

## Course description

### Tempus project EcoBRU

Course name
5 Environmental issues in the design of transport solutions

Lecturer	Educational institution
<b>Course Director:</b> Dudkin E. <b>Other team members:</b> Surovtseva O. Kolos I. Sultanov N.	PSTU

Deficit definition
Relevance of the environmental knowledges due to aggravation interrelation between society and nature be embodied in at all known sciences and school disciplines.

Required space in the training	Course level	Course type
Advanced training		MOODLE

Target group	Duration	Languages
For teachers of technical schools, colleges (and for university teachers)	72	Russian

Conditions	
<b>Conditions:</b> Internet	<b>Other requirements (if applicable) -</b>

Ladder Points (1 un.=36 h)	Total hours	MOODLE	Independent work (h)
2	72	54	18

Topicality for EcoBRU
General environmental education. Special vocational scientific education. The specific link with the professional activity.

Themes / Content	MOODLE	Hours and tasks for independent work
Environmental aspects of construction & design of transport facilities <ul style="list-style-type: none"> <li>- Environmental problems connected with the operation and construction of transport facilities</li> <li>- EIA and EIA place in the design process</li> <li>- Development of the project section "Measures for the Protection of the Environment"</li> <li>- Engineering and environmental surveys for construction. Their structure and content.</li> </ul>	<b>18</b>	<b>6</b>

Themes / Content	MOODLE	Hours and tasks for independent work
- Ecological and economic aspects of industrial enterprises management		
Environmental aspects of justification of organizational and technological solutions in the construction and reconstruction of transport facilities. - Forms and types of transport construction impact on the environment. - Normative legal documents used in the development of environmental protection measures during the construction and reconstruction of transport facilities. - The development of measures to prevent and reduce the negative impact of the planned construction activities on the environment. - Economic impact evaluation of the construction and manufacturing processes on the environment and implementation of environmental protection measures during construction.	18	6
Elimination of the negative impact of urban transport on the environment - Analysis of possible options for public transport: their advantages and disadvantages. - Documents regulating the negative impact on the environment (regulations of the Russian Federation and foreign ones) - Analysis of ways to reduce the negative impact of urban transport on ecosystems used in Russia and abroad - Constructive solutions in the field of urban transport infrastructure to reduce the negative impact on the environment - The procedure of conducting experimental studies on the impact of transport on the environment	18	6
	54	18
<b>TOTAL</b>		72

Forms of control and assessment			
Control form	Percentage ratio	Dates	Criteria of assessment
Test`s question (MOODLE)	30	within the framework of learning course	more than 59 %
Lecture on-line (MOODLE)	20		more than 59 %
Abstract	20		Conciseness, consistency, design, literacy
Credit	30		"Credit"- student shows good knowledge of educational material on the topics of the course. While logical and consistent presented material, reveals the meaning of the question, gives the right answers to additional questions. «Fail» - listener is difficult respond to questions raised, give partial answers to the questions from the basic literature recommended for the course.

**Terms and conditions of access to monitoring and assessment of knowledge (exam)**

Test`s question (MOODLE) & Lecture on-line (MOODLE) more than 59 % + Abstract

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

certificate

### Organizational guidelines

**Place:** [www.pgups-tempus.ru](http://www.pgups-tempus.ru)

**Example:** <http://www.pgups-tempus.ru/course/view.php?id=155>

**The recommended number of participants:** no regulate

### Literature and educational materials

Author	Year of publishing	Title	Pages number	Place of publication, publisher or an online link
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#### Basic literature

