Course description

Tempus project EcoBRU

Course name
Implementation of practice focused ecological education taking into consideration natural and anthropogenous impacts on the territory of city type settlements (based on the example of Novosibirsk Region).

The name of the course section (if applicable)

Expected lecturer qualifications
Teachers of Geography, Biology, Chemistry, Fundamentals of Health Safety, Science, competences in teaching subjects

Lecturer	Educational institution
Course Director: professor Lyudmila K. Trubina **Other team members:** associate professor Dmitrii S. Dubovik, associate professor Eugenia I. Baranova	Federal State Budget Educational Institution of Higher Education "Siberian State University of Geosystems and Technologies"

Deficit definition

Needs of taking into consideration natural and anthropogenous impacts on the territory of city type settlements (Novosibirsk Region) when developing ecological educational technologies due to actual problems of ecological safety of Novosibirsk Region.

Required space in the training	Course level	Course type
Obtaining professional competences	basic	distant

Target group	Duration	Languages
Teachers of secondary and high schools	30 hours	Russian

Conditions	
Conditions: Technic support and software for distance education	**Other requirements (if applicable)**

Ladder Points (1 un.=30 h)	Total hours	Class work	Independent work (h)
1.0	30		30

Topicality for EcoBRU**

General environmental education: dissemination of knowledge about functioning of regional level ecosystems taking into account environmental conditions and specifics of anthropogenous impacts; dissemination of knowledge about ways of keeping stability of natural ecosystems.

Course objectives			
To broaden knowledge of natural and anthropogenous factors influencing the territory of city type settlements of (CTS) as specific environment for ecological education of school pupils, about current legislation and ecological standards in the field of environmental protection of the CTS territory; to apply training methods based on GIS technologies for the realization of ecological education.			
	Educational objectives of the course (see list of verbs used for educational objectives formulating)	**Methods and forms of educational process organization**	**Monitoring forms and evaluation**
Special knowledge	To identify specifics of the territory of the particular CTS	Self-study of theoretical material, thematic video lecture, off-line consultations of the teacher	Over-all ranking (testing)
Methodological and didactic competence	To apply various methods and forms of training to understand and solve environmental problems at global, regional and local levels	The course work	Over-all ranking (estimation of obtained results of the course work, following control points)
Interdisciplinary competence, social competence	To develop educational ecological programs for school pupils of rural settlements (regional system of education)	Application of geoinformation technologies for modelling of local environmental problems	Over-all ranking (presentation of the scenario of lessons on local ecological problems)

Objectives of the course section 1 "Natural and resource capacity of the territory and anthropogenous impacts"			
Broadening knowledge about natural and anthropogenous factors CTS area as a specific environment of ecological education and training of pupils.			
	Educational objectives of the course (see list of verbs used for educational objectives formulating)	**Methods and forms of educational process organization**	**Monitoring forms and evaluation**
Special knowledge	Specifics of the natural and anthropogenous factors influencing the state of the territory of rural settlements	Self-study of theoretical material, video lectures on chosen topics, off-line consultations of the teacher	Over-all ranking (testing)
Methodological and didactic competence	To apply training methods focused on practice to demonstrate the environmental problems of the CTS' territory	The course work	Over-all ranking (estimation of obtained results of the course work, following control points)

Interdisciplinary competence, social competence	To develop educational ecological programs taking into account specifics of natural conditions and anthropogenous impacts on the CTS' territory	Application of geoinformation technologies for modelling of local environmental problems	Over-all ranking (presentation of the scenario of lessons on local ecological problems)

Themes / Content	Class work	Hours and tasks for independent work
Historical and cultural features of CTS' formation		Short historical overview of the development a CTS' territory (2 hours)
Role of features of relief, rivers and other water objects on formation of a zone of a settlement. Fauna and flora. Recreation zones.		General characteristic of a CTS' territory on climatic features (2 hours)
Ecological situation in the place of residence. Sources of environmental pollution for a particular CTS: natural processes and economic human activity, recycling		Sources of the environmental pollution and their impact on the CTS' territory. (4 hours)
Techniques of a geoecological assessment of a CTS' territory with use of GIS-technologies		Review of techniques used for geoecological assessment of territories. Geoecological assessment of the CTS' territory. (7 hours)

Objectives of the course section 2 "Approaches used for solution of environmental problems"			
To broaden knowledge about the current legislation and ecological standards in the field of environmental protection in relation to a settlement type, to apply the knowledge when organizing pupils' research activities aimed at local ecological situation.			
	Educational objectives of the course (see list of verbs used for educational objectives formulating)	**Methods and forms of educational process organization**	**Monitoring forms and evaluation**
Special knowledge	To be aware of existing standards for quality of environment and standards of a limit impact on the environment.	Self-study of theoretical material.	Over-all ranking (testing)
Methodological and didactic competence	To apply various methods and forms of education aimed at formation of ecological competence of pupils and ecologically safe behaviour in the CTS.	Control tasks for checking of theoretical material (with the open version of the answer)	Over-all ranking (based on the results of control tasks)

Interdisciplinary competence, social competence	To form comprehensive understanding of impacts on the environment caused by each person's activities	Internet-conference	Over-all ranking (estimation of the given presentation)

Themes / Content	Class work	Hours and tasks for independent work
Environmental policy and ecological goals in a person, enterprise, or state's activities		Studying of articles of basic laws in the field of environmental protection with the help of Internet resources (2 hours)
General understanding of technogenic pollution of environment. Types of standards (maximum concentration limit, maximum level limit, and so forth). Pollution units of measure. Background condition of environment		Studying of theoretical material (electronic manuals) (2 hours)
Control and protection of atmospheric air and water resources.		Studying of theoretical material (electronic manuals) (2 hours)
Types of production wastes and consumption. Utilization and recycling of wastes.		Studying of theoretical material (electronic manuals) (2 hours)
Research techniques of a local ecological situation taking into consideration the current legislation and ecological standards in the field of environment protection with use of GIS technologies		Analysis of problem and ecological situations (7 hours)

Forms of control and assessment			
Control form	**Percentage ratio**	**Dates**	**Criteria of assessment**
Over-all ranking	80		
Course work (project)	20		

Terms and conditions of access to monitoring and assessment of knowledge (exam)
Carrying out of control tasks and course work (project)

Document type certifying the successful course visiting (Certificate?)
Certificate

Organizational guidelines
Place: Siberian State University of Geosystems and Technologies, work place of the teacher
The recommended number of participants: 10-15

Literature and educational materials				
Author	**Year of publi-shing**	**Title**	**Pages number**	**Place of publication, publisher or an online link**
Basic literature				
Shilov I.A.	2006	Ecology: textbook	512	Moscow: Yuright
Sukhorukova S.A., Dy-shluk S.S., Kreymer M.A.	2011	Mapping Environ-mental Management: manual, recommended by EMA	155	Novosibirsk: SSGA
Additional resources				
Grigoryeva I. Y.	2013	Basics of Environ-mental Management: manual	336	Moscow: NIZ In-fra-M, 2013. http://znanium.com/bookread.php?book=341082

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Igor A. Musikhin

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