



RTU Course "Environmental Technologies"

11509 Vides aizsardzības un siltuma sistēmu katedra

General data

Code	EAS702
Course title	Environmental Technologies
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	Dagnija Blumberga
Academic staff	Ivars Veidenbergs Sarma Valtere Jūlija Gušča Dzintars Jaunzems
Volume of the course: parts and credits points	3 parts, 11.0 Credit Points, 16.5 ECTS credits
Language of instruction	LV, EN
Possibility of distance learning	Not planned
Abstract	The Environmental technologies course is related with various innovative solutions and approaches to reduce effect on environment from the manufacturing processes and maximize resource efficiency, including improving and developing management systems and optimizing manufacturing processes. Issues end-of-pipe technologies, cleaner production strategies and climate technologies are looked closely.
Goals and objectives of the course in terms of competences and skills	To gain knowledge about various environmental technologies and their environmental benefits, reduction of impact on environment and improvement energy efficiency. To understand the different degree of suitability of environmental technologies in production processes and the methods in choosing the optimal environmental technology types for solution of specific problems and / or non-compliance problems.
Structure and tasks of independent studies	Literature research work on different environmental technologies and their usability aspects. Assessing identification on importance of environmental technologies, benefits of environmental technologies and the existing environmental technologies evaluation methods.
Recommended literature	1. M.Kļaviņš. Vides zinātne, LU akadēmiskais apgāds, 2009. 2. M.Kļaviņš, D.Blumberga, u.c. Klimata mainība un globālā sasilšana, LU akadēmiskais apgāds, 2008. 3. D.Blumberga, A. Blumberga. Vides tehnoloģijas, LU akadēmiskais apgāds, 2010. 4. L.Nilsson, P.O.Persson etc. Cleaner Production Technologies and Tools for Resource Efficient Production. The Baltic University, 2007.
Course prerequisites	Physics and Thermal and Mass Transfer

Course outline

Theme	Hours
Gas treatment technologies	16
Reduction of water pollution and waste water treatment	8
Waste management	8
Use of excess energy	8
Recovery and retreatment technologies of contaminated environment	8
Cleaner production strategies	16
Rational use of water and energy	16
Conception of air basin protection	16
Raw materials and resources, rational use of them	16
Example of cleaner production	16
Concept of climate technologies	9
Effective technologies	12
Use of renewable energy	9
Use of natural sources	9
CO2 capture and storage	9

Learning outcomes and assessment

Learning outcomes	Assessment methods
To be able to evaluate various end-of-pipe technologies.	Examination: exam,. Assessment criteria: Able to understand the various end-of-pipe technologies and the nature of use for real situations.

To be able to analyze the principles of cleaner production and use of them to improve production processes and phases.	Examination: Exam. Criteria: Able to understand the cleaner production strategies and identify the suitable solution for existing problems.
To be able to understand the nature of climate technologies and concepts, incl. to be able to evaluate different optimize and improvement solutions for production processes.	Examination: exam. Assessment criteria: Able to analyze different possibilities of application and solutions of technologies in various production processes and technological stages.
To be able to be competent between different environmental technologies, incl. to be able to evaluate different optimization and improving solutions of production processes.	Examination: exam. Assessment criteria: Able to analyze different possibilities of technologies applications and solutions for various production processes and technological stages.

Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	3.0	4.5	1.0	1.0	1.0		*	
2.	5.0	7.5	2.0	1.0	2.0		*	
3.	3.0	4.5	1.0	1.0	1.0		*	