Description of the discipline module

Module designation	**LNG108** English language
Semester(s) in which the module is taught	1st and 2nd semester
Person responsible for the module	Golovchun Alevtina Anatolyevna
Language	English
Relation to curriculum	*Compulsory*
Teaching methods	Practical classes – contact, independent work of a master's student and independent work of a master's student under the guidance of a teacher
Workload (incl. contact hours, self-study hours)	Total workload: Contact hours:3 hours a week and 1 office hour per group
Credit points	*5 ECTS*
Required and recommended prerequisites for joining the module	Availability of the Teams platform
Module objectives / intended learning outcomes	The purpose of the module: to form a foreign language professionally-oriented competence for undergraduates Course objectives: to develop the ability to implement communicative intent in various situations of professionally-oriented oral and written communication based on four types of speech activity: listening, speaking, reading and writing. To teach the use of a foreign language as a means of accumulating information for professional and academic communication. Prepare undergraduates to take certified tests Expected learning outcomes: upon completion of the module, undergraduates will know: -language means of professionally-oriented and academic foreign language communication; -a system of rules for constructing meaningful statements in a foreign language; will be able to use a foreign language as a means of oral and written communication for professional and academic purposes; report and request information, express their own opinion/judgment using argumentation, and evaluative means of language; - logically and consistently build an oral / written statement (in connection with what you have heard / read), expressing your personal attitude to the subject of speech; -use a foreign language as a means of professional and academic interaction
Content	The content of the module is designed for undergraduates of technical specialties to improve and develop foreign language communication skills in the professional and academic sphere. The module introduces students to the general principles of professional and academic intercultural oral and written communication using modern pedagogical technologies (round table, debates, discussions, analysis of professionally-oriented cases, design).
Examination forms	Multivariate test
Study and examination requirements	Mandatory participation in practical training sessions according to the schedule. In case of absence from the lesson, the student is obliged to notify the teacher within a day and provide a plan for self-study of the topic: - - delivery of tasks on time. There are penalties of -10% for late delivery; - 20% non-participation in the audience (for a good reason with supporting documents) - rating "F (Fail)"; - plagiarism and cheating during the execution of the task are not allowed; - mandatory use of electronic gadgets in the classroom, which is welcome, but it is unacceptable to use them in the exam.
Reading list	Oxford *EAP Pre-Intermediate B1 by Richard Storton. Oxford University Press (e - version)* Harrison R. (2015) Headway *academic skills*: listening, speaking, and study skills. Level 3, Student's book. Oxford: Oxford University Press De Chazal E. & Rogers L. (2013) Oxford EAP. A Course in English for Academic Purposes. Intermediate/ B1+. Oxford: Oxford University Press Zemach Dorothy E. & Rumisek Lisa A. (2005). Academic Writing: from paragraph to essay. MACMILLAN.

Module designation	**LNG104 Kazakh (Russian) language**
Semester(s) in which the module is taught	1,2
Person responsible for the module	Koyanbekova S.B., associate professor of KKIR; Nurmukhan A.S., tutor of KKIR a S.B., associate professor of KKIR; Nurmukhan A.S., tutor of KKIR
Language	Kazakh
Relation to curriculum	practical course
Teaching methods	practical work, independent work, independent work of a student with a teacher
Workload (incl. contact hours, self-study hours)	Practical tasks are conducted 3 times a week. Of these, 2 times – in offline format, one – online. Additionally, office hours of 30 minutes per group are held.
Credit points	5 kr: practical exercises – 3 kr., SRSP – 2 kr.
Required and recommended prerequisites for joining the module	Diagnostic testing
Module objectives / intended learning outcomes	The key question is: what learning outcomes should students achieve within the module? As a result of mastering the discipline "Kazakh language - basic level", the student must: - to master the practical use of reading, writing and understanding skills of sounding speech based on the simultaneous mastering of the basics of grammar (phonetics, morphology and syntax) and word usage during constant repetition with gradual complication of tasks; - demonstrate the ability to analyze, synthesize and design skills and abilities corresponding to the pan-European level B1 (Threshold according to the ALTE classification), that is, it appears on the threshold of the level of independent language proficiency; - conduct a conversation on everyday topics; describe your experiences; express your opinion; retell and evaluate the content of the book you read, the movie you saw; - create simple texts on well-known topics, including those related to professional activity.
Content	The language material of the course is selected in such a way that the student, assimilating the lexical and grammatical minimum, had the opportunity to get acquainted with typical communicative situations and find himself in such situations, was able to correctly evaluate them and choose the appropriate model (strategy) of speech behavior. The main emphasis of learning is transferred from the process of knowledge transfer to learning the ability to use the language being studied during the implementation of various types of speech activities, which are reading (provided that the reading is understood), listening (under the same condition) and producing texts of a certain complexity with a certain degree of grammatical and lexical correctness.
Examination forms	*Exam tickets, test questions.*
Study and examination requirements	- Availability of a computer and computer equipment; - Availability of an Internet channel with a speed of at least 0.5 Mbit/sec; - Personal account with a photo of the person on the avatar and corporate mail on the Microsoft 365 platform; - Attendance of classes according to the schedule.
Reading list	1. Kazakh language. Basic level / authors: The Purpose Of The Seminar Is To Familiarize Students With The History Of The Kazakh Language And The History Of The Kazakh Language.Astana: National Testing Center, 2016-320 pages. P 17 ISBN 978-601-7504-37-3 Electronic link: ttps://tilqural.kz/assets/books/0b2a5801ac721ebac75358f351c0dd33.pdf 2. Kuzekova, G. Masakova. Kazakh language: basic level (A2): manual. - Astana: 2018. - 224 pages. Electronic link: https://tilqural.kz/assets/books/d76b6b1027365e54f79e08d1acbe3fd8.pdf 3. Knigger-2. Learn Kazakh legko! - Almaty: School, 2011. - 192 P. vAK 80/81 66K 81.2 Kas-9 4. Kuzekova Z. S., Ayapova T. T., Orazbayeva F. Sh., Mamaeva M. K. Level thematic lexical minimum of basic knowledge of the Kazakh language / Second Edition. - Astana: RSE "National Testing Center", 2017. – 72 pages.

Module designation	**KFK101-104 Physical Culture**
Semester(s) in which the module is taught	1-4
Person responsible for the module	Imataliev T.S.
Language	Kazakh / Russian
Relation to curriculum	Compulsory
Teaching methods	Practical exercises
Workload (incl. contact hours, self-study hours)	Practical training: 240h
Credit points	8
Required and recommended prerequisites for joining the module	Physical education at the school curriculum level
Module objectives / intended learning outcomes	As part of the course, the student will master the practical use of the skills of performing the basic elements of the technique of sports and national athletics games, fitness and a set of standards for general physical training, including professionally applied physical training or one of the sports, methods of conducting independent physical exercises.
Content	OFP, athletics, volleyball, basketball, football, fitness, badminton, table tennis, PPFP.
Examination forms	Control standards for physical training
Study and examination requirements	*To receive a positive assessment, the student must score at least 30 points on the sum of the boundary controls, the credit – 20 points. As a result – at least 50 points, otherwise the discipline is rated "NP".*
Reading list	1. On approval of the Rules for conducting tests of the First President of the Republic of Kazakhstan – Elbasy 2. Valeology – the science of health: Study.-method. stipend / Edited by A.D. Sokolov, Z.S. Abisheva; Kaz. gos. med. S. Zh. Asfendiyarov University. - Almaty : Gylym, 2009. - 140 p. 3. The role of physical culture and sports in the formation of a healthy lifestyle of students: Textbook / Zh. Boztaev; Almaty. technol. un-T. - Almaty: ATU, 2011. - 89 p.

Module designation	**HUM100 Modern history of Kazakhstan**
Semester(s) in which the module is taught	Autumn and spring semesters (1 and 2) for students of the 1st year of education
Person responsible for the module	Nurzhanova Aina Mardanovna
Language	Kazakh, Russian, English
Relation to curriculum	Required Component Basic discipline
Teaching methods	lecture, practical exercises, IWS, independent work of a student with a teacher
Workload (incl. contact hours, self-study hours)	150 academic hours. Lecture - 15 hours, practical classes - 30 hours. ISW (including ISW with a teacher) - 105 hours
Credit points	5 credits: contact - 3 (lecture - 1 credit, practice - 2 credits), non-contact - 2 credits (ISW, including ISW with a teacher)
Required and recommended prerequisites for joining the module	The goal is to give objective historical knowledge about the main stages of the history of modern Kazakhstan; direct students' attention to the problems of the formation and development of statehood and historical and cultural processes. Tasks: - systematization of historical knowledge about the main events of modern history that form the scientific worldview and civic position; - creation of a scientifically based concept of the modern history of Kazakhstan; - creation of an ideological and spiritual basis for the consolidation of a multi-ethnic and poly-confessional Kazakh society. Learning outcomes: - knowledge of the main periods of the history of the twentieth century and independent Kazakhstan; - the ability to analyze the features and significance of the modern Kazakh model of development; - be able to substantiate the fundamental role of historical knowledge in the formation of Kazakhstani identity and patriotism; - the ability to form one's own civic position on the priorities of mutual understanding, tolerance and democratic values of modern Kazakhstani society.
Module objectives / intended learning outcomes	The course is intended for students of all undergraduate specialties. The versatility and significance of the discipline "Modern History of Kazakhstan" is due to its huge role in strengthening the Kazakh identity, self-awareness of the people, the implementation of tasks related to the need for an intellectual breakthrough in the new millennium. This course covers the period of Kazakhstan's history from the beginning of the 20th century, the Soviet period and independent Kazakhstan. During the study of the course, great importance is given to the formation of an active civic position of students. The course is aimed at the humanization of technical education.
Content	In the classroom, various technologies for the development of critical thinking are used: case studies, essay writing (Mind Map) etc.
Examination forms	Exam tickets
Study and examination requirements	- Availability of a computer and computer equipment; - Availability of an Internet channel with a speed of at least 0.5 Mbps; - Personal account with a photo of the face on the avatar and corporate mail on the Microsoft 365 platform; - Attendance at scheduled classes.
Reading list	1. 1. The history of Kazakhstan (from ancient times to the present day) in five volumes. - Almaty, Atamura, 2010. 2. 2. Ayagan B., Abzhanov M.H., Seliverstov S.V., Bekenova M.S. Modern history of Kazakhstan: Textbook for students of non-historical specialties (bachelor's degree) of higher educational institutions/under the general editorship of B.G. Ayagan-Almaty: Raritet, 2010. 3. 3. Modern history of Kazakhstan: Textbook/author. A. Aunasova, A. Suleimenov. Entr.ed. B. Ayagan-Almaty, Raritet, 2010.

