Course Unit Descriptor

Study Programme: Master Academic Studies in Chemistry - Quality Control and Environmental Management, Master Academic Studies in Environmental Protection - Environmental Protection Analyst

Course Unit Title: Control of Industrial Waste Gases

Course Unit Code: IKK-504

Name of Lecturer(s): Assistant Professor Malcolm Watson

Type and Level of Studies: Master of Science

Course Status (compulsory/elective): Elective

Semester (winter/summer): Winter

Language of instruction: English

Mode of course unit delivery (face-to-face/distance learning): Face-to-face

Number of ECTS Allocated: 6

Prerequisites: None

Course Aims: To expand the students knowledge of issues relating to air quality control and provide them the tools to apply that knowledge to the control of waste gases in different branches of industry.

Learning Outcomes: After completion of the course, students should be able to independently apply the necessary knowledge about air quality criteria to the problem of industrial pollution; independently plan monitoring and quality control programs of industrial waste gases and critically evaluate results, and select the required equipment for the control of industrial waste gases.

Syllabus:

Theory:

Study of the following topics: Identifying problems. Selection of sampling and testing methods. Measuring the flow of waste gases. Determination of particulate matter content and concentrations of gaseous pollutants. Systems control for odour in industry. Fans. Control of emissions of polluting particulate matter and gaseous pollutants. The main criteria for the selection of appropriate technological solutions. Equipment selection and quality required. Installation and performance testing of equipment for air quality control. Factors in equipment evaluation. Purification of industrial waste gas and waste water problems: thermal power, metallurgy, chemical and pharmaceutical industries

Practice:

Practical teaching closely follows the theoretical teaching.

Required Reading:

1. Schnelle K B and Brown C A, 2016, *Air Pollution Control Technology Handbook - Handbook Series for Mechanical Engineering,* CRC Press, Boca Raton, USA. ISBN 0-8493-9588-7.
2. Flagan R C, Seinfeld J H, 2012, *Fundamentals of Air Pollution Engineering,* Courier Corporation, USA.
3. ISBN 0-486-48872-1.

Weekly Contact Hours: 5	**Lectures:** 3	**Practical work:** 2

Teaching Methods: Lectures, laboratory work.

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	**Final exam**	points
Active class participation	10	Written exam	30
Practical work	10	Oral exam	10
Preliminary exam(s)	15		
Seminar(s)	25		