RTU Course "Environmental Protection Problems II"

14413 Vispārīgās ķīmijas tehnoloģijas katedra

General data

Code	ĶVĶ405
Course title	Environmental Protection Problems II
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, as well as local environmental issues and priorities of human and environmental health.The course point out the safe water related problems of the world: drinking water quality regulations, water related diseases and sanitation, Baltic sea pollution and another environmental problems. The course includes a microbial and chemical safety of food, rational uses of the natural resources, a new materials using and problems from it.
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 problems, and will have also viewed them from a moral, ethical and historical standpoint. 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 should prepared laboratory work of drinking water quality and assessment work of food chemical safety.
Recommended literature	1. Wali, M.K., Evrendilek, F., Fennessy, M.S. The Environment Science, Issues, and Solutions. CRC Press, 2010, 619 pp. 2.The World Almanachand book of facts 2010. Infobase Publishing, 2009, 1071pp. 3. Spiro, T.G. Chemistry of the Environment. Prentice-Hall,Inc.,1999, 349 pp. 4. Gardner,G.T., Stern, P.C. Environmental Problems and Human Behaviour. Boston: Pearson Custom Publishig, 2002, 371pp. 5. Mackenzie, L.D., Masten, S.I. Principles of Environmental Engineering and Sience. MC Graw-Hill Inc, New York, 2009, 346 pp. 6. Jensen, N.A. Problem-Solving Approach to Aquatic Chemistry. John Wiley & Sons,Inc, 2003 7. Sedmalis,U, Šperberga, I.,Sedmale, G. Latvijas minerālās izejvielas un to izmantošana. Rīga: RTU izdevniecība, 2002, 194 lpp. 8. Ozola, B. Pārtikas toksikoloģija. Jelgava: LLU, 2007, 78 lpp. 9. Nikolajeva V. Pārtikas mikrobioloģija. LU Akadēmiskais apgāds, Rīga, 2007,187 lpp. 10. Baltess, V. Pārtikas ķīmija. Rīga: LU, 1998, 478 lpp. 11. Kļaviņš M. (redakcijā) Vides Zinātne. Rīga: LU, Akadēmiskais apgāds, 2008, 599 lpp.
Course prerequisites	Specific prerequisites are not required

Course outline

Theme	Hours
Water resources	4
Degradation of the water ecosystems	2
Emergency water contaminants	2
Baltic sea and environmental problems	2
Microbial and chemical safety of the food	2
Natural resources and rational uses of the resources	2
A new materiāls and problems from it	2
Laboratory and practical exercises	16

Learning outcomes and assessment

Learning outcomes	Assessment methods
The ability to assess the drinking water quality according to the demands of WHO, EU and Latvian state legislation.	Type of evaluation: laboratory work . Criteria: submission of results on drinking water analysis.The ability to analyze the quality of water.

The ability to use the scientific method for studying and finding solutions to environmental problems	Type of evaluation: problem-solving in group. 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 assess the daily used food for chemical and microbiological safety.	Type of evaluation: assessment work. Criteria: submission of a results of daily food safety analysis
The technical ability (competence) to evaluate and resolve different environmental problems.	Type of evaluation: problem-solving in groups Criteria: the ability to defend ones opinion based on knowledge of the subject.
The ability to critically assess and analyze environmental problems	Type of evaluation: exam. Criteria: able to analyze different environmental problems .

Study subject structure

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