1. Russian Federation. Government decree. On the composition of project documentation sections and requirements to their content [Text]: government decree: [adopted 16.02.2008 № 87]. - M.: "Rossiyskaya Gazeta" dated February 27, 2008 N 41, in the assembly of the legislation of the Russian Federation dated February 25, 2008 N 8, article 744.
2. Set of rules -11-102-97 "Engineering and environmental surveys for construction"
3. Transport Strategy of the Russian Federation for the period till 2030
4. Federal law of the Russian Federation dated November, 8 2007 No. 259-FL "Statute of road transport and urban land-electric transport"
5. Federal law dated 10.01.2002 № 7-FZ (edition dated 24.11.2014, with changes from 29.12.2014) "On environmental protection" (with changes and amendments, which came into force from 01.01.2015) (10 January 2002)
6. Federal law of November 23, 1995 N 174-FL (version effective March 31, 2015) "On ecological expertise" (as amended on February 12, 2015)
7. "Urban rail transport: innovative technologies." Paraskevopulo Y. G., Ilyin A. A., Kulinich N. V., scientific, industrial and technical journal "Road and track facilities" 5.2013/Ministry of Railways of Russia, RITOZH. M. - Transzheldorizdat.
8. GOST R ISO 14837-1-2007 "Noise and vibration caused by the movement of the rail transport"
9. Urban rail transport: innovative design of the tram way on a selected track. Transport of the Russian Federation №4 (47), 2013, p. 51-53. Doudkin E. P., Sultanov N. N., Paraskevopulo G. Y., Paraskevopulo Y. G.
10. I. V. Prokudin, I. A. Grachev, A. F. Spike. The design of the organization of railway construction: textbook / edited by I. V. Prokudin. -M.: SEI UMC, 2012
11. Government Decree N 87 dated 16.02.2008
12. Water code of the Russian Federation (WC RF 2015)
13. Forest code of the Russian Federation (FC RF 2015)
14. Land code of the Russian Federation (LC RF), N 136-FL of 25.10.2001

#### Additional resources

1. Ecological justification of design solutions [Text] / Svintsov E. S., Surovtseva O. B., Tishkina M. V. - Moscow: publishing house UMC ZHDT (Route), 2006
2. Oveshnikov E. V., Fishelson M. S., "Urban transport"
3. "Urban transport" Yudin V. A., Samoilov D. S.
4. "New transport systems in urban public transport" D. Hebarda translation from Slovak Ph. D. Cosmina V. V.
5. Abstracts of the conference "Technosphere and environmental safety on transport» IV International scientific-practical conference on October 22-24 2014. in FSBEI HPO of PSTU of Emperor Alexander I
6. Ecological safety of transport flows. / Edited by A. B. Djakov. - M.: Transport, 1989.
7. Ecoculture. In search of a way out of the ecological crisis. / Edited by N. N. Marfenin. - M.: MNEPU, 1998.
8. Konstantinov V. M. Ecological bases of nature management. - M., 2001.
9. "Urban electric transport: Trolleybus" Textbook for primary professional Education. Maksimov A. N. Publishing center "Academy" 2004.
10. Technical Reference for tram track master - Nizhni Novgorod: Publishing house "Litera", 2002.
11. Kuzmichev V. E., Chernova G. V. Experimental program of the special course for biological universities "Electromagnetic biology // Electromagnetic radiation in biology (BIO-AMY-2005): III International Conference Kaluga, 5-7 Oct. 2005 - Kaluga, 2005.
12. Guidelines on environmental impact assessment in design, construction, reconstruction and maintenance of roads. The ministry of Transport of the Russian Federation (ROSAVTODOR). Ordinance 22.11.200. № OS-482-P. Moscow

13. Agadzhanyan N. A., Makarova I. I. Magnetic field of the Earth and the human body // Human ecology. - 2005. - № 9. - p. 3-9
14. SP 98.13330.2012 "Tram and trolleybus lines"
15. SNIP 2.05.03-84 \* "Bridges and pipes"
16. SNIP 9128-2009 "Asphalt concrete road aerodrome mixtures and asphalt concrete. Technical conditions"
17. GOST R ISO 14837-1-2007 "Noise and vibration caused by the movement of the rail transport"
18. "Laboratory tests on the construction of tram tracks on cyclic loads" Benin A. V., Dudkin E. P., Paraskevopoulo Y. G., Sultanov N. N. Transport of The Russian Federation . 2014. № 4(53). p. 28-30
19. Construction and reconstruction of railways: textbook for higher schools / I. V. Prokudin, E. S. Spiridonov, I. A. Grachev, A. F. Kolos, S.K.Terletsy / edited by I.V.Prokudin. - SPb.: Route 2008.

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