

SYLLABUS

Name of the course (as specified in the approved curriculum) Wood chemistry		Number of ECTS Credits 5
Name of the course in Polish Chemia drewna		
Unit providing the course (Department/Institute) Institute of Chemical Wood Technology		
Course leader Magdalena Zborowska		
Field of study Wood Science	Level II	Semester 1
TYPE OF CLASSES (course load)		
- Lectures		15
- Practical classes		40
- Contact hours		8
- Self-study		75
Total number of hours		138
OBJECTIVE OF THE COURSE		
This course focuses on developing an understanding of major and minor constituents of wood, their occurrence, structure and reactions. Students will learn to isolate components of wood as well as identify their properties using classical and instrumental methods. During this course students will find out the nature and scope of the reactions with typical carbohydrates and lignin functional groups.		
TEACHING METHODS		
Lectures based on multimedia presentation with elements of discussion. Classes: chemical analysis, individual/group projects.		
Course learning outcomes		The reference to field of study outcomes
Knowledge	O1 Students will have advanced knowledge of chemistry and related sciences adjusted to wood technology	WS2A_K03
	O2 Students will discover advanced analytical methods and materials in the scope of wood technology as it enables to utilize and develop potential of nature in order to improve human living quality	WS2A_K10
Skills	O3 Students will have skills to seek out, understand and analyze information in a range of wood technology coming from different sources, given in different forms, as well as to interpret information, derive conclusions, express and justify opinions	WS2A_S01
	O4 Students will be able to plan independently and in team planning and carrying out research in the area of wood technology, as well as analyze and assess correctness of carried out tasks	WS2A_S04
	O5 students will have skills for selecting and modifying typical actions in wood technology with a use of right techniques in order to enable improving quality of life of people together with rational utilization of natural resources	WS2A_S06
Social skills	O6 Students will understand the need for continuous learning, will be able to inspire and organize learning processes of other persons	WS2A_C01
	O7 Students will be able to cooperate and work in a team, both as a leader and a member of a team	WS2A_C02
Methods of evaluation of outcomes achievement Exam, partial exam Work in group, debate		Symbols of course learning outcomes O1, O2, O3, O4, O5, O6, O7,
TEACHING CONTENT		
Lectures: Chemical composition of wood. Wood polysaccharides. Cellulose – occurrence, molecular structure, properties, reactions. Hemicellulose (polyoses) - nature and classification, softwood and hardwood hemicelluloses, reactions. Lignin – occurrence, structure, properties, lignin-polysaccharide complex, reactions. Extractives. Terpens, fatty acids, coloring matter – occurrence, properties, chemical composition. Inorganic composition. Wood pulping.		
Classes: Determination of wood components solubility in water, alkali and ethanol. Determination of polysaccharides and lignin. Hydrolysis, etherification and esterification of cellulose.		
The course completion criteria and methods Exam		Percent of a final grade 100%

RECOMMENDED LITERATURE

Fengel D., Wegener G. (1989): Wood, chemistry, ultrastructure, reactions. Walter de Gruyter, Berlin –New York
Rowell R. (2005): Handbook Of Wood Chemistry And Wood Composites.(2005), DOI: 10.1201/b12487, Publisher: CRC Press
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