Level: bachelor

Course title: Organic Chemistry IV IHO-301

Status: elective

ECTS: 7

Requirements: none

Learning objectives

Expanding the knowledge of organic reactions and their mechanisms. Stereochemical and dynamic aspects of organic reactions. Gaining knowledge and skills in planning of organic reactions.

Learning outcomes

Qualifying students to create and interpret organic reactions for the synthesis of the planned compounds.

Syllabus

Theoretical instruction

Regioselectivity and stereoselectivity of organic reactions. Kinetic and thermodynamic aspects of organic reactions. Curtin-Hammett Principle. Structure and reactivity of major reaction intermediates. Stereochemical course of addition, elimination and substitution reactions. Cyclic systems and conformational effects. Molecular rearrangements. Asymmetric induction. Enantioselective and diastereoselective synthesis. Catalytic reduction of alkenes, cycloalkenes and alkynes in the presence of transition metal-complexes. Stereospecific polymerization of conjugated diene and monoalkene. Addition of nucleophiles to the acyclic double bond complexed with transition metal compounds. Metathesis reactions. Pericyclic reactions Woodward-Hoffmann rules.

Practical instruction

Laboratory synthesis of eight organic compounds. Spectroscopic elucidation the structure of reaction products on the basic of their infrared, UV-visible and NMR spectra.

Weekly teaching load				Other:
Lectures: 2	Exercises: 4	Other forms of teaching:	Student research:	