



Course Specifications

Valid as from the academic year 2016-2017

Exhaust Gas Treatment (O000102)

Course size (nominal values; actual values may depend on programme)

Credits 5.0 **Study time** 150 h **Contact hrs** 60.0 h

Course offerings and teaching methods in academic year 2016-2017

A (semester 1)	lecture	30.0 h
	practicum	22.5 h
	guided self-study	7.5 h

Lecturers in academic year 2016-2017

Zhuyikov, Serge LA08 lecturer-in-charge

Offered in the following programmes in 2016-2017

Bachelor of Science in Environmental Technology	crdts	offering
	5	A

Teaching languages

English

Keywords

The atmosphere, air quality management, air pollution, exhaust gases treatment, unit processes in waste gas technology.

Position of the course

Introduction in the field of atmospheric pollutions and exhaust gases treatment.

Contents

1. Air pollution (gaseous pollutant and particulate matter)
2. Atmospheric dispersion
3. Carbon adsorbers
4. Wet scrubbers
5. Incinerators
6. Post combustion treatment
7. Refrigerated condensers
8. Advanced oxidation processes
9. Gravity settling chambers
10. Cyclones
11. Baghouses and filters
12. Wet scrubbers for PM control
13. Electrostatic precipitators

Initial competences

Basic knowledge of chemistry, physics physical chemistry and mathematics, environmental chemistry.

Final competences

Knowledge of natural atmospheric cycles, main exhaust pollutants, concentrations and the way they can be reduced and eliminated; knowledge of impact of exhaust emissions on environment and humans; skills in designing air pollution abatement systems.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Guided self-study, lecture, practicum

Learning materials and price**References**

1. E.C. Moretti, Practical Solutions for Reducing Volatile Organic Compounds and Hazardous Air Pollutants. AIChE CWRT, New York, 2001, 150p.
2. S. Zhuiykov, Electrochemistry of Zirconia Gas Sensors, CRC Press, USA, 2007, 297p.
3. R.H. Perry, D.W. Green, and J.O. Maloney, Perry's Chemical Engineers' Handbook. McGraw-Hill, New York, 1997.
4. S. Zhuiykov, Sensors in the Measurement of Toxic Gases in the Air, Encyclopedia of Analytical Chemistry, John Wiley & Sons, Ltd., 2014, 1-34.

Course content-related study coaching**Evaluation methods**

end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Written examination with open questions

Examination methods in case of periodic evaluation during the second examination period**Examination methods in case of permanent evaluation**

Participation

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible in modified form

Calculation of the examination mark

Final written examination with open questions 80%
Participation 20%