russian) 3. Blumann G. W., Cole J. D. Similarity methods for Differential Equations, Springer-Verlag, N-Y, 1974.		

Examination	Exam
Recommended for	Students of the third year

Lections: 17 Practical: 0 Laboratory: 17	Mod. 7	Computer modeling II Finite Element Method	ECTS: 2
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of theoretical and applied mechanics Repchenkov V. I.		
Goal	The purpose of the course is to acquaint students with the theoretical basis of the finite element method, and to teach their use in applications		
Precedence	It is obligatory for students to master the following courses: algebra and number theory, geometry, and ordinary differential equations. It is useful for students to have some knowledge in physics, mechanics and numerical methods		
Contents	One-dimensional springy element. Equations of motion in the matrix form. Equilibrium equations, boundary conditions, physical meaning of the matrix of springing rate. Rod-shaped element, longitudinal deformations, Guck law, a rod under the action of its weight, inaccuracy of numeric solution. Finite element with two nodes, linear approximation, matrix of the shape functions, matrix of gradients, reduction of distributed stress to the nodal one. Integrating equations of motion, defining integration interval, characteristic time of a process, oscillations, and eigenfrequencies. Accounting thermal effects, state functions. Finite element for the problems with spherical and cylindrical symmetries, transverse deformations, shear deformations		
Teaching methods	Lectures and laboratory training		
Literature	1. Segerlind L. Applications of finite element method. M.: Mir, 1979. (In Russian) 2. Repchenkov V. I. Physical basics of the finite element method. Pt. 1. Minsk: BSU, 1999. (In Russian) 3. Repchenkov V. I., Nagorniy Y. E., Tatarchenko L. P. Physical basics of the finite element method. Pt. 2. Minsk: BSU, 2000. (In Russian) 4. Fellippa C. A. Introduction to Finite Element Methods. E-book.		
Examination	Exam		
Recommended for	Students of the fourth year		

Lections: 17 Practical: 0 Laboratory: 17	Mod. 8	Computer modeling II Polynomial Algebra	ECTS: 2
Lecturer	Doctor of physics-mathematics sciences, professor of the department of differential equations Sadovskiy A. P.		
Goal	The purpose of the course is to acquaint students with the theory of polynomial ideals, Groebner bases, and methods of computing of bases and radicals of manifolds		

Precedence	It is obligatory for students to master the following courses: algebra and number theory, geometry, ordinary differential equations and theory of functions of complex variable
Contents	Operations with ideals i.e. addition, multiplication, intersection, and division. Zarissky close. Irreducible varieties. Simple ideals. Polynomial and rational representation of affine varieties. Algorithms for obtaining implicit representation for affine varieties in the cases of polynomial and rational parameterizations. Decomposition of a variety in the union of irreducible ones. Computing the radical of an ideal. Primary ideals. Primary decomposition of ideals. Satiation of an ideal. Algorithm for computing of the satiation. Computing primary decompositions of an ideal. Algorithmic computing in factor rings. Isomorphism of affine varieties. Rational functions on the varieties. Projective varieties and uniform ideals
Teaching methodology	Lectures and laboratory training
Literature	1. Cox D. A., Little J. B., O'Shea D. Ideals, varieties and algorithms. Springer, 1996. (In Russian – 2000.) 2. Adams W., Loustaunau P. An introduction to Grobner Bases. American Mathematical Society. Providence, 1994. 3. Prosolov V. V. Polynomials. M.: MCNMO, 2000. (In Russian) 4. Arjantsev I. V. Groebner bases and systems of algebraic equations. M.: MCNMO, 2003. (In Russian)
Examination	Credit test
Recommended for	Students of the fourth year

Lections: 14 Practical: 0 Laboratory: 14	Mod. 9	Computer modeling III Mathematical Modeling and Complicated Processes	ECTS: 2
Lecturer	Junior teacher of the department of differential equations Grigor'ev A. A.		
Goal	The purpose of the course is to acquaint students with general principles of mathematical modeling and to teach their use in applications		
Basic courses	It is obligatory for students to master the following courses: ordinary differential equations, equations of mathematical physics, functional analysis, computer mathematics, and programming. It is useful for students to have some knowledge in physics and mechanics		
Contents	Introduction to mathematical modeling, classification of models by the amount of knowledge in the problem field. The sources of mathematical models i.e. fundamental nature laws, variation principles, linearization, introducing of analogical assumptions, the hierarchies of community. Mathematical models of pendulum phenomena i.e. simple pendulums, the oscillations in the gravity field, Lotka-Volterra systems. The methods of modeling giving PDE's. Transport equation, continuity equation, and Bussinesque equation. Direct and conjugated problems. The dynamics of air pollution, the equation of the turbulent diffusion, conjugated operator, applied conjugated problems. Delay mathematical models. Stability conditions, hysteresis, logistic equation, models of Makkey-Glass and Cheyne-Stokes.		

	Discrete mathematical models. Their solutions, stability and delay. Bifurcation and chaotic solutions. Fibonacci equation, discrete logistic equation, and the model of fishery management. Examples of complicated processes modeling
Teaching methods	Lectures, laboratory lessons
Literature	1. Samarsky A. A., Mikhailov A. P. Mathematical Modeling. 2002. (In Russian) 2. Petrosyan L. A., Zakharov V. V. Mathematical models in ecology. 1997. (In Russian) 3. Amelkin V. V., Sadovsky A. P. Mathematical models and differential equations. 1982. (In Russian) 4. Murray J. D. Mathematical Biology, (third edition). 2002. 5. Basmadjian D. The Art of Modeling in Science and Engineering. 1999. 6. Chung C. A. Simulation Modeling Handbook. A Practical Approach. 2004.
Examination	Credit test
Recommended for	Students of the fourth and the fifth year

Lections: 17 Practical: 0 Laboratory: 17	Mod. 11	Computer modeling IV Mathematical Modeling and Complicated Processes	ECTS: 5
Lecturer	Junior teacher of the department of differential equations Grigor'ev A. A.		
Goal	The purpose of the course is to acquaint students with general principles of mathematical modeling and to teach their use in applications		
Basic courses	It is obligatory for students to master the following courses: mathematical modeling and complicated processes (main part), ordinary differential equations, equations of mathematical physics, discrete mathematics and logic, computer mathematics, and programming. It is useful for students to have some knowledge in physics and mechanics		
Contents	Cellular automata. Models of infectious diseases. Neural networks. Models of the wave phenomena. Solitons, the method of different scales. Models of language. Modeling of human body movement		
Teaching methods	Lectures, laboratory lessons		
Literature	1. Toffoli T., Margolus N. Cellular automata machines, 1987. (1991 – in Russian) 2. ed. Gutowitz H. Cellular Automata: Theory and Experiment, 1991. 3. Murray J. D. Mathematical Biology, (third edition), 2002. 4. Bailey N. T. J. Mathematical theory of infectious diseases, 1975. 5. Fyfe C. Artificial neuron networks, 1996. 6. De Castro L. N., Von Zëuben F. J. Recent developments in biologically-inspired computing, 2005. 7. Karlov N. V., Kirichenko N. A. Oscillations, waves, structures, 2001. (In Russian) 8. Kudryashov N. A. Analytic theory of nonlinear differential equations, 2004. (In Russian) 9. Chomsky N. The logical basis of linguistic thory, 1962.		

Examination	Credit test
Recommended for	Students of the fourth and the fifth year

Lectures: 17 Practical: 0 Laboratory: 34	AF. 5	Natural-science discipline I COM technology	ECTS: 3
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of differential equations Goloubeva L. L.		
Goal	Development of the skill to independently acquire and extend computer and programming knowledge, acquisition of the skill of work on contemporary computing systems, study of new information technologies		
Basic Courses	Programming and Informatics		
Contents	Introduction to Component Object Model technology of Microsoft. COM Clients and Servers. COM Objects and Interfaces. Interface IUnknown and inheritance of interfaces. Managing the object life time through reference counting. Reference counting methods and rules. Components allocation in DLL. DLL Server requirements. Registering of COM components in Windows register. Windows register hierarchy. Register keys for COM. Globally Unique Identifier GUID. GUID and CLSID. Class factory and Interface IClassFactory. Reusing COM objects. Containment/delegation and aggregation mechanism		
Teaching methods	Lectures, laboratory lessons		
Literature	1. Chappell D. Strategic technology series. Understanding ActiveX and OLE. Microsoft Corporation Press, 1996. 2. Rogerson D. Inside COM. Microsoft Corporation Press, 1997.		
Examination	CIW, presentation of laboratory works, final test		
Recommended for	Students of the third year specializing in Computer mathematics		

Lectures: 14 Practical: 0 Laboratory: 14	AF. 9	Advanced computer mathematics. Relational databases and OLAP technologies	ECTS: 2
Lecturer	Candidate of physics-mathematics sciences, junior teacher of the department of differential equations Zenchenko A. S.		
Goal	Introduction into ideas and concepts applied in modern relational database management systems. Acquaintance with online analytical processing systems		
Basic courses	Courses of informatics, programming methods, higher algebra		
Contents	Databases and DBMS. Database concept. DBMS architecture. Data models. Relational approach. Basic notions of relational databases. Fundamental properties of relations. Relational data model. Means of manipulation of relational data. Relational algebra. Relational calculus. SQL language. SQL data types. Selection of data (SELECT operator). Data manipulation. Creation of objects of a database. Views.		

	Relational database design. Designing relational databases by means of normalization. Semantic modeling. ER-diagrams. CASE-tools of database design. Data warehouse. Inefficiency of the use of OLTP-systems for data analysis. Warehouse concept. Warehouse management. OLAP-systems. Multidimensional data model. Conceptual multidimensional view. Architecture of OLAP-systems
Teaching methods	Lectures, laboratory lessons
Literature	1. Date C. J. Introduction to Database Systems, An – 8/E. Addison-Wesley, 2004. 2. Astakhova I. F., Tolstobrov A. P., Melnikov V. M.. SQL in examples and tasks; textbook. Minsk.: New knowledge, 2002. 3. Bargesyan A. A., Kupriyanov M. S., Stepanenko V. V., Holod I. I. Methods and models of data analysis: OLAP and Data Mining. SPb.: BHV-Petersburg, 2004.
Examination	Laboratory works presentation + credit test
Recommended for	Fifth year students specializing in Computer mathematics

Lectures: 34 Practical: 17 Laboratory: 17	AF. 11	Natural-science discipline III Modern questions of information technologies	ECTS: 5
Lecturer	Candidate of physics-mathematics sciences, associate professor of department of differential equations Malevich A. E.		
Goal	Review of modern information technologies. Discussion of new IT tendencies		
Basic courses	Computer mathematics, programming methods		
Contents	The structure of the package Mathematica. Use of Mathematica FrontEnd as universal workspace in daily routine of a mathematician. Working with objects Notebook and Cell. Structure of an electronic document. TEX – scientific document description language. LATEX – macrolanguage and computer package for preparation of a scientific manuscript. Use of Mathematica for keeping mathematical manuscripts. Preparation of a TEX-document with Mathematica. NET and J2EE modern conceptions of computer application development. Use Java and.NET in Mathematica environment. Modern database. Technologies of access to data ODBC and ADO.NET. Use of ODBC and ADO.NET in Mathematica environment. Universal format of XML data communications. How to create a personal website from the beginning. Registration of a name and hosting. HTML and web-design. Macromedia Flash. Preparation methods of artwork for scientific article		
Teaching methods	Lectures, practical lessons, laboratory lessons		
Literature	1. Golubeva L. L., Malevich A. E., Shcheglova N. L. Computer mathematics. Symbolic mathematical package Mathematica. Course of lectures. Mn.: BSU, 2005. 2. Stephen Wolfram. The Mathematica Book. Fourth Edition. Cambridge: Universitiy Press, 1999. 3. Buch G., Object-oriented analysis and designing with examples of C++-applications. M.: Binom, 1998.		

	4. Lvovsky S. M. LATEX: particular. 5. Lvovsky S. M. Typesetting and making-up in package TEX. 6. Rambo J., Jacobson A., Buch G. UML: special reference book. SPb.: Piter, 2002. 7. Avramova O. D. Language VRML. Practical guide. M.: DIALOG-MIFI, 2000. 8. Pliss A. I., Slivina N. A. Mathcad: mathematical practical work. M.: Finansy i statistika, 2005. 9. Virt N. Algorithms and data structure. M.: Mir, 1989. 10. Kushnirenko, Lebedev. Programming for mathematicians. M.: Nauka, 1988. 11. Bargesjan A. A. and others. Methods and models of data analysis OLAP and Data Mining. 2004.
Examination	Report preparations, final test
Recommended for	Students of specialization «Computer mathematics»

Lectures: 34 Practical: 0 Laboratory: 34	CGA. 6a	Computer Graphics and Animation I. OpenGL	ECTS: 3
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of differential equations Goloubeva L. L.		
Goal	Teaching the fundamentals of modeling of the objects of real world, working-out the skill to visualize these objects, as well as images and effects of virtual world. Acquiring the skills of work with 3D graphics		
Basic Courses	Differential geometry and topology, Algebra and theory of numbers, Programming and informatics		
Contents	Introduction to OpenGL. Setting up OpenGL in Windows. Basic and auxiliary OpenGL libraries. OpenGL window style. Setting pixels format. Command syntax. Graphical primitives: points, line segments, polygons, raster primitives. Vertex properties. Basic OpenGL operations. Coordinate systems in 3D space. The world-coordinate system. The coordinate system of a scene. The coordinate system of a window. Homogeneous coordinates and matrices. Mapping between two coordinate systems. Projection types. Basic transformations: translation, rotation, scaling, shear. Composing 3D affine transformations. Light in OpenGL. Light source. Lighting model. Material properties. Color in OpenGL. RGBA and Color-Index modes. Texture and texture mapping. Texture parameters. Texture coordinates. Texture and object surface interaction		
Teaching methods	Lectures, laboratory lessons		
Literature	1. Tikhomirov Yu. Programming of three-dimensional graphics. SPb.: BHV – Saint-Petersburg, 1998. 256 p. 2. Hill F. S. OpenGL. Programming of computer graphics. For professionals. SPb.: Piter – Saint-Petersburg, 2002. 1088 p.		
Examination	CIW, presentation of laboratory works, examination		
Recommended for	Students of the third year specializing in Computer mathematics		

Lectures: 17 Practical: 0 Laboratory: 17	CGA. 6b	Computer graphics and animation I. Mathematical basis of computer graphics	ECTS: 2
Lecturer	Candidate of physics-mathematics sciences, associate professor of department of differential equations Shcheglova N. L.		
Goal	Teaching the bases of modeling the objects of real world, training its visualization and visualization of the images and the effects of the virtual world. Obtaining the skills of mathematical object description and algorithmization of the display process		
Basic Courses	Analytical geometry, vector algebra, linear algebra, differential geometry (curves, surfaces and their invariants), algorithmization and programming fundamentals, symbolic mathematical package Mathematica		
Contents	Graphical elements on plane and in space. Models of graphical elements on plane, tests of their properties and positional relationship. Polygon: a model, algorithms of building, intersections, point orientation, line orientation. Line and surface models in space. Property and positional relationship tests of graphical elements in space. Ray-path methods for building of optical effects: shadow, reflection, refraction. Mathematical models of surfaces and objects. Quadratic and parametric surfaces. Wire-frame model of arbitrary polygon, Plato solids, spheroidal and sidereal objects. Affine transformations. Elementary and compound affine transformations. Calculating methods of compound transformation matrix. Kinematic method of object building. Cyclic curves. Kinematic surface models: motion, transfer, ruled and non-ruled surfaces. Fractal theory in computer graphics Fractal theory basis. Geometrical and dynamical fractals. Modeling of real objects, fantastical images and effects		
Teaching methods	Lectures and laboratory trainings		
Literature	1. Nikulin E. A. Computer geometry and algorithms of computer graphics. SPb.: BHV – Peterburg, 2003. 2. Porev V. N. Computer graphics. SPb.: BHV – Peterburg, 2002. 3. Rogers D., Adams J. Mathematical basis of computer graphics. M.: Mir, 2001. 4. Rogers D. Algorithmic basis of computer graphics. M.: Mir, 1989. 5. Golubeva L. L., Malevich A. E., Shcheglova N. L. Computer mathematics. Symbolic mathematical package Mathematica. Course of lectures. Mn.: BSU, 2005.		
Examination	Final test (2 hours), defence of 7 laboratory trainings, examination		
Recommended for	Students of specialization Computer mathematics		

Lectures: 34 Practical lessons: 0 Laboratory lessons: 34	CGA. 8	Computer graphics and animation II. Wavelet-analysis	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, associate professor of the chair of differential equations Malevich A. E.		
Goals	Mathematical basics of wavelet-analysis		
Basic Courses	Mathematical analysis, Computer mathematics, Function theory of complex variable, Functional analysis		

Contents	Basic ideas leading to wavelet-structures. Comparison with Fourier analysis. Problem solving using wavelet-analysis. Wavelet concept. Simple examples (Mexican hat, Haar transforms, Gauss and so on). Conditions for wavelet. Wavelet-transform. Identification for signals with connected array. Detecting of nodal (angular, break point, etc.) points. Inverse wavelet-transform. Comparison with Fourier transformation. Complex (Mourle) and multidimensional wavelets. Gabor transform. Windows, window functions. Short time Fourier transform. Uncertainty principle. Integral wavelets transform. Converse of integral wavelet transform. Frames. Two-dimensional transform. Riss basis. R-wavelets. Wavelet series expansion. Classification of wavelets. General notion on wavelet multiscale-transformations of signals. Wavelet-decomposition and wavelet-restoration. Scaling functions and wavelet multiscale-transformations. Discrete signal on a final interval. Daubechies wavelets. Biorthogonal transform. Two dimensional wavelet and wavelet-packets. Applications. How to construct one's own wavelet?
Teaching methods	Lectures and laboratory lessons
Literature	1. Charles K. Chui. An Introduction to Wavelets. – M., Mir. 2001. 2. Novikov I. Y., Stechkin S. B. Fundamentals of the splash theory // Progress of mathematical science. 1998. Vol. 53, № 6 (324). P. 53–128. 3. Stolnitz E., De Rose A., Salesin D. Wavelets For Computer Graphics: Theory and Applications, Morgan-Kaufmann, San Francisco, 1996. 4. Addison P. S. The Illustrated Wavelet Transform Handbook. Bristol, IOP. 2002.
Examination methods	Test, credit test
Recommended for	The fourth year students specializing in computer mathematics

Lectures: 14 Practical: 0 Laboratory: 14	GGA. 9	Computer graphics and animation III	ECTS: 2
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of geometry, topology and methods of teaching mathematics Vylegzhanin D. V.		
Goals	Studying the basic analytical lines, surfaces, splines, spline surfaces and the methods of their construction. The application of the splines to solving different problems of computer graphics		
Basic courses	Algebra and number theory, analytical and differential geometry, mathematical analysis, computer mathematics		
Contents	Mathematical models of curves, analytical curves, splines. Means of line construction, analytical parameterization, Hermitian spline, cubic spline, Lagrange spline, Newton spline. Bezier curves. Bernstein functions, De Kastel algorithm, geometrical meaning of the algorithm, representation of canonical sections by Bezier curves. Comparative characteristics of different splines. Rational Bezier curves, generalization of rational curves.		

