



УНИВЕРЗИТЕТ У БАЊОЈ ЛУЦИ  
UNIVERSITY OF BANJA LUKA  
ПРИРОДНО-МАТЕМАТИЧКИ ФАКУЛТЕТ  
FACULTY OF NATURAL SCIENCES AND MATHEMATICS



CHEMISTRY DEPARTMENT

FIRST CYCLE OF STUDY

Chemistry/Chemistry Education

Course name	<b>Chemistry of Synthetic Polymers</b>			
Course code	Course status	Semester	Hours of instruction	ECTS
1C16HOS1117	elective	VII	2+2	5
Teacher(s)	<b>Prof. Vesna Antić PhD, Prof. Milica Balaban PhD</b>			

Prerequisite course(s)	Entry requirements
Organic Chemistry 1	Passed exam

**Course goals**

The aim of the course is to get acquainted with the structure, properties, and methods of synthesis and application of synthetic polymers.

**Learning outcomes**

After passing the exam, the student recognizes different types of synthetic polymers and ways to obtain them, and explains the kinetic and thermodynamic bases of step and chain reactions for polymer synthesis. The student has mastered the knowledge about the structure of polymers, their properties and applications, and discuss about the mechanism and kinetics of chain and step polymerizations, as well as the method of regulation of molar masses and distribution of molar masses of polymers.

**Course content**

Types of polymers and polymerization (basic concepts, nomenclature, molar masses and polydispersity). Polymer classification.

Staged polymerizations. Polycondensation and polyaddition. Mechanism and kinetics of step polymerizations. An overview of the synthesis of some industrially important polymers.

Chain polymerizations (radical, cationic and anionic). Thermodynamic and kinetic aspect of chain polymerizations.

Molar masses and distribution of molar masses of polymers obtained by chain polymerizations.

Ring opening polymerizations. Copolymerization. Block and alternating copolymers.

**Teaching methods**

Lectures, exercises

**Books and other learning materials**

S. M. Jovanović, J. Đonlagić: **Hemija makromolekula**, TMF, Beograd, 2004.

G. Odian: **Principles of Polymerization**, John Wiley&Sons, New York, 1991.

J. Đonlagić: **Hemija makromolekula - praktikum**, TMF, Beograd, 1999.

**Course activities and grading method**

The activity and the colloquium refer to the exercises that are a condition for taking the final exam.

The results of these tests are included in the final grade only if they exceed 50% of the points provided for a given form of test during the semester.

Activity and colloquium	20	Test	20
		Final exam	60

**Additional course notes**

/

Name of the teacher who prepared this form	Vesna Antić
--	-------------