UNIVERSITY OF WARMIA AND MAZURY IN OLSZTYN

Faculty of Technical Sciences

Course title: DEGRADATION OF CONSTRUCTION MATERIALS

ECTS credit allocation (and other scores): 2

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: 30

Course coordinator/ Department and e-mail: Wojciech Rejmer, Department of Machines and Materials Technology.

Type of classes: classes and lectures

Substantive content

CLASSES: general overview of degradation processes, corrosion types and red ox processes, environmental influence on corrosion processes, mechanical degradation, photodegradation, biodegradation

LECTURES: hydrolytic degradation, acidic degradation, rate of corrosion, linear polarization resistance, electrochemical impedance spectroscopy, photodegradation processes, thermomechanical degradation.

Learning purpose: Provide students with knowledge of materials degradation and its monitoring methods

On completion of the study programme the graduate will gain:

Knowledge: Knowledge of methods of materials degradation

Skills: Ability perform degradation tests and calculations of degradation rates

Social Competencies: Awareness of health and safety regulations and engineers influence on society.

Basic literature: Vachtsevanos, G., Natarajan, K.A., Rajamani, R., Sandborn, P., Corrosion Processes

Sensing, Monitoring, Data Analytics, Prevention/Protection, Diagnosis/Prognosis and Maintenance Strategies;

Supplementary literature: Peter William Atkins and J. A. Beran, General Chemistry; Peter Atkins , Julio de Paula, Physical Chemistry

Contact hours with an academic teacher: 30

Student's independent work: 20