

FACULTY OF CHEMISTRY		SUBJECT CARD				
Name of subject in Polish	Wybrane reakcje w chemii organicznej					
Name of subject in English	Selected reactions in organic chemistry					
Main field of study (if applicable):	Chemia					
Specialization (if applicable):	Medicinal Chemistry					
Profile:	academic					
Level and form of studies:	2nd level, full-time					
Kind of subject:	optional					
Subject code	CHC020044					
Group of courses	NO					
	Lecture	Classes	Laboratory	Project	Seminar	
Number of hours of organized classes in University (ZZU)	30					
Number of hours of total student workload (CNPS)	60					
Form of crediting	Crediting with grade					
For group of courses mark (X) final course						
Number of ECTS points	2					
including number of ECTS points for practical (P) classes						
including number of ECTS points for direct teacher-student contact (BK) classes	1					
PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES 1. Passed lecture on "Principles of Organic Chemistry" 2. Knowledge of the basic mechanisms of organic reactions 3. Knowledge of English						
\SUBJECT OBJECTIVES C1 Presentation of the basic classes of organic compounds including the question of isomerism, stereochemistry, and the most important characteristic of the reaction of functional groups C2 Presentation of the selected mechanisms of organic name reactions, and a number of other reactions C3 Discussion of the mechanisms of organic reactions such as addition, elimination, radical substitution, electrophilic and nucleophilic substitution C4 Discussion of pericyclic reaction C5 Discussion of the reactions of organometallic compounds C6 Discussion of the planning principles established synthesis of the target molecule						
SUBJECT EDUCATIONAL EFFECTS relating to knowledge: PEK_W01 – knows the basic classes of organic compounds including the question of isomerism, stereochemistry, and the most important characteristic of the reaction of functional groups. PEK_W02 – know the mechanisms of organic reactions such as addition, elimination, substitution radical, electrophilic and nucleophilic and selected name reactions PEK_W03 – known reactivity of organometallic compounds and phosphorous- and sulfur organic compounds and examples of their use in the synthesis PEK_W04 – known selective reduction methods and selective oxidation method used in organic chemistry PEK_W05 – understand the purpose and know how to protect the functional groups PEK_W06 – know what to do when planning a synthesis of the target molecule for moderately complex structure						
PROGRAMME CONTENT						

Lectures		Number of hours
Lec 1	Electronic structure of organic compounds.	2
Lec 2	Molecular architecture – elements of stereochemistry.	2
Lec 3	Reaction equilibrium and rate.	2
Lec 4	Intermediates, transition state.	2
Lec 5	Reactions of aromatic compounds.	2
Lec 6	Reactions of carbonyl compounds.	2
Lec 7	Reactions of some organometallic compounds (Li, Mg, Zn,...).	2
Lec 8	Reactions of organophosphorous and sulfur compounds.	3
Lec 9	Pericyclic reactions.	2
Lec 10	Selective methods for reductions of organic compounds.	2
Lec 11	Selective methods for oxidations of organic compounds.	2
Lec 12	Ideas of organic synthesis.	2
Lec 13	Selective transformations and protections of functional groups.	3
Lec 14	Targeted synthesis.	2
	Total hours	15
TEACHING TOOLS USED		
N1. lecture and multimedia presentation		
EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT		
Evaluation (F – forming (during semester), P – concluding (at semester end))	Educational effect number	Way of evaluating educational effect achievement
C - credit, on the basis of student's attendance		
PRIMARY AND SECONDARY LITERATURE		
<u>PRIMARY LITERATURE:</u>		
[1] J. Clayden, N. Greeves, S. Warren, P. Wothers, Organic Chemistry, Oxford, 2000;		
[2] J. McMurry, Chemia organiczna, tom 1 – 5, PWN, Warszawa, 2005;		
[3] Michael B. Smith, Jerry March, March's Advanced Organic Chemistry, Wiley, 2000.		
[4] J. Skarzewski, Wprowadzenie do syntezy organicznej, PWN, Warszawa, 1999.		
<u>SECONDARY LITERATURE:</u>		
[1] L. G. Wade, Organic Chemistry, Prentice Hall, Upper Saddle River, NJ, 2006		
SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)		
Prof. Dr. hab. Jacek Skarzewski, jacek.skarzewski@pwr.edu.pl		