



RTU Course "Environmental Chemistry and Technology"

14821 Ķīmijas katedra

General data

Code	ĶNF503
Course title	Environmental Chemistry and Technology
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	Gerda Gaidukova
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
Maximum auditorium capacity	1
Maximum number of students per semester	50
Abstract	Principles of sustainable growth; rational resource utilisation and reduction the influence on environment. Chemistry of atmosphere, hydrosphere, lithosphere and noosphere. The influence of anthropogenic actions to the natural processes. Anthropogenic turnover of substances. Environmental technologies: waste recycling, reuse of producēts, cleaner and clean technologies. Green chemistry. Waste management.
Goals and objectives of the course in terms of competences and skills	To develop student's world outlook as part of nature, promote creation of sustainable economics, to develop of environmental friendly technologies with closed technologic cycle.
Structure and tasks of independent studies	Student have to show the principal understanding of thematic inspected due to develop out practical works, skills to use literature and media information as well as exercise knowledges from lectures.
Recommended literature	<ol style="list-style-type: none"> 1. Streble, H., Krauter, D. Das Leben im Wassertropfen. Stuttgart: Franckh-Kosmos Verlag-GmbH&Co, KG, 2006. 429 S. 2. Principles of Ecotoxicology. C.H.Walker, S.P.Hpokin, R.M.Sibly, DB.Peakall. Taylor&Francis, 2001. 309. p. 3. Kļaviņš, M. Vides piesārņojums un tā iedarbība. Rīga: LU, 2009. 199 lpp. 4. Environmental science. L.Ryden, P.Migula, M.Anderson, M.Lehman. Uppsala: The Baltic University Press, 2003, 824. p. 5. Sullivan, P.J., Agardy, F.J., Clark, J.J. The Environmental Science of Drinking Water. Elsevier Butterworth Heinemann, 2005. 368. p.
Course prerequisites	Courses of bachelor's programme connected with environmental problems

Course outline

Theme	Hours
Environmental science, background and field. Ecology, sustainable growth, ecological footprint	2
Natural resources, energy, alternative energy	2
Parts of biosphere. Atmosphere and pollution	2
The pollution impact to the environment, exhaust gas purifications technologies	2
Hydrosphere, natural water, pollution and cleaning technologies	2
Litosphere, it content and pollution hazards. Noosphera as sphere of human intellect	2
Environmental systems. Clean and cleaner production. Turnover of materials and substances	2
Waste management, its types and treatment technologies	2
Practical works	16

Learning outcomes and assessment

Learning outcomes	Assessment methods
Student is able to analyse the environmental and ecological questions in groups of experts as well as nonexperts	Practical works, exam
Student is acquired deeper theoretical knowledge and research skills in field of ecological risk assessment in turnover of materials and substances	Practical works, exam
Student is able to analyse, independent formulate and analyse the complicate scientific problems connected with environmental friendly technologies	Practical works, exam
Student has a deeper understanding for scientific work and probably influence of scientific results to the natural processes	Practical works, exam
Student has new academic competencies in field of environmental sciences.	Practical works, exam

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		*	