	B-splines. NURBS curves. Mathematical model of surfaces, analytical surfaces, motion surfaces. Spline surfaces. Bezier surfaces
Teaching methods	Lectures, laboratory lessons
Literature	1. Golovanov N. N. Geometrical modeling. Moscow: Fizmatlit, 2002. 2. Shikin E. V., Plis A. I. Curves and surfaces on display of computer. Moscow: Dialog-MIFI, 1996. 3. Cohen E., Reisenfeld R., Elber G. Geometric Modeling with Splines. A K Peters, Ltd, Massachusetts, 2001.
Examination	Final test
Recommended for	The fifth year students specializing in Computer mathematics

Lectures: 17 Practical: 0 Laboratory: 17	GGA. 11	Computer graphics and animation IV	ECTS: 5
Lecturer	Candidate of physics-mathematics sciences, associate professor of the department of geometry, topology and methods of teaching mathematics Vylegzhanin D. V.		
Goals	Studying the basic analytical lines, surfaces, splines, spline surfaces and the methods of their construction. The application of the splines to solving different problems of computer graphics		
Basic courses	Algebra and number theory, analytical and differential geometry, mathematical analysis, computer mathematics		
Contents	Mathematical models of curves, analytical curves, splines. Means of line construction, analytical parameterization, Hermitian spline, cubic spline, Lagrange spline, Newton spline. Bezier curves. Bernstein functions, De Kastel algorithm, geometrical meaning of the algorithm, representation of canonical sections by Bezier curves. Comparative characteristics of different splines. Rational Bezier curves, generalization of rational curves. B-splines. NURBS curves. Mathematical model of surfaces, analytical surfaces, motion surfaces. Spline surfaces. Bezier surfaces		
Teaching methods	Lectures, laboratory lessons		
Literature	1. Golovanov N. N. Geometrical modeling. Moscow: Fizmatlit, 2002. 2. Shikin E. V., Plis A. I. Curves and surfaces on display of computer. Moscow: Dialog-MIFI, 1996. 3. Cohen E., Reisenfeld R., Elber G. Geometric Modeling with Splines. A K Peters, Ltd, Massachusetts, 2001.		
Examination	Final test		
Recommended for	The fifth year students specializing in Computer mathematics		

Lectures: 28 Practical: 14 Laboratory: 14	VCM. 9	Advanced computer mathematics I. Computer methods of information protection	ECTS: 4
Lecturer	Candidate of physics-mathematics sciences, doctor of technical sciences, professor of the department of differential equations Lipnitskij V. A.		

Goal	Studying the application of permutation methods in cryptography and in the error correcting code theory
Basic courses	Algebra and the Theory of numbers
Contents	Cryptography fundamentals. Classic codes. Crypting and decrypting algorithms in cryptosystem DES. The principals of the AES cryptosystem. Error correcting code theory. Definitions, purposes and the main properties of the error-correcting linear codes. Hamming codes. BCH, Reed-Solomon and Reed-Muller codes. The nature of the McEliece. Normalized syndrome theory. The operation of code automorphisms on the vector coordinates. Orbits. Code invariants as syndrome norms. Normal method of decoding and its advantages
Teaching methods	Lectures, practical lessons
Literature	1. Konopelko V. K., Lipnitsky V. A. The theory of normalized syndromes in permutative decoding of error correcting codes. M.: URSS, 2004. 2. Sloyan T. J., Error-Correcting Codes. 3. Harin U. S., Bernik V. I., Matveev G. V. Mathematical bases of cryptology. Minsk: BSU, 2003. 2126 p.
Examination	Examination
Recommended for	The fifth year students of the specialization Computer Mathematics
Remarks	

Lectures: 34 Practical: 17 Laboratory: 17	VCM. 11	Advanced computer mathematics II. XML technologies	ECTS: 8
Lecturer	Junior teacher of programming and numeric calculation department A. J. Perez Tchernov		
Goals	Improving the level of students' professional knowledge, developing students' skills and understanding of the purpose and use of XML technology for document creation. Educational purpose is to inform students about the basis of XML technology and methods of its use for document creation. Developing purpose is to master the technique of using XML technology for document creation and creating personal web documents		
Basic courses	It is desirable for students to know HTML, to have a little experience of work with any general purpose language (Java is preferable), and to have the general knowledge of object-oriented design methodology		
Contents	Navigation issues in XML documents. Using XPath 2.0 technology. Functional model of XML document processing and XSLT 2.0. Schema–based technologies, using of schemas in application, schema design. Differences in usage of DTD, XSchema, RelaxNG, Schematron schemas. Basic application program models of access to XML: DOM, SAX, StAX. XML pipelining. Introduction into service-oriented architecture. Introduction in semantic web conceptions		
Teaching methods	Lectures and practical lessons		
Literature	1. "Document Engineering", Robert j. Glushko and TIM McGrath, Mit Press, London, 2005. 2. "XSLT 2.0". Programmer's Reference, Michael Kay, Third Edition, 2004. 3. "XPathTM 2.0". Programmer's Reference, Michael Kay, 2004.		

Examination	Final test
Recommended for	Students of MMF BSU

Lectures: 17 Practical training: 0 Laboratory: 17	SAIS. 6	Methods of system analysis and informational systems designing I. Rating-analysis	ECTS: 2
Lecturer	Junior teacher of the department of differential equations K. G. Atrokhau		
Goals	To provide students with instrumental method of problem solving (organizational, management & business problems)		
Basic courses			
Contents	Generation of new ideas. Methods of search activation. Morphological analysis. 'Goldfish' method. Justification of new ideas. Implementation of new ideas. Traditional thinking. Scheme of strong thinking. Problem statement. Common types of problems. Methods of phenomena prediction. Prediction by anti-system. Driving forces of phenomena. Prediction by driving forces. Stating of the best result. Stating of the worst result. Action plan. Search of solutions. Control of negative aspects. Stress in systems. Reasons for stress. Removal of stress		
Teaching methods	Lectures & labs		
Literature	1. Aleksandrov S. E., Fadeev P. E. Rating-analysis. Minsk: Tekhnologiya, 1997. 2. Evlanov L. G. Theory and practice of making decisions. Moscow: Economics, 1984. 3. Nauman E. Making a decision. But how? Moscow: Mir, 1987.		
Examinations	Test		
Recommended for			
Notes	The course is based on research work of G. S. Al'tshuller (Theory of inventive problem solving, TRIZ) and S. E. Aleksandrov & P. E. Fadeev (Rating-analysis)		

Lectures: 17 Practical training: 0 Laboratory: 17	SAIS. 7	Methods of system analysis and informational systems designing II. XML technologies	ECTS: 2
Lecturer	Junior teacher of programming and numeric calculation department A. J. Perez Tchernov		
Goals	Improving the level of students' professional knowledge, developing students' skills and understanding of the purpose and use of XML technology for document creation. Educational purpose is to inform students about the basis of XML technology and methods of its use for document creation. Developing purpose is to master the technique of using XML technology for document creation and creating personal web documents		
Basic courses	It is desirable for students to know HTML, to have a little experience of work with any general purpose language (Java is preferable), and to have the general knowledge of object-oriented design methodology		

Contents	Navigation issues in XML documents. Using XPath 2.0 technology. Functional model of XML document processing and XSLT 2.0. Schema–based technologies, using of schemas in application, schema design. Differences in usage of DTD, XSchema, RelaxNG, Schematron schemas. Application programming model of access to XML: DOM, SAX, StAX. XML pipelining. Introduction into service-oriented architecture. Introduction in semantic web conceptions.
Teaching methods	Lectures and training
Literature	Basic literature: 1. "Document Engineering", Robert j. Glushko and TIM McGrath, Mit Press, London, 2005. 2. "XSLT 2.0". Programmer's Reference, Michael Kay, Third Edition, 2004. 3. "XPathTM 2.0". Programmer's Reference, Michael Kay, 2004. 4. "XML Schema Complete Reference", Cliff Binstock, 2001. 5. "Relax NG", "XSchema", Eric Van der Vlist. 6. "Professional XML Development with Apache Tools: Xerces, Xalan, FOP, Cocoon, Axis, Xindice", Theodore W. Leung, 2004. 7. "Web Services Platform Architecture: SOAP, WSDL, WS-Policy, WS-Addressing, WS-BPEL, WS-Reliable Messaging", Sanjiva Weerawarana, 2005. 8. "Explorer's guide to the Semantic Web", T. Passin, 2004. 9. "Web Semantic and Ontology", D. Taniar, J. W. Rahau, 2006. 10. "Semantic Web Technologies, trends and research in ontology-based systems", J. Davies, R. Studer, P. Warren, Wiley publishing, 2006.
Examinations	Examination

Lectures: 17 Practical training: 0 Laboratory: 17	SAIS. 8	Methods of system analysis and informational systems designing II. System analysis	ECTS: 2
Lecturer	Junior teacher of the department of differential equations K. G. Atrokhau		
Goals	Developing students' skills and understanding of the purpose and use of system analysis, its methods and modern tools for modeling & management of economic systems and project management		
Basic courses	Rating-analysis		
Contents	Introduction to system analysis. Definition of a system, types and kinds of systems. Life cycle of a system. Relationship between systems. Economic systems: structure and features. Analysis of systems. Analytical methods: accuracy and efficiency. Modeling of systems: methods & area of application. Modeling of economic systems. Control circuits in systems. Definition of a feedback. Compound systems. Development and transformation of a system. System changes: modeling and management. Information systems. Principles of data transfer in systems. Electronic data processing. Modeling methodology and software: IDEF, UML, ARIS. System analyst: introduction into specialty and principles of work. Typical use of principles of system analysis.		

	Analysis of an enterprise functioning. Project management. Enhancement of efficiency of economic systems
Teaching methods	Lectures and laboratory lessons
Literature	1. Ackoff R. L. The Art of Problem Solving. — Wiley-Interscience, 1978. 2. Van Gigch J. P. Applied General Systems Theory. Harper & Row, 1978. 3. O'Connor J., McDermott I. The art of systems thinking. HarperCollins, 1997. 4. Optner S. L. Systems Analysis for Business Management. Prentice Hall, I960.
Examinations	Test

Lectures: 28 Practical: 14 Laboratory: 14	SAIS. 9	Methods of system analysis and informational systems designing III. Theory of consulting	ECTS: 4
Lecturer	Junior teacher of the department of differential equations K. G. Atrokhau		
Goals	Acquiring practical skills of system analyst and consultant		
Basic courses	System analysis		
Contents	Introduction to consulting. History of consulting. Aspects of consulting, i.e. purpose, objectives and phases. Consulting service in Belarus. International classification of consulting service. Personality of consultant. Relations between consultant and client. Administrative consulting. Investment consulting. Stock consulting. Quality management. Engineering. Marketing consulting. Advertisement and public relations. Recruitment. Teaching. Security of an enterprise. Juridical consulting		
Teaching methods	Lectures and laboratory lessons		
Literature	1. Beych E. Consulting business. Piter – Saint-Petersburg, 2005. 2. Bir S. Firma brain. Moskva: Radio i svyaz', 1993. 3. Uikkhem F. Consulting in project management. Saint-Petersburg, 2005. 4. Zil'berman M. Consulting methods and technologies. Piter, – Saint-Petersburg, 2005.		
Examinations	Test		

Lectures: 34 Practical: 17 Laboratory: 17	SAIS. 11	Methods of system analysis and informational systems designing IV. Theory of consulting	ECTS: 7
Lecturer	Junior teacher of the department of differential equations K. G. Atrokhau		
Goals	Acquiring practical skills of system analyst and consultant		
Basic courses	System analysis		
Contents	Introduction to consulting. History of consulting. Aspects of consulting, i.e. purpose, objectives and phases. Consulting service in Belarus. International classification of consulting service. Personality of consultant. Relations between consultant and client.		

	Administrative consulting. Investment consulting. Stock consulting. Quality management. Engineering. Marketing consulting. Advertisement and public relations. Recruitment. Teaching. Security of an enterprise. Juridical consulting
Teaching methods	Lectures and laboratory lessons
Literature	1. Beych E. Consulting business. Piter – Saint-Petersburg, 2005. 2. Bir S. Firma brain. Moskva: Radio i svyaz', 1993. 3. Uikkhem F. Consulting in project management. Saint-Petersburg, 2005. 4. Zil'berman M. Consulting methods and technologies. Piter – Saint-Petersburg, 2005.
Examinations	Test

CURRICULUM: ANALYTICAL ECONOMICS

BACHELOR IN ECONOMICS

FIRST YEAR

№	Modules	Semester 1	
		hours week/sem.	ECST
1	Economic theory	6/102	6
2	History of Belarus	4/68	4
3	Natural science for economist	2/34	2
4	Law fundamentals	2/34	2
5	Informatics	4/68	2
6	Higher Mathematics	8/136	8
7	Foreign Language	4/68	4
8	Logic		2
Total:			30

№	Modules	Semester 2	
		hours week/sem.	ECST
9	Informatics and Computer Science	4/68	4
10	Higher Mathematics	8/136	8
11	Foreign Language	4/68	4
12	Microeconomics	6/102	6
13	Economic History	4/68	4
14	Philosophy	4/68	4
Total:			30
TOTAL FOR THE YEAR:			60

SECOND YEAR

№	Modules	Semester 3	
		hours week/sem.	ECST
1	Macroeconomics	6/102	6
2	Region Economics	2/34	2
3	Environmental and Natural Resources Economics	4/68	4
4	Probability Theory and Mathematical Statistics	8/136	6
5	Economic Informatics	4/68	4
6	Foreign Language	4/68	4
7	Economic Sociology	2/34	2
Total:			28

№	Modules	Semester 4	
		hours week/sem.	ECST
8	Statistical Analysis	6/102	6
9	Foreign Language	4/68	4
10	International Economics	4/68	4
11	History of Economics Thought	6/102	6
12	Population Economy and Demography	2/34	2
13	Operational Research	4/68	4
14	Politics	2/34	2
15	Research Project on Macroeconomics and Monetary Policy		4
Total:			32
TOTAL FOR THE YEAR:			60

THIRD YEAR

№	Modules	Semester 5	
		hours week/sem.	ECST
1	Economics of the Firm and Industrial Organization	6/102	6
2	Labour Economics	2/34	2
3	Econometrics and Forecasting (incl. paper project)	8/136	8
4	Game Theory	4/68	4
5	Management	4/68	4
6	Elective Modules		4
Total:			28

№	Modules	Semester 6	
		hours week/sem.	ECST
7	Accounting and Financial Analysis	6/102	6
8	Money, Banking and Finance	6/102	6
9	Agricultural and Natural Resource Economics	4/68	4
10	Pricing	2/34	2
11	Corporate Law	2/34	2
12	Marketing	4/68	4
13	Practice and Paper Project	2 weeks	8
Total:			32
TOTAL FOR THE YEAR:			60

FOURTH YEAR

№	Modules	Semester 7	
		hours week/sem.	ECST
1	Foundations of Psychology and Pedagogy	4/68	4
2	Production Management	2/34	2

3	Macroeconomic Analysis	6/102	6
4	Budget and Fiscal Systems	4/68	4
5	Investment Analysis (including a term project)	4/68	8
6	Economic Policy	4/68	4
Total:			28

№	Modules	Semester 8	
		hours week/sem.	ECST
7	Corporate Finance	3/52	4
8	Institutional Analysis	3/52	4
9	International finance markets	3/52	4
10	Financial Law	1,5/26	2
11	Corporate Finance	3/52	4
12	Elective Modules	6,5/112	6
13	Business Placement	4 weeks	4
14	Bachelor paper		4
Total:			32
TOTAL FOR THE YEAR:			60

MASTER OF SCIENCE IN ECONOMIC THEORY
SPECIALIZATION ECONOMIC POLICY

FIRST YEAR

№	Modules	Semester 1	
		hours week/sem.	ECTS
1	Economic Terminology England	2/34	2
2	Elective Council Modules	10/170	10
3	Industrial Organization	4/68	4
4	Development of Economies	4/68	4
5	Selected Courses	6/102	10
Total Semester:			30

№	Modules	Semester 2	
		hours week/sem.	ECTS
6	Economic Terminology England	2/34	2
7	Microeconomics (advanced)	2/34	2
8	Macroeconomics (advanced)	2/34	2
9	History of Economics Thought	2/34	2
10	Political Economy	2/34	2
11	Theory of International Trade	2/34	2
12	Institutional Economics and Development	2/34	2
13	Economics of Education	2/34	2

14	Methods of Economic Research	2/34	2
15	Selected Courses	12/204	12
Total Semester:			30
Total for the year:			60

SECOND YEAR

№	Modules	Semester 3	
		hours week/sem.	ECTS
1	Teaching Psychology and Pedagogy	4/68	4
2	Philosophy	2/34	2
3	Economic Policy (incl. paper project)	6/102	6
4	Institutional Economics	4/68	4
5	Economics Teaching Methods	2/34	2
6	New Education Technologies	2/34	2
7	Selected Courses	6/102	10
Total Semester:			30

№	Modules	Semester 4	
		hours week/sem.	ECTS
8	Science research practice and report defense	7 weeks	8
9	Master Graduation Exam		10
10	Master Thesis	10 weeks	12
Total:			30
Total for the year:			60
TOTAL PROGRAMME:			120

DISCRIPTION OF COURSES

Lectures: 54 Seminars: 28	ECONOMIC THEORY	Credits: 6
Lecturer	Associate Professor, Dr. Alexander Vorobyov (I&TE)	
Goals	To study the basic economic concepts and categories	
Prerequisites	–	
Contents	Economic theory: its subject and method. General problems of economic development. Market and market mechanism. Theory of consumer behavior. Production and its factors. Efficiency. Firm. Revenues and costs of a firm. Firm behavior under perfect competition. Firm behavior under imperfect competition. Factor markets. Labor market and wages. Capital market. Market for natural resources. Theory of income distribution and differentiation. Market and current economic problems. Economic systems. Revenues and costs in a modern economy. Money and banking. Basic macroeconomic indicators. Aggregate demand and aggregate supply. Major macroeconomic problems. Analysis of macroeconomic problems. Modern economic policy as a way to solve macroeconomic problems	

Teaching methodology	Lectures, discussions, independent research, intermediate tests, and computer-based final examination
Literature	1. Fisher S., Dornbusch R., Schmalensee R. Economics. McGraw-Hill, 1993. 2. Mankiw N. G. Principles of Economics. Dryden Press, 2001. 3. McConnell C. R., Brue S. L. Economics. Principles, Problems and Policies. MgGraw-Hill, 2005.
Examination methodology	0.1 * independent research + 0.2 * intermediate test + 0.2 * average grade for seminars + 0.5 * examination (essay)
Recommended for	First-year undergraduate students

Lectures: Seminars:	HISTORY OF BELARUS	Credits: 4
Lecturer	Associate Professor Tadeush Adamovich (T&IE)	
Goals	To form a holistic representation regarding the general principles, specifics, and contradictions of the economic process in Belarus and foreign countries as well as the impact of worldwide historical events on economic processes in selected countries	
Prerequisites	Secondary school courses	
Contents	Matrix of the economic and historical process in Belarus. Superstructure and its impact on the economic development under capitalism. Human being, the natural forces of Belarus, and their relationship under state-monopolized socialism. Human production forces and the forms of their organization in the socialist period. Economic performance of Belarus in the socialist period. Belarusian production relations in the socialist period. Socialist government mode of production in Belarus. Economic development of Egypt, Mesopotamia, India, China, Greece, and the Rome Empire in ancient times. Genesis of the feudalism in India, China, the Lowe Empire, France, Germany, and England. Mediaeval cities in IX–XV centuries. Economic development of the feudal China. Economic performance of Netherlands, England, France, the USA, and Germany in the period of capitalism development. Colonial conquests in India. Decline of the feudalism and development of the capitalism in China. Economic development of the USA, Germany, the Great Britain, France, and Japan in late XIX – early XX centuries. Economic development of Russia. Economic development of Ukraine, Lithuania, Latvia, and Poland	
Teaching methodology	Lectures and seminars	
Examination methodology	Oral examination	
Recommended for	First-year undergraduate students	

