

## MODULE INFORMATION SHEET

<b>Name of Module Unit</b>	<b>Ventilation and Air-Conditioning Systems</b>
Name in polish language	Systemy wentylacji i klimatyzacji
Module type	compulsory / <i>elective</i>
Form of studying	full-time day courses
Level of study	undergraduate course (B.Sc. level)
Type of study ( for extra-mural courses)	-
Programme	Environmental Engineering
Speciality	Environmental Engineering
Responsible department	Division of Air Conditioning and Heating
Responsible person	Dr hab. inż. Anna Bogdan, prof. PW

Semester	Lectures(E)	Tutorials	Laboratory	Computer Exercises	Projects	ECTS
5	30				15	3

### Objectives (summary)

The main purpose of the subject is to introduce students to fundamentals of ventilation and air-conditioning - their impact on human health and well-being as well as energy consumption of buildings.

Students should acquire the skills in determination of comfortable indoor environment quality parameters for various type of users, calculation of energy balance in rooms and buildings, determination of air flow distribution in rooms and the designing of full HVAC system.

### Prerequisites

Work Environment Protection, Thermodynamics, Fluid mechanics

### Rules of integrated grade setting

Lecture grade (50%), Project grade (50%)

### Recommended readings

1. ASHRAE Handbook – Fundamentals
2. REHVA Journals
3. REHVA Guidebooks
4. CIBSE Manuals

## Contents of lectures (syllabus)

	Topics	Time (hrs.)	Scope (S / Ex)
1	Comfortable indoor environment conditions.	2	S
2	Indoor-outdoor interaction and calculation assumptions.	2	S
3	Types of ventilation and air-conditioning systems.	4	S
4	Heat balance of air-conditioned room.	4	S
5	Air flow distribution and calculation.	4	S
6	Air supply and exhaust systems– description and calculation.	4	S
7	Air handling units – description and calculation.	4	S
8	Heat recovery. Commissioning, control and measures in ventilation	6	S
<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

dr hab. inż. Anna Bogdan, prof. PW

### Assessment method

Written test

## Contents of guided projects

	Topics	Time (hrs.)	Scope (S / Ex)
1	Calculations for selected object	15	S
<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 hab. inż. Anna Bogdan, prof. PW

### Assessment method for guided projects

Projects description and/or presentation.