Module designation	**HUM132 Philosophy**
Semester(s) in which the module is taught	3
Person responsible for the module	Mendybaev Serik Kukaevich
Language	Russian
Relation to curriculum	Required component
Teaching methods	lecture, practical classes, SRO, SRO P
Workload (incl. contact hours, self-study hours)	150 academic hours Lecture-15h, practical classes – 30h. SRO (including SROP) – 105 hours
Credit points	5 credits: contact – 3 (lecture – 1 credit, practice – 2 credits), contactless – 2 credits (SROP, SRO)
Required and recommended prerequisites for joining the module	Philosophy forms and develops critical and creative thinking, worldview and culture, provides students with knowledge about the most general and fundamental problems of existence and gives them a methodology for solving various theoretical and practical issues. Philosophy expands the horizon of the student's vision of the modern world, forms citizenship and patriotism, promotes self-esteem, awareness of the value of human existence. It teaches you to think and act correctly, develops practical and cognitive skills, helps you to search and find ways and ways of living in harmony with yourself, society, and the world around you.
Module objectives / intended learning outcomes	The goal is to know and understand the specifics of philosophy as a science, as the basis for the formation and development of critical thinking and worldview, to see the vital and practical purpose of philosophy. - to develop ways of thinking and understanding alternative to technocracy, the ability to see universal, universal and valuable content in specially scientific and vocational knowledge and cognition, to love and appreciate your work, profession, respect the work of other people - to understand philosophy as the ethics of personal and social life, work and knowledge, as the basis of the morality of society, culture - to know the basic concepts, themes, schools and personalities of philosophy in order to master the historical experience of scientific, critical and creative thinking Skills and abilities (professional, managerial, communicative...) acquired during the course of the discipline - development of constructive critical thinking, worldview; - the ability to effectively use modern technologies for the development of critical thinking in the future practice of scientific and professional activities; - developing your own vision and understanding of the problems of life, society, practice, cognition; - be able to substantiate and defend their views, position, conduct a discussion, polemic, dialogue in a reasoned manner; - development of a culture of professionalism, professional attitude to work, to practical life; - ability to argue and defend their views, positions, conduct a discussion, constructive dialogue, ability to work in a team
Content	In the classroom, technologies for the development of critical, creative and analytical thinking are used: case study, essay writing, etc.
Examination forms	Exam tickets
Study and examination requirements	- Availability of a computer and computer equipment; - Availability of an Internet channel with a speed of at least 0.5 Mbit/sec; - Personal account with a photo of the person on the avatar and corporate mail on the Microsoft 365 platform; - Attendance of classes according to the schedule.
Reading list	1 Merab Mamardashvili My experience is atypical, S.-Pb., ABC, 2000 www.yanko.lib.ru 2 Bertrand Russell History of Western Philosophy http://royallib.com/book/rassel_bertran/istoriya_zapodnoy_filosofii.htm 3 Skirbek G., Gilye N. History of Philosophy. M., Vlados, 2003 4 Philosophy. Textbook (edited by V.D. Gubin and others) M., 2001 5 Golubintsev V.O. et al. Philosophy for technical universities. Rostov-on-Don, 2010, 6 Modern Western philosophy. Minsk, Book House, 2009

Module designation	**MNG487 – "Fundamentals of Entrepreneurship, Leadership and Anti-Corruption Culture"**
Semester(s) in which the module is taught	3
Person responsible for the module	Abenova M.H. (rus), Imankulova B.B. (kaz), Turegeldinova A.J. (English)
Language	Kazakh, Russian, English
Relation to curriculum	
Teaching methods	Lecture, seminar
Workload (incl. contact hours, self-study hours)	Total workload: 3 credits Contact hours: 1 lecture, 1 seminar
Credit points	3
Required and recommended prerequisites for joining themodule	no
Module objectives / intended learning outcomes	The study of the general educational discipline "Fundamentals of entrepreneurship" is aimed at achieving the following goals: - familiarization of students with the theory and practice of entrepreneurship; - learning the basics of creating your own business; - formation of regulatory, economic and organizational knowledge and skills on the formation, organization and conductof entrepreneurial activity. To form systematic knowledge about the basics of the organization of entrepreneurial activity. Develop organizational and managerial skills in conducting business. To form knowledge about the responsibility of business entities, the student must master aesthetic concepts and categories, the content and features of professional ethics in legal activity, possible ways (methods) of resolving moral conflict situations in the professional activity of a lawyer, the essence of professional and moral deformation and ways to prevent and overcome it, the features of lawyer etiquette, its basic norms and functions; be able to evaluate the facts and phenomena of professional activity from an ethical point of view, apply moral rules and norms of behavior in specific life situations. As a result of mastering the discipline, the student should know: - the typology of entrepreneurship; - the role of the environment in the development of entrepreneurship; - technology of making entrepreneurial decisions; - basic components of the internal environment of the company; - organizational and legal forms of entrepreneurial activity; - features of constituent documents; - the procedure for state registration and licensing of the enterprise; - mechanisms of functioning of the enterprise; - the essence of entrepreneurial risk and the main ways to reduce risk; - the main elements of the culture of entrepreneurship andcorporate culture; - list of information subject to protection; - the nature and types of responsibility of entrepreneurs; - methods and tools of financial analysis; - basic provisions of accounting in small enterprises; - types of taxes; - a system of business performance indicators; - principles and methods of assessing the effectiveness of entrepreneurialactivity; -ways to improve and control the efficiency of entrepreneurial activity. Be able to: characterize the types of entrepreneurial activity and the business environment; operate in practice with economic categories; develop a business plan; prepare a package of documents for opening a business; draw up documents for opening a bank account; determine the organizational and legal form of the enterprise; develop a strategy and tactics of the enterprise; comply with professional ethics, ethical codes of the company, generally accepted rules for doing business;

Content	The discipline is aimed at forming students' organizational and legal form of the enterprise based on the goals of the enterprise and the specifics of the organization and functioning of enterprises in various forms; to assess the effectiveness of entrepreneurial activity; to assess external and internal risks for the enterprise; to develop business plans taking into account regulatory, resource, administrative and other conditions. Set goals and formulate tasks related to the implementation of professional functions. Organize team interaction to solve management tasks. Diagnose organizational culture, identify its strengths and weaknesses, develop proposals for its improvement. Develop measures to motivate and stimulate the organization's staff. Tasks of the discipline: 1. To form systematic knowledge about the basics of the organizationof entrepreneurial activity. 2. Develop organizational and managerial skills in conductingbusiness. 3. To form knowledge about the responsibilityof business entities. 4. As a result of mastering the discipline, the student mustbe able to: - to characterize the types of entrepreneurial activity andthe business environment; - to operate in practical activities with economic categories; - develop a business plan; - prepare a package of documents for opening your own business; - to draw up documents for opening a current account in a bank; - determine the organizational and legal form of the enterprise; - develop the strategy and tactics of the company's activities; - comply with professional ethics, ethical codes of the company,generally accepted rules of business; - to characterize the mechanism of protection of business secrets; - distinguish the types of responsibility of entrepreneurs; - analyze the financial condition of the company; - carry out basic financial transactions; - calculate the profitability of entrepreneurial activity.
Examination forms	Test
Study and examination requirements	Timely delivery of calculations of practical work, full performance of all types of work (practical and independent) are required. A mandatory requirement of the course is to prepare for each lesson. It is necessary to review the specified sections of the textbook and additional material not only when preparing for practical classes, but also before attending the corresponding lecture. Final exam: consists of four tasks of different difficulty levels, three simple for 25 points and one difficult for 15 points. Skipping an exam for a disrespectful reason deprives you of the right to take it. If you miss the exam for a good reason, a special permit is issued and the date, time and place of the exam are assigned. Prompting and cheating during exams, passing the exam for another student are unacceptable. A student caught falsifying any course information will receive a final grade of "F". Mandatory use of electronic gadgets in the classroom, which is welcome, but it is unacceptable to use them in the exam
Reading list	Basic literature: [1] E.V. Lysakovskaya. General characteristics and models of state regulation of small and medium-sized enterprises in developed countries// Law and Education, No. 5, 2011, pp. 261 - 266 [2] Civil Code of the Republic of Kazakhstan dated July 1, 1999 No. 409th (Special Part) (with amendments and additions as of 06.03.2013) [3] Law of the Republic of Kazakhstan "On Private Entrepreneurship" (with amendments and additions as of 02.04.2010) [4] A. N. Asaul. Organization of entrepreneurial activity: textbook /. - St. Petersburg: ANO IPEV, 2009. 336s. [5] Koshanov A.K., Mukhamedzhanov B.G., Bektemisova S.T. Formation of private entrepreneurship in the conditions of transition to the market (on the example of the Republic of Kazakhstan). - Almaty: Institute of Economics, PAN RK, 2009. [6] Bocharov S.A., Ivanov A.A., Oleinikov S.Ya. FUNDAMENTALS OF BUSINESS: Study guide. -- M.: Publishing house of the center of the EAOI, 2007. - 447 p. [7] http://www.enbek.gov.kz/

Module designation	**HUM129 Cultural science**
Semester(s) in which the module is taught	Fall and Spring Semesters (1 and 2) Course 1
Person responsible for the module	**Anassova Kalamkas Temirkulovna**
Language	Russian
Relation to curriculum	Required component Basic discipline
Teaching methods	Lecture, practical classes, SRO, SROP
Workload (incl. contact hours, self-study hours)	15 academic hours Lecture-15h
Credit points	2 credits: contact - 1 (lecture - 1 credit), contactless - 1 credit (SROP, SRO)
Required and recommended prerequisites for joining the module	The goal is to form ideas about culture as a social phenomenon, the development of a socio-humanitarian worldview as the basis for the modernization of social consciousness through the formation of cultural identity, the ability to analyze and assess cultural situations based on an understanding of the nature of cultural processes, the specifics of cultural objects, the role of cultural values in intercultural communication. Tasks: - give students the necessary minimum of theoretical knowledge about the essence, structure, functions, mechanism and historical types of culture; - develop the ability to understand and respect various national-cultural concepts, to productive communication of representatives of different cultures; - help to navigate the world of cultural symbols, directions in art; - promote a harmonious combination of special and humanitarian knowledge, the formation of cultural orientations and personality attitudes; - give an objective assessment of the national cultural heritage from the standpoint of maintaining the status of Kazakh culture, the Kazakh language and their role in the formation of cultural and national identity; - assess the state of modern Kazakh culture, identify and justify the prospects for its development and areas of modernization; to build programs of professional activities taking into account cultural characteristics;
Module objectives / intended learning outcomes	The course «Cultural Studies» will help students to develop an orientation towards humanitarian values, will help to master the spiritual wealth created by humanity. The development of not only an individual, but also the entire society is impossible without studying the cultural heritage created by previous generations, and this study itself, in turn, will be impossible without acquiring certain skills and cultural literacy. The course aims to humanize technical education.
Content	The classes use various technologies for the development of critical thinking: stage case, essay writing, (Mind Map), etc.
Examination forms	Examination cards
Study and examination requirements	- Availability of computer and computer equipment; - Availability of Internet channel with speed of at least 0.5 Mbit/s; - A personal account with a face photo on an avatar and corporate mail on the Microsoft 365 platform; - Attending classes according to the schedule.
Reading list	1. Нуржанов Б.Г., Ержанова А.М. Культурология. - Алматы, 2011. 2. Тимошинов В.И. Культурология: Казахстан-Евразия-Восток-Запад:Учебное пособие. – 400 с. Алматы, 2001 3. Бейсенова Г.А. Проблемы глобализации и идентичности – А.,Print, 2009.