Lectures: Seminars:	CONCEPTS OF MODERN NATURAL SCIENCE	Credits: 2
Lecturer	Professor, Dr. Mikhail M. Kovalev (EI&ME)	
Goals	To study the economic and societal impact of most important scientific discoveries	
Prerequisites	Secondary school courses	

Contents	Economics of knowledge. The role of steam and combustion engines. The role of electric energy. Nuclear physics and its economic impact. The role of chemistry. Molecular foundations of the inheritance. Computer, communication, and information technologies. The creation of a new energetic system
Teaching methodology	Lectures and group presentations
Examination methodology	Presentations + Test
Recommended for	First-year undergraduate students

Lectures: 68 Seminars: 68	COMPUTER SCIENCE AND PROGRAMMING	Credits: 6
Lecturer	Assistant Professor M. Vorobiev (EI&ME)	
Goals	To study the modern information technologies and the methods of data processing with the use of computer systems. Students should become qualified computer users, learn the methods of economic calculations and the basics of programming with VBA, and know the current state and the directions of development of both hardware and software	
Prerequisites	Higher Mathematics	
Contents	Introduction to computer science for economists. Basic concepts and definitions. Operating principles of a computer. Computer software. Operational systems. Text processors. WORD editor. Spreadsheets. EXCEL. Conditional formatting. EXCEL equations. The master of functions. Mathematical and logical functions. Algorithm representation. Programming languages. VBA. The description of constants and variables. Data types. Operations. The structure of a module. Functions and subprograms. Assignment operator. Conditional and cyclical operators. Multidimensional and dynamic files. Object-oriented programming. Basic elements of management, their characteristics and methods. MS OFFICE objective model. The system of data base management. Relational data model. Communications. ACCESS. Table descriptions. Table creation. Data types. Masters. Operations with tables. Sorting. Filtration. Data search. Inquires. Inquiry form. Calculations. Group operations. SQL language. Form development. Subordinated forms. Report development	
Teaching methodology	Lectures, seminars, controlled self-study, and practical work	
Literature	1. Makarova N. V. Computer Science: A Textbook for Students that Major in Economics. Moscow: Finance and Statistics, 2004. 2. Morozevich A. N. Basics of Computer Science. Moscow: New Knowledge, 2003. 3. Wakenbach J. et al. The Bible of an Excel 2002 User. Moscow: Williams, 2002.	
Examination methodology	Written computer-based examination	
Recommended for	First-year undergraduate students	
Remarks	Students are recommended to pass exams to get the MICROSOFT certificate	

Lectures: 138 Seminars: 138	HIGHER MATHEMATICS	Credits: 8
Lecturer	Associate Prof. Dr. Vladimir Mastianitsa, Associate Prof. Dr. Sergey Gorunovich (IT-E&ME)	
Goals	To learn the principles of higher mathematics that are necessary for economic calculations. To develop the logical reasoning and both analytical and intellectual capabilities. To acquire the skills of independent accumulation of mathematical knowledge and studying of the scientific literature on mathematics and its economic applications	
Prerequisites	Mathematics (secondary school course)	
Contents	Numeric progressions. Limits and continuity. Derivative and interpretation. Convex functions. Approximation. Ant derivatives and indefinite integral. Methods of Integration. Definite Integral. Economic and Geometry Applications of Definite Integral. Improper Integral. Functions of Several Variables. Total Differential. Unconstrained Extremum of Function of Several Variables. Constrained Extremum of Function of Several Variables. Mathematic treatment of experimental data. Divisible Integrals. Numeric Series. Power series. First-order Differential Equations. Second-order linear Differential Equations with constant coefficients. Deferred equations. Vectors. Matrics. Determinants. Linear operators. Systems of linear equations. Vector spaces. Quadratic forms. Athens' spaces. Application of elements of linear algebra in economics. Elements of analytic geometry. Co-ordinates in plane. Lines in plane. The second order lines in plane. Plane equation and straight line equation in space. Introduction into the linear programming. Dual features. Economic aspects of the dual features theory	
Teaching methodology	Lectures, seminars, individual tasks and tests	
Literature	1. Gusak A. A. Higher mathematics. Pt. 1–2. Minsk: BSU, 1998. 2. General course of the higher mathematics for economists. Under the editorship of professor Ermakov. Vol. I. 2001. 3. Lungu K. N. Collection of higher r mathematics tasks. 1 year, 2 year. Moscow, 2005.	
Examination methodology	Seminars, individual tasks and tests (50 %), final written examination (50 %)	
Recommended for	First-year undergraduate students	

Lectures: 54 Seminars: 28	MICROECONOMICS	Credits: 6
Lecturer	Associate Professon, Dr. Anatoli Kovalenko (T&IE)	
Goals	Microeconomic analysis represents the most strict and systematic methodology in economic analysis. The study of this analysis is to give the basic understanding of the motives that govern the decision making process of firms and households as well as principles that governmental bodies use when they create economic policies. This course employs the use of basic economic tools and methods of identifying costs and benefits. The objective of the course is to study the mechanism of market functioning and the conditions of market failure	

Prerequisites	Economics
Contents	Introduction to microeconomics. Supply and demand. Consumer behavior. Market demand and elasticity. Production function and technology. Production costs and profits. Market structure. Supply in competitive markets. Monopoly. Oligopoly and monopolistic competition. Factor markets. General equilibrium and efficiency. Market failures and policy
Teaching methodology	Three class meetings per week (6 academic hours) – usually 2 lectures and one discussion (seminar) meeting. Upon a completion of each topic, the express tests are given. In addition to that, a student must complete one midterm and one final exam. All tests are given in a form of multiple choice questions
Literature	1. Hyman D. N. (1992) Modern Microeconomics: Analysis and Implications, Longman Higher Education Division. 2. Katz M. L., Rosen H. S. (1997) Microeconomics, McGraw-Hill. 3. Pindyck R. S., Rubinfeld D. L. (2004) Microeconomics, Prentice Hall.
Examination methodology	Seminars: 10 %. Express tests: 30 %. Midterm test: 30 %. Final test: 30 %
Recommended for	First-year undergraduate students

Lectures: 54 Seminars: 48	HISTORY OF ECONOMIC	Credits: 4
Lecturer	Associate Professor Irina Lavruhina (T&IE)	
Goals	Systematic study of the basic stages of the world economic thought's development (from ancient times up to now)	
Prerequisites	Microeconomics, Macroeconomics, International Economics, Economic History, Philosophy	
Contents	History of economic thought as a science. Economic thought in the Ancient World and Middle Ages. Mercantilism. Formation of the classical school. Comprehensive analysis of the free market economy by Adam Smith and David Ricardo. Evolution of the classical school. Completion of the classical school and rise of the socialist economic doctrine. Economic theory of Karl Marx. German Historical School. Institutionalism. Marginal revolution and genesis of the neoclassical school. Revision of the neoclassical traditions and new research directions. Theoretical system of John Maynard Keynes. Formation of the Keynesian tradition. Neoliberalism. Neoconservatism. Neoinstitutionalism	
Teaching methodology	Lectures, modeling, discussions	
Literature	1. Blaug M. (1997) Economic Theory in Retrospect, Cambridge, Cambridge University Press. 2. Brue S., Grant R. (2006) The Evolution of Economic Thought, Cincinnati, South-Western College Pub. 3. Negishi T. (1989) History of Economic Theory, North Holland.	
Examination methodology	Midterm tests: 50 %. Final written test: 50 %	
Recommended for	Second-year undergraduate students	

Lectures: 68 Seminars:	PHILOSOPHY	Credits: 4
Lecturer	Associate Professor, Dr. Alexander Bobr	
Goals		
Prerequisites	Secondary school courses	
Contents	Philosophy as a Social and Cultural Phenomenon. Historical Types of Philosophy. Metaphysics and Ontology. Philosophy of Nature. Philosophy of Consciousness. A problem of the Man in Philosophy and Science. Axiological Parameters of Life of the Man. Knowledge as Value of Culture and Subject of the Philosophical Analysis. Science: Its Cognitive, Social, and Cultural Status. Society as a Subject of Philosophical Knowledge. Society as a Developing System. Philosophical Problems of Civilization Dynamics. Philosophy of Culture	
Teaching methodology	Lectures, seminars, and tests	
Literature	1. Introduction to Philosophy / I. T. Frolov (ed.). Moscow, 1989. 2. Kanke V. A. Philosophy. Historical and Systematic Course. Moscow, 1997. 3. Philosophy / V. P. Kohanovsky (ed.). Rostov-on-Don, 1998. 4. Spirkin A. G. Philosophy. Moscow, 1998.	
Examination methodology	Oral examination	
Recommended for	First-year undergraduate students	

Lectures: 26 Seminars: 16	MACROECONOMICS	Credits: 4
Lecturer	Asst. Prof. Zinaida Visotskaya (I&TE)	
Goals	Macroeconomic analysis of the economic system and the impact of government policies on unemployment, inflation, economic growth, and foreign sector	
Prerequisites	Economic Theory	
Contents	Subject matter and method of macroeconomic analysis. Commodity market. Money market. Simultaneous equilibrium at commodity market and money market (IS–LM model). Stabilization policy in a small open economy (Mundell–Fleming model). Labor market. General economic equilibrium. Fluctuations of aggregate supply. Problems of macro-economic policy	
Teaching methodology	Lectures, seminars	
Literature	1. Burda M., Wyplosz C. (2005) Macroeconomics: A European Text, New York, Oxford University Press. 2. Dornbusch R., Fischer S., Startz R. (2003) Macroeconomics, New York, McGraw-Hill. 3. Mankiw N. G. (2002) Macroeconomics, Worth Publishers.	
Examination methodology	Essay: 20 %. Midterm written exam: 20 %. Final written test: 60 %	
Recommended for	Second-year undergraduate students	

Lectures: Seminars:	REGIONAL ECONOMICS	Credits: 2
Lecturer	Professor Dr. V. Bajnov	
Goals	To study the general principles of the world economic development as well as economic processes in selected countries. To learn the varied experience of adjustment to structural shifts in the world economy. To acquire the skills of data processing and comparative economic research	
Prerequisites	Economic Theory	
Contents	Regional economics: its subject and goals. Principles of the world economic development. Technical progress and structural shifts in advanced capitalist economies. Economy of the USA. Economy of Japan. Economy of Germany. Economy of France. Economy of the Great Britain. Economy of Italy. Economy of East-European (post-socialist) countries. Economy of developing countries. Economy of South and South-East Asian countries. Economy of Middle-East countries. Economy of developing African countries. Economic development of Latin American countries	
Teaching methodology	Lectures, seminars, presentations	

Lectures: 34 Seminars: 34	ENVIRONMENTAL AND NATURAL RESOURCES ECONOMICS	Credits: 4
Lecturer	Associate Professor Elena Vasilyeva (T&IE)	
Goals	The course considers the most actual economic problems of environmental quality and protection	
Prerequisites	Microeconomics, Macroeconomics	
Contents	Economic System and Environment. Ecological Costs and Optimal Environment Using. Externalities and Environmental Problems. Environmental Quality as a Public Good. Environmental Goods and Natural Resources Valuation. Environmental Protection Efficiency. Macroeconomics Dimensions of the Environmental Economics. Basic Principles and Instruments of Governmental Ecological Policy. Economics of Pollution Control. International Dimensions of Environmental Economics and Ecological Policy. Economics of Non-Renewable Resources. Economics of Renewable Resources. Ecological Problems and Environmental Policy of Contemporary Belarus	
Teaching methodology	Lectures, case studies, exercise doing, multiple choice questions	
Literature	1. Callan S., Thomas J. Environmental economics and management: theory, policy and application. Chicago, 1996. 2. Field B. Environmental economics. An introduction. 2-nd ed. New York, 1997.	
Examination methodology	Written examination with integrated task	
Recommended for	Second-year undergraduate students	

Lectures: Seminars:	PROBABILITY THEORY AND MATHEMATICAL STATISTICS	Credits: 8
Lecturer	Associate Professor Dr. N. Zuev	

Goals	To study the basic theorems of the probability theory and mathematical statistics. To learn how to solve economic problems based on the theory
Prerequisites	Higher Mathematics
Contents	Basic concepts of the probability theory. Probability space. Random variables and their descriptions. Some probability distribution laws and their properties. Chebyshev inequality. Law of large numbers and its effect. Central limit theorem. Markovian circuits and their usage in models of social and economic processes. Basics of statistical description. Statistical evaluation of unknown parameters of a model. Statistical testing of hypotheses. Analysis of paired statistical relationships. Dispersion analysis
Teaching methodology	Lectures and seminars
Examination methodology	Intermediate tests and final written examination
Recommended for	Second-year undergraduate students

Lectures: 34 Seminars: 30	ECONOMICAL INFORMATICS	Credits: 4
Lecturer	Alexander Gedranovich, M. A., Lecturer (IT-E&ME)	
Goals	Economical informatics covers a wide range of tasks concerned with information systems planning and operation in economics. The main goals of the course are consideration of principles of modern economist's automated workplace organization, study of essential software and Internet basics. The course focuses on seminars and workshop assignments. One of the key subjects of information technologies is reviewed in students' essays	
Prerequisites	Basics of information technologies, Basics of databases	
Contents	Introduction to economical informatics. Mathematical support for economic data treatment technologies. Artificial intelligence basics. Local networks. Corporative information systems. Global networks and Internet. Web-design basics. E-marketing and Web-sites promotion. E-commerce. Transactions in Internet. Data security systems	
Teaching methodology	Lectures, colloquiums, PC workshops (E-university), essay	
Literature	1. Economical Informatics / Edited by P. V. Koniuhovskiy and D. N. Kolesov. Piter – St. Petersburg, 2000. 2. Economical Informatics: Introduction to economical analysis of information systems / Edited by M. I. Lugachev. M.: INFRA-M, 2005. 3. Garnaev A. Excel, VBA, Internet in economics and finance. BHV, 2001.	
Examination methodology	Workshop assignments – 35 %. Colloquium – 25 %. Essay – 5 %. Final exam – 40 %.	
Recommended for	Second-year undergraduate students	
Remarks	http://economtest.at.tut.by	

Lectures: Seminars:	ECONOMIC SOCIOLOGY	Credits: 2
Lecturer	Associate Professor Dr. L. Filinskaya	
Prerequisites	High Mathematics	
Contents	Introduction in the theory and methodology of economic sociology. Development of economic sociology. Economic behavior within the market environment. Economic institutions as a focus of sociological analysis. Structure and function of entrepreneurial behavior. Basic characteristics of consumer behavior. Social and economic stratification and its characteristics. Social and economic inequality. Structure and functions of economic culture. Labor market and unemployment problems. Applied methods of economic sociology	
Teaching methodology	Lectures, presentations	
Examination methodology	Test	
Recommended for	Second-year undergraduate students	

Lectures: Seminars:	STATISTICAL ANALYSIS	Credits: 6
Lecturer	Assistant Professor Zinaida Kosenko (T&IE)	
Goals	To study the quantitative relations of economic phenomena given their quality. To learn the principles of quantitative economic analysis and the statistical methodology	
Prerequisites	–	
Contents	Statistics and its subject. Statistical observation. Statistical indicators. Statistical analysis of social and economic dynamics. Indices. Methodology of economic statistics and its theoretical underpinnings. General principles and foundations of the system of national accounts. Basic categories of the system of national accounts. Current accounts. Production account. Indicators regarding the production of goods and services within the system of national accounts. Indicators regarding the income formation, distribution, and usage within the system of national accounts. Accumulation accounts. Indicators regarding the capital accumulation and operations with financial resources. National wealth statistics within the system of national accounts. Balances of assets and liabilities. Consolidated balance of products and services. Indicators of the foreign activities account. Balance of payments and trade balance. Input–output modeling. Statistics of production efficiency and technological progress. Statistics of population, employment and unemployment. System of living standard indicators. Statistics of government budget. Monetary statistics. Banking statistics. Securities statistics. Statistics of prices and tariffs. Statistics of natural resources. Problems of harmonious exploitation and environmental protection. Basic macroeconomic indicators. International comparisons of most important economic indicators	
Teaching methodology	Lectures, seminars, and tests	
Examination methodology	Written examination	

Lectures: 34 Seminars: 34	INTERNATIONAL ECONOMICS	Credits: 6
Lecturer	Assistant Professor Mikhail Chepikov (T&IE)	
Goals	International Economics deals with the determination of international trade, balance of payments, exchange rates, output, and prices in an open economy. In this course we examine theories which analyze international trade and trade policy, exchange rate determination in short-run and long-run	
Prerequisites	Microeconomics, Macroeconomics	
Contents	Introduction in Macroeconomics of An Open Economy. The Data and Main Concepts of an Open Economy. Mundell-Fleming Model. International Trade: Theories and Policies. The Ricardian Model. The Hecksher-Ohlin Model. The Standard Trade Model And Economies Of Scale. International Trade Policy And Political Economy of Trade. International Factor Movements. Macroeconomics Of The Exchange Rates. Exchange Rates And Prices In The Long-Run (PPP puzzles). Exchange Rates And Output In The Short Run (IS-LM-BP Model). International Macroeconomic Policy. Macroeconomic Policy' International Coordination	
Teaching methodology	Lectures, PC Lab workshops (E-university). Main features of the course are workouts with exercising in main topics and discussing current trade policy and exchange rate policy issues	
Literature	1. Krugman P., Obstfeld M. International Economics. 2. Caves R., Frankel J., Jones R. World Trade and Payments. 3. International Trade // Selected readings. Edited by Jagdish N. Bhagwati.	
Examination methodology	Workshop assignments 30 %. Midterm exam (Part 1–2) 35 %. Final exam (Part 3–4) 35 %.	
Recommended for	Second year undergraduate students. First year graduate students	
Remarks	http://chepikov2005.narod.ru	

Lectures: 18 Seminars: 10	DEMOGRAPHY	Credits: 2
Lecturer	Professor Dr. Lyudmila Tikhonova (M).	
Goals	To study the theoretical foundations and principles of demographical development. To learn the methods of demographical analysis. To explore the role of demography in the process of social and economic development of Belarus	
Prerequisites	–	
Contents	Development of demography as a science. Sources of demographic data. Population and its structure. Demographic analysis of families and family relationships. Modern fertility trends. Analysis of mortality trends. Migration processes. Theory and methodology of demographic forecasting. Government regulation of demographic processes. Demographic problems in Belarus	
Teaching methodology	Lectures and controlled self-study	
Literature	1. Manak B. A., Antipova E. A. Economic and Geographical Analysis of Demographic Situation and Allocation of Population in Belarus. Minsk, 1999. 2. Medkov V. M. Demography. Moscow, 2003.	

	3. Tikhonova L. E. Regulation of Demographic Processes in Belarus. Minsk, 2002.
Examination methodology	Test
Recommended for	Third-year undergraduate students

Lectures: 34 Seminars: 34	OPERATIONS RESEARCH	Credits: 4
Lecturer	Professor Dr. Mikhail Y. Kovalyov (EI&ME)	
Goals	The course investigates the mathematical aspects of optimal decision making in operations performing. The main goal of the course is to introduce to mathematical modeling of operations and multicriteria optimization, to study the basic linear programming models and algorithms, graph-theoretic models and algorithms, the network approach to project management, «branch and bound» and dynamic programming methods, simulation modeling, and the basic concepts of computational complexity	
Prerequisites	Calculus, Linear Algebra, Probability Theory, and Economics	
Contents	General concepts. Problem classification. Multicriteria problems. Examples of linear programming problems. Graphical solution method. Equivalent formulations. Structure of the simplex method. M-method. Avoiding cycling. Transportation problem. Assignment problem. General concepts of graph theory. Graph representation. Euler tour. Topological sorting of vertices. Minimum weight spanning tree. Shortest paths. Project management and network planning. Structure of a «branch and bound» method. Traveling salesman problem. Simulation modeling. Monte Carlo method. Introduction to computational complexity theory. Dynamic programming. Knapsack problem	
Teaching methodology	Lectures, seminars, tests	
Literature	1. Melnikov O. I., Sarvanov V. I., Tyshkevich R.I. Lectures on Graph Theory. Minsk: Universitetskoe, 1995. 2. Taha H. Operations Research: An Introduction. Prentice Hall, 1977. 3. Ventsel E. S. Operations research. M.: Soviet Radio, 1972.	
Examination methodology	Intermediate tests: 60 %. Final examination: 40 %.	
Recommended for	Second-year undergraduate students	

Lectures: 18 Seminars: 8	INDUSTRIAL ORGANIZATION	Credits: 2
Lecturer	Assistant Professor Zinaida Visotskaya (T&IE)	
Goals	The aim of this course is to provide students with an opportunity to develop their knowledge of firm strategies on pricing, quality, and market entry. It is based on microeconomic theory and applies the theory to the study of price and competition in imperfect markets	
Prerequisites	Microeconomics	
Contents	Introduction to industrial organization. Concentration of buyers and sellers at the market and its indicators. Entry-exit barriers at the market. Product	

	differentiation in the industry. Firm and its market power in the industry. Cooperative and non-cooperative strategic behavior of firms. Integrated processes in the industry. Strategy of business expansion: takeovers, mergers of firms' assets. Role of the government in the development of the industry. Efficiency of the industry performance
Teaching methodology	Lectures, seminars, and controlled self-study
Literature	1. Cabral L. M. B. Introduction to Industrial Organization. Cambridge: MIT Press, 2000. 2. Hay D. A., Morris D. J. Industrial Economics and Organization: Theory and Evidence. New York: Oxford University Press, 1991. 3. Scherer F. M., Ross D. Industrial Market Structure and Economic Performance. Houghton Mifflin Company, 1990.
Examination methodology	Essay: 30 %. Midterm written examination: 40. Final oral examination: 30 %.
Recommended for	Fifth-year undergraduate students and first-year graduate students

Lectures: 18 Seminars: 10	LABOR ECONOMICS	Credits: 2
Lecturer	Professor Dr. Lyudmila Tikhonova (M)	
Goals	To study the basic theoretical approaches and models of labor economics. To analyze the social and labor sphere of the Republic of Belarus. To enhance the adaptability of students to the labor market. To explore the new directions of labor organization and standardization	
Prerequisites		
Contents	Labor economics: its subject, goals, and concepts within the market economic system. Labor as a social activity. Labor organization. Labor resources, labor potential, and human capital. Labor market: concept, structure, and performance. Employment of the population, unemployment (its forms and types). Productivity and efficiency of labor. Incomes and remuneration of labor. Activation of human factor (motivation). Labor relations. Government regulation of labor relations and labor market. International experiences of labor relations' regulation	
Teaching methodology	Lectures and controlled self-study	
Literature	1. Adamchuk V. P. Labor Economics. Moscow, 1999. 2. Bulanov V. S., Volgin I. A. Labor Market. Moscow, 1999. 3. Erenbergm R. J., Smith P. S. Modern Labor Economics: Theory and Government Policy. Moscow, 1996. 4. Slezinger G. E. Labor in a Market Economy. Moscow, 2000. 5. Cahuc P., Zulberberg A. Labor Economics MIT Press. Cambridge, 2004.	
Examination methodology	Test	
Recommended for	Third-year undergraduate students	

Lectures: 54 Seminars: 28	ECONOMETRICS AND FORECASTING	Credits: 8
Lecturer	Associate Professor Elena Vasenkova (EI&ME)	

Goals	The course aims to provide students with important skills, which are of both academic and vocational value, being an essential part of the intellectual training of an economist and also useful for a career. In particular the course aims to equip students with the following competencies: an awareness of the empirical approach to economics; experience in the analysis and use of empirical data in economics; will be able to visualize and most importantly comprehend the instrumental role that quantitative techniques play in decision making processes within the business environment; understanding the nature of uncertainty and methods of dealing with it; the use of econometric software packages as tools of quantitative and statistical analysis
Prerequisites	Microeconomics, Macroeconomics, Theory of Probability, Statistics
Contents	Introduction in Econometrics. The Data and Main Concepts of Econometrics. Linear regression model. Least squares estimation. Classical regression assumptions. Gauss–Markov Theorem. The matrix approach to linear regression model. Linear Restrictions. Structural change. Prediction. Heteroscedasticity: implications and detection tests. Autocorrelation: implications and detection tests. Multicollinearity. Types of specification errors. Test of specification errors. Non–linear models. Functional form tests. Dummy variables. Dynamic models. Autoregressive and distributed-lag models. Time series econometrics: Stationarity, Unit Roots and Cointegration. Simultaneous equation models. The identification and estimation problems
Teaching methodology	Lectures, seminars, research project
Literature	1. Maddala G. S. Introduction to Econometrics. 2. Greene William H. Econometric Analysis. 3. Gujarati N. Damodar: Basic Econometrics.
Examination methodology	Classwork assignments 50 %. Exam 50 %.
Recommended for	Third-year undergraduate students

Lectures: 34 Seminars: 26	GAME THEORY	Credits: 4
Lecturer	Associate Professor Dr. Nicolai Pisaruk (EI&ME)	
Goals	To give the basics of the game theory in order the students be able to build and analyze game models of economic conflicts	
Prerequisites	Operation Research	
Contents	Games and their classification. Convex sets and functions. Kakutani fixed points. Saddle points. Strategic form of a non-coalition game. Nash equilibrium. Convex games. Models of oligopoly. Finite non-coalition games. Matrix games, pure and mixed strategies. Solving 2xn and mx2 games. Reduction to a linear programming problem. Bimatrix games. Safety levels. Solving in mixed strategies by Lemke's complementary pivot algorithm. Models of duopoly. Extensive form of a game. The game tree. Reduction to a game in strategic form. Games of perfect information. Recursive and stochastic games. Mean payoff infinite stochastic games, existence of a solution in stationary strategies. Games in coalitional form, characteristic functions. Imputations and the core. The Shapley value, the	

	nucleolus. Preliminary negotiations. Cooperation of two persons, threat strategies
Teaching methodology	Lectures, modeling, and exercises
Literature	1. Aumann R. A. Lectures on Game Theory. Boulder, Westview Press, 1989. 2. Gibbons R. Game Theory for Applied Economics. Princeton University Press, 1992. 3. Morris P. Introduction to Game Theory. New York, Springer-Verlag, 1994. 4. Owen G. Game Theory. Academic Press, 1982.
Examination methodology	Written examination with exercises
Recommended for	Third-year undergraduate students

Lectures: 32 Seminars: 12	MANAGEMENT	Credits: 4
Lecturer	Professor Dr. Boris Panshin (M)	
Goals	To study the theory and practice of management	
Prerequisites		
Contents	The concept of management. Evolution of managerial thought. General functions of management. Goals, general principles, methods, and functions of management. Managerial decisions and their evaluation. Methods of efficiency calculation and analysis of financial performance. The role of human relations in management. The process of organizational decision-making. Management and the society	
Teaching methodology	The use of computer technologies as an essential condition of the operative and efficient management under present-day conditions is a focus of particular attention	
Literature	1. Boddy D., Payton R. Foundations of Management. Piter – St. Peters-burg, 1999. 2. Duncan D. Basic Ideas of Management. Moscow: Expert, 1998. 3. Meskon M., Albert M., Hedoury F. Foundations of Management. Moscow: Delo, 2001. 4. Vihansky O. S., Naumov A. I. Management. Moscow: MSU, 1995.	

Lectures: 54 Seminars: 28	ACCOUNTING AND AUDIT	Credits: 6
Lecturer	Assistant Professor I. Shilay (M)	
Goals	To study the theory and practice of accounting	
Prerequisites	–	
Contents	Theory of accounting. Accounting indicators: fixed assets. Accounting indicators: current assets. Accounting indicators: settlements. Accounting indicators: revenues and expenditures. Accounting indicators: sources of capital base	
Teaching methodology	Lectures, practical work within one of the accounting systems	

Literature	1. International standards of financial accounting. 2. Law of the Republic of Belarus "On Accounting and Reporting" #3321–XП as of October 18, 1994. 3. Resolution of the Ministry of Finance of the Republic of Belarus #89 as of May 30, 2003. 4. Resolution of the Ministry of Finance of the Republic of Belarus #16 as of February 17, 2004. 5. Resolution of the Ministry of Finance of the Republic of Belarus #16 as of February 17, 2004. 6. The Instruction on Accounting Forms. 7. The Rules of Reporting. 8. The Typical Chart of Accounts.
Recommended for	Third-year undergraduate students
Remarks	The accounting standards of the Republic of Belarus are available in the electronic legal bases «Consultant», «Belarusian Legislation» etc.

Lectures: 54 Seminars: 28	MONEY, BANKING AND FINANCE	Credits: 10
Lecturer	Professor Dr. Vladimir Tarasov (B&FE)	
Goals	To study the monetary economics, the role of money, and the monetary policy. To analyze the impact of monetary instruments on the economy and function of central banks	
Prerequisites	Macroeconomics	
Contents	Money, its types and functions. Money and payments system. Monetary system, money emission, and money supply. Inflation and the methods of money circulation stabilization. Loans and their role in the economy. Loan forms. Financial market. Credit and banking systems. Central banks and foundations of their activities. Foundations of bank activities. Banking interest rates and banking risks. Currency system and its elements. Exchange rates and balance of payments. International banking operations	
Teaching methodology	Lectures, seminars, and practical work	
Literature	1. Tarasov V. I. Money, Credit and Banks. Minsk, 2005. 2. Miller R. L., Van-Hous D. D. Modern Money and Banking. Moscow, 2000. 3. Mishkin F. The Economics of Money, Banking and Financial Markets. Boston, 2004.	
Examination methodology	Written examination	
Recommended for	Third-year undergraduate students	

Lectures: Seminars:	PRICING	Credits: 2
Lecturer	Professor Dr. Vladimir Tarasov (B&FE)	
Goals	To study the theory, methodology, and practice of pricing within the market economic system. To study the methods of pricing and their specifics at different commodity markets. To consider the specifics of pricing at the world market	
Prerequisites	–	

Contents	The genesis of price. Price within the economic mechanism. Government and market regulation of prices. Strategies and methods of pricing. Pricing at the market for industrial products. Pricing at the market for technological products and new technologies. Pricing at the consumer market. Specifics of pricing at the market for agricultural products. Prices at the market for capital assets. Pricing at the world market
Teaching methodology	Lectures and seminars

Lectures: 34 Seminars: 80	MARKETING	Credits: 4
Lecturer	Associate Professor Dr. Natalja Grek (M)	
Goals	To study the basic concepts of marketing. To learn how to develop marketing strategies	
Prerequisites	–	
Contents	Social and economic concept of marketing. The system of marketing research. A product in the marketing system. Marketing strategies at different stages of the life cycle of a product. Development of merchandise policy. Quality assurance and competitiveness of products. Marketing process. Development of marketing strategies and design of marketing programs. Development and management of the marketing communications complex. Advertising. Promotion of products and public relations. Internet advertising	
Teaching methodology	Lectures, seminars, and business games	
Literature	1. Armstrong G., Kotler F. Introduction to Marketing. Moscow, 2000. 2. Evans J. R. Marketing. Moscow, 2002. 3. Kotler F. Marketing Management. St. Petersburg, 1999.	
Examination methodology	Examination	
Recommended for	Third-year undergraduate students	

Lectures: 34 Seminars: 20	INVESTMENT ANALYSIS	Credits: 8
Lecturer	Associate Professor Dr. N. Anikina (B&FE)	
Goals	The Investment Analysis focuses on investments and investment projects. In this course, we are going to study the life cycle of an investment project, the efficiency of investments and investment projects, the financing of investments, and the management of investment projects. The efficiency analysis of investment projects, the dynamic and static methods of efficiency evaluation, and the analysis of investment projects under risk and inflation is a focus of particular attention	
Prerequisites	Macroeconomics, Higher Mathematics, and Statistics	
Contents	Investments and an investment project as economic categories. Investment project within the economic system. Life cycle of an investment project. Efficiency of an investment project and traditional methods of its analysis. Efficiency of investment projects given the time factor. Capital cost of an investment project. Discounting methods of efficiency analysis of investment projects. Effect of risks on investment projects. Analysis of investment projects under inflation. Capital budgeting. Financing of investment projects. Capital accumulation. Management of investment	

	projects. Practical aspects of investment analysis and implementation of investment projects in the Republic of Belarus
Teaching methodology	Lectures, seminars, and controlled self-study
Literature	1. Anshin V. M. Investment Analysis. Moscow: Delo, 2002. 2. Avanesov E. T., Kovalev M. M., and Rudenko, V. G. Investment Analysis. Minsk: BSU, 2002. 3. Yakovleva N. A. Efficiency Analysis of Investment Projects (given the time factor, risk, and inflation). Minsk: BSU, 2000.
Examination methodology	Current work (including intermediate test): 33.3 %. Final test: 33.3 %. Examination: 33.3 %.
Recommended for	Fourth-year undergraduate students

Lectures: 34 Seminars: 20	ECONOMIC POLICY	Credits: 4
Lecturer	Associate Professor Igor Rudenkov (T&IE)	
Goals	To study the principles of economic policy, its methods, and instruments.	
Prerequisites	Microeconomics, Macroeconomics, International Economics, and Economic History	
Contents	Economic policy: its subject and theoretical underpinnings. The concept of economic policy. Psychological factor in economic policy. Policy aimed at competition promoting. Transformational economic policy. The concept of a social market economy. Tax policy. Government budgetary policy. Monetary policy. Government policy aimed at income redistributing. Government innovation policy	
Teaching methodology	Lectures, essays, and discussions	
Literature	1. Bunkina M. A. Economic Policy. Moscow, 1999. 2. Sibert H. Cobra Effect. How to Escape Errors in Economic Policy. Moscow, 2005. 3. Velfens P. Foundations of Economic Policy. Moscow, 2002.	
Examination methodology	Oral examination: 60 %. Essay: 40 %	
Recommended for	Fourth-year undergraduate students	

Lectures: 22 Seminars: 20	INSTITUTIONAL ECONOMICS	Credits: 4
Lecturer	Associate Professor Dr. Petr Lemeschenko (T&IE)	
Goals	The course discloses a wide range of instruments, methods, and categories of the economic science by regarding the institutional system of a society as an important force influencing economy	
Prerequisites	Philosophy, Political Economy, Economics, Microeconomics, Macroeconomics, History of Economic Thought, History of Economy, Psychology, and Sociology	
Contents	Subject matter and method of institutional economics, its place in the economic science. Norm as a base regulator of the economic structure of a society. Institutions of ideology and property in the economy. Transactions and transaction costs. Economics of contracts. Contract and organization theory. Theory of the state. Information: introduction to economic analysis.	

	Economic development and institutional dynamics. Institutional theory of a firm. State as an institution. Family and household. Trade unions as a social and economic institution. Economics and law. Institutional aspects of monetary system. Topical issues of the institutional economics. Case studies
Teaching methodology	Lectures, discussions on selected topics from set readings and case studies
Literature	1. Furubotn G., Richter R. Institutions and Economic Theory: The Contribution of the New Institutional Economics (Economics, Cognition, and Society). University of Michigan Press, 2000. 2. Kasper W., Streit M. E. Institutional Economics: Social Order and Public Policy. Edward Elgar Publishing, 2000. 3. Menard C., Shirley M. M. (eds). Handbook of New Institutional Economics. Springer, 2005.
Examination methodology	Oral examination composed of the discussion on written research and two theoretical questions; maximum of 100 points equivalent to «10» consists of 40 points for written research, 30 points for activities during seminars, and 30 points for examination answer
Recommended for	Fourth-year undergraduate students

Lectures: Seminars:	MATHEMATICAL ECONOMICS	Credits: 4
Lecturer	Associate Professor Dr. N. Pisaruk (EI&ME)	
Prerequisites	High Mathematics, Micro- and Macroeconomics	
Contents	Mathematical economics: its subject and history (Cournot, Walras, Edguort, and Pareto). Leontief models (open and closed ones). Economic productivity. Application of input–output models. Two-stage Leontief models. Models of international trade. Kantarovich models of linear programming as models of optimal planning within the centralized economy. Duality theorems and their economic implications. Objective conditional estimations. The concept of the optimal performance of a socialist economy. Optimal categories. Macroeconomic applications of linear programming. Lagrange functions. Neumann models of a developing economy. Dynamic models. Solow–Samuelson comparative stability theorems. Efficient and optimal growth. Turnpike property of optimal paths. Economic implications of the turnpike theorem. Development of the turnpike approach. Equilibrium in a market economy. Perfect competition. Walras law and budget constraints. Arrow–Debreu model and theorem. Models of economic growth (Solow, Lucas, Harrod–Domar, Mankiw–Romer–Wale et al.). Empirical results. The impact of human capital. Collective choice models. Other rules of the aggregation of preferences. Convolution methods. Social choice and welfare economics. Rating models. Multicriteria optimization and Pareto optimums. Carling lemma. Lexicographic optimums. Stability of Pareto sets	
Teaching methodology	Lectures, seminars, tests	
Literature	1. Lancaster K. Mathematical Economics. 2. Nikaido H. Convex Structures and economic theory. Akademic Press, 1968.	
Examination methodology	Fourth-year undergraduate students	
Recommended for	Written examination	

CURRICULUM: SOCIOLOGY

BACHELOR AND MASTER OF SCIENCE DEGREE

FIRST YEAR

№	Modules	HPW		Control		ECTS		
		Sem. 1	Sem. 2.	CT	EX	Sem. 1.	Sem. 2.	In year
1	Introduction to Sociology	1/1/1*	–	–	1	3	–	3
2	Philosophy	1/1/1	1/1/1	1	2	3	3	6
3	Foundations of Information Science and Introduction to Information Technologies	1/1/1	0/3/3	1	2	3	6	9
4	Foundation of Higher Mathematics	2/2/2	–	–	1	6	–	6
5	History of Belarus	2/2/2	–	–	1	6	–	6
6	Foreign Language	0/0/3	0/0/3	1, 2	–	2	2	4
7	Theoretical Sociology	–	2/2/2	–	2	–	6	6
8	Applied Statistics in Sociology	–	2/2/2	2	–	–	6	6
9	Law basics	–	1/1/1	2	–	–	3	3
10	Optional course	1/1/1	–	1,1	–	3	–	3
11	Research project	0/0/4	0/0/4	–	2	4	4	8
Per semester		31	31			30	30	
Per year				8	7			60

HWP Hours per week
Lectures / Seminars / Practical lessons during the semester of 17 weeks
CT Credit test, Semester №
EX Examination, Semester №
ECTS European Credit Transfer System

SECOND YEAR

№	Modules	HPW		Control		ECTS		
		Sem. 3	Sem. 4	CT	EX	Sem. 3	Sem. 4	In year
1	Methodology and Methods of Sociological Research	2/2/1	2/2/1	4	3	5	5	10
2	Applied Statistics in Sociology	2/2/1	–	–	3	5	–	5
3	Social History	2/2/1	–		3	5	–	5
4	History of Sociology	2/2/1	2/2/1	3	4	5	5	10
5	Economics	2/2/1	–	–	3	5	–	5
7	Ethics	1/1/1	1/1/1	3	4	2	3	5

* Lectures/seminars, tutorials, controlled student independent work/cstudent independent work.

