MATRIX of existing Master course

(GAVAR STATE UNIVERSITY)

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| *Name of compulsory chair* | *Year* | *Semester* | *Number of ECTS* | *Number of elective chairs* | *List of available elective chairs* | *short description* | *relation between the contents and RETHINK’s theme* |
| Name of the Master course: Environment Protection and Use of Nature | | | | | | | |
| Methodology of Scientific Research | 1st year | 1 semester | 3 |  |  | The aim of the course is to introduce the students to the basic concepts of the philosophy of science and the correlation between science and philosophy, the origin and development of the main stages of science. The students will gain knowledge on the basic levels and methods of scientific knowledge. Special attention is paid to the development of modern methodological concepts of science. | Compatible |
| Contemporary Issues of Ecology | 1st year | 1 semester | 3 |  |  | The aim of the session is to introduce the students with the modern environmental problems, state of natural ecosystems and the strict conceptual connection of surrounding environment, as well as the global issues and main contradictions of ecological development, to help orient students to correct problems caused by ecological solutions. | Compatible |
| Anthropogenic Sources of Air Pollution | 1st year | 1 semester | 3 |  |  | The aim of the course is to acquaint the students with the most significant sources of environmental pollution and to show what kind of materials are exausted in the atmosphere by each sphere and what are their allowable quantities. The orientation of the course is the explanation of the physico-chemical properties of contaminated materials and the impact of non-allowable amounts on global climate change. | Compatible |
| Foreign Language (Major in English) | 1st year | 1 semester | 3 |  |  | The purpose of this session is more complex and complete analysis of the performance of the English texts, the acquisition of rather deep knowledge on grammar and pronunciation. The emphasis is placed on understanding the nature of the phonetic and grammatical units, and it occurs to strengthen the professional terminology in the analysis and interpretation of texts. | Compatible |
| Genetic Engineering | 1st year | 1 semester | 3 |  |  | The main objective of Genetic Engineering course is to develop proper knowledge about the main methods of recombinant DNA technologies and cell engineering, as well as about the application of those methods on biotechnological purposes in different areas, generation of transgenic or genetically modified organisms, bacteria, plants, perspectives of human genetic enginnering development, bioethics and biosafety. | Compatible,  Available also in English |
| Current Problems of Organic Agriculture | 1st year | 1 semester | 3 |  |  | The course aims to develop proper professional understanding about contemporary problems of organic agriculture caused by the use of bacteria, development of technologies applying bio-incentives based on bacteria, bio-fertilizers and pest control biological methods, land restoration and bioremediation, plant-microbe-soil coexistence and so on. | Compatible,  Available also in English |
| The Environment and Human Inheritance | 1st year | 1 semester | 3 |  |  | The aim of the course is to study the environment of human reproduction and development, give the classification of the factors of the environment affecting human heredity as well as the description of consequences of the factors influence on a human being. | Compatible,  Available also in English |
| Current Problems of Industrial Waste Prevention | 1st year | 1 semester | 3 |  |  | The aim of the course is to explain and show the students the physical and chemical methods of water purification as well as the purification of components exhausted by the industrial enterprises. The allowable limits of certain toxic components as compared with the waste toxic materials are shown in the course. | Compatible |
| Information Technologies in Professional Research | 1st year | 1 semester | 3 |  |  | The aim of the course is to acquaint students with the basic functions of modern information systems and information technology, as well as discuss and teach their application features in the fields of their professional activity. The course comprises materials on the basic structural and functional features of information systems and information technologies. The main attention is paid to the teaching of information technologies of the office automation. Practical work on the main information technologies is provided. | Compatible |
| Seminars on Research | 1st year | 1 semester | 3 |  |  | Master’s Degree students are provided with research methodological support during the academic supervisor’s meeting. They obtain a certain skill to present reports, to conduct scientific debate, make speeches. | Compatible |
| Total |  |  | 30 |  |  |  |  |
| The Basics of Efficient Usage and Preservation of Land Resources | 1st year | 2 semester | 3 |  |  | The aim of the course is to give students perceptions on contemporary issues of land use, in land-use process the anthropogenic influence on the properties and characteristics of soil change, deepening erosion processes, chemical and radioactive contamination as a result of land degradation, which has become a global environmental problem. | Compatible,  Available also in English |
| Applied Ecology | 1st year | 2 semester | 3 |  |  | This course studies the scientific basis of environmental protection. It provides guidance on protection methods and the rational use of natural resources and studies the mechanisms of environmental regulation of the economic activity. | Compatible |