Module designation	**HUM122 Psychology**
Semester(s) in which the module is taught	Autumn and spring semesters (1 and 2) for students of the 1st year of education
Person responsible for the module	Zykova Natalia Mikhailovna
Language	Russian
Relation to curriculum	Required component Basic discipline
Teaching methods	lecture, practical classes, SRO, SROP
Workload (incl. contact hours, self-study hours)	150 academic hours. Lecture-15h, practical classes - 30h. SRO (including SROP) - 105 hours
Credit points	5 credits: contact - 3 (lecture - 1 credit, practice - 2 credits), contactless - 2 credits (SROP, SRO)
Required and recommended prerequisites for joining the module	The purpose of the Psychology module is to form a social and humanitarian worldview among students, expand their horizons, and increase the general culture and education of students. As a result of completing the course, students will be able to: - use methods of obtaining psychological information; - apply psychological knowledge to solve professional problems; - think critically; - explain the nature of situations in the field of social communication; - be able to find ways to solve conflict situations in society; - correctly express and reasonably defend their own position; - to know and assume your own identity.
Module objectives / intended learning outcomes	The course is for students in all undergraduate majors. The course is unique and innovative in terms of content and material delivery. It contains elements of interactive interaction with students in the process of reading lecture material, as well as practical classes. The course includes sections: an introduction to psychology. Me and my motivation. Emotions and emotional intelligence. Human will and the psychology of self-regulation. Individual-typological personality features. Values, interests, norms as the spiritual basis of the individual. Psychology of the meaning of life and professional self-determination. Personality health psychology. Communication of individuals and groups. Perceptual side of communication. Interactive side of communication. Communicative side of communication. Concept and structure of socio-psychological conflict. Patterns of personality behavior in conflict. Techniques and techniques for effective communication
Content	Various teaching methods and technologies are used in the classes: student-centered training, competence-oriented training, role-playing games and educational discussions of various formats, case stadiums (analysis of specific situations), project method (development and transformation of own experience and competence)
Examination forms	Examination cards
Study and examination requirements	- Availability of computer and computer equipment; - Availability of Internet channel with speed of at least 0.5 Mbit/s; - A personal account with a face photo on an avatar and corporate mail on the Microsoft 365 platform; - Attending classes according to the schedule.
Reading list	Dzhakupov S.M. «Introduction to general psychology». - A.: Kazakh University, 2014y. Ilyin E.P. «Psychology of communication and interpersonal relations». - St. Petersburg: Peter, 2009. - 576 s. silt. - (Masters of Psychology, series). Maklakov A.G. «General Psychology». Textbook for universities. Moscow: Yurite, 2018. Maslow A. «Motivation and Personality». - St. Petersburg: 2008. – 352 pages. Grishina N.V. «Psychology of Conflict». st. Petersburg: 2008. - 464 p. silt. - (Mastersof Psychology, series). Efimova N.S. «Social Psychology». - Moscow: Yurite, 2017. E.P. Ilyin. «Psychology of creativity, creativity, endowments». - St. Petersburg, 2011. – 448 pages. Vinogradova, S. M. «Psychology of Mass Communication»: textbook/S. M. Vinogradova, G.S. Melnik. - Moscow: Yurite, 2014. – 512 pages.

Module designation	**HUM127 Sociology**
Semester(s) in which the moduleis taught	Fall and spring semesters 2.3 course.
Person responsible for themodule	Yesbergenova Gulnur Bakitbekovna
Language	Russian, Kazakh
Relation to curriculum	Elective
Teaching methods	Lecture
Workload (incl. contact hours,self-study hours)	1 credit Lecture- 15h.
Credit points	Lecture-1 credit
Required and recommended prerequisites for joining themodule	To master this discipline, knowledge, skills and skills acquired in the following disciplines arerequired: - Modern history of Kazakhstan; - introduction to the specialty; - History of Kazakhstan,"People and society.
Module objectives / intendedlearning outcomes	The goal of the program is to form a socio-humanitarian worldview of students in the context ofsolving the problems of modernizing public consciousness, determined by the state program «Looking to the Future: Modernizing Public Consciousness». After completing the course. The student must be able to: - reasonably discuss problematic issues on the course, develop and conduct research on social problems to master the skills: writing analytical reportsspecialized subjects: - draw up a program of sociological research; compile a toolkit for sociological research; - acquire skills: preparing a brief report as a result of sociological research, making practicalrecommendations. - correctly express and reasonably defend their own opinion on issues of social importance.At the end of the course, the student should know: - the ratio of natural and social in the formation and development of the individual and thedetermination of human behavior, society as a holistic system and its systemic properties. - the history of sociology; main sociological directions and schools; - methods of conducting sociological research; the basics of family sociology; - basic concepts, features of the family situation in the country and the world and trends of itschanges; - various forms of cultural manifestation in the context of modernist tendencies, structure anddistribution of cultural potential in society; main subcultural directions.
Content	The course consists of a problem-oriented course of lectures, involving discussive and polemical discussions of their subject content. This procedure for building a training course is based on the preliminary information readiness of students on the materials of the topics and problems of the specified course, the readiness of students for a reasoned discussion of the problems of the upcoming lecture. To do this, the teacher must provide students with problematic issues and a list of literature of upcoming lectures in advance. Students must read materials before each lecture
Examination forms	Test questions
Study and examination requirements	Availability of computer and computer equipment; - Availability of Internet channel with speed of at least 0.5 Mbit/s; - A personal account with a face photo on an avatar and corporate mail on the Microsoft 365platform; - Attending classes according to the schedule

Reading list	1. Biekenov K.U., Biekenova S.K., Kenzhakimova G.A. «Sociology: Academic Special». - Almaty: Evero, 2016. – 584 pages. «Sociology. Basics of the general theory: a textbook» /Ed. G.V.Osipov, L.N. Moskvichev. - 2nd ed., Rev. and additional. - M.: Norma, 2015. – 912 pages. 3. Giddens E. «Sociology » /With the participation of C. Birdsall: translation from english. Ed.2nd, completely overwrought. and additional M.: Yeditorial URSS, 2005. - 632 p. 4Ritzer J. «Modern Sociological Theories». 5th ed. - St. Peter, 2002. - 688 p.5 5. Garaja V.I. «Sociology of Religion»: Textbook. - 4th ed., Rev. and additional - M.: INFRA-M,2014. - 304p. - (Higher education. Baccalaureate). 6. Z. Zhanazarova «Family and Society». - Almaty: Kazakh university, 2014. – 133 pages. 7. Giddens A., Sutton Ph. Sociology. Wiley Academic, 2017. (Gidens A, Sutton F. Soushiolodzha.Wiley Akademik, 2017)

Module designation	**HUM128 Political science**
Semester(s) in which the module is taught	Fall and Spring Semesters (1 and 2) Course 1
Person responsible for the module	Manapova Saniyam Ilyaevna
Language	Russian
Relation to curriculum	Basic discipline
Teaching methods	Lecture, practical classes, SRS
Workload (incl. contact hours, self-study hours)	30 academic hours Lecture-15h, CPS- 15 hours
Credit points	2 credits: contact - 2 (lecture - 1 credit,), contactless - 1 credit (SRS)
Required and recommended prerequisites for joining the module	The goal is to form students' knowledge of the theory of politics, laws and patterns of political life and the ability to use political science knowledge in future professional activities Course Task: Study of laws, basic norms and peculiarities of interaction between states and other subjects of international relations in modern conditions. Particularly significant is the study of decision-making mechanisms, roles and functions of critical institutions in the system of international conflict resolution and consensus-building among States. Corresponding place in political research. Training outcomes: analyze the peculiarities of political systems and the functioning of political institutions; - to critically evaluate theoretical approaches of political science; - identify the interrelationships and patterns of the political process; - compare political systems, institutions and actors in the inter-country and subnational context, on the basis of knowledge gained and mastered methods.
Module objectives / intended learning outcomes	The course is intended for students of all undergraduate specialties, political science is a necessary theoretical basis for the further development of political research and for the introduction of scientific developments into real politics. It explores real political systems, ways of organizing society and the state, types of political regimes, forms of state structure, the activities of political parties and public organizations, the state of political consciousness and political culture, patterns of political behavior, problems of efficiency and legitimacy of political leadership, ways of forming institutions of power and more.
Content	The classes use the case method, the "Six Thinking Hats" method, the «Fishbone» method, and essay writing.
Examination forms	Examination cards.
Study and examination requirements	- Availability of computer and computer equipment; - Availability of Internet channel with speed of at least 0.5 Mbit/s; - A personal account with a face photo on an avatar and corporate mail on the Microsoft 365 platform; - Attending classes according to the schedule.
Reading list	1. Kazakhstan Political Science Encyclopedia/Ed. T.T. Mustafina. - Almaty, 1998y. 2. Pushkareva, G.V. Political Science: textbook and workshop for universities/G.V. Pushkarev. - Moscow: Yurite Publishing House, 2021. – 295 pages. 3. G.M. Sergazina, R.N. Abylkalykova/Political Science: a textbook (2nd edition). - Karaganda: Medet Group LLP. — 2019. 270 pages.

Module designation	**MAT101 Mathematics I**
Semester(s) in which the module is taught	autumn semester (1 semester)
Person responsible for the module	Keltenova Raushan Turlybekova
Language	russian
Relation to curriculum	Compulsory
Teaching methods	Lecture, practical classes, SRO
Workload (incl. contact hours, self-study hours)	5 - 1/0/2/2 Lecture – 15 credits Practical classes – 30 credits
Credit points	Lecture – 15 credits Practical classes – 30 credits
Required and recommended prerequisites for joining the module	No
Module objectives / intended learning outcomes	The key question is: what learning outcomes should students achieve within the module? As a result of mastering the discipline "Mathematics I", the student must: **know:** -laws of operating with matrices and their application for solving systems of linear equations; -definitions of the basic concepts: limit, derivative, differentials of various orders and be able to apply them to the study of functions; -methods of finding extremums of functions, methods of studying their qualitative properties; -Taylor's formula and the basic forms of residual terms; -elements of analytical geometry: various equations of straight lines, equationsof curves of the second order. **be able to:** - operate with matrices: perform arithmetic operations on them, search for inverse matrices; - to find derivatives, differentials, extremes of functions of one variable, areas of monotony and areas of convexity and concavity, inflection points, build asymptotes; to find complete, partial derivatives and differentials, extremes of functions of several variables; - apply Taylor's formula to approximate calculations; - write out various types of equations of straight lines, second-order curves, find the angle between straight lines on the plane.
Content	Module "Mathematics I" sections: Linear algebra and analytical geometry; Introduction to analysis; Differential calculus of a function of one variable; Differential calculus of a function of several variables.
Examination forms	Exam tickets, test questions
Study and examination requirements	- Availability of a computer and computer equipment; - Availability of an Internet channel with a speed of at least 0.5 Mbit/sec; - Personal account with a photo of the person on the avatar and corporate mail on the Microsoft 365 platform; - Attendance of classes according to the schedule.
Reading list	[1] Bugrov Ya.S., Nikolsky S.M. Higher Mathematics. M. Bustard. 2018 Vol.1-2. [2] Kudryavtsev V.A., Demidovich V.P. A short course of higher mathematics – M.: AST, Astrel, 2001- 656 p . [3] Berman G. N.B. Collection of problems on the course of mathematical analysis - St. Petersburg: Publishing House "Lan", 2017. - 492 p .[4] Ryabushko A.P. Collection of individual tasks in higher mathematics. Ch.1, 2, 3- Minsk.:Higher School, 2014 [5] Lungu K.N., Written D.T. Collection of problems in higher mathematics. - M.: Iris-press, 2020.