8	Foreign Language	0/0/2	0/0/2	3	4	1	1	2
9	Social Psychology	–	2/2/1	–	4	–	5	5
10	Social and Economic Statistics	–	2/1/1	4	–	–	3	3
11	Sociology of Education	–	2/2/1	–	4	–	5	5
12	Research project	0/0/2	0/0/3	–	4	2	3	5
Per semester		32	32			30	30	
Per year				5	10			60

THIRD YEAR

№	Modules	HPW		Control		ECTS		
		Sem. 5	Sem. 6	CT	EX	Sem. 5	Sem. 6.	In year
1	Methodology and Methods of Sociological Research	2/2/1	2/2/1	–	5,6	5	5	10
2	History of Sociology	2/2/1	2/2/1	5	6	5	5	10
3	Social and Economic Statistics	2/1/1	–	–	5	3	–	3
4	Sociology of Management	2/2/1	2/2/1	5	6	5	5	10
5	Sociology of Personality	2/2/1	–	–	5	5	–	5
6	Sociology of Labour	–	2/2/1	–	6	–	5	5
7	Political Science	2/1/1	–	–	5	4	–	4
8	Sociology of Religion	–	1/1/1	6	–	–	2	2
9	Psychology	–	1/1/1	6	–	–	2	2
10	Specialization Courses	1/1/1	1/1/1	5,6	–	2	2	4
11	Research project	0/0/2	0/0/3	–	6	2	3	5
In semester			33	32			31	29
In year					6	9		60

FOURTH YEAR

№	Modules	HPW		Control		ECTS		
		Sem. 7	Sem. 8	CT	EX	Sem. 7	Sem. 8	In year
1	Methodology and Methods of Sociological Research	1/1/1	–	–	7	3	–	3
2	Sociology of Politics	1/1/1	–	–	7	3	–	3
3	Economic Sociology	2/2/1	–	–	7	5	–	5
4	Sociology of Culture	2/2/1	–	–	7	5	–	5
5	Psychology	1/1/1	–	–	7	2	–	2
6	Sociology of Marriage and the Family	1/1/1	1/1/1	7	8	3	3	6
7	Social Anthropology	–	2/2/1	–	8	–	5	5
8	Demography	–	2/2/1		8	–	5	5
9	Optional course	–	1/1/1	–	8	–	3	3
10	Specialization Courses	2/2/2	2/2/2	7,7,8,8	–	6	6	12

11	Field studies	–	4 weeks	–	8	–	4	4
12	Research Project	0/0/3	0/0/4	–	8	3	4	6
Per semester		31	26			30	30	
Per year				5	11			60

FIFTH YEAR

№	Modules	HPW		Control		ECTS		
		Sem. 9	Sem. 10	CT	EX	Sem. 9	Sem. 10	In year
1	Sociology of Science	2/2/1	–	–	9	5	–	5
2	Sociology of Deviance	2/2/1	–	9		5	–	5
3	Sociology Teaching Methods	2/2/1	–	–	9	5	–	5
4	Specialization Courses	3/3/3	–	–	9,9,9	9	–	9
5	Pedagogical Practice	–	8 weeks	–	10	–	8	8
6	Field studies	–	8 weeks	–	–	–	8	8
7	Research Project	0/0/4	0/0/8	–	10	4	8	12
8	State Exam	–	–	–	10		8	8
Per semester		28	8			28	32	
Per year				1	8			60

SIXTH YEAR

№	Modules	HPW		Control		ECTS		
		Sem. 11	Sem. 12	CT	EX	Sem. 11	Sem. 12	In year
1	Philosophy and Methodology of Science	2/2/2	1/1/1	–	4	6	3	9
2	Foreign Language	0/0/6	–	–	3	4	–	4
3	Information Technologies	2/1/1	–	3	–	4	–	4
4	Optional course	3/3/3	2/2/2	11, 11, 11	–	9	6	15
5	Research Practice	3 weeks	5 weeks	–	–	3	5	8
6	Master's Project	0/0/5	0/0/5	–	4	5	5	10
7	Final Examination			–	4	–	10	10
Per semester		30	14			31	29	
Per year				4	4			60

DISCRIPTIONS OF COURSES

Term 1 22 hours of lectures 8 hours of seminars 4 hours of controlled independent student work 12 hours of independent student work	Introduction to Sociology	ECTS: 3
Lecturer	Ph. D. candidate in Sociology, Associate Professor Kuchko E. E.	

The Goal of the Course	To provide students with the knowledge of the main concepts, structure and functions of Sociology
Basic Courses	Knowledge gained at school
The Content of the Course	Notion of sociology as a science, its subject-matter, aims, functions and structure, concepts and the main laws. The role of sociology in contemporary society, its place in the system of sciences about society. The main stages of sociology formation and development. Peculiar features of theoretical and empirical sociology. The notion of specific sociological disciplines
Teaching Format	Lectures, seminars
Literature	1. Smelzer N. Sociology. Moscow, 1994. 2. Giddens A. Sociology (3. ed.). Cambridge: Polity Press, 1997.
Grade	Exam, credit, essay
Recommendations for the application of the course	The course is designed for the first-year students

Term 1–2 34 hours of lectures 22 hours of seminars 12 hours of controlled student work 34 hours of independent student work	Philosophy	ECTS: 6
Lecturer	Ph. D. candidate in Philosophy, Associate Professor Khomich E. V.	
The Goal of the Course	Philosophical examination of the fundamental issues of being and knowledge	
Basic Courses	Knowledge gained at school	
The Content of the Course	The subject matter of philosophy. The role and functioning of philosophy in culture. Development of philosophy. The main branches, schools of philosophy and its stages of development. Man in the Universe. The nature of man and the sense of existence. The study of being. Monistic and pluralistic concepts of being, self-organization of being. The concepts of «material» and «ideal» being. Space and time. Movement and development, dialectics. Consciousness and the process of cognition. Consciousness, self-consciousness and personality. Philosophical, religious and scientific pictures of the world. The problem of truth. Definition science and criteria of scientific knowledge. The structure of scientific knowledge, its methods and forms. Scientific revolutions and types of rationality	
Teaching Format	Lectures, seminars	
Literature	1. Kisel N. K. Philosophy. Tests. Minsk, 2004. 2. Rassel B. History of Western Philosophy. Vol. 1–3. Novosibirsk, 2001. 3. Philosophy. Ed. by A. I. Zelenkov. Minsk, 2004. 4. Philosophy in the modern world. Ed. by A. I. Zelenkov. Minsk, 2005.	

Grade	Exam, credit, essay
Recommendations for the application of the course	The course is designed for the first-year students

Term 1–2 26 hours of lectures 76 hours of practical 46 hours of independent student work	Foundations of Information Science and Introduction to Information Technologies	ECTS: 9
Lecturer	Ph. D. candidate in Physical and Mathematical Sciences, Associate Professor Sirenko S. N.	
The Goal of the Course	To study using modern technologies and to master skills of their application in sociological study, to develop informational competence of students	
Basic Courses	Knowledge gained at school	
The Content of the Course	Examination of the concepts of information, information processes and information technologies. Hardware and software. Operating systems, their functions and types. Files and their distribution on discs. File managers. Word processors. Effective methods of working with text documents (automation of the process of elaboration of the instruments for sociological research, working with large documents). Tabular processor. Statistical treatment of sociological information, pictorial presentation, interpretation of the results of the analysis, prognosis. The systems of database management. Creation of databases, searching, sorting, selection of information from the database according to different criteria. Mathematical calculations, representation of data in the form of a diagram, grouping data according to the selected criteria. Local and global computer networks	
Teaching Format	Lectures, practical lessons	
Literature	1. Dodge M., Stinson C. Microsoft Office Excel 2003 Inside Out with CDROM. Microsoft Press, 2003. 2. Prague C., Irwin M. Access 97 Bible. Moscow, 2000. 3. Stepanov A. N. Information Science. St.-Petersburg, 2005.	
Grade	Exam, credit, 2 tests	
Recommendations for the application of the course	The course is designed for the first-year students	

Term 1 34 hours of lectures 30 hours of seminars 4 hours of controlled independent student work 34 hours of independent student work	Foundations of Higher Mathematics	ECTS: 6
Lecturer	Ph. D. candidate in Physical and Mathematical Sciences, Senior Teacher Gulina O. V.	

The Goal of the Course	To develop skills of using mathematical methods in sociological research
Basic Courses	Knowledge gained at school
The Content of the Course	Set theory and its application to the analysis of answers in sociological questionnaires. Shares and percentage in pair tables. Cross-tables and their application to the analysis of sociological information. Ordering relationship in the distribution of answers in sociological questionnaires. Combinatorial calculus in sociological questionnaires. Probability theory. Parallels between events, sets, propositions. Randomness in sociological studies. Mathematical apparatus of the study of indeterminedness. Different models of indeterminedness. Interfaces between fuzzy sets and their relation to the expert polling. Averages. The problems of selection and decision making within social selection, social classification and stratification. Graph theory in small group analysis
Teaching Format	Lectures, practical lessons
Literature	1. Kemeny J., Snell J., Thompson G. Introduction to Finite Mathematics, 3rd ed. Prentice-Hall, Englewood Cliffs, N/J., 1974. 2. Kemeny J., Snell J. Mathematical Models in the Social Sciences. MIT PRESS, 1962. 3. Leonov N.N. Mathematical Sociology: Structural-Approximating Approach. Minsk, 2002.
Grade	Exam, test
Recommendations for the application of the course	The course is designed for the first-year students

Term 1 38 hours of lectures 18 hours of seminars 12 hours of controlled independent student work 34 hours of independent student work	History of Belarus	ECTS: 6
Lecturer	Ph. D. candidate in History, Associate Professor Denisova E. G.	
The Goal of the Course	To provide students with the knowledge of the main stages of historical development of the Belarusian society	
Basic Courses	Knowledge gained at school	
The Content of the Course	Ethnogeny of Slavs and ethno-cultural processes of eastern Slavdom. The place of the Polotskoye and Turovskoye principalities in the system of the Old Russian states. The specific of their cooperation with the European and Eastern civilization. The formation of the Grand Duchy of Lithuania as a Lithuanian-Belarusian state. Consolidation of the Belarusian ethnos. Political and economical development of Belarus in the period of the Rech Pospolita. The ways of development of Belarus in the period of the Russian state. The main stages of formation and development of the Belarusian soviet state system. Formation of the independent Republic of Belarus and its contemporary development	

Teaching Format	Lectures, seminars
Literature	1. History of Belarus, History of Belarus from the Ancient Times to the end of XVIII. Pt 1. Minsk, 2000. 2. History of Belarus. XIX–XX. Pt 2. Minsk, 2002. 3. History of Belarus in the Contest of the European Civilization. Minsk, 2005.
Grade	Exam, test
Recommendations for the application of the course	The course is designed for the first-year students

Term 1–4 136 hours of practical classes 34 hours of independent student work	Foreign Language	ECTS: 6
Lecturer	Teachers: Kovgan I. I., Makarevich N. Y., Markovich A. A., Bubich O. A.	
The Goal of the Course	To develop and master skills of written and spoken foreign language	
Basic Courses	Knowledge gained at school	
The Content of the Course	The main types of word-formation. Grammar skills, providing adequate understanding of communication in different situations; the specifics of grammar characteristic for an academic (professional) speech. Special vocabulary for academic purposes. Dialogue and monologue with the use of the most common and relatively simple vocabulary and grammar structures in the main communicative situations of formal and informal character. Understanding of dialogic and monologist speech in everyday and professional communication	
Teaching Format	Practical lessons	
Literature	1. Master your English. Ed. by E. P. Smykovskaya. Minsk, 2004. 2. English: Discourse of Argumentation. Ed. by O. V. Luschinskaya. Minsk, 2002.	
Grade	Credit, exam, 6 tests	
Recommendations for the application of the course	The course is designed for the first-year, second-year and third-year students	

Term 2 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Theoretical sociology	ECTS: 6
Lecturer	Ph. D. candidate in Philosophy, Associate Professor Abushenko V. L.	
The Goal of the Course	To study theoretical and methodological basics of sociological science	
Basic Courses	Introduction to Sociology	
The Content of the Course	Theoretical and methodological basics for the development of sociology. Forms of institutionalization of science. Scientific theories	

	from the point of sociology object and subject-matter. Concepts, their role in conceptualization of the subject-matter. Social structures and social systems, society as a social-cultural system. Personality as a social system: object and product of social relations. Social communities as forms of social organisation of induviduals and a source of social changes. Social connections, interaction between indivilduals, groups, communities. Social institutes and institutional relations; value orientations in the structure of personality and culture. Mass conscience and mass actions, social changes, sources of social tension. Globalization of social processes in modern world. Social and cultural peculiarities in the development of society
Teaching Format	Lectures, seminars
Literature	1. Smelzer N. Sociology. Moscow, 1994. 2. Ritzer G. Contemporary Sociological Theory. 3rd edition. New York: McGraw Hill, 1992. 3. Giddens, A. Sociology (3. ed.). Cambridge: Polity Press, 1997.
Grade	Exam, credit, essay
Recommendations for the application of the course	The course is designed for the first-year students

Term 2–3 76 hours of lectures 40 hours of practical 20 hours of controlled independent student work 68 hours of independent student work	Applied Statistics in Sociology	ECTS: 11
Lecturer	Senior Teacher Yelsukova N. A.	
The Goal of the Course	To develop skills of collection, storage, statistic analysis and interpretation of sociological data	
Basic Courses	Foundations of Higher Mathematics Introduction to Sociology	
The Content of the Course	Descriptive statistics: statistical measuring; measuring graticules; calculation of univariate distribution; variation series; grouping; pictorial data representation; the measure of the central tendency; variations. The foundations of statistical conclusion: types of statistical estimation, construction of confidence interval, select error, amount of sampling, testing statistical hypotheses. Analyses of association of attributes: correlation analysis, regression analysis, variance analysis	
Teaching Format	The use of computer equipment	
Literature	1. Paniotto V. I., Maksimenko V. S. Qualitative Methods in Sociological Research. Kiev, 1982. 2. Hili G. Statistics, Sociological and Marketing Research. St.-Peters-burg, 2005.	
Grade	Exam, cretit, 2 tests	
Recommendations for the application of the course	The course is designed for the first-year and second-year students	

Term 3–7 174 hours of lectures 90 hours of seminars 42 hours of controlled independent student work 148 hours of independent student work	Methodology and Methods of Sociological Research	ECTS: 23
Lecturer	Ph. D. candidate in Sociology, Associate Professor Burova S. N., Ph. D. candidate in Sociology, Associate Professor Kuchko E. E., Ph. D. candidate in Sociology, Associate Professor Kurilovich N. V., Teacher Chernyak Y. G.	
The Goal of the Course	To provide students with the knowledge of methodology and to develop skills of using specific methods in sociological research	
Basic Courses	Introduction to Sociology	
The Content of the Course	Sociological research as a field of sociology; the subject matter and the method of sociological research; the idea of sociological research; methodological function of theory in sociological research; types of sociological research; the program of sociological research; conceptual and operational models of the object and subject matter of sociological research; variables in sociological research; hypothesis in sociological research; social indices and indicators in sociological research; scales and indexes in sociological research; sampling in sociological research; methods, technique, and procedure in sociological research; qualitative and quantitative methods in sociological research; analysis of documents; the method of observation; the method of survey; the method of interview; the method of expert judgment; socio-metrics; social experiment; the method of focus-groups; case study; biographical method; data analysis and data processing in sociological research; multivariate methods of data analysis; data summarizing and presentation of the results; preparation and presentation of the scientific report	
Teaching Format	Lectures, practical lessons	
Literature	1. Factor, Discriminate and Cluster Analysis. Moscow, 1989. 2. Noel E. Mass Surveys. Introduction to the Methods of Demoscopy. Moscow, 1993. 3. Eliseeva I. I., Semenova E. V. The Main Procedures of Mathematical-Statistical Analysis. St.-Petersburg, 1993. 4. Operative Sociological Research: Methods and Organization. Ed. by Rotman D. G. and others. Minsk, 2001. 5. Yadov V. A. Strategy of Sociological Research. Moscow, 2002.	
Grade	Exam, credit, 5 tests	
Recommendations for the application of the course	The course is designed for the second-year, third-year and fourth-year students	

Term 3 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Social History	ECTS: 5
Lecturer	Ph. D. candidate in Philosophy, Associate Professor Bobr A. M.	

The Goal of the Course	To provide students with the knowledge about the main stages of world history and about the logic of historical development of the society
Basic Courses	Knowledge gained at school
The Content of the Course	The specifics, forms and functions of historical knowledge. The main features and tendencies of development of the primitive communal society, ancient society, feudal society, society in the period of capitalism, soviet and post-soviet society. The specifics of historical development in different regions of the world. The main tendencies of development of social structure and social institutes. History of everyday life and mentality. The main characteristics of the modern society and possible scenarios of future development
Teaching Format	Lectures, seminars
Literature	1. Braudel F. Material Civilization, Economics and Capitalism. Vol. 1–3. Moscow, 1988–1992. 2. Huizinga J. The Autumn of the Middle Ages. USA, 1996. 3. Jaspers K. The Origin and Goal of History. Moscow, 1994. 4. Kastels M. Informational Epoch: Economics, Society and Culture. Moscow, 2000.
Grade	Exam, credit, paper
Recommendations for the application of the course	The course is designed for the first-year students

Term 3–6 152 hours of lectures 80 hours of seminars 40 hours of controlled independent student work 136 hours of independent student work	History of Sociology	ECTS: 20
Lecturer	Ph. D in Philosophy, professor Yelsukov A. N., Ph. D in Sociology, professor Titarenko L. G., Ph. D. candidate in Sociology, Associate Professor Kurilovich N. V.	
The Goal of the Course	To provide students with the knowledge about the formation and development of sociological science, about the logics of development of sociological knowledge	
Basic Courses	Introduction to Sociology	
The Content of the Course	The first stage of the development of sociology. O. Kont – the founder of positivism, the British tradition (J. St. Mill, H. Spencer). E. Durkheim and development of sociology. Formal sociology of G. Simmel and F. Tönnis. M. Weber and the influence of his theory on the further development of sociology. Formation of Marxist sociology and its evolution in the European thought, Neo-Marxism. Specific of development of Marxist sociology in Russia. The first period of development of sociology in the USA. Empirical sociology: formation, evolution, success and difficulties. The ideas of P. Sorokin (the Russian and American periods of his work). Structural functionalism in sociology (T. Parsons and R. Merton). Phenomenological sociology (A. Schutz, H. Garfinkel). The theory	

	of conflict (L. Coser, R. Darendorf). The theory of social exchange (G. Homans P. Blau Г. Блау). S. Freud and Neo-Freudism in sociology. Modern sociologists (J. Habermas, N. Luman, E. Giddens, P. Bourdieu, P. Berger, etc.)
Teaching Format	Lectures, seminars, studying of sociological literature
Literature	1. The works of the classics in sociology. 2. Aron R. The Stages of Development of Sociological Thought. Moscow, 1993. 3. History of Sociology. Ed. by A. N. Yelsukov. Minsk, 1997. (And other manuals on the history of sociology.)
Grade	Exam, test, 3 essays
Recommendations for the application of the course	The course is designed for the second-year and third-year students

