

Title Air Conditioning and Refrigeration Engineering	Code 1010101261010130364
Field Environmental Engineering First-cycle Studies	Year / Semester 3 / 6
Specialty -	Course core
Hours Lectures: 3 Classes: 1 Laboratory: - Projects / seminars: 1	Number of credits 4
	Language polish

Lecturer:

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Status of the course in the study program:

Core course.

Assumptions and objectives of the course:

The main aim of the course is to present and discuss general principles and method used and practical examples.

Contents of the course (course description):

History of air-conditioning. Definitions of ventilation, air-conditioning and refrigeration. Mollier h-x chart for moisture air. Typical processes of moisture air: heating, cooling, humidification, dehumidification, mixed, heat recovery. Conversions of moisture air for summer and winter conditions. Air handling units. Ventilation and air conditioning units. Heating and cooling load calculation. Solar and transmission heat gain. Internal heat gain: heat generated by people, lights, miscellaneous equipment. Moisture gain. Supply air stream in room. Air conditioning systems. All-air systems: single duct, dual duct, single zone ? with reheat, multizone, variable air volume. Air-water systems: induction, fan coil with central air, radiant panels with supplementary air. All-water systems: 2-pipe, 3-pipe, 4-pipe. Direct expansions systems: compact, SPLIT. Control systems for air conditioning. Refrigeration systems for air conditioning. Evaporating cooling. Closed cooling methods. Refrigeration cycles. Air-cooled condensing units and condensers. Cooling towers. Chillers. Heat pumps. Absorption machine.

Introductory courses and the required pre-knowledge:

Basic knowledge: fluid mechanics, thermal and heat engineering, ventilation.

Courses form and teaching methods:

Traditional presentation (blackboard and chalk) and transparent projector.

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

Written classes, written tests, projects.

Basic Bibliography:

Additional Bibliography: