RECP net

THE SERBIAN CPC

Established 2007



National experts (including ChL expert)

- Technical Assistance and In-plant Assessments
- Training
- CP Technology and Investment Promotion
- Information Dissemination
- CP Policy Advice
- Chemical Leasing
- IPPC consulting
- Waste management
- Corporate Social Responsibility (CSR)



Advisory board

- Ministry of Environment
- Ministry of Economy
- Chamber of Commerce
- University of Belgrade
 - NGOs



- Faculty of Technology and Metallurgy CPC-Serbia •Director •National Coordinator for RECP •Administrative Assistant •Project Managers
- So far, (2006-2017) total of **92** companies participated in full assessments with about 40,000 employees
- Average savings per company: **100,000 EUR/year**
- Average decrease of water consumption: **50,000 m³/year**
- Average decrease in electrical power consumption: 500 MWh/year
- Average decrease in CO₂ emission: **500 t/year**
- Several Chemical Leasing Awards





CHEMICAL INDUSTRY IN SERBIA

- Share in gross domestic product of the overall industry of Serbia is about **10.5%**.
- **3,6 %** of jobs
- Products:
 - chemicals,
 - agro-chemical products,
 - chemical fibers and plastics,
 - artificial and synthetic fibers,
 - medicines and pharmaceutical raw materials,
 - detergents and cosmetics,
 - paints and coatings,
 - plastic packaging and plastic processing.









CURRENT ACTIVITIES IN GREEN CHEMISTRY RESEARCHAND Net DEVELOPMENT 1/2

•CO₂ for extraction: extraction of valuable substances from plant material (natural antioxidants and antimicrobial agents, functional food ingredients, flavors and fragrances, natural repellents, natural pesticides, etc).

•Cleaner production (supercritical CO₂ utilization) of modified polymer based materials in order to produce systems for:

- Drug stabilization
- Prolonged drug release
- Cell tissue engineering (scaffolds)



•Impregnation of textile materials and other solid carriers (polymers, composite materials) with active substances using supercritical CO₂

•Isolation of active substances from the food industry waste (grape seeds, blackberry and blueberry press-cake, etc.)



Catalyst synthesis for biodiesel production.
Catalyst synthesis for lignin transformation.



CURRENT ACTIVITIES IN GREEN CHEMISTRY RESEARCH AND DEVELOPMENT 2/2



- 1. Green Chemistry, Energy Storage, Electroanaly Sensors, Ionic Liquids, Trace Analysis, QSAR"
- 2. New Industrial and Ecological Aspects of Chemical Thermodynamics Application to Improvement of Chemical Processes with Multiphase and Multicomponent Systems"
- 3. Sustainability and Green Chemistry in Development of Eco-Friendly Analytical Methods and Energy Storage.
- Development of More Efficient Chemical and Engineering Processes Based on Intensification of Processes







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GREEN CHEMISTRY AT UNIVERSITIES IN SERBIA

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About the Faculty	Course code: 751H1	Course name: Green Chemistry	About Us 1	Rody Programs Admission Contact
ortments and Centers	Academic year:	2016/2017.	Groop Chamista	y in Pharmaceutical Industry
Studies		No prerequisites.	Sileen Chemistry	ninemer
to Become a Student	prerequisites:		tip programs	partacy
News	ECTS:		Type and level of study:	integrated academic studies
seum of Chemistry	Study level:	graduate academic studies, integrated basic and graduate studies	Name of subjects	Green Chemistry in Pharmaceutical Industry
ident Organizations	Study programmes:	Chemical Education: 5. year, winter semester, elective (ESAP1) course Chemistry: 1. year, winter semester, elective (ES2P1) course Environmental Chemistry: 1. year, winter semester, elective (ES2S1) course	Toolers	Videvic Dogolav PbD
Internal Pages	Teacherry	Miroslav M. Vrvić. Ph.D.	Pubjects status:	optional
२, Search the site:	Teachers:	Infromativ III. VYNIC, FILLU full professor, Faculty of Chemistry, Studentski trg 12-16, Beograd Tgor M. Opsenica, Ph.D. assistant professor, Faculty of Chemistry, Studentski trg 12-16, Beograd	S-moders	third year, sinth sensenter
		Aleksandra N. Đurić		

- University of Belgrade, Faculties of Technology and Metallurgy and Chemistry
- University of Nis
- University of Novi Sad, Faculty of Technical Sciences
- State University of Novi Pazar







EXPECTATIONS FROM THE PROJECT

- Participation in the Training on green chemistry and technology, including policy aspects
- Using Guidance document to improve courses at the Universities
- Providing information on GC to industry and connect them with research institutions





