

# THE SERBIAN CPC

Established 2007



## 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

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)



- 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 m<sup>3</sup>/year**
- Average decrease in electrical power consumption: **500 MWh/year**
- Average decrease in CO<sub>2</sub> 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 RESEARCH AND DEVELOPMENT 1/2

- CO<sub>2</sub> 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 CO<sub>2</sub> 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 CO<sub>2</sub>

- 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.

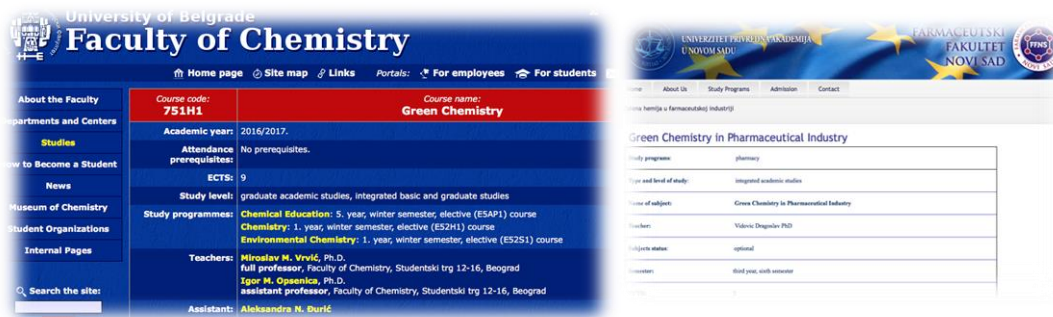
# CURRENT ACTIVITIES IN GREEN CHEMISTRY RESEARCH AND DEVELOPMENT 2/2



1. Green Chemistry, Energy Storage, Electroanalysis, 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.
4. Development of More Efficient Chemical and Engineering Processes Based on Intensification of Processes



# GREEN CHEMISTRY AT UNIVERSITIES IN SERBIA



- 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