| Ecological Mapping | 1st year | 2 semester | 0 |  |  | The main objective of the course is to acquaint students with theoretical basics of Ecological Mapping, Sources of Ecological Maps, methodology, contents of Ecological Maps and methods of making them, fields of map application. | Compatible |
| Anthropogenic Influence Monitoring on Environment | 1st year | 2 semester | 3 | V |  | The course aims to interpret the control methods applied in the environmental monitoring system. The course provides objective data on the real condition of natural habitats, the anthroprogenic factors impact on them and future predictions, justifies the necessity for the organized service and unique systems to control and assess the natural habitat condition in the given intensive anthropogenic impact areas, as well as global scales. | Compatible |
| Ecological Regularities of Evolution | 1st year | 2 semester | 3 |  |  | The aim of the course is to explain the environmental phenomena and their impact on organisms during the evolution development. The course describes the creation processes of new types, biochemical changes in cells in different ecological conditions of the environment, morpho-physiological and evolutionary changes of the organisms. | Compatible |
| Social Ecology and Culture | 1st year | 2 semester | 3 |  |  | The subject aims to acquaint te higher education institution students with socio-ecological, cultural issues and problems arising from the humanity and its social environment. | Compatible |
| Basics of Environmental Epidemiology | 1st year | 2 semester | 6 |  |  | The main objective of the subject is to provide the Master students the recent data on the prevalence of deseases resulting social problems, their reasons, molecular mechanisms of deseases, their diagnosis and treatment problems, as well as issues of ecological factors impact and pathological processes development. | Compatible |
| Biodiversity Protection Issues  (by the example of Sevan basin) | 1st year | 2 semester | 3 |  |  | The main objective of the course is to acquaint students with peculiarities of management and sustainable use of biodiversity, its conservation, reproduction and development. Having a thorough understanding of the course on biodiversity is of vital importance for biodiversity conservation and sustainable use to conduct its scientific studies properly. | Compatible |
| Seminars on Research | 1st year | 2 semester | 3 |  |  | Master’s Degree students are provided with research methodological support during the academic supervisor’s meeting. They obtain a certain skill to present reports, to conduct scientific debate, make speeches. | Compatible |
| Research Work | 1st year | 2 semester | 3 |  |  | During the research work the thesis proposal preparation by the master student agreed with his/her supervisor is made. After the approvement of the proposal the scientific research is made (collecting materials, analyzing and systematizing them, theoretical summaries¤. | Compatible |
| Total |  |  | 30 | 1 |  |  |  |
| Technogenic Systems and Ecological Risk | 2nd year | 1 semester | 3 |  |  | The course describes the technical systems created by people, which are harmful for the environment and the possibility of being hurt by any danger is riskful for a man. The purpose of the study is to view the risk assessment system of technogenic factors impact on human beings, planning and analysis of biotechnical system performance from the perspective of anthropogenic pollution of the environment, ways of preventing disastrous outcomes of the ecological crisis. | Compatible |
| Contemporary Issues of Agroecology | 2nd year | 1 semester | 3 |  |  | Agroecology is the main direction in Applied Ecology the main goal of which is to give knowledge to students on basic principles of Agroecology and usage of chemistry in the process of land cultivation, irrigation and drainage, plant diseases and pests to combat environmental issues. | Compatible,  Available also in English |
| Problems of Climate Change and Desertification | 2nd year | 1 semester | 3 |  |  | The course aims to develop a good knowledge of natural and anthrorpogenic changes taking place in the geographical membrane and their impact on climate changes. | Compatible |
| Ecological Aspects of Rational Use of Nature | 2nd year | 1 semester | 3 | V |  | The aim of the subject is to introduce students the basics of natural systems’ formation and the activity of the use of nature, human being-nature-society relations, ecological issues, main directions of rational use. | Compatible,  Available also in English |
| Relations between Society and Nature in the History of Civilization | 2nd year | 1 semester | 3 | V |  | The course aims to communicate knowledge of the interactions between the nature and society in different ages of society development – from the Stone Age to the present age of industrial development. Different forms of human activities impact on the nature are described depending on the nature of use and type of preparing working instruments. | Compatible |
| Ecological Microbiology | 2nd year | 1 semester | 3 |  |  | The course aims to develop a proper expert insight of the contemporary problems in Ecological Microbiology, the development of bateria in natural habitat, adaptability of bacteria to the extremal conditions, interactions between bacteria and organisms existing in different levels of live materials and abiotic environmental factors development, molecular ecology methods studying bacteria biodiversity in natural econiches. | Compatible,  Available also in English |
