Level: bachelor

Course title: Microwaves in Green Chemistry IHO-408

Status: elective

ECTS: 5

Requirements: none

Learning objectives

Acquiring the basic theoretical knowledge in the field of microwave dielectric heating as well as the effects of microwave radiation and microwaves importance in various fields of chemistry, biochemistry and medical nanoparticles. Qualifying students for selecting the appropriate microwave methodology and techniques.

Learning outcomes

After completing this course, the student is able to:
demonstrate the basic experimental and theoretical knowledge in the field of microwave technology and methodology; independently select, plan and carry out experiments; successfully analyze and interpret the results of experiments; developing in the direction of the microwave catalyzed organic synthesis.

Syllabus

Theoretical instruction

The nature of the microwave radiation. The effects of temperature, pressure and reaction medium in the microwave catalyzed reactions. Application and importance of microwaves in green chemistry: organic reactions with and without the presence of the solvent, the use of phase transfer catalyst and an open or closed systems.

Practical instruction

Performing the reactions in the microwave CEM Discover BanchMate microwave reactor with previous optimization of the reaction conditions (choice of the reaction medium, temperature, catalyst, performing the reaction at atmospheric or elevated pressure).

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