SZKOŁA GŁÓWNA GOSPODARSTWA WIEJSKIEGO

Adhesive Bonding in Wood-Based Materials

Educational subject description sheet

Basic information

Field of study Wood Technology **Speciality** - **Organizational unit** Faculty of Wood Technology **Study level** first cycle (engineering degree) **Study form** full-time studies **Education profile** General academic	**Didactic cycle** 2024/25 **Subject code** TDRTDS_D.320.05409.24 **Lecture languages** english **Mandatory** Elective subjects **Block** Major subjects **Disciplines** Forest science

Coordinator	Mariusz Mamiński
Teacher	Mariusz Mamiński, Grzegorz Kowaluk

Period Semester 6	**Examination** Pass with grade **Activities and hours** Lecture: 15	**Number of ECTS points** 1

Goals

Code	Goal
C1	Students know industrially-used adhesives
C2	Students know industrial approach to wood bonding

Subject's learning outcomes

Code	Outcomes in terms of	Effects	Examination methods
Knowledge – Student knows and understands:			
W1	Students know industrial adhesives in wood bonding	TD_K3_W03	Report
Skills – Student can:			
U1	Students have the ability to prepare materials for bonding, use adhesives, analyse bond quality	TD_K3_U05_inz	Report
Social competences – Student is ready to:			
K1	student is prepared to create innovations	TD_K3_K02	Report

Study content

No.	Course content	Subject's learning outcomes	Activities
1.	Physical and chemical principles of adhesive and cohesive interactions. Basic concepts, incl. adhesion, cohesion. The concept of the adhesive joint model. Theories of adhesion. Spatial levels of adhesive-substrate interactions. Mechanisms of an adhesive joint formation. Factors affecting gluing processes. Bond quality analysis. Industrial adhesives. Examples of industrial processes of wood bonding technology.	W1, U1, K1	Lecture

Course advanced

Activities	Methods of conducting classes
Lecture	Lecture, Problem lecture, Case study

Activities	Examination method	Percentage
Lecture	Report	100%

Activities	Credit conditions
Lecture	Positive report evaluation

Literature

Obligatory

1. Pizzi A, Mittal K.L., Handbook of adhesive technology, Marcel Dekker, New York, 2003
2. He Z. (ed.), Bio-based wood adhesives. Preparation, characterization and testing. CRC Press, Boca Raton, 2017
3. Pocius A.V., Adhesion and Adhesive Technology, Hanser, Munchen, 2002

Optional

1. International Journal of Adhesion and Adhesives (journal)
2. European Journal of Wood and Wood Products (journal)
3. Wood Science and Technology (journal)
4. Forest Product Journal
5. Green Chemistry (journal)

Calculation of ECTS points

Activity form	**Activity hours***
Lecture	15
Preparing a report	5
Self-study on the content covered in class	5
Student workload	**Hours** 25
Number of ECTS points	**ECTS** 1

* hour means 45 minutes

Effects

Code	Content
TD_K3_K02	Absolwent jest gotów do prawidłowej identyfikacji i rozstrzygania problemów poznawczych i praktycznych związanych z wykonywaniem zawodu oraz ma świadomość potrzeby zasięgania opinii ekspertów w przypadku trudności z samodzielnym rozwiązaniem problemu
TD_K3_U05_inz	Absolwent potrafi projektować, zgodnie z zadaną specyfikacją, oraz wykonywać typowe dla kierunku studiów proste urządzenia, obiekty, systemy lub realizować procesy, używając odpowiednio dobranych metod, technik, narzędzi i materiałów
TD_K3_W03	Absolwent zna i rozumie zagadnienia z zakresu technologii, narzędzi i materiałów stosowanych przy rozwiązywaniu zadań inżynierskich z zakresu szeroko pojętego drzewnictwa