| Modern Aspects of Ferment Treatment | 2nd year | 1 semester | 3 | V |  | The course describes the use of the achievements of biological and medical chemistry in modern medicine and medical practice. It describes the therapeutic activity of the cells as ferments actively participating in various biochemical systems in tհe case of pathology. This course introduces the mechanisms and the use methods of some widely used ferments’ influence, ferments, which are used for the treatment of various diseases. | Compatible |
| Seminars on Research | 2nd year | 1 semester | 3 |  |  | Master’s Degree students are provided with research methodological support during the academic supervisor’s meeting. They obtain a certain skill to present reports, to conduct scientific debate, make speeches. | Compatible |
| Research Work | 2nd year | 1 semester | 6 |  |  | During the research work the thesis proposal preparation by the master student agreed with his/her supervisor is made. After the approvement of the proposal the scientific research is made (collecting materials, analyzing and systematizing them, theoretical summaries. | Compatible |
| Total |  |  | 30 | 3 |  |  |  |
| Seminars on Research | 2nd year | 2 semester | 3 |  |  | Aim and Direction:  Master’s Degree students are provided with research methodological support during the academic supervisor’s meeting. They obtain a certain skill to present reports, to conduct scientific debate, make speeches.  Educational outcomes:  At the successful completion of the course the student should:  Know-about the ecological main principles and the use opportunities of their practical results.  Be able to - apply his/her theoretical knowledge in various ecological fields.  Possess- main knowledge and working principles of modern biology. | Compatible |
| Research Work | 2nd year | 2 semester | 9 |  |  | Aim and Direction:  During the research work the thesis proposal preparation by the master student agreed with his/her supervisor is made. After the approvement of the proposal the scientific research is made (collecting materials, analyzing and systematizing them, theoretical summaries.  Educational outcomes:  At the successful completion of the course the student should:  Know-theoretical issues and practical use of the main professional subjects.  Be able to – use obtained theoretical knowledge to solve subject-matter problems during research work.  Possess - methods of collecting and analyzing some materials needed for Master Thesis, abilities to find a problem and solve it independently, use literature sources properly, present accomplished work. | Compatible |
| Research and Pedagogical Internship | 2nd year | 2 semester | 3 |  |  | Aim and Direction:  The aim of pedagogical internship is to form the ability to plan, implement, evaluate the educational process in higer education institutions and provide the students with skills of implementing scientific pedagogical research.  Educational outcomes:  At the successful completion of the course the student should:  Know-the content and structure of the documents of HEIs, conditions of educational methods and ways’ application, the content of course programme, types, peculiarities and structure of the course, the methodology of the course preparation and implementation, the planning principles of the lecturer’s educational work, the levels of developing the student’s learning independence and contact ways with the student.  Be able to - keep in touch with students constantly and follow their work, implement diagnostic and monitoring work, analyze the curriculum, subject programme, textbook, be able to realize educational monitoring, foreseen the results of educational process, conduct the course process and discussions, to observe and evaluate implemented work, work cooperating with colleagues.  Possess - the skills of planning, analyzing their own pedagogical and scientific pedagogical activity, following and analyzing the lecturer’s educational activity, recording educational process, analyzing them separately, implementing methodological and scientific methodological studies, analyzing their own pedagogical activity, evaluating and appreciating. | Compatible |
| Research Internship | 2nd year | 2 semester | 3 |  |  | Aim and Direction:  Research internship’s aim is to expand and deepen professional knowledge of master students, to fix and systematize this knowledge, to develop abilities to make their own research, studies and experiments.  Educational Outcomes:  At the successful completion of the course the student should:  Know - Main provisions of the methodology of research work and the abilities to use them in the Master Thesis preparation process and to analyze the research results. He/she should know the main principles of modern ecology, properties of making weight, quantity and quality analysis.  Be able to - prepare and make research work independently, study literature, apply information and communication ways and technology in the field of ecology, solve the problems found during the research, apply the gained theoretical knowledge during the practical work.  Possess-the abilities to choose research methods, to adjust them to the goals and problems of the research, to collect scientific information, analyze, systematize and develop it, to possess the skills of the use of modern methods, abilities to present research related materials in the form of reports, publications, presentations, to possess the abilities to present the prepared research work. | Compatible |
| Master’s Thesis Defense | 2nd year | 2 semester | 12 |  |  | Educational Outcomes:  At the successful completion of the course the student should:  Know- the requirements of Master's Thesis and the skills to fulfill them, methods of analyzing and introducing the collected materials.  Be able to - continue the work of the master's thesis topic.  Possess - thesis-topic related knowledge of other fields. | Compatible |
| Total |  |  | 30 |  |  |  |  |
| Total for Master course: | 2 years | 4 semesters | 120 |  |  |  |  |