



RTU Course "Waste management system"

11509 Vides aizsardzības un siltuma sistēmu katedra

General data

Code	EAS725
Course title	Waste management system
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	Jūlija Gušča
Volume of the course: parts and credits points	1 part, 3.0 Credit Points, 4.5 ECTS credits
Language of instruction	LV, EN, RU
Possibility of distance learning	Not planned
Maximum auditorium capacity	50
Maximum number of students per semester	50
Abstract	Subject "Waste management system" is focused on identification, classification, assessment of environmental impacts and risks prevention of waste flows. Waste management system is evaluated as a part of good management practice at process and enterprise levels and the processes of waste management are modeled for optimisation of the system.
Goals and objectives of the course in terms of competences and skills	To get knowledge about the impact of waste management system to linked processes and operation of enterprise. To understand and to define: (1) waste flows in enterprises; (2) on the basis of properties of the defined waste flows, to develop criteria for evaluation of waste management system; (3) to conduct an optimisation of waste management processes, incl. economic, technical, social, environmental aspects.
Structure and tasks of independent studies	Literature review to evaluate the impacts to the environment from different waste flows. Calculations and models about definition of waste flows in the industrial enterprises, risk assessment, waste minimization strategies.
Recommended literature	1. Industrial Waste Treatment Handbook, Woodard & Curran Inc., 2006. 2. M.A.Tarr. Chemical Degradation Methods for Wastes and Pollutants: Environmental and Industrial Applications, 2003. 3. L. K. Wang, Yung-Tse Hung, N.K. Shamas. Advances in Industrial and Hazardous Wastes Treatment, 2009. 4. Committee on Coal Waste Impoundments, Committee on Earth Resources, Board on Earth Sciences and Resources, and National Research Council. Coal Waste Impoundments: Risks, Responses, and Alternatives, 2002. 5. S. el- Hagggar. Sustainable Industrial Design and Waste Management: Cradle-to-Cradle for Sustainable Development, 2007. 6. N.L. Nemerow. Industrial Waste Treatment: Contemporary Practice and Vision for the Future, 2006.
Course prerequisites	Chemistry, environmental pollution.

Course outline

Theme	Hours
Introduction. General principles of waste management system.	4
Management of waste flows, risks assessment.	4
Optimisation of industrial waste management system.	8
Practical work.	16
Laboratory work.	16

Learning outcomes and assessment

Learning outcomes	Assessment methods
Ability to evaluate waste system, its components and linked processes.	Examination: practical/lab. work, course work, exam. Assessment criteria: is able to classify waste management system according to the properties of wastes, incl. risk assessment.
Ability to evaluate the impacts to the environmental created by waste management system.	Examination: practical/lab. work, course work, exam. Assessment criteria: is able to develop quantitative and qualitative criteria for assessment of waste management system.

Ability to develop minimization strategies of waste flows.

Examination: practical/lab. work, course work, exam.
Assessment criteria: able to develop and calculate the model for optimization of waste management system.

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		*	