Module designation	**MAT102 Mathematics II**
Semester(s) in which the module is taught	spring semester (2nd semester)
Person responsible for the module	Keltenova Raushan Turlybekova
Language	russian
Relation to curriculum	Compulsory
Teaching methods	Lecture, practical classes, SRO
Workload (incl. contact hours, self-study hours)	5-1/0/2/2 Lecture – 15 credits Practical classes – 30 credits
Credit points	Lecture – 15 credits Practical classes – 30 credits
Required and recommended prerequisites for joining the module	Start the course after passing the discipline "Mathematics I".
Module objectives / intended learning outcomes	The key question is: what learning outcomes should students achieve within the module? As a result of mastering the discipline "Mathematics II", the student must: **know:** - concepts of indefinite and definite integral; - basic methods of integrating a function of a single variable; - the main applications of the integral; -multiple integrals; - numerical series with positive terms and alternating series; - functional and power series; - the main signs of convergence; - applications of power series. **be able to:** - apply theoretical knowledge in practical classes; - choose the right method for finding the primitive and calculating a certain integral; -calculate multiple integrals; - - investigate numerical and functional series for convergence; - decompose functions into Maclaurin and Taylor series.
Content	Module "Mathematics II" sections: Indefinite integral; Definite integral; Multiple integrals; Numerical series.Power series.Fourier series.
Examination forms	Exam tickets, test questions
Study and examination requirements	- Availability of a computer and computer equipment; - Availability of an Internet channel with a speed of at least 0.5 Mbit/sec; - Personal account with a photo of the person on the avatar and corporate mail on the Microsoft 365 platform; - Attendance of classes according to the schedule.
Reading list	Piskunov N.S. Differential and integral calculus. Volume 1. - M. Nauka. 1985. Danko P.E., Popov A.G., Kozhevnikov T.Ya. Higher mathematics in exercises and problems. In 2 h.Ch.I,2: M.: Higher School, 1999. Written D.T. Lecture notes on Higher Mathematics, Part 1, Part 2,- Moscow: Rolf, 2000.Titles of textbooks, articles, etc. Gusak A.A. Higher Mathematics, Vol.2, Mn.: TetraSystems, 2003. Berman G.N. Collection of problems on the course of mathematical analysis. St. Petersburg, 2004. Lungu K.N., Norin V.P. Collection of problems in Higher mathematics, part 2, Moscow: Iris Press, 2004. Ryabushko A.P. Collection of individual tasks in higher mathematics. Ch.1, 2, 3, Minsk.:Higher School, 2006 Sobol B.V. Practicum on Higher Mathematics, Rostov n/A: Phoenix, 2006

Module designation	**GEN177 Engineering and computer graphics**
Semester(s) in which this module is taught	autumn
The person responsible for the module	
Language	Kazakh, Russian
Relation to the curriculum	Cycle of base disciplines (B)
Teaching methods	1 credit lectures / 2 credits of practical training
Workload (incl. contact hours, hours ofindependent work)	Module – 5 credits 1 credit KZ – 15 hours 1 ECTS – 30 hours 1 credit lectures - contact hours 15 hours 2 credits of practical training – 30 hours Total module - 150 hours Total module - 5 ECTS
Credits	5 credits
Necessary and recommended prerequisites of the module	No
Module objectives/expected learning outcomes	• study of the theoretical foundations for the execution and reading of design documents, methods for constructing spatial forms on a plane, methods for solving engineering and technical problems on a drawing, developing students' spatial thinking and instilling independent work skills; • teaching students to work with graphic information of various types and content, the basics of graphic representation of information, methods of graphic modeling of geometric objects, rules for the development and execution of design documentation, graphic models of phenomena and processes; • students mastering the methods and means of computer graphics, acquiring knowledge and skills in working with the AutoCAD computer-aided design system.
Content	The study of methods for obtaining certain graphical models of space based on orthogonal projection and the ability to solve problems on these models related to spatial forms and relationships. Mastering the basic principles and methods of geometric modeling and methodology for developing graphic applications. Mastering the knowledge of building a drawing, the ability to read and draw up graphic and text design documentation in accordance with the requirements of regulatory documents, state standards. Acquaintance of students with the concept of computer graphics, geometric modeling, graphic objects, with modern interactive graphic systems for solving problems of automating drawing and graphic work using the example of AutoCAD. Formation of skills in the use of universal graphic systems for the development and editing of drawings using three-dimensional computer modeling, design automation in relation to the development and execution of design documentation.
Examination forms	Each work, except for tests, is evaluated according to 4 criteria: - accuracy and accuracy (A) - 30% (how accurately and accurately the work is calculated) - creativity and creativity (T) - 30% (how and how the work is presented) - completeness and maturity (H) - 40% (how deeply, logically and structurally the work was solved) - originality (O) - a special coefficient is used 1.0; 0.5 or 0 The null version of the exam (a ticket of 3 questions) is provided before the exams.
Requirements for training and exams	Maximum marks by the tasks types

student's independent work 1	5
student's independent work 2	5
student's independent work 3	5
student's independent work 4	5
1st intermediate certification (Midterm)	10
student's independent work 5	5
student's independent work 6	5
student's independent work 7	5
student's independent work 8	5
2nd final certification (Endterm)	10
Final exam	40
Total	**100**

List of literature	**Base references**	**Additional references**

[1] ЕСКД. Общие правила выполнения чертежей. – М.: Госстандарт,1980.	[6] Справочник по машиностроительному черчению – М.
[2] Есмухан Ж.М. Краткий конспект лекций по начертательной геометрии. – Алматы: КазНТУ, 1994.	[7] Короев Ю.И. Начертательная геометрия. М.: 2004
[3] Чекмарев А.А. Инженерная графика. М; 2000.	[8] Есмуханов Ж.М., Куспеков К.А., Есмуханова Ж.Ж., Карпеков Р.К. Тесты по начертательной геометрии. Алматы, 1998.
[4] Фролов С.А. Начертательная геометрия. М. ИНФРА-М.2013.	[9] Чуприн А.И. AutoCAD 2002. Трехмерное проектирование. – СПб.:2002.
[5] Есмуханов Ж.М. Начертательная геометрия. Задачник – минимум. Часть 1	[10] Ордабекова А. Ж. Исследование и создание графических моделей в системе AutoCAD. Алматы 2016

Module designation	**MIN101 Basics of mining**
Semester(s) in which this module is taught	Spring
Person responsible for the module	Kozhantov Arystan U
Language	Russian/Kazakh
Attitude towards the curriculum	The cycle of basic disciplines (B) is a compulsory discipline
Optional component (EC) - elective discipline	2 lecture credits /1 practical training credit / 2 self-study credits
Workload (incl. contact hours, self-employment hours)	Module - 5 credits 1 KZ credit - 15 hours 1 ECTS - 30 hours 2 lecture credits - contact hours 30 hours1 credit of practical training - 15 hours 2 credits of independent work - 105 hours (of which 30% is independent work of the student with the teacher - 30 hours; independent work of the student is 70% - 75 hours) Total module - 150 hoursTotal module - 5 ECTS
Credit scores	5 credits
Required and Recommended Prerequisites for Attaching to theModule	The course is intended for students of the Mining Engineering specialty and considers obtaining general information about mineral deposits, mining methods, and enrichment principles.
Module / intended objectives learning outcomes	Upon completion of the course, the student must demonstrate ability. create a project; design underground mine workings, ore bodies, slopes; analyze underground mine workings, ore bodies, block models.The student must be able to: As a result of studying the discipline in accordance with the state standard of higher education, students should know: - The history of the development of mining in the territory of the Republic of Kazakhstan, in the CIS countries and far abroad; - The level of extraction of minerals and their need in the national economy; -Information about mineral deposits and conditions of their occurrence; -Use and measures for the protection of subsoil; -Methods for the development of minerals and prospects for the development of methods; - Essence of open pit mining; main elements and parameters of a quarry; - Mining workings, open pit mining methods and main processes, their unit cost, main technical and economic indicators of quarry operation; -The essence of underground mining and the main mine workings; the main production processes and their unit cost, the main technical and economic indicators of the mines; -Features of technology for the development of building rocks; integrated use of raw materials; the main performance indicators of enterprises for the extraction of building rocks; -Basic concepts of mining by geotechnological methods; basic technological processes; technical and economic indicators; - The essence of the technology of underwater mining; - Essence of enrichment and processing of mineral raw materials; -Economic feasibility of using various methods of mining; -Environmental consequences of mining operations and their impact on the environment. At the end of the course the student should know: The assimilation of the discipline will allow students to be able to assess the mining and geological conditions of mining operations, to have an initial understanding of the methods of developing mineral deposits.
Content	In contrast to the underground method of mining, when all production processes for separating the mineral from the massif and transporting it to the surface are carried out using mine workings deep underground, the open method is associated with the implementation of production processes in the open. An open-pit mining enterprise is called a quarry. The advantages of open pit mining in certain mining conditions in comparison with underground are obvious. Level of knowledge of the module content: achievement of competencies - Level 6 of the National Qualifications Framework. Qualification (degree) of a bachelor. These phrases are for everyone.
Exam forms	Each control work, except for tests, is evaluated according to 4 criteria: - accuracy and accuracy - 30% (how accurately and accurately the work is calculated); - creativity and creativity - 30% (how and in what way the work is presented); - completeness and maturity - 40% (how deeply, logically and structurally the work is solved); – originality – a special coefficient 1.0; 0.5 or 0 is used. Exam in writing (ticket of 3 questions), there is a zero ticket in the form of a guide for

	passing the exam on the website https://sso.satbayev.university, login under the student's login.
Tuition and Exam Requirements	Maximum assessment of knowledge by types of tasks

Activity in lecture discussions	14 lectures on 1 points = 14
Completion of tasks (SRSP)	4 SIRS of 2 points = 8
Performing practical exercises	4 works of 2.5 points = 10
1st intermediate certification (Midterm)	RC-1: 10 points=10
Independent work of the student (semester)	2 СРС по 4 балла=8
2nd final certification (Endterm)	RC-2: 10 points=10
Final exam	40
Total	**100**

Bibliography

Basic Literature	**Additional literature**
[1] Nekrasovsky Ya.Ya., Kolokolov O.V. Fundamentals of mining technology. M: Nedra, 1982.	[3] 1. Arens V.Zh. Physicochemical Geotechnology. Textbook for High Schools. M.: MGGU, 2001.
[2] Bryukhovetsky O.S., Bunin N.V., Kovalev I.A. Technology and complex mechanization of the development of mineral deposits. Textbook for High Schools. M: Nedra, 1989.	[4] Open pit mining. Directory. M: MiningBureau, 1994. [5] Kilechkov A.P. Mining technology. M: Nedra, 1979. [6] Rakishev B.R., Sofrygin V.P. Tasks for open-pit mining processes. Tutorial. Almaty, KazNTU, 1999. [7] Rogatin N.N. Introduction to the specialty. – M.: MGI, 1975.

