

Course description

TEMPUS project EcoBRU

Course name
Impact assessment industrial projects on the environment (EIA) in the training courses of technical specialists (for teachers of technical schools and colleges)

Expected lecturer qualifications
<p>(necessary experience, expertise, methodological knowledge, technology, etc.)</p> <p>Teaching experience subjects at least one year (life safety, construction, mining, metallurgy, metal working, basic energy). Computer skills (user level).</p> <p>Knowledge of methods of general education, conducting lectures, interactive sessions, workshops.</p> <p>Possession of pedagogical and information technologies.</p>

Lecturer	Educational Institution
<p>Course Director: Fadeeva Natalia Vladimirovna, c.t.s. associate professor of «Minerals enrichment department»</p> <p>Other team members: Orekhova Natalya Nikolaevna , d.t.s. associate professor of «Minerals enrichment department»</p> <p>Gorlova Olga Evgenevna, c.t.s. associate professor of «Minerals enrichment department»</p>	Nosov Magnitogorsk State Technical University

Deficit definition
Necessity and purpose of the EIA of economic activity; objects EIA; standards of environmental quality acceptable exposure, using natural resources; EIA principles; EIA methods; types and forms of influence of industrial objects on environment in a particular region in view of the specifics of production.

Required space in the training	Course level	Course type
The course can be used a standalone module or after completion of the program course of training of teachers colleges / technical schools.	For the development of the course the students desirable to have knowledge basics of ecology, mining, metallurgy, energy	Professional development. Course format in Moodle – «Structure».

Target group	Duration	Languages
College teachers	36 hours	Russian

Conditions	
<p>Conditions: Computer room</p> <p>Ability to organize a videoconference</p>	<p>Other requirements (if applicable)</p> <p>The basic literature existence, its availability in electronic libraries.</p>

Ladderpoints (1 un.=36 h)	Total Hours	Class work	Independent work (h)
1	36	26	10

Topicality for EcoBRU**

The specific link with the professional activity:

It is known that in the field of ecology and protection of the environment from anthropogenic factors "prevention is better than cure" than to deal with the consequences of the impact of economic activities. Powerful preventive tool for solving geoenvironmental problems are environmental component design - ecological study of economic activity - impact assessment of projected objects on the environment and environmental examination.

Exact knowledge the conditions of professional activity in conjunction with environmental thinking in solving specific project tasks allow for resource-saving, environmentally and economically justified actions in the ordinary course of professional activity.

This course is appropriate for teaching environmental block of disciplines training for the students awareness of personal environmental responsibility for the consequences of activities undertaken or planned.

Course objectives

Improve the professional competence of teachers colleges in the EIA for the development of economic activities in the future technicians environmental responsibility. Form practice-oriented approach to environmental education in the context of professional activity Lay the foundations of knowledge in environmental impact assessment and justification of economic activity, to give an idea about the procedure and the different types of environmental impact examination. Acquire skills chain analysis "effects - changes - consequences."

Increased knowledge of teachers for better preparation of students for general and professional education, expanding outlook of students, the formation of professional competency skills, improving 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 knowledges	<p>Explore parameters for assessing the ecological risk of industrial production.</p> <p>Identify the types and effects of economic activities on the environment.</p> <p>Repeat the modern concept of interaction between society and nature.</p> <p>Represent the principles and systems of evaluation and regulation of the state of environmental components.</p>	<p>Interactive learning with a computer:</p> <p>Work with text of distance course with the creation of its own notes .</p> <p>Reading presented in a distance course scientific and journalistic articles.</p> <p>Online discussions.</p> <p>Preparing for classes in the computer lab and to the development of the material using the guidelines.</p> <p>Performing in the computer lab assignments specified in methodological recommendations with the</p>	<p>Tasks completing for the input of intermediate and final tests (Passed 60% points of the total).</p> <p>Participation in communication teacher - student, helps to clarify the understanding of the basic theoretical positions apprentice course and systematize knowledge of the controlled section of the program.</p> <p>Check the results of independent assignments. (Passed for the answer, showing not only the result, but the process achieving the result with reference to the previously</p>

course materials.

studied material).

Methodological and didactic competence

Interpret the principles of EIA.

The program lecture development on the subject includes materials about environmental impact assessment.

Explain the importance of the EIA for the decision of geoenvironmental problems.

