CLEANER PRODUCTION

Title of Study Programme and Code	Type (compulsory/optional)	Cycle	Year of study when the component is delivered (if applicable)
Environment Protection Engineering, 6531EX042	Optional	1st	3rd

Semester/trimester when the component is delivered	Number of ECTS credits allocated	Language of instruction	Mode of delivery (face-to-face/e-learning/…)
6th	3	Lithuanian	Face-to-face, distance

Learning outcomes		Study methods	Assessment methods
After completion of the study subject, a student should be able:		An interactive lecture; Project work; Literary study; An analysis of the problems in the practical work; Consulting.	The survey of writing; Presentation of practical work; The presentation of the design work.
LO 1	To know the principles and basic prevention, cleaner production and its application in practice.		
LO 2	To apply analytical methods for the analysis and modeling of environmental aspects.		
LO 3	To choose environmentally effective measures, to ensure the best available techniques for pollution prevention and implementation.		
LO 4	To creatively and critically think in addressing environmental goals.		
LO 5	To solve engineering challenges alone and team.		
LO 6	To understand the moral responsibility for the impact of the results of its activities and its social, economic, cultural development, welfare, and the environment.		

Prerequisites (these courses must be sucessfully completed prior to taking this particular course)
The Improvement of Water and Wastewater Treatment Technologies, Waste Management Technology, Particles of Gaseous Emissions Purification Technology of Purification Technology, Environmental Policy and Law.

Course content
1. Protect the essence of production and development. The advantages of the clean production. Practical work. For pollution prevention and the application of options pipe analysis.
2. Basic principles and methods for the production of clean. Protect the installation of production procedures. Practical work. The main principles of economic activity shall apply to the production of clean production processes.
3. Protect the installation of barriers and incentives for production. Practical work. Protect the installation of barriers and incentives for the production of identification chosen business-manufacturing segment.
4. Protect the installation of production methods and systems analysis. The clean installation of

efficient production conditions. Practical work. Clean production evaluation of the possibilities for the installation of industrial plants.

5. In Lithuania carry out clean production and pollution reduction programs. Practical work. Clean production projects in the textile industry benefits.

6. Protect the location of the production of a national environmental policy and strategy. Practical work. An analysis of the national sustainable development strategy.

7. Factors to promote eco-design. The legal requirements. Practical work. Protect the installation conditions the development of the production of the products.

8. The company's responsibility for the impact on the environment. The economic advantage. The practical work. A description of the economic benefits of the introduction of clean production facilities services.

Recommended or required reading and other learning resources/tools

1. UNEP. Applying Cleaner Production To Meas (2006).
2. Lennart Nilsson, Per Olof Persson, Lars Rydén, Siarhei Darozhka and Audrone Zaliauskiene (2007) Cleaner Production Technologies and Tools for Resource Efficient Production, Baltic University Press.
3. Baltrėnaitė E. (2010) Manufacturing Industries and Environmental Impact, Technika.
4. Vaiškūnaitė R. (2009) General principles on Envinronmental Management, Technika.
5. Wrap. Material change for a better environment: http://www.envirowise.gov.uk
6. GreenProfit: http://www.greenprofit.net/index.html
7. NetRegs - plain English guidance on environmental regulations for your business: http://www.netregs.gov.uk/netregs/