Module designation	**GEO 431 *General and historical geology***
Semester(s) in which this module is taught	*autumn*
The person responsible for the module	*Baibatsha Adilkhan* *Asubayeva Saltanat* *Amantaev Serzhan*
Language	*Kazakh/ Russian*
Relation to the curriculum	*Cycle of base disciplines (B) – compulsory discipline*
Teaching methods	2 credits lectures / 1 credit of laboratory classes / 2 credits credits of independent work
Workload (incl. contact hours, hours of independent work)	Module – 3 credits 1 credit KZ – 15 hours 1 ECTS – 30 hours 2 credits lectures - contact hours 30 hours 1 credit of laboratory classes – 15 hours 2 credits of independent work – 105 hours (of which 30% is independent work of the student with the teacher – 30 hours; independent work of the student is 70% - 75 hours) Total module - 150 hours Total module - 5 ECTS
Credits	*5 credits*
Necessary and recommended prerequisites of the module	The competencies of the module – GEO 431 General and historical geology
Module objectives/expected learning outcomes	The purpose of the course: developing a geological worldview among students; creating the basis for further obtaining special knowledge, skills in the process of studying all subsequent geological disciplines. Course objective: obtaining general ideas about the structure of the Universe, the internal structure of the Earth, the geological activity of the main factors of its external and internal dynamics, the form of occurrence of geological bodies, tectonic movements and methods of their study, the basic structures of the earth's crust.Personal and key skills: As a result of mastering the discipline, students will have managerial skills in conducting design research, organizational, underground and open-pit mining operations.
Content	The course examines the geological structure of the earth's crust; material (chemical, mineral, and petrographic) composition of the earth's crust; the main structural elements of the earth's crust with characteristic rock complexes; the main results of the most important endogenous and exogenous geological processes and their role in the formation of the earth's crust; forms of occurrence of geological bodies in the earth's crust, types of tectonic disturbances; methods for their representation on geological maps and sections, the concept of a geochronological (stratigraphic) scale.

<table>
<tr><td>Examination forms</td><td>Each work, except for tests, is evaluated according to 4 criteria:
- accuracy and accuracy (A) - 30% (how accurately and accurately the work is calculated)
- creativity and creativity (T) - 30% (how and how the work is presented)
- completeness and maturity (H) - 40% (how deeply, logically and structurally the work was solved)
- originality (O) - a special coefficient is used 1.0; 0.5 or 0
The null version of the exam (a ticket of 3 questions) is provided before the exams.</td></tr>
<tr><td>Requirements for training and exams</td><td>Maximum marks by the tasks types
<table>
<tr><td>Completion of tasks (IWUI)</td><td>4 IWUI 2 points = 8</td></tr>
<tr><td>Laboratory work</td><td>8 works 4 points = 32</td></tr>
<tr><td>1st intermediate certification (Midterm)</td><td>M-1: 8 points=8</td></tr>
<tr><td>Independent student work (IWS)</td><td>2 IWS 6 points=12</td></tr>
<tr><td>2nd final certification (Endterm)</td><td>M-2: 8 points=8</td></tr>
<tr><td>Final exam</td><td>40</td></tr>
<tr><td>Total</td><td>100</td></tr>
</table></td></tr>
<tr><td>List of literature</td><td>
<table>
<tr><th>Base references</th><th>Additional references</th></tr>
<tr><td>[1] Baibatsha A.B. General geology (Earth dynamics). Almaty. KazNTU, 2015 –498 p.</td><td>[6] Koronovsky NV, Yasamanov NA Geology M .: Izd. Academy, 2005. – 448.</td></tr>
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<table>
<tr><td>Module designation</td><td>GEO432 structural geology</td></tr>
<tr><td>Semester(s) in which the module is taught</td><td>Spring</td></tr>
<tr><td>Person responsible for the module</td><td>Arshamov Yalkunzhan
Asubayeva Saltanat</td></tr>
<tr><td>Language</td><td>Kazakh/ Russian</td></tr>
<tr><td>Attitude towards the curriculum</td><td>The cycle of basic disciplines (B) is a compulsory discipline</td></tr>
<tr><td>Teaching methods</td><td>2 credits lectures / 1 credit of laboratory classes / 2 credits credits of independent work</td></tr>
<tr><td>Workload (incl. contact hours, self-employment hours)</td><td>Module - 5 credits
1 KZ credit - 15 hours
1 ECTS - 30 hours
2lecture credit - contact hours 15 hours1 credit of practical training - 15 hours 1 lab credit - 15 hours
1 credits of independent work - 105 hours (of which 30% is independent work of the student with the teacher - 30 hours; independent work of the student is 70% - 75 hours)
Total module - 150 hoursTotal module - 5 ECTS</td></tr>
<tr><td>Credit scores</td><td>5 credits</td></tr>
<tr><td>Required and Recommended Prerequisites for Attaching to the Module</td><td>Prerequisite – GEO431 General and Historical Geology</td></tr>
<tr><td>Module objectives/intended learningoutcomes</td><td>The purpose of the course: structural geology studies various forms of occurrence of rocks, their location and relationships, formation conditions in the earth's crust. The completion of the discipline is a term paper. It aims to reinforce skills in reading geological maps. Based on an in-depth analysis of the geological tablet, an explanatory note is compiled, illustrated with graphical applications (maps, sections). Finished term papers after verification by their supervisor are protected by contractors and are accepted with a differentiated assessment.
Course Objective:
- study of the form of occurrence of rocks in the earth's crust;
- methods for compiling and reading geological, tectonic and structural maps,
- construction of geological sections and block diagrams, stratigraphic columns</td></tr>
<tr><td>Content</td><td>The course "Structural Geology" studies the forms of geological bodies, undisturbed horizontally lying layers, deformations of rock formations, the formation of layers under the influence of endogenous, exogenous and cosmic factors; basic elements of folds, typification of folds, folded forms of high ranks (anteclise, syneclise, etc.); basic elements of discontinuous dislocations, their typification; kinematic types of faults (faults, faults, faults, etc.); features of the manifestation of deformations on platforms, in folded belts, rifts and other global tectonic structures</td></tr>
<tr><td>Exam forms</td><td>Each control work, except for tests, is evaluated according to 4 criteria:
- accuracy and accuracy - 30% (how accurately and accurately the work is calculated);
- creativity and creativity - 30% (how and in what way the work is presented);
- completeness and maturity - 40% (how deeply, logically and structurally the work is solved);
– originality – a special coefficient 1.0; 0.5 or 0 is used.
Exam in writing (ticket of 3 questions), there is a zero ticket in the form of a guide for passing the exam on the website https://sso.satbayev.university, login under the student's login.</td></tr>
<tr><td>Requirements for training and exams</td><td>Maximum marks by the tasks types
<table>
<tr><td>Completion of tasks (IWUI)</td><td>4 IWUI 2 points = 8</td></tr>
<tr><td>Laboratory work</td><td>8 works 4 points = 32</td></tr>
<tr><td>1st intermediate certification (Midterm)</td><td>M-1: 8 points=8</td></tr>
<tr><td>Independent student work (IWS)</td><td>2 IWS 6 points=12</td></tr>
<tr><td>2nd final certification (Endterm)</td><td>M-2: 8 points=8</td></tr>
<tr><td>Final exam</td><td>40</td></tr>
<tr><td>Total</td><td>100</td></tr>
</table></td></tr>
</table>

List of literature	

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[1] Baibatsha A.B. General geology (Earth dynamics). Almaty. KazNTU, 2015 –498 p.	[6] Koronovsky NV, Yasamanov NA Geology M .: Izd. Academy, 2005. – 448.
[2] Koronovsky N.V. General geology. – M, 2006.	[7] Serpukhov VI, Bilibina TV, Shalimov AI and others. General geology course. M., Nedra, 1976.
[3] General geology. / Editor. prof.A.K. Sokolovsky. –M ,. KDU, 2006 – 448c.	[8] Balt T. In the depths of the Earth: what they say about earthquakes. M., 1984.
[4] Milovsky A.V., Mineralogy and petrography. M .: Nedra, 1985.	[9] Gir J., Shah X. Zybkaya tverd. What is groundbreaking and how to prepare for it. M., 1988
[5] Baibatsha A.B. Paleontology and historical geology. Almaty, 2011 - 496 p.	[10] Mogi K. Prediction of earthquakes. M., 1988
[6] Baibatsha A.B. Historical geology. Almaty: Complex, 2004, - 272 p.	[11] Wegener A. Origin of continents and oceans / per. with him. P. Г. Kaminsky under the ed. P. H. Kropotkina. - L .: Nauka, 1984. - 285 p.
[7] Frederick K. Lutgens, Edward J. Tarbuck. Essentials of Geology. Eleventh edition. USA, New Jersey, 2012. - 554 p	
[8] Charles Fletcher. Physical geology: the science of Earth / University of Hawaii. Third Edition. Hoboken, NJ: John Wiley & Sons, Inc., 2017 – 706 p.	