Term 3 34 hours of lectures 22 hours of seminars 12 hours of controlled independent student work 34 hours of independent student work	Economics	ECTS: 5
Lecturer	Ph. D. candidate in Economics, Associate Professor Kulazhenko N. S.	
The Goal of the Course	To provide students with the knowledge about the concepts of the economic science, to develop skills of analysis of the modern economic policy	
Basic Courses	Knowledge gained at school	
The Content of the Course	Microeconomics. Market. Demand and supply. The principle of profit maximization. The market of labour. Wages and employment. The market of capital. Interest rate and investments. Land market. Macroeconomics. Gross national product and the methods of its measurement. National income. Price index. Unemployment and its types. Economic cycles. Investments. Public expenses and taxes. The effect of multiplier. Budget-tax policy. Money and its functions. Bank system. Monetary and credit policy. International economic relations. Foreign commerce and trade policy. Balance of payment. Rate of exchange. Specific of social and economic policy in the Republic of Belarus	
Teaching Format	Lectures, seminars	
Literature	1. McConnell C. R., Brue S. L. Economics: Principles, Problems, and Policies. 16th Ed. McGraw-Hill, 2004. 2. Economic Theory. Ed. by M. N. Plotnitsky. Minsk, 2004. 3. Mankiw N. G. Principles of Economics. 3 ed. USA, 2003. 4. Lemeshevskiy I. M. Economic Theory (in 3 parts). Minsk, 2002–2004. 5. Economic Theory. Ed. by Bazyilev N. I, Gurko S. P. Minsk, 2002.	
Grade	Exam, credit, test, essay	
Recommendations for the application of the course	The course is designed for the second-year and third-year students	

Term 3–4 34 hours of lectures 22 hours of seminars 12 hours of controlled independent student work 34 hours of independent student work	Ethics	ECTS: 5
Lecturer	Ph. D. candidate in Philosophy, professor Zelenkova I. L.	
The Goal of the Course	To provide students with the knowledge about the concepts of ethics, to develop skills of analysis of moral problems in the modern society	
Basic Courses	Philosophy Psychology	
The Content of the Course	The subject matter and objectives of ethics. The history of ethics. The main types of ethical consciousness. Morals as a socio-cultural phenomenon. Historical evolution of morals and its types. The origin of morality. The structure and functions of morality. Antinomies of moral consciousness. The main categories of ethics. Good and evil. The ultimate moral values. Moral ideals. The sense of life. Happiness. Modern problems of morality and the ways of treating them	
Teaching Format	Lectures, seminars	
Literature	1. Schweitzer A. Culture and Ethics. Moscow, 1973. 2. Moore G. The Principles of Ethics. Moscow, 1984. 3. Zelenkova I. L. Ethics. Minsk, 2004. 4. Belyaeva E. V. Ethics. Practical Tasks. Minsk, 2005.	
Grade	Exam, credit, essay	
Recommendations for the application of the course	The course is designed for the second-year students	

Term 4 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Social Psychology	ECTS: 5
Lecturer	Ph. D. candidate in Psychology, Senior Teacher Stolyarskaya E. V.	
The Goal of the Course	To provide students with the knowledge about the concepts of psychology, to develop skills of carrying out psychological research	
Basic Courses	Psychology	
The Content of the Course	The subject matter of social psychology. Socio-psychological theories of personality. Social aims. Socialization. Applied studies of the problems of personality in social psychology. Communication and its main patterns. Group and types of groups. Group dynamics. Leadership. Large social groups. Group consciousness. Collective forms of behaviour. Crowd. Panics. Masses. Socio-psychological characteristics of masses. Mass thinking and attitudes. Mechanisms of socio-psychological influence. Persuasion, suggestion, imitation. Rumour. Fashion	

Teaching Format	Lectures, seminars
Literature	1. Moscovichi S. The age of Crowds: Historical Treatise on Psychology of Masses. Moscow, 1996. 2. Myers D. G. Social Psychology. St.-Petersburg, 1997. 3. Aronson, E. The social animal. 9th ed. New York, 2003. 4. Aronson E., Wilson T. D., & Akert R.M. Social psychology. 5th ed. Garden City; NJ, 2004.
Grade	Exam, credit, essay
Recommendations for the application of the course	The course is designed for the second-year students

Term 4–5 58 hours of lectures 24 hours of seminars 20 hours of controlled independent student work 46 hours of independent student work	Social and Economic Statistics	ECTS: 6
Lecturer	Ph. D. candidate in Sociology, Associate Professor Kechina E. A.	
The Goal of the Course	To provide students with the knowledge about the system of statistical data as a source of sociological information, analysis of the system of statistical information of the Republic of Belarus	
Basic Courses	Applied Statistics in Sociology	
The Content of the Course	Social and economic statistics as a science. Organization of statistics in the Republic of Belarus. The statistics of population, the statistics of labour resources and the market of labour. The statistics of national wealth. The statistics of macroeconomic data. The statistics of finances, prices and tariffs. The statistics of the personality and the family. Political statistics. Moral statistics. The statistics of the standard of living. The statistics of the service sector. International statistics	
Teaching Format	Lectures, seminars, individual home assignments, tutorials	
Literature	1. Statistics: National Scores, Indices and the Methods of Analysis. Minsk, 2000. 2. Kolesnikova I. I. Social-Economic Statistics. Moscow, 2002. 3. Economic Statistics. Ed. by Y. I. Ivanov. Moscow, 2003.	
Grade	Exam, credit, 2 tests	
Recommendations for the application of the course	The course is designed for the second-year and third-year students	
Remarks		

Term 4 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Sociology of Education	ECTS: 5
Lecturer	Ph. D. candidate in Sociology, Teacher Morozova S. A.	

The Goal of the Course	To introduce students to sociology of education as a specific sociological theory, to develop practical skills of conducting sociological research in the sphere of education
Basic Courses	Sociology of Personality Sociology of Culture
The Content of the Course	The object, the subject matter and the methods of sociology of education, its objectives and functions. The main concepts of sociology of education. Different scientific approaches to the study of education and their comparative analysis. Formation and development of sociology of education as a specific sociological theory. Sociology of education as a methodological basis of interdisciplinary study of education. Specifics of the application of sociological methods of data gathering and data analysis to the study of the problems of education
Teaching Format	Lectures, seminars, working with sociological data
Literature	1. Zborovskiy G. E. Sociology of Education. Ekaterinburg, 2003. 2. Dobrenkov V. I., Nechaev V. Y. Society and Education. Moscow, 2003. 3. Education in the Capital: State, Problems, Perspectives of Development. Minsk, 2004.
Grade	Exam, credit, essay
Recommendations for the application of the course	The course is designed for the fourth-year students

Term 5–6 76 hours of lectures 40 hours of seminars 20 hours of controlled independent student work 68 hours of independent student work	Sociology of Management	ECTS: 10
Lecturer	Ph. D in Philosophy, Professor Ukrainets P. P.	
The Goal of the Course	To introduce students to sociology of management as a specific sociological theory, to develop practical skills of conducting sociological research in the sphere of sociology of management	
Basic Courses	Methodology and Methods of Sociological Research Social Psychology Economics	
The Content of the Course	Management as a type of activity. The system of management. Infrastructure of management. The concepts of power, authority, guidance, leadership. Forms and methods of socio-management influence. Specific and social effectiveness of self-management, representative management and administration. The principles of working out a socio-management decision. The style of organization management. The image of a manager. Conflicts in management. Control as a function of management. Change management	
Teaching Format	Lectures, seminars	
Literature	1. Ansoff I. Strategic Management. Moscow, 1988. 2. Santalainen T., Voytilainen E., Porenne P., Nissinen J. H. Managements on Results (translated from Finnish into Russian). Moscow, 1993.	

	3. Udaltsova M. V. Sociology of Management. Moscow, 2002. 4. Zborovskiy G. E. Sociology of Management. Moscow, 2004. 5. Hammer M., Champy J. Reengineering the Corporation: A Manifesto for Business Revolution. USA, 1994.
Grade	Exam, credit, essay
Recommendations for the application of the course	The course is designed for the third-year students

Term 5 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Sociology of Personality	ECTS: 5
Lecturer	Ph. D in Philosophy, Professor Gutsalenko L. A.	
The Goal of the Course	To understand the phenomenon of personality and its role as the main subject of construction and development of social reality, to develop skills of using sociological methods in the study of personality	
Basic Courses	Social Philosophy Psychology Social Psychology	
The Content of the Course	Personality as the object and subject matter of the specific sociological theory. Socialization and social typology of personality. Social activity of personality and its qualitative variety. Specific of methodology and methods of sociological study of status-role structure and activity of personality	
Teaching Format	Study of all the personal parameters of the subject of social knowledge and activity	
Literature	1. Fromm E. To Have or To Be? New York, 1976. 2. Hjelle L. A., Ziegler D. J. Personality Theories: Basic Assumptions, Research and Applications. UK, 1992. 3. Borisova L. G., Solodova G. S. Sociology of Personality. Novosibirsk, 1997. 4. Kon I. S. Sociology of Personality. Moscow, 1999. 5. Nemirovskiy V. G. Sociology of Personality. Krasnoyarsk, 1999.	
Grade	Exam, essay	
Recommendations for the application of the course	The course is designed for the third-year students	

Term 5 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Sociology of Labour	ECTS: 5
Lecturer	Ph. D in Philosophy, Professor Sokolova G. N.	

The Goal of the Course	To introduce students to sociology of labour as a specific sociological theory, to develop practical skills of conducting sociological research in the sphere of labour activity
Basic Courses	Economics
The Content of the Course	The object, the subject matter and the objectives of the sociology of statistics. The history of formation and development of sociology of labour as a science. The nature and conditions of labour. Evolution of the attitude to labour. Labour motivation and labour behavior. Creative nature of labour. The culture of labour. The law of correlation between the content and the pattern of labour. The methods of research in sociology of labour
Teaching Format	Lectures, seminars, using of statistical data
Literature	1. Sokolova G. N. Sociology of Labour. Minsk, 2000. 2. Hall R. H. Sociology of Work: Perspectives, Analyses and Issues. Textbook. London: Pine Forge Press, 1994. 3. Broom L., Selznick P. Sociology: The Text with Adapted Readings. New York: Harper & Row, Publishers, 1986.
Grade	Exam, essay
Recommendations for the application of the course	The course is designed for the third-year students

Term 5 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Political Science	ECTS: 4
Lecturer	Ph. D. candidate in Political Science, Associate Professor Melnykov A. P.	
The Goal of the Course	To provide students with the knowledge about the concepts of political science, to develop skills of analysis of politics in modern society	
Basic Courses	World History Social Philosophy	
The Content of the Course	The object, the subject matter and methods of political science. The history of political theories. The paradigms of political knowledge. The theory of power and power relations. Political life. Political system. Political relations and processes. The subjects of politics. Political culture. Political conflicts and means of their resolution. Political technologies. Political management. Political organizations and movements. Political elites. Political leadership. World policy and international relations. Comparative political science	
Teaching Format	Lectures, seminars	
Literature	1. Schmitt K. The Concept of the Political // Issues of Sociology. 1992/1. P. 37–67. 2. Mills W. C. The Power Elite. Moscow, 1959.	

	3. Seleznev L. I. Political Systems of the Modernity. Comparative Analysis. St.-Petersburg, 1995.
Grade	Exam, credit, essay
Recommendations for the application of the course	The course is designed for the third-year students

Term 6 22 hours of lectures 6 hours of seminars 6 hours of controlled independent student work 12 hours of independent student work	Sociology of Religion	ECTS: 2
Lecturer	Ph. D. candidate in Sociology, Associate Professor Beznyuk D. K.	
The Goal of the Course	To introduce the students to sociology of religion as a specific sociological theory, to develop practical skills of conducting sociological research in the sphere of religion	
Basic Courses	History of Sociology	
The Content of the Course	Object, subject matter and methodological specifics of sociology of religion. The history of formation and development of sociology of religion. Religion as a social institution. Religion and other social and cultural spheres. Socio-dynamics of religion (institutionalization, the processes of secularization and sacralization). The problems of religiousness in the modern world. Sociology of religion in the 21 century. Applied sociological study of religion	
Teaching Format	Lectures, seminars	
Literature	1. Hamilton M. B. The Sociology of Religion. L., 1999. 2. Religion and Society. Reading-book on Religion. Moscow, 1996. 3. Philatova O. G. Sociology of Religion. St.-Petersburg, 2000. 4. Beznyuk D. K. The Foundations of Sociology of Religion. Minsk, 2001. 5. Garadzha V. I. Sociology of Religion. Moscow, 2005.	
Grade	Exam, credit, essay	
Recommendations for the application of the course	The course is designed for the third-year and fourth-year students	

Term 6–7 34 hours of lectures 22 hours of seminars 12 hours of controlled independent student work 34 hours of independent student work	Psychology	ECTS: 4
Lecturer	Ph. D in Psychology, Professor Slepovich E. S.	
The Goal of the Course	To provide students with the knowledge of the conceptual apparatus of psychology, possibilities of its application in sociological research	
Basic Courses	Knowledge gained at school	

The Content of the Course	The role of psychology in the system of sciences. The history of development and the main branches of psychology. The individual, the personality, the identity. Psyche and body. Psyche, behavior and activity. The main functions of psyche. Development of psyche in the process of ontogeny and phylogenesis. Mind and psyche. The structure of psyche. The correlation between consciousness and unconsciousness. The main mental processes. The structure of consciousness. Cognitive processes. Sensation, perception, and conception. Imagination. Thinking and intellect. Creativity. Attention. Memory. Character. Temperament. Will. Needs and motives. Emotions and feelings. Communication and speech. Personality psychology
Teaching Format	Lectures, seminars
Literature	1. Godfrua, Z. What is Psychology. Vol. 1–2. M., 1992. 2. Solso R. L., MacLin M. K., MacLin O. H. Cognitive Psychology (7th ed.). Allyn & Bacon, 2004. 3. Myers D. G. Psychology. Minsk, 2006.
Grade	Exam, credit, essay
Recommendations for the application of the course	The course is designed for the first-year students

Term 7 22 hours of lectures 8 hours of seminars 4 hours of controlled independent student work 34 hours of independent student work	Sociology of Politics	ECTS: 3
Lecturer	Ph. D. candidate in Philosophy, Associate Professor Grischenko Zh. M.	
The Goal of the Course	To introduce students to the main mechanisms of formation and functioning of political sphere, to develop practical skills of reflection on political practice	
Basic Courses	Political Science Sociology of Public Opinion	
The Content of the Course	Methodological foundation of sociology of politics, specifics of its object and subject matter, its categorical apparatus, specifics of the methods of research. Power as the main object, classification of sociological approaches to the analysis, historical-sociological discourse. Reflection on political practice, the mechanisms of formation and the main political subjects of power, the alignment of political forces and political elites in the Republic of Belarus	
Teaching Format	Lectures, seminars	
Literature	1. Bourdieu P. Sociology of Politics. Moscow, 2000. 2. Toschenko Zh. Political Sociology. Moscow, 2002. 3. Tocqueville A. Democracy in America. Moscow, 2000. 4. Toffler A. Metamorphoses of Power. Moscow, 2001. 5. Almond G. A., Verba S. The Civic Culture. Princeton, 1963. 6. Easton D. The Analysis of Political Structure. N.Y., 1990. 7. Putnam R.D. Making Democracy Work. Princeton, 1993.	

Grade	Exam, test
Recommendations for the application of the course	The course is designed for the fourth-year students

Term 7 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Economic Sociology	ECTS: 5
Lecturer	Ph. D in Philosophy, Professor Sokolova G. N.	
The Goal of the Course	To introduce students to economic sociology as a specific sociological theory, to develop practical skills of conducting sociological research in the economic sphere	
Basic Courses	Economics Sociology of Labour Sociology of Management	
The Content of the Course	The object, the subject matter and the objectives of economic sociology. The history of formation and development of economic sociology as a science. Socio-economical laws of division of labour and the change of jobs. Socio-economic law of competition. Competitiveness of a worker. Economic consciousness and economic thinking. Economic interests and economic behaviour. Economic culture. Social mechanisms of regulation of economic relations. The methods of study in economic sociology	
Teaching Format	Lectures, seminars, sociological expertise of economic projects	
Literature	1. Sokolova G. N. Economic Sociology. Minsk, 2000. 2. Granovetter M., Swedberg R. The sociology of Economic Life. Handbook. San Francisco: Westview Press, 1994. 3. Swedberg R. Markets as Social Structures // The Handbook of Economic Sociology. Ed. by N. Smelser and R. Swedberg. New York: Russell Sage Foundation, 1994. P. 255–274. 4. Smelser N. J., Swedberg R. The Sociological Perspective on the Economy // The Handbook of Economic Sociology. Ed. by №. Smelser and R. Swedberg. New York: Russell Sage Foundation, 1994. P. 3–26. 5. Broom L., Selznick P. Sociology: The Text with Adapted Readings. New York: Harper & Row, Publishers, 1986.	
Grade	Exam, essay	
Recommendations for the application of the course	The course is designed for the fourth-year students	

Term 7 38 hours of lectures 20 hours of seminars 10 hours of controlled	Sociology of Culture	ECTS: 5

independent student work 34 hours of independent student work		
Lecturer	Ph. D. candidate in Philosophy, Associate Professor Abushenko V. L.	
The Goal of the Course	To examine the concept of sociology of culture as a «different» version of sociology dominating at the present stage of development of sociological studies	
Basic Courses	Social Philosophy World History History of Sociology	
The Content of the Course	Redefinition of sociological approach, the subject matter and the research area in sociology of culture. Formation and development of sociology of culture through interrelation of the main sociological paradigms. Typology and the essence of the main approaches to the study of culture. The universalities of culture. Categorical apparatus of sociology of culture and the methods of sociological research of the problems of culture	
Teaching Format	Lectures, seminars	
Literature	1. Ionin L. G. Sociology of Culture. Moscow, 2004. 2. Moll A. Sociodynamics of Culture. Moscow, 1971.	
Grade	Exam, credit, essay	
Recommendations for the application of the course	The course is designed for the third-year and fourth-year students	

Term 7–8 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Sociology of Marriage and the Family	ECTS: 6
Lecturer	Ph. D. candidate in Philosophy, Associate Professor Burova S. N.	
The Goal of the Course	To introduce students to sociology of family as a specific sociological theory, to develop practical skills of conducting sociological research in the sphere of mating and family behaviour	
Basic Courses	Sociology of Personality Social Psychology	
The Content of the Course	Sociology of marriage and the family as a specific branch of sociological knowledge. Stages of its forming and development in the USA, Europe, Russia, the USSR and the Republic of Belarus. The main approaches to the sociological study of marriage and the family. The conceptual apparatus of sociology of marriage and the family. The structure, the functions and the life cycle of the family. The tendencies of development of the modern family. Sexual revolution and its influence to the mating and family behaviour	
Teaching Format	Lectures, role-plays, watching and discussion of educational films	
Literature	1. Matskovskiy M. S. Sociology of Family. Moscow, 1989. 2. Sociology of Family. Moscow, 2005. 3. Young Family in Minsk City. Minsk, 2006.	

Grade	Exam, essay
Recommendations for the application of the course	The course is designed for the third-year students

Term 8 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Social Anthropology	ECTS: 5
Lecturer	Ph. D in Medicine, Professor Tegako L. I.	
The Goal of the Course	To provide students with the knowledge about the foundations of social anthropology as a scientific discipline and methods of social-anthropological research	
Basic Courses	Social Philosophy World History	
The Content of the Course	The object, subject matter and conceptual framework of Social Anthropology. The commonality and differences between the concepts «civilization» and «culture». Man and the constants of his existence: labour, knowledge, love, dominance, play. Archetypes of culture, mentality, mass and public consciousness. The paradigms of social-anthropological knowledge. Semiotic systems as «storage rooms» of human experience. Types and forms of translation of social and scientific knowledge. The methods of socio-anthropological research	
Teaching Format	Lectures, seminars	
Literature	Dobrenkov V. I., Kravchenko A. I. Social Anthropology. Moscow, 2005.	
Grade	Credit, essay	
Recommendations for the application of the course	The course is designed for the second-year students	

Term 8 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Demography	ECTS: 5
Lecturer	Ph. D. candidate in Sociology, Associate Professor Kechina E. A.	
The Goal of the Course	To introduce students to the main concepts and methods of demographical analysis, modeling, forecasting and sociology of population, to analyse demographic situation in the Republic of Belarus and in the world	
Basic Courses	Social and Economic Statistics	
The Content of the Course	The subject matter and the system of demographic sciences. Structure and quantity of population. Migration of population.	

