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| Title Heating Systems | Code 1010102211010130560 |
| Field Environmental Engineering Second-cycle Studies | Year / Semester 1 / 1 |
| Specialty Heating, Air Conditioning and Air Protection | Course core |
| Hours Lectures: 2 Classes: 1 Laboratory: - Projects / seminars: 2 | Number of credits 6 |
| 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):

Computer ? aided design of hot water heating. Radiant heating systems, floor, ceiling and wall heating, radiant strip heaters, infrared heaters. Issue of thermal comfort of radiant heating. Technological requirements and the sizing of floor heating. Applied automatic regulation. Mixed heating systems floor ? heaters. Warm air heating: systems, basics of calculation, applied heat sources, heat recovery and ground heat exchangers. Heating installation modernizations in thermomodernized buildings, their energy and economic efficiency. Ecological ? energy assessment of heat supply systems for buildings. Application of heat pumps in heating. Kinds of heat pumps. Commonly used lower heat sources. Cooperation of heat pumps with receiving installations ? monovalent and bivalent arrangements. Heat pumps connection with low heat installations.

Introductory courses and the required pre-knowledge:

Heating, familiarity with topics covered during the first degree engineering courses.

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 and written tests, examination.

Basic Bibliography:

Additional Bibliography: