CHEMICAL PROCESSES IN THE ENVIRONMENTAL AIR

Title of Study Programme and Code	Type (compulsory/optional)	Cycle	Year of study when the component is delivered (if applicable)
Environment Protection Engineering, 6531EX042	Compulsary	1st	2nd
Semester/trimester when the component is delivered	**Number of ECTS credits allocated**	**Language of instruction**	**Mode of delivery (face-to-face/e-learning/…)**
3rd	4	Lithuanian	Face-to-face/ distance learning

Learning outcomes		Study methods	Assessment methods
After completion of the study subject, a student should be able:		An interactive lecture; Situation analysis; Legislative analysis, analysis of the literature in preparation for test; Individual reading/preparation for practical works; Practical measuring of pollutant concentration; Consulting.	Test; Defending of laboratory works.
LO 1	To describe the physical, chemical and bio-indicative emissions' determination methods.		
LO 2	To apply suitable methods and devices while determining emissions from mobile and stationary sources of pollution.		
LO 3	To assess how the quality meets requirements of the law.		

Prerequisites
(these courses must be sucessfully completed prior to taking this particular course)

Chemistry, Basics of Law, Environmental Policy and Law.

Course content

1. Air pollution and its effects on humans and the environment.
2. Pollutant dispersion and variations in the atmosphere.
3. The regulation of an environmental air pollution.
4. Air pollution consequences: climate change, ozone depletion, smog, acid rain.
5. Physical, chemical and bio-indicative detection methods of environmental air pollutants.
6. Environmental air quality analysis.
7. Measuring and evaluation of emissions' concentrations in energetics and industrial processes. Emission devices. Pollution norms. Calculations of pollutants and taxes for pollution.
8. Measuring and evaluation of emissions in mobile pollution sources. Emission devices. Pollution norms. Calculations of pollutants and taxes for pollution.

Recommended or required reading and other learning resources/tools

1. Climate Policy. T. 5. London : Earthscan, 2005. ISBN: 184407238X
2. O.G. Sorokhtin, G.V. Chilingar, L.F. Khilyu (2007) Global Warming and Global Cooling: evolution of Climate on Earth, London: Elsevier, ISBN: 9780444528155
3. Hill, M., K. (2010) Understanding Environmental Pollution. Cambridge: Cambridge University Press, Reprinted 2011. ISBN: 9780521736695.

4. Hobbs P. V.(2000) Basic Physical Chemistry for the Atmospheric Sciences. Cambridge: Cambridge University Press, ISBN: 0521785677.
5. Urban Transport and the environment: an international perspective. World Conference on Transport Research Society and Institute for Transport Policy Studies. Amsterdam; London: Elsevier, 2004. ISBN: 0080445128.
6. Chemical processes in the environmental air: https://moodle.utenos-kolegija.lt/course/view.php?id=233