<table>
<tr><td>Module designation</td><td>GEO433 Crystallography and mineralogy</td></tr>
<tr><td>Semester(s) in which this module is taught</td><td>Autumn</td></tr>
<tr><td>The person responsible for the module</td><td>Baisalova Akmaral Omarkhanovna
Bekbotaeva Alma Anarbekovna</td></tr>
<tr><td>Language</td><td>Russian/Kazakh</td></tr>
<tr><td>Relation to the curriculum</td><td>Cycle of base disciplines (B) – compulsory discipline</td></tr>
<tr><td>Teaching methods</td><td>2 credits lectures / 1 credit of laboratory classes / 2 credits credits of independent work</td></tr>
<tr><td>Workload (incl. contact hours, hours ofindependent work)</td><td>Module – 5 credits
1 credit KZ – 15 hours
1 ECTS – 30 hours
1 credit lectures - contact hours 30
hours 4 credits of laboratory
classes – 120 hoursTotal module -
150 hours
Total module - 5 ECTS</td></tr>
<tr><td>Credits</td><td>5 credits</td></tr>
<tr><td>Necessary and recommended prerequisites of the module</td><td>Prerequisite – GEO431 General and historical geology.</td></tr>
<tr><td>Module objectives/expected learningoutcomes</td><td>Students gaining knowledge on the main theoretical and applied issues of crystallography and mineralogy, which is the fundamental geological discipline that underlies the study of rocks, ore and non-metallic minerals, processes that occur in the earth's crust, as well as in space bodies
Course Objective:
- mastering the fundamentals of crystallography, which is closely connected with industry, the development of which requires specialists to have in-depth knowledge in the field of crystallography;
- the acquisition of skills in determining the elements of symmetry in crystalline polyhedra, in recognizing simple forms that are found in nature;
- knowledge of the methods of visual diagnosis of common minerals;
- gaining knowledge on the diagnosis of minerals by morphological features;
- the ability to use paragenetic associations of minerals for the diagnosis of minerals;
- gaining knowledge on the conditions for the formation of major minerals.</td></tr>
<tr><td>Content</td><td>The course "Crystallography and Mineralogy" studies the basic concepts and laws of crystallography; classification of crystals based on their symmetry; geometric crystallography, which studies the external and internal structure of crystals; crystal chemistry or structural chemistry; crystallophysics. He understands the influence of the structure on the external form and physical properties of crystals, the main motives for constructing structures are wire-frame, sheet, ribbon, chain, with isolated groups of atoms; conditions of origin and location of minerals in nature; the main groups of minerals, their composition, physical properties and practical application, mineral formation processes and the corresponding mineral paragenesis; basic laws of the crystal structure, external forms, chemical composition, physical properties and conditions for the formation of crystals in the relationship.</td></tr>
<tr><td>Examination forms</td><td>Each work, except for tests, is evaluated according to 4 criteria:
- accuracy and accuracy (A) - 30% (how accurately and accurately the work is calculated)
- creativity and creativity (T) - 30% (how and how the work is presented)
- completeness and maturity (H) - 40% (how deeply, logically and structurally the work was solved)
- originality (O) - a special coefficient is used 1.0; 0.5 or 0
The null version of the exam (a ticket of 3 questions) is provided before the exams.</td></tr>
<tr><td>Requirements for training and exams</td><td>Maximum marks by the tasks types
<table>
<tr><td>Completion of tasks (IWUI)</td><td>4 IWUI 2 points = 8</td></tr>
<tr><td>Laboratory work</td><td>8 works 4 points = 32</td></tr>
<tr><td>1st intermediate certification (Midterm)</td><td>M-1: 8 points=8</td></tr>
<tr><td>Independent student work (IWS)</td><td>2 IWS 6 points=12</td></tr>
<tr><td>2nd final certification (Endterm)</td><td>M-2: 8 points=8</td></tr>
<tr><td>Final exam</td><td>40</td></tr>
<tr><td>Total</td><td>100</td></tr>
</table></td></tr>
</table>

List of literature		**Base references**	**Additional references**	
		[1] Baibatsha A.B. General geology (Earth dynamics). Almaty. KazNTU, 2015 –498 p.	[6] Koronovsky NV, Yasamanov NA Geology M .: Izd. Academy, 2005. – 448.	
		[2] Koronovsky N.V. General geology. – M, 2006.	[7] Serpukhov VI, Bilibina TV, Shalimov AI and others. General geology course. M., Nedra, 1976.	
		[3] General geology. / Editor. prof.A.K. Sokolovsky. –M ,. KDU, 2006 – 448c.	[8] Balt T. In the depths of the Earth: what they say about earthquakes. M., 1984.	
		[4] Milovsky A.V., Mineralogy and petrography. M .: Nedra, 1985.	[9] Gir J., Shah X. Zybkaya tverd. What is groundbreaking and how to prepare for it. M., 1988	
		[5] Baibatsha A.B. Paleontology and historical geology. Almaty, 2011 - 496 p.	[10] Mogi K. Prediction of earthquakes. M., 1988	
		[6] Baibatsha A.B. Historical geology. Almaty: Complex, 2004, - 272 p.	[11] Wegener A. Origin of continents and oceans / per. with him. P. Γ. Kaminsky under the ed. P. H. Kropotkina. - L .: Nauka, 1984. - 285 p.	
		[7] Frederick K. Lutgens, Edward J. Tarbuck. Essentials of Geology. Eleventh edition. USA, New Jersey, 2012. - 554 p		
		[8] Charles Fletcher. Physical geology: the science of Earth / University of Hawaii. Third Edition. Hoboken, NJ: John Wiley & Sons, Inc., 2017 – 706 p.		

Module designation	**GEO434 Petrography**
Semester(s) in which this module is taught	*Spring*
The person responsible for the module	Bekbotaeva Alma Anarbekovna
Language	*Russian/Kazakh*
Relation to the curriculum	*Cycle of base disciplines (B) – compulsory discipline*
Teaching methods	1 credit lectures / 2 credits Laboratory / 2 credits credits of independent work
Workload (incl. contact hours, hours of independent work)	Module – 5 credits 1 credit KZ – 15 hours 1 ECTS – 30 hours 1 credit lectures - contact hours 30 hours 4 credits of laboratory classes – 120 hoursTotal module - 150 hours Total module - 5 ECTS
Credits	*5 credits*
Necessary and recommended prerequisites of the module	PRE-REQUISITE – GEO433 Crystallography and mineralogy
Module objectives/expected learning outcomes	The purpose of the course: comprehensive knowledge of the composition, structure, structure and texture, classification of igneous, sedimentary, metamorphic, metasomatic rocks, nomenclature and conditions of formation of rocks and their connection with mineral deposits. Course objective: - Study of igneous rocks: formation, material composition and structure. Structures and textures of igneous rocks. - Study of sedimentary rocks: formation, material composition, structure. Textures and structures of sedimentary rocks. Classification of sedimentary rocks. - Study of metamorphic rocks: factors and types of metamorphism, material composition, structure. Textures and structures of metamorphic rocks. Types of metamorphism: cataclastic, contact-thermal, regional, metasomatosis.
Content	The course "Petrography" studies the composition, structure, conditions of occurrence, classification and regularities of formation of igneous, sedimentary, metamorphic and metasomatic rocks that meet the current level of science and the requirements of geological practice. Understands the connection of petrography with other geological disciplines and its significance for geological survey, prospecting and exploration of mineral deposits; applies methods of rock research; the main problems and tasks of petrography.
Examination forms	Each work, except for tests, is evaluated according to 4 criteria: - accuracy and accuracy (A) - 30% (how accurately and accurately the work is calculated) - creativity and creativity (T) - 30% (how and how the work is presented) - completeness and maturity (H) - 40% (how deeply, logically and structurally the work was solved) - originality (O) - a special coefficient is used 1.0; 0.5 or 0 The null version of the exam (a ticket of 3 questions) is provided before the exams.
Requirements for training and exams	**Maximum marks by the tasks types**

Completion of tasks (IWUI)	4 IWUI 2 points = 8
Laboratory work	8 works 4 points = 32
1st intermediate certification (Midterm)	M-1: 8 points=8
Independent student work (IWS)	2 IWS 6 points=12
2nd final certification (Endterm)	M-2: 8 points=8
Final exam	40
Total	**100**

List of literature		**Base references**	**Additional references**
		[1] Baibatsha A.B. General geology (Earth dynamics). Almaty. KazNTU, 2015 –498 p.	[6] Koronovsky NV, Yasamanov NA Geology M .: Izd. Academy, 2005. – 448.
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		[6] Baibatsha A.B. Historical geology. Almaty: Complex, 2004, - 272 p.	[11] Wegener A. Origin of continents and oceans / per. with him. P. Γ. Kaminsky under the ed. P. H. Kropotkina. - L .: Nauka, 1984. - 285 p.
		[7] Frederick K. Lutgens, Edward J. Tarbuck. Essentials of Geology. Eleventh edition. USA, New Jersey, 2012. - 554 p	
		[8] Charles Fletcher. Physical geology: the science of Earth / University of Hawaii. Third Edition. Hoboken, NJ: John Wiley & Sons, Inc., 2017 – 706 p.	

<table>
<tr><td>Module designation</td><td>GEO435 Geology and Mineral Resources of Kazakhstan</td></tr>
<tr><td>Semester(s) in which this module is taught</td><td>Spring</td></tr>
<tr><td>The person responsible for the module</td><td>Arshamov Yalkunzhan
Bekbotaeva Alma Anarbekovna</td></tr>
<tr><td>Language</td><td>Russian/Kazakh</td></tr>
<tr><td>Attitude to the curriculum</td><td>Cycle of basic disciplines (B)</td></tr>
<tr><td>Teaching methods</td><td>2 credit of lectures / 1 credits Laboratory / 2 credits of independent work</td></tr>
<tr><td>Workload (incl. contact hours,
self-employment hours)</td><td>Module – 5 credits
1 credit KZ – 15 hours
1 ECTS – 30 hours
2 credits of the lecture - contact hours
30 hours1 credits Laboratory – 15 ours
2 credits of independent work – 105 hours (of which 30% is independent work of the student with the teacher – 30 hours; independent work of the student is 70% - 75 hours)
Total module - 150
hoursTotal module -
5 ECTS</td></tr>
<tr><td>Credit scores</td><td>5 credits</td></tr>
<tr><td>Necessary and recommended prerequisites for joining themodule</td><td>PRE-REQUISITE – GEO432 Structural geology</td></tr>
<tr><td>Module objectives/expected learning outcomes</td><td>The purpose of the course: to Form a holistic view of the geological structure and development of the earth's crust within the territory of Kazakhstan, to get acquainted with the main types of mineral resources, their availability in the country in the future and priorities in the mineral resource complex.
Course objective:
- study of the geological structure of the subsoil of Kazakhstan;
- familiarity with the basic principles of tectonic zoning of the territory of Kazakhstan;
- familiarity with the main tectonic structures of the earth's crust, their stratigraphy and magmatic complexes, features and patterns of geological development and placement of mineral deposits in them.
The main task of studying the discipline is to develop students of geologists ' geological thinking based on an extensive database of factual material with the ability to correctly structure it and use it in accordance with the logic of the fundamental conceptual geological paradigms. study of the form of rock occurrence in the earth's crust;</td></tr>
<tr><td>Content</td><td>The article gives an idea of the geological structure of the subsoil and the development of the earth's crust within the territory of Kazakhstan, about the mineral resources of Kazakhstan, their classification, reserves, priority and strategic types of raw materials. Tasks of the geological survey of Kazakhstan at the present stage. The course contains information about the main types of mineral resources, the country's future supply of them, and priorities in the mineral resource complex.</td></tr>
<tr><td>Examination forms</td><td>Each control work except tests is evaluated according to 4 criteria:
– accuracy and accuracy – 30% (how accurately and accurately the work is calculated);
– creativity and creativity – 30% (how and how the work is presented);
– completeness and maturity – 40% (how deeply, logically and structurally the work is solved);
– originality – a special coefficient of 1.0, 0.5 or 0 is used.
The exam is in writing (a ticket of 3 questions), there is a zero ticket in the form of a guide for passing the exam on the website https://sso.satbayev.university , login under the student's username.</td></tr>
<tr><td>Requirements for training and exams</td><td>Maximum marks by the tasks types
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<tr><td>Completion of tasks (IWUI)</td><td>4 IWUI 2 points = 8</td></tr>
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<tr><td>Final exam</td><td>40</td></tr>
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</table></td></tr>
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List of literature	**Base references**	**Additional references**
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	[3] General geology. / Editor. prof.A.K. Sokolovsky. –M ,. KDU, 2006 – 448c.	[8] Balt T. In the depths of the Earth: what they say about earthquakes. M., 1984.
	[4] Milovsky A.V., Mineralogy and petrography. M .: Nedra, 1985.	[9] Gir J., Shah X. Zybkaya tverd. What is groundbreaking and how to prepare for it. M., 1988
	[5] Baibatsha A.B. Paleontology and historical geology. Almaty, 2011 - 496 p	[10] Mogi K. Prediction of earthquakes. M., 1988
	[6] Baibatsha A.B. Historical geology. Almaty: Complex, 2004, - 272 p.	[11] Wegener A. Origin of continents and oceans / per. with him. P. Г. Kaminsky under the ed. P. H. Kropotkina. - L .: Nauka, 1984. - 285 p.
	[7] Frederick K. Lutgens, Edward J. Tarbuck. Essentials of Geology. Eleventh edition. USA, New Jersey, 2012. - 554 p	
	[8] Charles Fletcher. Physical geology: the science of Earth / University of Hawaii. Third Edition. Hoboken, NJ: John Wiley & Sons, Inc., 2017 – 706 p.	