	Methods of demographic analysis. Demographic modeling. Demographic forecasting. Demographic situation. Quantity of population. Demographic policy. Sociology of population
Teaching Format	Lectures, seminars, personal home assignments, tutorials
Literature	1. The Course in Demography Ed. by A. Y. Boyarskiy. Moscow, 1985. 2. The Basics of Demography / V. M. Medkov. St.-Petersburg, 2003.
Grade	Exam, test
Recommendations for the application of the course	The course is designed for the fourth-year students

Term 9 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Sociology of Science	ECTS: 5
Lecturer	The member of the National Academy of Sciences of the Republic of Belarus, Ph. D in Philosophy, Professor Babosov E. M.	
The Goal of the Course	To introduce students to sociology of science as a specific sociological theory, to develop practical skills of conducting sociological research in the sphere of science	
Basic Courses	Sociology of Education	
The Content of the Course	Science as the subject matter of sociology of science. Methodological basis of sociology of science. Science as a social institution, the functions of science. Scientific problem as a factor of science development. Specifics of scientific research, its determinations and motivations. Individual and collective factors in the development of science. The structure and dynamics of scientists. Social aspects of organization of research and scientific communication. Socio-cultural determination of scientific knowledge and its development. The essence and specific of scientific-technological revolution and scientific-technological progress	
Teaching Format	Lectures, seminars	
Literature	1. Pelz D. C., Andrews F. M. Scientists in Organizations. Moscow, 1973. 2. Kuhn T. The Structure of Scientific Revolutions. Moscow, 1978. 3. Perspectives in the sociology of science / S. Blume. New Jercey, 1977. 4. Merton R. The sociology of science, N. Y., 1979.	
Grade	Exam, essay	
Recommendations for the application of the course	The course is designed for the fourth-year students	

Term 9 38 hours of lectures 20 hours of seminars 10 hours of controlled	Sociology of Deviance	ECTS: 5

independent student work 34 hours of independent student work		
Lecturer	Ph. D. candidate in Sociology, Teacher Levitskaya I. V.	
The Goal of the Course	To provide students with the knowledge about the sociological approaches to the study of deviance and the problems of social control, to develop practical skills of conducting sociological research in this sphere	
Basic Courses	Sociology of Personality	
The Content of the Course	The object, the subject matter and the methods of sociology of deviance, its objectives and functions. The main concepts of sociology of deviance. The system of social control. Formation and development of sociology of deviance and social control. Deviant behaviour as a type of social and role behaviour, typology of deviations. Destructive factors of social and behavioral deviations. The phenomenon of marginality and deviance. The problem of prevention of deviance	
Teaching Format	Using video materials and empirical data of sociological studies	
Literature	1. Durkheim E. Suicide. Sociological Study. St.-Petersburg, 1994. 2. Gilinovskiy Y., Afanasyev V. Sociology of Deviant Behaviour. St.-Petersburg, 1993. 3. Deviant Behaviour of Young People and the Means of its Prevention (sociological analysis). Minsk, 2005.	
Grade	Exam, essay	
Recommendations for the application of the course	The course is designed for the fourth-year students	

Term 9 38 hours of lectures 20 hours of seminars 10 hours of controlled independent student work 34 hours of independent student work	Methods of Teaching Sociology in a Higher Educational Establishment	ECTS: 5
Lecturer	Ph. D in Philosophy, Professor Yelsukov A. N.	
The Goal of the Course	To prepare the students to teach courses in sociology	
Basic Courses	All the preceding courses in sociology	
The Content of the Course	General issues of teaching in a higher educational establishment. Theoretical basis and methods of teaching sociology. Organizational-methodical aspects of the general course in sociology. Informational and theoretical aspects of the general course in sociology	
Teaching Format	Practical classes dominate	
Literature	1. Yelsukov A. N. Methods of Teaching Sociology in the Higher School. Minsk, 2003. 2. Rudenko R. E. Practical Tasks in Sociology. Moscow, 1999.	
Grade	Exam, essay	
Recommendations for the application of the course	The course is designed for the students taking the Master's course (1 year)	

CURRICULUM: HISTORY

BACHELOR DEGREE

FIRST YEAR

№	Code	Modules	Hours per week		Methods of controlling		ECTS		
			1 term	2 term	Credit	Exam	1 term	2 term	Per year
1	A1	History of Belarus (100 000–35 000 BC – XIII c.)	2	4	–	1,2	3	7	10
2	A2	Ancient History	7	–	–	1	12	–	12
3	A5	Archeology. Prehistoric Age. Archeology of Belarus	4	2	–	1,2	7	3	10
4	A7	History of Eastern Slavs of the IX–XVIII c.	3	4	2	1	5	7	12
5	A12	Ethnology. Ethnography of Belarus	2	2	1	2	3	3	6
6	A6	Special Historical Disciplines. Fundamentals of Paleography	2	–	1	–	3	–	3
7	A21	Fundamentals of Informational Science	2	2	1,2	–	3	3	6
8	A3	Medieval History	–	7	–	2	–	12	12
9	A14	Source Studies. Source Studies of Belarusian History	–	3	–	2	–	5	5
10	A15	Theory and History of Culture	–	2	2	–	–	3	3
11	B1	Archeological Internship (optional)	–	4 weeks	2	–	–	4	4
12	B2	Ethnographical Internship (optional)	–	4 weeks	2	–	–	4	4
Total for term			22	26/8			36	51	
Total for year					8	9			83

SECOND YEAR

№	Code	Modules	Hours per week		Methods of controlling		ECTS		
			3 term	4 term	Credit	Exam	3 term	4 term	Per year
1	A1	History of Belarus of the XVI–XIX c.	4	4	–	3,4	7	7	14
2	A8	Early Modern History	7	–	–	3	12	–	12

3	A9	Modern History (1918–1945)	–	4	–	4	–	7	7
4	A7	History of Eastern Slavs of the XIX c.	4	4	–	3,4	7	7	14
5	A16	Fundamentals of Archive Studies	1	–	3	–	2	–	2
6	A17	Fundamentals of Museum Studies	1	–	3	–	2	–	2
7	A21	Fundamentals of Information Science and Data Pins Technologies	2	–	–	3	–	–	3
8	A10	History of Asia and Africa of the V–XX c.	–	4	4	–	–	7	7
9	A14	Source Studies. Source Studies of Belarusian History	4	–	–	3	7	–	7
10	A15	Theory and History of Culture	2	4	3	4	3	7	10
11	A13	History of Southern and Western Slavs of the IX–XVIII c.	–	6	4	–	–	10	10
12	A24	Philosophy	2	2	3	4	3	3	6
13	A25	Economy	2	2	3	4	3	3	6
14	B3	Archival-Museum Internship	–	4 weeks	4	–	–	4	4
Total for term			29	30/4			46	51	
Total for year					8	11			104

THIRD YEAR

№	Code	Modules	Hours per week		Methods of controlling		ECTS		
			5 term	6 term	Credit	Exam	5 term	6 term	Per year
1	A1	History of Belarus of 1900 – the Beginning of XXI c.	4	4	–	5,6	7	7	14
2	A11	History of Latin-American Civilization (Early Modern and Modern History)	2	2	5	6	3	3	6
3	A9	Modern History (1945 – the Beginning of XXI c.)	4	–	–	5	7	–	7
4	A7	History of Eastern Slavs (XX c.)	3	3	–	5,6	5	5	10
5	A10	History of Asia and Africa (1918 – the Beginning of XXI c.)	2	2	5	6	3	3	6

6	A15	Theory and History of Culture	2	2	5,6	–	3	3	6
7	A13	History of Southern and Western Slavs of the XIX–XX c.	4	–	–	5	7	–	7
8	A4	History of Religions	–	3	6	–	–	5	5
9	A23	Pedagogics. Methods of Teaching History. General and Age-Specific Psychology	4	3		5,6	7	5	12
10	A6	Special Historical Discipline Numismatics	–	3	6	–	–	5	5
11	B4	Information Technological Internship	–	4 weeks	6	–	–	4	4
Total for term			25	22/4			42	40	
Total for year					7	10			82

FOURTH YEAR

№	Code	Modules	Hours per week		Methods of controlling		ECTS		
			7 term	8 term	Credit	Exam	7 term	8 term	Per year
1	A26	Science of Politics	3	–	7	–	5	–	5
2	A18	History of Historical Conceptions	2	2	7	8	3	3	6
3	A15	Theory and History of Culture	3	–	–	7	5	–	5
4	A1	History of Public Movements and Political Parties of Belarus	2	2	7	8	3	3	6
5	A19	Methodology of History	–	3	–	8	–	5	5
6	A20	Historical Psychology	2	2	7	8	3	3	6
7	A22	Historical Information Science	2	–	7	–	3	–	3
8	B5	Pedagogical Internship	6 weeks	4 weeks	7	8	6	4	10
Total for term			14/6	9/4			28	18	
Total for year					6	6			46

3–4 years / 5–8 terms
Optional modules

Modules on Disciplines of Specialization	**Modules on Specialization Disciplines at Departments**
Historiography of Belarus History of Culture of Belarus	Chair of Ancient and Medieval History of Belarus

Historiography of Archaeology of Belarus
Methods of Archaeological Research
Field Archaeology
Special Historical Disciplines
Social and Cultural Anthropology
Theory of Political Decision-Making
Theory of International Relations
History of Political and Law Doctrines

Chair of Modern History of Belarus
Chair of Ancient and Medieval History
Chair of Modern History
Chair of Russian History
Chair of Southern and Western Slavs History
Chair of Source Studies
Chair of Archaeology
Chair of Ethnology, Museum Studies and History of Arts

DICSRIPTION OF COURSES

FIRST YEAR

Lectures: 58 Seminars: 30	A1	The History of Belarus (100–35 thousand years B.C. – the 16th cent.)	ECTS: 10
Goals	Studying History of Belarus from ancient times till the end of the 16th cent., the emergence of early feudal state formations, representative class- monarchy in the Grand Duchy of Lithuania		
Contents	The issues of establishing the History of Belarus as a science, of formation of ancient societies on the territory of Belarus, formation and development of feudal, ethno-social and ethno-confessional relations in the medieval epoch are studied		
Academic methods	Lectures, monitored independent work, seminars, tests, controlled works, creative tasks		
Methods of controlling	2 examinations, controlled work, creative tasks		
Department in charge	Chair of Ancient and Medieval History of Belarus		

Lectures: 68 Seminars: 36	A2	The History of Ancient World	ECTS: 12
Goals	The issues of the formation of ancient civilizations are studied, the concept of social relations in ancient and old eastern societies, their basic features and principal differences are formed		
Contents	The concept of formation of ancient civilizations in the valleys of great rivers is formed. The emergence and formation of the first civilizations of Europe – the Ancient Greece and the Ancient Rome are studied		
Academic methods	Lectures, monitored independent work, seminars, methodological seminars		
Methods of controlling	Exam, controlled work, final written work		
Department in charge	Chair of Ancient and Medieval History		

Lectures: 46 Seminars: 12	A5	Archeology. The History of the Prehistoric Society. Archeology of Belarus	ECTS: 10
Goals	To give a notion of archeology as a basic part of historic science, to introduce them to sources and methods of archeological researches, archeological periodization, main stages and archeological cultures in the world history as a whole and the Belarusian history in particular		

Contents	The concept of archeological culture and main methodological devices of archeological research are given. All the periods of human history: stone, bronze, iron centuries and early Middle Ages, and also main archeological cultures connected with these periods are studied. The greatest attention is given to archeological cultures on the territory of Belarus
Academic methods	Lectures, monitored independent work, laboratory works
Methods of controlling	2 examinations, testing
Department in charge	Chair of Archaeology

Lectures: 62 Seminars: 36	A7	The History of the Eastern Slavs of the IXth – XVIIIth cent.	ECTS: 12
Goals	To learn and master the event-methodological device of the history of genesis and development of ethnic and public forms, statehood и and its political institutes, economical activity and culture of the Eastern European folk in the IXth – XVIIIth cent.		
Contents	The origin and formation of ethno-cultural processes on the territory of Eastern Europe. Prehistory and history of the first state formations. Kiev Russia. Political, economic and cultural processes in the XIIth – XIVth cent. The church and religious factor in public and political life. The Grand Duchy of Moskovia: the character, causes and consequences of its interior and exterior politics. The establishment of the imperial form of rule. The essence and peculiarities of the social structure: its manifestation in political, economic life and culture. «Smuta» («Disturbance») in the Russian State (causes and consequences). The first stages of Ukrainian statehood. Hetmanship. The Empire period in the history of Russian statehood. Inclusion of the whole territory of Eastern Europe in Russian state. Russia as the main subject of world political system. Modernizing processes in Russian economy in the XVIIIth cent. The phenomenon of Russian culture. The objective and the subjective in Russian-Ukrainian history		
Academic methods	Lectures, seminars, monitored independent work, tests, historiographic and source study papers, essays		
Methods of controlling	Examination, credit, 2 papers, 2 controlled works, 2 essays		
Department in charge	Chair of Russian History		

Lectures: 42 Seminars: 26	A12	Ethnology. Ethnography of Belarus	ECTS: 6
Goals	To introduce students to the history of emergence of ethnology as a science, main ethnological schools, problems of ethnogenesis, ethnic history, material and spiritual culture of the world nations. The concept of the emergence and development of the Belarusian ethnology, formation of peculiarities of the Belarusian ethnos, its traditional culture is also given		
Contents	The Module gives a concept of Ethnology history as a science. The main schools and directions of ethnology, classifications of world nations are studied. Students acquire the knowledge of ethnogenesis and ethnic		

	history of the world nations. The concept of traditions, customs of the nations, the ways of formation of ethnic diversity of the world nations is given. The Module represents the history of ethnographic study of Belarus, examines the basic periods of historiography, investigates the problems of ethnogenesis and ethnic history of Belarus, surveys the peculiarities of material, spiritual and social culture of the Belarusians
Academic methods	Lectures, monitored independent work, seminars
Methods of controlling	2 examinations, credit, tests, papers' writing, final written work
Department in charge	Chair of Ethnology, Museum Studies and History of Arts

Lectures: 12 Seminars: 8	A6	Special Historical Disciplines. The Fundamentals of Paleography	ECTS: 3
Goals	The formation of skills of correct reading and understanding of the texts of the XIth – XVIIth cent, mastering the devices of their dating		
Contents	The objectives, subject and methods of paleography; the history of studying the Belarusian paleography, the origin of cyrillics; the exterior signs of monuments of writing of the periods of the XIth – the beginning of the XIIth cent.; the XIIth – the end of the XIVth cent.; the end of the XIVth – XVIIth cent.		
Academic methods	Lectures, monitored independent work, practical classes		
Methods of controlling	Credit, testing		
Department in charge	Chair of Archaeology		

Lectures: 24 Seminars: 32	A21	Fundamentals of Information Science	ECTS: 6
Goals	The Module should give a concept of the modern principles of the functioning of information computer technologies, the ways of processing and analysis of different means of historical sources due to information computer technologies		
Contents	The Module gives a concept of modern principles of functioning of information computer technologies, the ways of processing and analysis of different means of historical sources due to information computer technologies. It is oriented on forming knowledge and skills of using information technologies in the professional activity. Informational resources and their kinds, the processes of creating, accumulating, storing, searching, transmitting and representing of professional information are the subject of studying		
Academic methods	Lectures, monitored independent work, laboratory works		
Methods of controlling	2 credits, controlled work, testing, essay		
Department in charge	Chair of Source Studies		

Lectures: 66 Seminars: 36	A3	The History of Middle Ages	ECTS: 12
Goals	Medieval Western European and Byzantine ways of the development of the European civilization, the role of Christianity in its interpretation and variability are studied		

Contents	The economic basis of Western European and Byzantine society, their class structure and state system, the role of monarchy in stabilization of the society of that period are studied
Academic methods	Lectures, monitored independent work, seminars, methodological seminars
Methods of controlling	2 examinations, controlled work, final written work
Department in charge	Chair of Ancient and Medieval History

Lectures: 36 Seminars: 20	A4	Source Study. Source Study of the History of Belarus (according to the specialization)	ECTS: 5
Goals	The Module is dedicated to studying concept 'source', representation of the complex of source material, mastering the basis of working with sources		
Contents	The Module is aimed at forming integrated conception of perception and studying historical sources. Source study is viewed as an integrated branch of science in the system of humanities, various methodological approaches to solving the most significant problems are shown. The review of the main kinds of historical sources in Belarus and the methods of their research are given in the Module		
Academic methods	Lectures, monitored independent work, seminars, methodological seminars		
Methods of controlling	2 examinations, final written work		
Department in charge	According to the specializations		

Lectures: 18 Seminars: 10	A15	The Theory and History of Culture	ECTS: 3
Goals	The Module forms the concept of the essence, contents, structure and laws of culture functioning in its historical development, reflects the integrated view of the process of culture. It gives the concept about the specificity and laws of development of world cultures, reflects the mechanisms of cross-cultural exchange, the process of transmition and transformation of various cultural paradigms		
Contents	The Module reveals peculiarities of formation of early forms in the development of culture, and also the formation and functioning of the culture of the epoch of the most ancient eastern civilizations		
Academic methods	Lectures, monitored independent work, seminars, methodological seminars		
Methods of controlling	2 credits, final testing, paper		
Department in charge	Chair of Ethnology, Museum Studies and History of Arts		

SECOND YEAR

Lectures: 60 Seminars: 36	A1	The History of Belarus (the XVIth – XIXth cent.)	ECTS: 14
Goals	Studying the history of Belarus of the XVIth – XIXth cent., general and peculiar features in the context of processes within Rech Pospolitaya.		

