



## RTU Course "Environmental Protection Problems I"

14413 Vispārīgās ķīmijas tehnoloģijas katedra

### General data

Code	KNF433
Course title	Environmental Protection Problems I
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Post-graduate Studies
Course type	Academic
Field of study	Environmental Engineering and Management
Responsible instructor	Daina Kalniņa
Volume of the course: parts and credits points	1 part, 2.0 Credit Points, 3.0 ECTS credits
Language of instruction	LV, EN
Possibility of distance learning	Not planned
Abstract	This course provides an introduction to basic principles of chemistry and physics that are connected to environmental issues, thus helping to provide an insight into some of the major environmental problems of nowadays. The course analyses global disturbances to the environment, including the impact of petroleum hydrocarbons on natural and human environments, as well as local environmental issues and priorities of human and environmental health. The course is supported by practical exercises that emphasize a scientific approach to the use of environmental remediation tools. The course analyzes various case studies of environmental problems and provides a problem-solving approach.
Goals and objectives of the course in terms of competences and skills	The aim of the course is to provide a comprehensive understanding of global and local environmental issues. After finishing this course, the students will have a better insight into the causes of various environmental problem. They will be able to comprehensively analyze environmental issues from many aspects, not only those that are officially recognized, including environmental problems and their solution at both global and local level.
Structure and tasks of independent studies	During the course student submit a thesis of a less known environmental problem
Recommended literature	<ol style="list-style-type: none"> <li>1. Wali, M.K., Evrendilek, F., Fennessy, M.S. The Environment Science, Issues, and Solutions. CRC Press, 2010. 619 p.</li> <li>2. The World Almanachand book of facts 2010. Infobase Publishing, 2009. 1071p.</li> <li>3. Zakrezevski, S.F. Principles of Environmental Toxicology. Washington: ACS, 1991. 171 p.</li> <li>4. Hill, M.K. Understanding Environmental Pollution. Cambridge University press, 1997. 316 p.</li> <li>5. Baird, C. Environmental Chemistry. New York: W.H.Freeman and Company, 1999. 557 p.</li> <li>6. Fairman, R., Mead, C.D., Williams, P.W. Environmental Risk Assessment. Approaches, Expierences and Information Sources. Copnhagen : EEA, 1998. 200 p.</li> <li>7. Underwood, L. Case Studies in Environmental Science. Sanders College Publishing, 1998. 454 p.</li> <li>8. Vides Zinātne. M.Kļaviņa redakcijā. Rīga: LU, Akadēmiskais apgāds. 2008. 599 lpp.</li> <li>9. Kalniņa, D. Nafta un vides problēmas. Rīga: RTU, 2006. 157 lpp.</li> </ol>
Course prerequisites	Specific prerequisites are not required

### Course outline

Theme	Hours
Environmental Problems. Priorities of concern	2
Priorities of concern to human and environmental health	6
Air quality and the depletion of the ozone layer	2
Environmental Pollution	4
Polluted human living space. Indoor air quality	4
Industrial risk assessment	2
Oil and environmental concerns	8
Case studies	4

### Learning outcomes and assessment

Learning outcomes	Assessment methods
The ability to grasp the root causes of environmental problems and analyze their complicated aspects.	Type of evaluation: Problem-solving in groups. Criteria: comprehensive analyze environmental issues from many aspects.

The ability to use the scientific method for studying and finding solutions to environmental problems.	Type of evaluation: Independent work on an individual basis. Criteria : Finding the most appropriate methods, indicators, technical and/or social parameters for characterizing environmental problems in accordance with the demanding standards of the scientific and technical community.
The ability to use the precautionary principle and to predict eventual environmental problems.	Type of evaluation: Problem-solving in groups. Criteria: Assessment of less known environmental problems.
The technical ability (competence) to evaluate and resolve different environmental problems.	Type of evaluation: Assessment work. Criteria: Submission and to presentation of a thesis. The ability to analyze data in scientific literature and legislative documents. The ability to defend ones opinion based on knowledge of the subject.

**Study subject structure**

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	2.0	3.0	1.0	1.0	0.0	*		