Prepare a presentation which will be available revealing for students of the college the point environmentally

Illustrated lecture material with practical examples.

sustainable directional development in the region of 5-10 slides (on the instructions of the curator).

Compile data about influence of technical objects on environment.

Compare the technologies used in their ecological danger.

Explain and describe the foreign practice EIA.

Lead a discussion about environmental problems, environmental behavior, environmental management.

Online conference.

(Credit for active participation in the conference with a report and presentation to the developed lectures and discussions on the work of other participants).

Interdisciplinary competence, social competence

Demonstrate the capabilities of the basic sciences for solving applied problems of environmental protection

Online discussion with experts from different fields of knowledge.

Use the knowledge and skills for the organization of environmental protection in the future professional activity;

Use the conceptual apparatus and vocabulary related sciences and industries. Understanding the links between different disciplines and psychological readiness to apply knowledge of relevant disciplines in the study of others;

Demonstrate a conscious positive attitude to ecological orientation of technical activities within a particular specialty.

Themes / Content	Class work	Hours and tasks for independent work
Basic concepts The concept of interaction between society and nature. General principles of environmental protection. Ecological danger of industrial production for the environment, evaluation parameters. Objects EIA. Environmental quality standards for permissible impact, using of natural resources.	4	2
Impact assessment economic activity on the environment Principles of impact assessments economic activity on the environment. National procedure. Foreign practice.	4	1
Ecological substantiation of industrial projects Types and sphere of impact the steel industry on the environment. Types and spheres the impact of non-ferrous metals on the environment. Types and sphere of the impact of extractive industries ferrous and non-ferrous metals on the environment.	8	4
Environmental design of energy facilities Specificity of thermal power technology. Influence of thermal power plants on the environment. The specificity of the EIA.	6	2
EIA in teaching technical subjects A rough plan of lectures with elements of environmental education in the field of EIA. Development of creative potential of students on the basis of the synthesis theoretical and practical knowledge.	4	1
In Total	26	10

Forms of control and assessment			
Control form	Percentage ratio	Dates	Criteria assessment
Testing	40	Beginning, middle and end of the training	60% correct answers – credit.
Creative activity	20	The second half of training	Seminar development on the profile subject of teacher passing retraining, with the inclusion of her materials on assessment of environmental impact. Presentations preparation available reveals the essence of the ecological characteristics of specific technologies. 5-10 slides - credit.
Online conference	20	At end of the training	Active participation in an online conference with a report and presentation developed lectures, presentations, discussion of other participants - credit.

Terms and conditions of access to monitoring and assessment of knowledge (exam)
Successful development of learners of all elements of the program, performance of assessment knowledge criteria

Document type certifying the successful course viiting (Certificate?)

Certificate

Organizational guidelines**Place:**

Computer class, personal computers for students.

The recommended number of participants 10-15**Literature and educational materials**

Author	Year	Title	Pages number	Place of publication, publisher or an online link
Main literature				
Decree of President of Russian Federation		« About the State Strategy of the Russian Federation for Environmental Protection and its sustainable development »		Information, intelligence and legal systems by type consultantplus.ru
Law of Russian Federation	2002	«About environmental protection »		Information, intelligence and legal systems by type consultantplus.ru
Government of Russian Federation	2002	Environmental Doctrine of the Russian Federation		Information, intelligence and legal systems by type consultantplus.ru
K.N. Dyaconov, A.V. Doncheva	2002	Environmental design and expertise		M. : Aspect Press
Further literature				
Stepanov A.N.	1996	Geoenvironmental engineering and geo-ecological expertise		M.
Yusfin Y.S., Leontiev L.I., P.I. Chernousov	2002	Industry and the Environment: Textbook	491 c.	M. : Akadembook
Y.V.Mikhailov, V.V.Kovorov aV.N. Morozov; Ed. V. Mikhailov.	2011	Mining ecology: studies. Guide for students. institutions of higher. prof. education	336 c.	M.: Publishing center "Academy"
Sorokin N.D.	2009.	Environmental protection in the enterprise.	695 c.	M.: Publishing center "Academy"
Prozorov L.L., Malinowski Y.M.	2009	Ecological problems of development of mineral resources. Textbook.	244 c.	M.: Publisher:: Russian University friendship of peoples(RUFP)
Troubetzkoy K.N., Y.P.Galchenko, L.I. Burtsev	2003	Ecological problems of development of mineral resources in the sustainable development of nature and society	262 c.	M.:Publisher"Nauchtekhlitizdat "