<table>
<tr><td colspan="2">NAME OF THE COURSE</td><td colspan="5">Colloid chemistry</td></tr>
<tr><td>Code</td><td>PPC220</td><td>Year of study</td><td colspan="4">3. year (6. semester) Biology and Chemistry</td></tr>
<tr><td>Course teacher</td><td>Assist. prof. Perica Boskovic PhD</td><td>Credits (ECTS)</td><td colspan="4">2</td></tr>
<tr><td rowspan="2">Associate teachers</td><td rowspan="2"></td><td rowspan="2">Type of instruction (number of hours)</td><td>L</td><td>S</td><td>E</td><td>F</td></tr>
<tr><td>30</td><td></td><td></td><td></td></tr>
<tr><td>Status of the course</td><td>elective</td><td>Percentage of application of e-learning</td><td colspan="4"></td></tr>
<tr><td colspan="7">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="6">Emphasize students the importance of application of colloidal systems in various scientific fields
Acquire basic knowledge about the physico-chemical properties of colloid systems</td></tr>
<tr><td>Course enrolment requirements and entry competences required for the course</td><td colspan="6">Entry competences required for this course are basic knowledge of chemistry.</td></tr>
<tr><td>Learning outcomes expected at the level of the course (4 to 10 learning outcomes)</td><td colspan="6">Students will succeed in successfully mastering a subject:
- to describe the structural composition of colloid ssystems
- Explain the role of surfactant and the importance of thermodynamic parameters in achieving a stable colloidal system
- to describe the basic principles and possibilities of applying different methods (spectroscopy, conductometry, viscosimetry, surface tension measurement, AFM, TEM, SANS) in the research of the above mentioned systems
- apply appropriate computer programs for numerical processing of experimental data and graphic representation of the obtained results; discuss the results obtained and make a conclusion at the end of the work</td></tr>
<tr><td>Course content broken down in detail by weekly class schedule (syllabus)</td><td colspan="6">Lectures:
Week 1: Systes: Dispersion systems, two-phase systems.
Week 2: Colloid classification
Week 3: Structural characteristics of macromolecules. Physico-chemical characteristics of macromolecules. Chemical composition of macromolecules
Week 4: Formation of colloidal dispersions. Dispersion methods. Aggregation methods or condensation.
Week 5: Size and shape of colloidal particles. Structure of colloidal particles
Week 6: Kinetic phenomena in colloidal dispersions. Brown motion and diffusion. Sedimentation. Osmotic pressure.
Week 7: Optical phenomena in colloidal solutions. Refraction of light. Scattering of light in colloidal solutions. Light absorption in colloidal solutions.
Week 8: Surface phenomena. Surface pressure. Adsorption
Week 9: Viscosity of colloidal solutions.
Week 10: Rheological properties of colloidal systems.
Week 11. Electrical phenomena in colloids
Week 12: Colloid coagulation
Week 13: Thermodynamics of Colloidal Systems
Week 14: Examples.</td></tr>
<tr><td>Format of instruction</td><td colspan="3">☒ lectures
☐ seminars and workshops
☐ exercises
☐ on line in entirety
☐ partial e-learning</td><td colspan="3">☐ independent assignments
☒ multimedia
☐ laboratory
☐ work with mentor
☐ (other)</td></tr>
</table>

	☐ field work					
Student responsibilities	Attending classes, searching for literature, preparing and presenting seminar papers, written and oral exam.					
Screening student work *(name the proportion of ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*	Class attendance	0.5	Research		Practical training	
	Experimental work		Report		(Other)	
	Essay	0.5	Seminar essay		(Other)	
	Tests	0.5	Oral exam	0.5	(Other)	
	Written exam		Project		(Other)	
Grading and evaluating student work in class and at the final exam	Activity during the lecture attendance. Preparing seminar paper in writing and presentation in the form of Power Point presentations. The subject is divided into two parts that students submit through partial written exams or by completing the exam at the end of the semester. The exam will be passed if the students achieve at least 60%. Scoring: <60% of students did not satisfy; 60-69% sufficient (2); 70-79% good (3); 80-89% very good (4); 90-100% excellent (5).					

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	Lj. Đaković, Colloid Chemistry, Institute for Textbooks and Teaching, Belgrade, Serbia, 2006		
	Paul C. Hiemenz, Ray Rajagopalan, Principles of Colloid and Surface Chemistry, 3rd Edition, Marcel Dekker, New York, 1997.		
	P. K. Bidyut, S.P. Moulik, Uses and applications of Emulsions and Microemulsions, Curr. Sci. 80 (2001) 990.		
Optional literature (at the time of submission of study programme proposal)	P. Bošković, V. Sokol, D. Touraud, A. Prkić, J. Giljanović. The Nanostructure Studies of Surfactant-Free-Microemulsions in Fragrance Tinctures. Acta Chim. Slov. 63(2016) 138-143. • P. Bošković, V. Sokol, T. Zemb, D. Touraud, W. Kunz. Weak Micelle-Like Aggregation in Ternary Liquid Mixtures as Revealed by Conductivity, Surface Tension, and Light Scattering, J. Phys. Chem. B 119 (2015) 9933. • Kralova, J. Sjöblom Surfactants Used in Food Industry: A Review, J. Disper. Sci. Technol. 30 (2009) 1363. • C. A. Katz, Z. J. Calzola, J. K. N. Mbindyo, Structure and Solvent Properties of Microemulsions, J. Chem. Educ. 85 (2008) 263.		
Quality assurance methods that ensure the acquisition of exit competences	Quality and performance monitoring will be performed at three levels: (1) university, (2) faculty, through the Quality Control Committee, (3) teaching level.		
Other (as the proposer wishes to add)			