Module name and code	**Module.GE0439 Sedimentology**
Responsible for the module	PhD Ensepbaev T.A.
Module type	Basic, required module
Module level	BA
Number of hours per week	3
Amount of credits	5 (5 ECTS)
Form of study	full-time
Semester	5
Number of students	120
Module Prerequisites	General And Historical Geology
Module content	EMCD GE0439 Sedimentology Lecture (30): The course "Sedimentology" gives an idea of the subject of science, goals, objectives, place among other geological sciences. The discipline presents information about precipitation, its elemental, chemical, mineral and component composition. The issues of sediment mobilization, transportation, differentiation and accumulation are considered. The textural and structural features, facial conditions and conditions for the formation of sedimentary rocks are studied.
Learning Outcomes	As a result of mastering the discipline, students should 1) know: - History, problems, prospects and directions of development of science; - signs of precipitation and sedimentary rocks, as products of the Earth's exosphere; - Methodology for the study of precipitation and modern methods for their study; - instruments and technologies of field and laboratory, including crystal-optical diagnostics of precipitation components; - material composition of precipitation, texture and structural features; - the basic properties of sedimentary formations, including their reservoir properties; - features of the formation of sediments and sedimentary rocks; - the influence of ancient and modern landscape and climatic conditions on the formation of sedimentary rocks; - methods of paleogeographic research; - basics of facial analysis; - the basic physical and mechanical properties of sediments and sedimentary rocks; 2) be able to: - identify and describe the material and structural-texture features of sediments and sedimentary rocks; - classify and diagnose sedimentary rocks of various genesis; - use the crystal-optical method for the study of sedimentary rocks, as one of the leading methods; 3) own skills: - the use of the granulometric method for the study of sedimentary rocks for the nomenclature and genetic interpretation of the conditions of their formation; - analysis of landscape facies of sediment formation in the general genesis of rocks, using their structural and texture features and material composition
Form of final control	Written exam - 120 min.
Conditions for obtaining loans	- Attending a lecture;
Module duration	- Fulfillment of assignments for laboratory (practical) work and on the topics of SIWT.
Literature	- Exam
Update date	1 semester
Module name and code	**Module.PET406 Drilling of the wells**
Responsible for the module	Kgmn Kasenov A.K.
Module type	Basic, required module
Module level	BA
Number of hours per week	3
Amount of credits	5 (5 ECTS)
Form of study	full-time
Semester	5

Number of students	120
Module Prerequisites	General geology
Module content	EMCD PET406 Drilling of the wells Lecture (30): The discipline "Drilling of wells" plays an important role in the formation of specialists who will be engaged in prospecting and exploration of mineral deposits for oil, gas, fresh and mineral waters, as well as solid minerals. Knowledge of this discipline allows you to correctly determine the physico-mechanical properties of rocks, choose the most rational rock-destroying tools (bits, drill bits) and technical means for coring from wells, analyze phenomena occurring during the formation of a well, predict the performance of bits and drill bits.
Learning Outcomes	Student:1) know: - basic terms and definitions, well design, well classifications; - history, problems and prospects of development of well drilling technology; - technological processes of the production process of well construction; - methodology for designing the well structure, calculating casing strings and plugging the main technological processes. 2) be able to: - apply methods for modeling technological processes of drilling wells; - calculation of the well construction; - to develop the technology of drilling wells; 3) possess skills: - methods for constructing simple mathematical models of typical professional problems; - mathematical methods for solving natural science problems; - prepare and execute scientific, technical and service documentation.
Form of final control	Written exam - 120 min.
Conditions for obtaining loans	- Attending a lecture;
Module duration	- Fulfillment of assignments for laboratory (practical) work and on the topics of SIWT.
Literature	- Exam
Update date	1 semester
Module name and code	**Module.GE0411 Geophysical methods of search and exploration**
Responsible for the module	Dr. Istekova S.A.
Module type	Basic, required module
Module level	BA
Number of hours per week	3
Amount of credits	5 (5 ECTS)
Form of study	full-time
Semester	5
Number of students	120
Module Prerequisites	General geology
Module content	EMCD GE0411 Geophysical methods of search and exploration Physical and geological foundations, methods and techniques of work, processing and interpretation of the results of field, geophysical methods (electrical, magnetic, gravity, seismic, radiometry and nuclear geophysics) are described. The physical properties of rocks, and the nature of the associated physical fields are considered. The principles of operation and the device of geophysical equipment, techniques for performing field measurements and processing the data obtained are described, the scope of application is indicated. Field geophysical measuring instruments require students to have knowledge of electrical engineering, electronic measurement systems. According to the volume of collected field geophysical data, their processing and interpretation requires the use of computer technology.
Learning Outcomes	Student:As a result of mastering the discipline, students should 1) know: - modern ideas about the geological nature of geophysical anomalies; - methods of field geophysical work used in the search for mineral deposits; - main methods of processing and interpretation of the obtained geophysical materials; fundamentals of forecasting oil and gas potential from geophysical data; 2) be able to: - formulate tasks and justify the formulation of various types of field geophysical

<table>
<tr><td></td><td>research;
- process, analyze and systematize field geophysical information using modern methods of its automated collection, storage and processing;
- use geophysical data to make a forecast for the area under study;
- 3) possess skills:
- methods of quantitative and qualitative analysis of geophysical fields;
- skills for critical evaluation of scientific and technical information.</td></tr>
<tr><td>Form of final control</td><td>Written exam - 120 min.</td></tr>
<tr><td>Conditions for obtaining loans</td><td>- Attending a lecture;</td></tr>
<tr><td>Module duration</td><td>- Fulfillment of assignments for laboratory (practical) work and on the topics of SIWT.</td></tr>
<tr><td>Literature</td><td>- Exam</td></tr>
<tr><td>Update date</td><td>1 semester</td></tr>
<tr><td>Module name and code</td><td>Module.GE0438 Geology of mineral deposits</td></tr>
<tr><td>Responsible for the module</td><td>Doctor Baibatsha A.B.</td></tr>
<tr><td>Module type</td><td>Profile, mandatory module</td></tr>
<tr><td>Module level</td><td>BA</td></tr>
<tr><td>Number of hours per week</td><td>3</td></tr>
<tr><td>Amount of credits</td><td>5 (5 ECTS)</td></tr>
<tr><td>Form of study</td><td>full-time</td></tr>
<tr><td>Semester</td><td>5</td></tr>
<tr><td>Number of students</td><td>120</td></tr>
<tr><td>Module Prerequisites</td><td>General geology</td></tr>
<tr><td>Module content</td><td>EMCD GE0438 Geology of mineral deposits
Study of the geology of mineral deposits; conditions for the formation of endogenous, exogenous and metamorphogenic deposits; geological and physic-chemical processes of ore formation; geological structure of deposits, conditions of occurrence and morphology of ore bodies; mineral composition of ores, textures and structures of ores of endogenous, exogenous and metamorphogenic deposits; industrial-genetic types of mineral deposits and patterns of their location for geological forecasting and determining a rational set of methods for prospecting and exploration of deposits.</td></tr>
<tr><td>Learning Outcomes</td><td>Student:1) know: geological, physical and chemical conditions for the formation of various genetic types of mineral deposits, their relationship to certain structural and material complexes of rocks, the mineral composition of ores and classic examples of deposits.
2) be able to: distinguish genetic groups and classes of mineral deposits based on available geological and other indirect features.
3) possess skills: use available samples of ores and host rocks to determine the genetic type of mineral deposits.</td></tr>
<tr><td>Form of final control</td><td>Written exam - 120 min.</td></tr>
<tr><td>Conditions for obtaining loans</td><td>- Attending a lecture;</td></tr>
<tr><td>Module duration</td><td>- Fulfillment of assignments for laboratory (practical) work and on the topics of SIWT.</td></tr>
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<table>
<tr><th>Базовая литература</th><th>Дополнительная литература</th></tr>
<tr><td>[1] Абдулин А.А. Геология и минеральные ресурсы Казахстана. Алматы: Ғылым. 1994.</td><td>[4] Сатпаев К. И. Собрание трудов [Текст] : в 8-ми т. / К. И. Сатпаев. - Алматы: Ғылым, 1998-. Т.3 : Минеральные ресурсы Казахстана: цветные металлы. - 336 с.</td></tr>
<tr><td>[2] Геологическое строение Казахстана / Бекжанов Г.Р., Кошкин В.Я., Никитченко И.И. и др. - Алматы: Академия минеральных ресурсов Республики Казахстан, 2000.</td><td>[5] Сатпаев, К. И. Избранное [Текст] : в 5-ти т. / К. И. Сатпаев. - Шымкент : [б. и.], 2007 - Т.3 : Минеральные ресурсы и геологическое изучение Казахстана. - 400 с.</td></tr>
<tr><td>[3] Полезные ископаемые Казахстана: Объяснительная записка к Карте полезных ископаемых Казахстана масштаба 1:1 000 000 /</td><td>[6] Эволюция проявления геотектонических процессов в истории Земли и их вещественно-энеетические основы/Сеитов Н., Кунаев М.С. –Алматы,</td></tr>
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<tr><td></td><td><table><tr><td>Никитченко И.И. – Кокшетау, 2002.</td><td>2011.</td></tr></table></td></tr>
<tr><td>Update date</td><td>1 semester</td></tr>
<tr><td>Module name and code</td><td>Module.GE0429 Basic search and exploration of mineral deposits</td></tr>
<tr><td>Responsible for the module</td><td>PhD Arshamov Ya.K.</td></tr>
<tr><td>Module type</td><td>Basic, required module</td></tr>
<tr><td>Module level</td><td>BA</td></tr>
<tr><td>Number of hours per week</td><td>3</td></tr>
<tr><td>Amount of credits</td><td>5 (5 ECTS)</td></tr>
<tr><td>Form of study</td><td>full-time</td></tr>
<tr><td>Semester</td><td>5</td></tr>
<tr><td>Number of students</td><td>120</td></tr>
<tr><td>Module Prerequisites</td><td>Structural geology</td></tr>
<tr><td>Module content</td><td>EMCD GE0429 Basic search and exploration of mineral deposits
Learning goals:
Sustaining human society is a complex interdisciplinary challenge. New sources of metals are required to meet society’s current and future needs and yet exploration for new mineral resources is increasingly difficult as fewer and fewer mineral deposits remain to be found exposed at the Earth's surface. Future mineral exploration will require a greater scientific understanding of the spatio-temporal distribution of mineral deposits and how they may best be found at depth in the subsurface.</td></tr>
<tr><td>Learning Outcomes</td><td>Student:1) to know: geological bases of prospecting and exploration of mineral deposits; the specifics of the exploration of different types of mineral deposits; design methods and production technologies of geological exploration works; specifics of intelligence documentation; to know types and methods of testing of mineral raw materials; basic methods of calculating the reserves of useful fossil fuels; methods of organization, management of the enterprise; the state of the mineral base of the country and the prospects for its development.
2) be able to: correctly select and justify the methodology of geological exploration work in connection with geological, mining and geographical and economic features of the object of research; to conduct geological and economic evaluation of sites at different stages of geological exploration work; read graphs, diagrams, maps, diagrams, profile cuts, horizontal plans, characterizing geological structures of sites; to conduct the calculation of reserves (resources) and technical and economic analysis of geological exploration and prospecting processes.
3) master the skills: justification of methods of conducting geological exploration work; on the basis of the density of the intelligence network, the selection of rational methods of testing, the preparation of outgoing data for the calculation of stocks and the calculation of stocks by basic methods.</td></tr>
<tr><td>Form of final control</td><td>Written exam - 120 min.</td></tr>
<tr><td>Conditions for obtaining loans</td><td>- Attending a lecture;</td></tr>
<tr><td>Module duration</td><td>- Fulfillment of assignments for laboratory (practical) work and on the topics of SIWT.</td></tr>
<tr><td>Literature</td><td><table><tr><th>Базовая литература</th><th>Дополнительная литература</th></tr><tr><td>[1] Авдонин В.В. Поиски и разведка месторождений полезных ископаемых.М.: Академический проект, Фонд Мир, 2007</td><td>[4] Аристов В.В. и др. Поиски и разведки месторож ископаемых. Лабораторный практикум. – М.: Недра,</td></tr><tr><td>[2] . Каждан А.Б. Поиски и разведка место-рождений полезных ископаемых. производст-во геологоразведочных работ. – М.: Недра,</td><td>[5] Волков В.Н. Геологическая документация поисково-разведочных выработок. С.Петербург, 2</td></tr><tr><td>[3] Погребицкий Е.О., Парадеев С.В., Поротов Г.С. и др. Поиски и разведки месторождений полезных ископаемых. – М.: Недра, 1977.</td><td>[6] Инструкция о проведении геологоразведочных р (твердые полезные ископаемые). – Кокшетау, 200</td></tr></table></td></tr>
<tr><td>Update date</td><td>1 semester</td></tr>
<tr><td>Module name and code</td><td>Module.. GEO428 Mathematical Methods in Geology</td></tr>
<tr><td>Responsible for the module</td><td>PhD Ensepbaev T.A.</td></tr>
</table>

