

## MODULE INFORMATION SHEET

<b>Name of Module Unit</b>	<b>Air Pollution Control</b>
Name in polish language	Ochrona atmosfery
Module type	compulsory / elective
Form of studying	full-time day courses
Level of study	graduate course (M.Sc. level)
Type of study ( for extra-mural courses)	-
Programme	Environmental Engineering
Speciality	Environment Protection Engineering
Responsible department	Chair of Environmental Protection and Management
Responsible person	Prof. dr hab inż. Katarzyna Juda-Rezler

Semester	Lectures(E)	Tutorials	Laboratory	Computer Exercises	Projects	ECTS
2	30				15	3

### Learning outcomes (knowledge, skills, competences)

The objective of this course is to deliver knowledge about atmospheric environment, ambient air pollution and pollution control.

Learning outcomes – understanding and attributing air pollution problem, its driving forces, processes and phenomena, impacts and control options.

Competences: confirmed ability of applying knowledge in particular problems and applications.

### Prerequisites

Basic knowledge of meteorology, environmental physics and chemistry

### Rules for integrated grade setting

Integrated grade is a weighted mean of the grades from lectures (60%) and projects (40%).

### Recommended readings

1. Vallero D.A., 2014: Fundamentals of Air Pollution, 5th Edition, Academic Press, San Diego.
2. Theodore L., 2008: Air pollution control equipment calculations, Wiley & Sons, Hoboken, New Jersey.
3. Seinfeld J.H., Pandis S.N., 2016: Atmospheric Chemistry and Physics: from air pollution to climate change, 3rd edition, Wiley & Sons, Hoboken.
4. Air quality in Europe. Last available Technical Report of the European Environment Agency (EEA).
5. EU Directives on ambient air quality and the limitation of emissions (CAFE, IED, MCP and Eco-design Directives)
6. EU regulations concerning EURO emission standards

## Contents of lectures (syllabus)

	Topics	Time (hrs.)	Scope (S / Ex)
1	Air pollution essentials, the natural versus polluted atmosphere.	2	
2	Air quality nowadays. Global, regional and local air pollution problem, major pollutants, smog phenomenon.	2	
3	Air pollution sources, emission inventories and databases.	2	
4	Chemistry and physics of air pollutants.	2	
5	Direct and indirect effects of air pollution: environment, human health and welfare.	2	
6	Air pollution assessment and management.	4	
7	The regulatory control of air pollution. EU legislation. Air quality criteria and standards. Emission standards.	4	
8	Control of Air Pollution: Sustainable methods of preventing air pollution.	4	
9	The engineering control of air pollution. Control devices, technologies and systems in stationary and mobile sources.	6	
10	Final test	2	
<b>Total</b>		<b>30</b>	<b>hours</b>

S – topics listed in the legal study programme standards from 12.07.2007

Ex – extended topics

### Lecturers

Prof. dr hab. inż. Katarzyna Juda-Rezler

### Assessment method

Final test from lectures (open questions). Min. 50% of points are required to pass.

## Contents of guided projects

	Topics	Time (hrs.)	Scope (S / Ex)
1	Introduction to the guided projects.	1	
2	Calculations of air pollutants' emission from road transport.	4	
3	Air pollution control equipment calculations for large stationary sources.	4	
4	Determination of air quality management measures.	4	
5	Final test	2	
<b>Total</b>		<b>15</b>	<b>hours</b>

S – topics listed in the legal study programme standards from 12.07.2007

Ex – extended topics

### Persons responsible for guided projects

Dr inż. Magdalena Reizer; dr inż. Katarzyna Maciejewska

### Assessment method for guided projects

Credit for projects – 1 test and defense of 3 projects. Min. 50% of points are required to pass.