

## MODULE INFORMATION SHEET

<b>Name of Module Unit</b>	<b>Indoor environment engineering II</b>
Name in polish language	Inżynieria środowiska wewnętrznego II
Module type	<del>compulsory</del> / elective
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	Air-Conditionnig and Heating Department
Responsible person	Dr hab. inż. Anna Bogdan, prof WUT

Semester	Lectures(E)	Tutorials	Laboratory	Computer Exercises	Projects	ECTS
7	15	-	-	-	30	3

### Objectives (summary)

The main purpose of the subject is to introduce students to detail knowledge about modern solutions and services integrated in smart buildings for readiness for fulfilling users' needs and limitation of energy consumption.

Students should acquire the skills in determination of appropriate solutions for smart buildings.

### Prerequisites

HES (Work Environment Protection), Thermodynamics, Fluid Mechanics, Ventilation and air-conditioning systems, Indoor environment engineering I

### Rules of integrated grade setting

Arithmetic average of the 1 test from lectures and tests from practical projects.

### Recommended readings

ASHRAE Handbook – Fundamentals  
 REHVA Journals  
 REHVA Guidebooks  
 CIBSE Manuals

## Contents of lectures (syllabus)

	Topics	Time (hrs.)	Scope (S / Ex)
1.	Heat generators – furnices and boilers	3	Ex
2.	Heat Pump systems	2	Ex
3.	Ground heat exchangers for air pre-heating and pre-cooling	2	Ex
4.	Solar collectors	2	Ex
5.	Photovoltaic - power generation and control	2	Ex
6.	Nearly zero energy building	2	Ex
7.	Life Cycle Design in building analysis	2	Ex
<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

### Lecturers

Dr hab. inż. Anna Bogdan, prof WUT
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### Assessment method

Students will have to pass the multiple choice test.
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## Contents of guided projects

	Topics	Time (hrs.)	Scope (S / Ex)
1.	Calculation of smart readiness indicator	10	Ex
2.	Analysis of building energy consumption	10	Ex
3.	Life cycle assessment	10	Ex
<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

### Persons responsible for guided projects

Dr hab. inż. Anna Bogdan, prof WUT
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### Assessment method for guided projects

Students will have to pass the tests from each topic.
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