Module type	Basic, required module
Module level	BA
Number of hours per week	3
Amount of credits	5 (5 ECTS)
Form of study	full-time
Semester	5
Number of students	120
Module Prerequisites	Mathematics, ICT
Module content	EMCD GEO428 Mathematical Methods in Geology The introduction of mathematics into the practice of geological work is subordinated to four main interrelated areas: 1) processing of numerical results of observations (methods of probability theory and mathematical statistics, mathematical analysis, game theory, geometric methods, etc.); 2) the study of qualitative characteristics (mathematical logic, applied cybernetics); 3) reconstruction of geological processes and forecast (modeling using various mathematical tools); 4) optimization of the processes of collecting, storing, searching and processing geological information (information theory and technical documentary).
Learning Outcomes	Student:have an idea: - on the principles and methods of mathematical modeling in geology; know: - basic mathematical methods used in geology for statistical analysis and modeling of geological objects; - main hypotheses and criteria for their verification; - basic principles of mathematical modeling of geological objects and processes; - types of mathematical models and features of their application in various fields of geology; be able to: - to formulate geological problems in a form convenient for their solution using mathematical methods and modern computer technology; - statistically evaluate geological objects; - to choose the optimal schemes for processing analytical and graphic data using mathematical methods; - choose mathematical models that most fully reflect the properties of geological objects and the type of problem being solved
Form of final control	Written exam - 120 min.
Conditions for obtaining loans	- Attending a lecture;
Module duration	- Fulfillment of assignments for laboratory (practical) work and on the topics of SIWT.
Literature	**Базовая литература** / **Дополнительная литература** [1] Каждан А.Б., Гуськов О.И. Математические методы в геологии. Учебник для вузов. – М.: Недра, 1990. – 252 с. / [4] Грановская Н.В., Наставкин А.В. С лабораторных и самостоятельных занятий «Матема- тические методы моделирования студентов геологических специально географического фа- культета. – Ростов н/До [2] Мартьянова А.Е. Математические методы моделирования в гео- логии. Часть I: Учебное пособие для студентов очной и заочной форм обучения специальности 130304.65 «Геология нефти и га- за». – Астрахань: АГТУ, 2008. 200 с. / [5] Лялин А.В. Сборник задач для л самостоятельных занятий по дисциплине методы моделирования в геологии». геологических специальностей геолого-гео культета. – Ставрополь: 2006. – 49 с. [3] Мартьянова А.Е. Математические методы моделирования в гео- логии. Часть II: Учебное пособие для студентов очной и заочной форм обучения специальности 130304.65 «Геология нефти и га- за». – Астрахань: АГТУ, 2008. 180 с. / [
Update date	1 semester
Module name and code	**Module.GEO443 Fundamentals of subsoil use**
Responsible for the module	PhD Mustapaeva S.N.
Module type	profile, mandatory module

Module level	BA
Number of hours per week	3
Amount of credits	5 (5 ECTS)
Form of study	full-time
Semester	5
Number of students	120
Module Prerequisites	General and Historical geology
Module content	EMCD GEO443 Fundamentals of subsoil use The legislative framework for subsoil use in Kazakhstan. Ownership of the subsoil, minerals and minerals. Competence of executive bodies in the field of subsoil use. Subsoil use right: types and subjects of law, its emergence, provision and transfer. The procedure for granting the right to conduct exploration, mining, combined exploration and mining. Types, terms, conclusion and execution of the contract. Work program as an integral part of the contract. Protection of the subsoil and the environment. Ecological basis for subsoil use operations. Security of the population and staff. State Subsoil Fund Rights and obligations of the subsoil user. Ownership of subsoil information. Peculiarities of legal relations during exploration and production of oil, groundwater, precious metals and precious stones, and other minerals. Subsoil users taxation
Learning Outcomes	Student:1) know: main goals, objectives and principles of subsoil use in the Republic of Kazakhstan. Know all types of subsurface use operations, sources of their financing, and the system of taxation of subsurface users. Know the contents of the state subsoil Fund of the Republic of Kazakhstan. 2) be able to: draw up the necessary documents for obtaining the subsoil use right and the draft of the subsoil use Contract. 3) possess skills: conducting monitoring of subsurface use operations.
Form of final control	Written exam - 120 min.
Conditions for obtaining loans	- Attending a lecture;
Module duration	- Fulfillment of assignments for laboratory (practical) work and on the topics of SIWT.
Literature	**Базовая литература** / **Дополнительная литература** 1. Кодекс Республики Казахстан «О недрах и недропользовании» (2017 г.) / 4. Учебник (рукопись) «Основы недропол Асанов, А.А. Жунусов. Астана, 2018 2. Закон Республики Казахстан «О недрах и недропользовании», 2010 года с изменениями и дополнениями, внесенными на декабрь 2017года. / 5. Концепция развития геологической отр Казахстан до 2030года 3. Казахстанский кодекс по публичной отчетности о результатах геологоразведочных работ, минеральных ресурсах и минеральных запасах КОДЕКС KAZRC / 6. Стратегия Казахстан—2050, план нации (2 7. Периодическая литература, посвященная вопросам недропользования
Update date	1 semester
Module name and code	**Module.GE0430 Hydrogeology with the basics of engineering geology**
Responsible for the module	Auelhan E. PhD
Module type	profile, mandatory module
Module level	BA
Number of hours per week	2
Amount of credits	4 (4 ECTS)
Form of study	full-time
Semester	6
Number of students	120
Module Prerequisites	General geology
Module content	EMCD GE0430 Hydrogeology with the basics of engineering geology The science of groundwater as a relatively independent geological system, the

	underground hydrosphere, which is part of a higher order system - the hydrosphere; about hydrogeological processes as a manifestation of the interaction and unity of all waters and geospheres of the Earth; about the geological environment as a system of interaction between the lithosphere and the technosphere, lithosphere, atmosphere, hydro, biosphere, and about engineering-geological processes - as an expression of the named interaction; on the main problems of hydrogeology and engineering geology and their relationship with the system of geological knowledge.
Learning Outcomes	Student:1) know: - characteristics of underground waters, their properties and their relationship to each other, - connection to the atmosphere and underground hydrosphere, - area of nutrition and their distribution; - the purpose of their application. 2) be able to: - conduct searches, exploration and evaluation of operational reserves of underground water for the purposes of water supply of settlements, agricultural and industrial enterprises; 3) possess skills: providing a scientific basis for long-term planning of exploration, hydrogeological and other works.
Form of final control	Written exam - 120 min.
Conditions for obtaining loans	- Attending a lecture;
Module duration	- Fulfillment of assignments for laboratory (practical) work and on the topics of SIWT.
Literature	- Exam
Update date	1 semester
Module name and code	**Module.GEO445 Oil and gas Geology**
Responsible for the module	PhD Ensepbaev T.A.
Module type	Profile, mandatory module
Module level	BA
Number of hours per week	3
Amount of credits	5 (5 ECTS)
Form of study	full-time
Semester	5
Number of students	120
Module Prerequisites	General and Historical Geology
Module content	EMCD GEO445 Oil and gas Geology The geology of oil and gas studies the origin, conditions of occurrence and the geological history of combustible minerals. Gives knowledge about reservoir rocks and tires, natural reservoirs for oil, gas and water, traps, deposits and oil and gas fields. The conditions of oil and gas formation and oil and gas accumulation, migration, concentration and preservation of hydrocarbons in traps, as well as geological and geophysical methods of searching for oil and gas are considered. On this basis, a scientific base is being developed for prospecting, exploration and development of oil and gas accumulations.
Learning Outcomes	Student:1) know: the main stages of geological development of oil and gas provinces, the main similarities and differences of the main structural and tectonic zones. 2) be able to: read the legend of geological and tectonic maps of different scales, identify areas of localization of oil and gas areas; perform geometrization of oil and gas deposits; 3) possess skills: read the legend of geological and tectonic maps of different scales, identify areas of localization of oil and gas areas; perform geometrization of oil and gas deposits
Form of final control	Written exam - 120 min.
Conditions for obtaining loans	- Attending a lecture;
Module duration	- Fulfillment of assignments for laboratory (practical) work and on the topics of SIWT.
Literature	- Exam
Update date	1 semester