	Giving the concept of museology as a branch of science, mastering the most important categories in the field of museology. Acquainting students with the history of museology abroad and in the territory of Belarus, with the museum structure of the Republic of Belarus and problems of its development
Contents	The problems of consequences of the Lublin Union, political, economic and social relations in the epoch of transition from Middle Ages to Modern time are studied, the religious situation in the Belarusian land in the epoch of counter-reformation and divisions of Rech Pospolitaya is characterized. Socio-economic, public-political processes and culture of Belarus in the XIXth ct., unrolling of modernizing processes, their peculiarities, stages and contents are studied. The social, ethnical and confessional structure of the population of Belarus is characterized. The forms of Belarusian national movement are studied
Academic methods	Lectures, monitored independent work, seminars, tests, paper, methodological seminars
Methods of controlling	2 examinations, test, paper, controlled work
Department in charge	Chair of Ancient and Medieval History of Belarus Chair of Modern History of Belarus

Lectures: 64 Seminars: 36	A8	The History of Modern Time	ECTS: 12
Goals	The Module studies the History of Modern Time of Western Europe and North America		
Contents	The problems of transition from feudalism to capitalism and development of capitalism are studied. The impact of great geographical discoveries on the development of the civilizations of Europe and America. Scientific revolution. Revival and humanism. Reformation and counter-reformation. The forms of state system and their evolution. Ideological and political trends. Bourgeois revolutions: general characteristics. The First World War		
Academic methods	Lectures, monitored independent work, seminars, practical classes		
Methods of controlling	Examination, final written work, essay, paper-based literature		
Department in charge	Chair of Modern History		

Lectures: 40 Seminars: 20	A9	The History of Modern Time (1918–1945)	ECTS: 7
Goals	The development of countries of Western Europe and the USA in the period between wars and the course of Second World War are studied.		
Contents	The stages of the development of the capitalistic society, the formation of state-monopolistic capitalism are studied. The process of transformation of programme-political positions of the parties of liberal-reformist spectrum, forming and development of totalitarian-authoritarian alternative to the system of parliamentary reformism are studied. The characteristic features of working class movement of this period. The role of the Second World War in the history of world leading countries		
Academic methods	Lectures, monitored independent work, seminars, methodological seminars		

Methods of controlling	Examination, final testing, final written work
Department in charge	Chair of Modern History

Lectures: 64 Seminars: 40	A7	The History of the Eastern Slavs in the XIXth cent.	ECTS: 14
Goals	On the basis of analysis of sources, introducing modern academic literature and newest researches the studying of all set of facts, events, phenomena of history of Russia and the Ukraine of the XIXth – the beginning of the XXth cent.; revealing general laws and peculiarities of the development of social structure and economic potential of the Russian Empire within the marked period, evolution of Russian statehood, internal political and foreign policy courses, formation of the main directions of public thinking and culture (the given task is perceived also in connection with the similar Ukrainian «components», taking place in real circumstances); within the designation of the tendencies of development in the XIXth – the beginning of the XXth cent. of the world civilization the definition of purely Russian (and Ukrainian) civilization line; the development of students' ability of searching concrete historical information		
Contents	The tendencies of socio-economic development of Russia in pre-reform period. The crisis of feudal-serf system. The beginning of Industrial Revolution. Interior and exterior politics of Russian authorities in the beginning of the XIXth cent. The Civil war of 1812 and foreign campaign of the Russian Army of 1813–1814. The attempts of Russian authorities to solve acute problems and rolling up a country to Arakcheevship. Interior politics of Russia in postwar period. The public life of the country in the first quarter of the XIXth cent. Decembrism. The exterior politics of Nikolai's the First cabinet. «The apogee of autocracy». The exterior politics of Russia in the second quarter of the XIXth cent. Russia and «the eastern question». Tsarism as a «gendarme of Europe». The public-political struggle in Russia in the 30–40s of the XIXth cent. The centre and periphery. The national politics of Russian authorities in the pre-reform period. Russia and the Caucasus. Ukrainian lands as a part of the Russian Empire and Austrian Monarchy. Alexander II. Russia in conditions of «great reforms» of the 60–70s of the XIXth cent. The abolition of serfdom. The socio-economic development of the country in the 60–90s. of the XIXth cent. The public movement of Russia in the end of the 50-60s. of the XIXth cent. Populism. The interior politics of Russian authorities in the 80s – the beginning of the 90s of the XIXth cent. The patriarchal reign of Alexander III. The exterior politics of Russia in the second half of the XIXth cent. Socio-economic development of the Russian Empire in the end of the XIXth – the beginning of the XXth cent. The internal political development, public life of the country on the boundary of the XIXth – XXth centuries. The authorities and society in conditions of the first Russian revolution of 1905–1907. The internal politics of the government in 1907–1914. State Duma. The public life of the country. Russia in the system of international relations. The foreign politics of Russian authorities in the end of the XIXth– the beginning of the XXth cent. The Russian Empire in the time of the First World War. The February Revolution of 1917. The Russian culture of the XIXth – the beginning of the XXth cent.		

Academic methods	Lectures, seminars, monitored independent work, controlled works, historiographic and source study papers, essay
Methods of controlling	2 examinations, 2 papers, 4 controlled works, 2 essays
Department in charge	Chair of Russian History

Lectures: 12 Seminars: 8	A16	The Basis of Archive Studies	ECTS: 2
Goals	The formation of concepts about the archive system of the Republic of Belarus, mastering the methods of searching archive documents, ways of their usage		
Contents	The Module is directed on disclosing the main topics of the archive studies of Belarus: the history of archive studies; archive legislation; the formation of the National Archive Fund (NAF) and the classification of NAF documents; the examination of documents' value; scientific-referential archive apparatus; documents' usage; the documents in the History of Belarus in foreign archives. This allows a future researcher to orient themselves in the archive system of the country; to master the main principles and ways of forming funds in native archives; to conduct a successful search of archive sources in the Republic of Belarus as well as abroad; to know their legal rights and responsibilities in archive documents' usage		
Academic methods	Lectures, monitored independent work, seminars		
Methods of controlling	Credit, testing, essay		
Department in charge	Chair of Source Studies		

Lectures: 12 Seminars: 8	A17	Fundamentals of Museum Studies	ECTS: 2
Goals	To give the notion of museum studies as a scientific discipline, to study the major categories of theory of museum studies; to acquaint students with the history of museum studies both in Belarus and abroad, with the museum network of the Republic of Belarus and the problems of its development		
Contents	The Module gives the notion of museum studies as a scientific discipline; the history of its foundation and development; the notions of theoretical and applied museum studies; the structure and its place in the system of sciences; the reasons of museum founding in different parts of the world and in Belarus. The Module considers social functions of museums, their scientific research work, matters of fund, expositional, cultural and educational activity		
Academic methods	Lectures, seminars, monitored independent work		
Methods of controlling	Credit, paper, presentation, monitored independent work, final test		
Department in charge	Chair of Ethnology, Museum Studies and History of Arts		

Lectures: 40 Seminars: 20	A10	The History of Asia and Africa of the V^{th} – the Beginning of the XX^{th} cent.	ECTS: 7
Goals	The major civilizations of the East in the Middle Ages and of today are studied: China, India, Japan, the Muslim world, etc.		

Contents	On the basis of study of traditional civilizations of Asia and Africa the concept of similarity and peculiarities of the development of the civilizations in the Middle Ages and of today is given. The peculiarities of economic, social and state structure in these civilizations are studied. The problem of slow-moving development in the east countries of today. Colonization of the East in the XVIth – XIXth c. Reaction of the traditional east society against colonial expansion. The beginning of modernization processes, their peculiarities in the east countries. Activating of political struggle in the beginning of the XXth c. («the East awakening»)
Academic methods	Lectures, monitored independent work, seminars, methodological seminars
Methods of controlling	Credit, mid-term credit, testing, controlled work
Department in charge	Chair of Ancient and Medieval History

Lectures: 44 Seminars: 36	A15	The History and Theory of Culture	ECTS: 10
Goals	To study basic notions of culture and concepts of Modern and New Modern History, general and specific features in the development of national and regional cultures, traditional forms and new tendencies		
Contents	The main stages, achievements, peculiar features of cultures of the West, Asia, Africa and Latin America, interrelation of cultures are studied here. The characteristic of social-historical background of founding and development of art styles, tendencies, schools is given. The Module reflects the works of outstanding figures of culture which created masterpieces of world significance. It pays attention to ideology, the development of education, religious factor in its specific historical reflection		
Academic methods	lectures, monitored independent work, seminars, methodological seminars		
Methods of controlling	examination, credit, final testing, final written examination		
Department in charge	Chair of Modern History		

Lectures: 58 Seminars: 32	A13	The History of the Southern and Western Slavs of the IXth – XVIIIth cent.	ECTS: 10
Goals	The Module depicts the peculiarities of the western and southern Slavic lands development in the Middle Ages and of today		
Contents	The Module gives the peculiarities of the development of the southern and western Slavs in the lands of Western Europe and Byzantium till the XVth century. The role of Catholicism and Orthodoxy in the process of civilization development in Central Europe is studied. The history of the southern and western Slavs in the structure of empires of that time is studied		
Academic methods	Lectures, monitored independent work, seminars, methodological seminars		
Methods of controlling	Credit, testing, final written work		
Department in charge	Chair of Southern and Western Slavs History		

THIRD YEAR

Lectures: 72 Seminars: 40	A1	The History of Belarus of 1900 – the Beginning of the XXIth cent.	ECTS: 14
Goals	It gives the history of Belarus in the period of World War I, the revolution of 1917, the creation of the Belarusian state, industrialization and collectivization. It studies the history of Belarus in the period of World War II; the development of the Belarusian Republic in the post-war years and today		
Contents	The module studies social, economic, political and moral processes in the period of creation of the BSSR, industrialization and collectivization of economics. It also studies the state of western Belarus in the structure of the Polish Republic. It gives the peculiarities and regularities of the development of Belarus in the period of World War II and the Civil War; occupation regime of the Nazi invaders on the territory of the republic, partisan and underground organization struggle. It studies social, economic and political processes in the post-war period; the declaration of the sovereignty of the Republic of Belarus, the formation of the presidential political system		
Academic methods	Lectures, monitored individual work, seminars, methodological seminars		
Methods of controlling	2 exams, controlled work, paper		
Department in charge	Chair of Modern History of Belarus		

Lectures: 40 Seminars: 20	A11	The History of Latin American Civilization	ECTS: 6
Goals	To study the history of Latin America of today		
Contents	The origin of Latin America civilization. Major regions of civilization on the territory of the New World before Columbus exploration. The conflict with the European civilization. The origin of a colonial system. The formation of the social hierarchy. Interrelations between the Indians and European settlers. The struggle for independence in Latin America in the beginning of the XIXth century. The origin of independent Latin-American states and the problems of inland development of the XIXth century. The ways of political and economic development in the states of Latin America in the XXth century. The Module considers the problem of modernization, the place of Latin-American states in the system of international relations, the phenomenon of caudilism and military dictatorship, the problem of drug traffic and its decision. It studies the tendencies towards democratization in the 80–90s of the XXth century and integration in the Latin-American regions		
Academic methods	Lectures, monitored independent work, seminars, methodological seminars		
Methods of controlling	Examination, credit, 2 papers, final written work		
Department in charge	Chair of Modern History		

Lectures: 42 Seminars: 22	A9	New Modern History (1945 – the Beginning of the XXIth cent.)	ECTS: 7
Goals	The Module aims at studying the development in the second half of the XXth century and the development of today in the countries of Western Europe and in the USA		

Contents	The Module discovers the process of crisis and collapse of the model of prosperity (state prosperity) and transition towards neo-conservative development with explanation of position of different political organizations in this process. The role of the technological revolution in the forming of post-industrialized society. The Module gives the processes of weakening in totalitarianism-authoritarianism regime and the tendencies of strengthening in parliamentary democracy and reformatory ideology of the social-political sphere. The development of international relations from the time of cold war and bipolar system to the time of relative hegemony of the USA in the world is studied
Academic methods	Lectures, monitored independent work, seminars, methodological seminars
Methods of controlling	Examination, 2 papers, final written work
Department in charge	Chair of Modern History

Lectures: 48 Seminars: 32	A7	The History of the Eastern Slavs of the XXth cent.	ECTS: 10
Goals	It gives the analysis of social-economic development, of the political system, of home and foreign policy, of social and political movements; the development of social thought, interethnic and inter-confessional relations in Russia and the Ukraine of the XXth – XXIth centuries		
Contents	The Module shows the position of social and political organizations in the period of the national crisis of 1917. The civil war. Military communism and a new economic policy. The origin of the USSR. Modernism strategy. The political system. World War II and the Great Patriotic War. Post-war society. «Thaw». Crisis of administration-commanding methods in government. «Perestroyka». Collapse of the USSR. Sovereignty proclamation. Forming state system of Russia and the Ukraine		
Academic methods	Lectures, seminars, monitored independent work, essay and papers on historiography of the modern history of Russia and the Ukraine		
Methods of controlling	2 examinations, testing controlled work		
Department in charge	Chair of Russian History		

Lectures: 40 Seminars: 20	A10	Modern History of Asia and Africa (1918 – the Beginning of the XXIth cent.)	ECTS: 6
Goals	The Module studies the development of the countries in Asia and Africa of the inter-war period and in the period of World War II, of the second half of the XXth century and the development of Asia and Africa today		
Contents	The Module studies anti-colonial movements in Asia and Africa of the inter-war period, the beginning of colonial system downfall. Social-economic development of the eastern countries in the inter-war period. Main tendencies, peculiarities and models of modernization. The political development of the eastern countries in the inter-war period, changes in the national-liberation movement. Asia and Africa in the period of World War II. Decolonization in Asia and Africa, the problem of neo-		

	colonialism. Social-economic development in the 50–70s, the problem of choice of the way of development. Modernization processes in the end of the XXth – the beginning of the XXIth centuries and their conflict. The political development of Asia and Africa after World War II, peculiarities of political systems. Basic forces activity. The eastern countries in the system of post-war international relations. Regional conflicts of the East. The East and the problem of international terrorism
Academic methods	Lectures, monitored independent work, seminars, methodological seminars
Methods of controlling	Examination, credit, 2 papers, final testing
Department in charge	Chair of Modern History

Lectures: 52 Seminars: 24	A13	The History of the Southern and Western Slavs of the XIXth – XXth cent.	ECTS: 7
Goals	The Module describes the processes of ethnic consolidation between the western and southern Slavic peoples, forming sovereign states, their existence in the XXth century		
Contents	The Module studies the history of the southern and western Slavs in the structure of the following empires: Russian, German, Austro-Hungarian and Ottoman. It gives the reasons of obtaining independency by Slavic peoples after World War I. Great attention is paid to the period of World War II, to the victory of communist ideology and the rise of «social community» and then the collapse of communism		
Academic methods	Lectures, monitored independent work, seminars, methodological seminars		
Methods of controlling	Examination, testing, final written work		
Department in charge	Chair of Southern and Western Slavs History		

Lectures: 54 Seminars: 30	A4	The History of Religions	ECTS: 5
Goals	The Module makes us familiar with general regularities of functioning of religious consciousness, development stages of religious systems from the ancient times to nowadays		
Contents	Step by step the Module considers forming of different religions from the very first communities of Neanderthal and Cro-Magnon men according to the archeological data. It studies then the origin of early-state polytheism on the pattern of the Ancient Egypt and it gives the ways of transition to more developed forms of religious consciousness in zoroastrism, Judaism, etc. Much attention is paid to the study of world religions: Buddhism, Christianity, Islam		
Academic methods	Lectures, monitored independent work, practical classes		
Methods of controlling	Credit, testing		
Department in charge	Chair of Ancient and Medieval History		

Lectures: 26 Seminars: 16	A6	Special Historical Disciplines. Numismatics	ECTS: 5
Goals	To study the history of money-weight and monetary systems.		

Contents	The Module studies the history of money circulation, the type of interrelations between monetary systems in the process of economic, political and cultural contacts between different kinds of ethnos and states, interconnection of money circulation with trade markets, organization and technology of monetary production, the origin and evolution of the monetary right, monetary reforms, processes of treasure-forming and its reasons
Academic methods	Lectures, monitored independent work, seminars
Methods of controlling	Credit, testing
Department in charge	Chair of Archaeology

FOURTH YEAR

Lectures: 30 Seminars: 18	A18	The History of Historical Thought	ECTS: 6
Goals	To form integral system of knowledge of the origin and development of the world and native historical thought		
Contents	The Module discovers the problems of forming and developing world-wide historical thought from the ancient period of time to our days. It is concerned with forming knowledge of the place and role of historical cognition, creative and scientific approaches, accumulation and retrieval of historical knowledge in human activity		
Academic methods	Lectures, monitored independent work, seminars, methodological seminars		
Methods of controlling	Examination, credit, controlled work, testing, essay		
Department in charge	Chair of Source Studies		

Lectures: 30 Seminars: 18	A1	The History of Public Movements and Political Parties of Belarus	ECTS: 6
Goals	To study general regularities and peculiarities of forming political parties which functioned on the territory of Belarus in the past; modern processes of forming political pluralism and revival of multiparty membership		
Contents	The problems being considered are studied at three stages: 1. Forming system of political parties (the end of the XIX th cent. – 1917); 2. Liquidation of multiparty membership and existence of one-party dictatorship (the mid. of the 1920s – the mid. of the 1980s); 3. Revival of multiparty membership in Belarus (the end of the 1980s – the beginning of the1990s). The Module studies the specific character of rising social-political movement, forming a new political structure in the Republic of Belarus		
Academic methods	Lectures, monitored independent work, seminars		
Methods of controlling	Examination, credit, paper		
Department in charge	Chair of Modern History of Belarus		

MASTER DEGREE

№	Code	Modules	Hours per week		Methods of controlling		ECTS		
			1 term	2 term	Credit	Exam	1 term	2 term	Per year
1	C1	Philosophy and methodology of science методология науки	136	–		exam	13		13
2	C2	Foreign language	420	–		exam	42		42
3	C3	Bases of information technologies	–	92	credit			9	9
4	C4	Pedagogics and psychology in a high education system	–	52	credit			5	5
5	C5	Modern problems of the native history	152	–		exam	15		15
Total for term							70	14	
Total for year									84

Optional modules, 1–2 terms

Modules on Disciplines of Specialization	**Modules on Specialization Disciplines at Departments**
Historiography of Belarus	Chair of Ancient and Medieval History of Belarus
History of Culture of Belarus	Chair of Modern History of Belarus
Historiography of Archaeology of Belarus	Chair of Ancient and Medieval History
Methods of Archaeological Research	Chair of Modern History
Field Archaeology	Chair of Russian History
Special Historical Disciplines	Chair of Southern and Western Slavs History
Social and Cultural Anthropology	Chair of Source Studies
Theory of Political Decision-Making	Chair of Archaeology
Theory of International Relations	Chair of Ethnology, Museum Studies and History of Arts
History of Political and Law Doctrines	

DISCRIPTION OF COURSES

Lectures: 64 Seminars: 28	C1	Philosophy and methodology of science	ECTS: 13
Goals	The module should form the concept of the modern state of philosophical science; define the main methodological aims of modern science		
Contents	The module represents modern philosophical concepts of the role of science in public life, takes from this the main methodological aims, shows the role of methodology in modern historical research		
Academic methods	Lectures, seminars, monitored independent work, essay, tests		

Methods of controlling	Exam, essay
Department in charge	The Faculty of Philosophy and Social Sciences

Lectures: Seminars: 240	C2	Foreign language	ECTS: 42
Goals	The foreign language learning is directed on the development of free reading and understanding of the professional text, listening comprehension as a basis of the skills of speech comprehension, development of the skills of foreign language communication. Special attention is paid to study and usage of professional lexics		
Contents	Reading, translation, listening comprehension, speech practice		
Academic methods	Seminars, methodological seminars, monitored independent work, tests		
Methods of controlling	Exam, controlled work		
Department in charge	The Departments of Foreign Languages		

Lectures: 12 Seminars: 32	C3	Bases of information technologies	ECTS: 9
Goals	The Module should give the profound knowledge of the modern principles of the functioning of information computer technologies, the ways of processing and analysis of different means of historical sources due to information computer technologies		
Contents	The Module gives a concept of modern principles of functioning of information computer technologies, the ways of processing and analysis of different means of historical sources due to information computer technologies. It is oriented on forming knowledge and skills of using information technologies in the professional activity, primarily in processing historical sources. Informational resources and their kinds, the processes of creating, accumulating, storing, searching, transmitting and representing of professional information are the subject of studying		
Academic methods	Lectures, monitored independent work, laboratory works		
Methods of controlling	Credit		
Department in charge	The Department of Applied Mathematics and Information Technologies		

Lectures: 24 Seminars: 10	C4	Pedagogics and psychology in a high education system	ECTS: 5
Goals	The studying of the module is directed on the mastering of modern methods of pedagogics in a high education system and the mastering of the major principles of psychological work with students		
Contents	The module studies modern devices and methods of didactic and methodological work in a high education system, and also the bases of psychological methods of work with students		
Academic methods	Lectures, seminars, methodological seminars, monitored independent work, essay		
Methods of controlling	Credit, essay		
Department in charge	The Department of Pedagogics		

Lectures: 98 Seminars: 42	C5	Modern problems of the native history	ECTS: 15
Goals	The module aims at acquainting with modern conceptual and methodological key questions of the native history		
Contents	The module forms analytical skills of modern conceptual and methodological problems of the native history; it is called to raise the level of analytical understanding of the questions of political, social and economic development of the society; to form the skills of conceptual thinking		
Academic methods	Lectures, seminars, methodological seminars, monitored independent work, essay		
Methods of controlling	Exam, essay		
Department in charge	The Department of Modern History		

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