



Course title: **Hygrothermal diagnostics of buildings**

ECTS credit allocation (and other scores): 2.0

Semester: autumn

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Engineering and technology

Language: English

Number of hours per semester: 15

Course coordinator/ Department and e-mail: mgr inż. Maria Tunkiewicz / Institute of Geodesy and Civil Engineering
maria.tunkiewicz@uwm.edu.pl

Type of classes: classes

Substantive content

CLASSES: Thermometry. Thermography. Measurements of the heat transfer coefficient. Diagnosing thermal bridges in partitions. Measurements of building elements and air humidity. Analyzing moisture problems on the basis of research results. Measurements of the efficiency of the ventilation system.

LECTURES: Thermal bridges. Thermometry. Thermography. Thermal conductivity. Heat Transfer. Estimating heat losses due to moisture. Water and damp protection for buildings. Diagnosing moisture problems. Restoration of anti-damp and anti-water insulation in buildings. Mycological contamination. Surface and interlayer condensation. Modeling. Boundary conditions.

Learning purpose: Acquiring basic knowledge on the correct diagnosis of thermal and humidity problems in buildings.

On completion of the study programme the graduate will gain:

Knowledge: Student knows the basics of general construction and building physics regarding the migration of heat and moisture in buildings.

Skills: Students can perform simple laboratory experiments leading to the assessment of the quality of used building materials

Social Competencies: Students are able to interact and work in a group during the implementation of various engineering projects.

Basic literature:

Carl-Eric Hagentoft. Introduction to Building Physics. ISBN 9144018967. Lund, Sweden : Studentlitteratur, 2001.

Supplementary literature:

Journal of Building Physics. ISSN: 1744-2591. <https://journals.sagepub.com/home/jen>

Energy and Buildings. ISSN: 0378-7788. <https://www.journals.elsevier.com/energy-and-buildings>

[Carl-Eric Hagentoft](#) Youtube channel

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 26



UNIVERSITY
WARMIA AND MAZURY IN OLSZTYN

Student's independent work: 7.0