

Title Heating Systems	Code 1010102221010130564
Field Environmental Engineering Second-cycle Studies	Year / Semester 1 / 2
Specialty Heating, Air Conditioning and Air Protection	Course core
Hours Lectures: 2 Classes: - Laboratory: 1 Projects / seminars: 2	Number of credits 5
Language polish	

Lecturer:

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Status of the course in the study program:

Course for specialization Heat Supply, Air Conditioning and Air Protection.

Assumptions and objectives of the course:

Thorough study of theoretical and practical problems of heating and basics of designing and functioning of systems for different kinds of rooms.

Contents of the course (course description):

Usage of solar energy in warm water preparation and buildings? heating. Construction and working principles of fluid and air collectors. Exploitation properties of solar collectors elements. Efficiency of solar collectors. Active direct and indirect systems for use of solar energy. Passive direct and indirect solar systems. Heating ventilation systems cooperating with renewable energy sources. The cooperation between heating, ventilation and air conditioning installations. Panel heating and cooling. Thermal energy storage for heating needs. Examples of system solutions. Material choice for energy storage. Heat consumption analyses of final and primary energies for select systems. Heating in the open space, Steam high and low pressure installations.

Introductory courses and the required pre-knowledge:

Heating systems sem. 8.

Courses form and teaching methods:

Lecture with multimedia presentation and foils, Calculation exercises. Project for heating systems.

Form and terms of complete the course - requirements and assessment methods:

Design, report from laboratory exercises, examination.

Basic Bibliography:

Additional Bibliography: