

CEEPUS summer school

Advanced spray drying and microfluidics applications in pharmaceutical development

September 8–12, 2025

RS-1113-08-2425 - Central European Knowledge Alliance for Teaching, Learning & Research in Pharmaceutical Technology (CEKA PharmTech)

University of Zagreb Faculty of Pharmacy and Biochemistry, Domagojeva 2, 10000 Zagreb

Number of attendees:

Graduate students: 5

PhD students: 9

Scholarships (5 days per applicant)

Graduate students: 26 EUR per day

PhD students: 30 EUR per day

Accommodation was provided in student dormitory, in double rooms for graduate students and single rooms for PhD students

Monday, September 8, 2025	
14:00 – 14:30	Registration
14:30 – 15:30	Assoc. prof. Sandra Šupraha Goreta, PhD, Vice-dean for students and study programs, Prof. Jelena Filipović-Grčić, PhD, Head of the Department of Pharmaceutical Technology, Prof. Anita Hafner, PhD, Local coordinator of CEEPUS network CEKA PharmTech Organizers welcome and introduction to summer school
Tuesday, September 9, 2025	
9:00 – 10:00	Prof. Anita Hafner, PhD Pharmaceutical spray drying lecture
10:00 – 11:00	Prof. Mario Jug, PhD, Mirna Perkušić, PhD Introduction to the spray dryer Büchi Mini Spray-Dryer B-290 Advanced workshop

11:00 – 13:00	Prof. Mario Jug, PhD, Mirna Perkušić, PhD Open cycle spray drying workshop
13:00 – 15:00	Lunch break
15:00-16:00	Prof. Mario Jug, PhD, Mirna Perkušić, PhD Physicochemical characterisation of spray dried product lecture
Wednesday, September 10, 2025	
9:00-11:00	Prof. Anita Hafner, PhD, Mirna Perkušić, PhD Closed-loop spray drying workshop
11:00 – 13:00	Prof. Mario Jug, PhD, Mirna Perkušić, PhD, Anđela Nosić, Jelena Štimac Physicochemical characterisation of spray dried product workshop - Laser diffraction particle size analysis (Malvern Panalytical Mastersizer 300) - Zeta potential analysis by electrophoretic light scattering (Malvern Panalytical, Zetasizer Ultra)
13:00 – 15:00	Lunch break
15:00-17:00	Prof. Mario Jug, PhD Physicochemical characterisation of spray dried product workshop - Moisture content (TA Instruments, Discovery TGA550) - Analysis of solid state properties by differential scanning calorimetry (TA Instruments, Discovery DSC250)
Thursday, September 11, 2025	
9:00 – 10:00	Prof. Jasmina Lovrić, PhD, Prof. Željka Vanić, PhD Pharmaceutical microfluidisation lecture
10:00 – 11:00	Prof. Željka Vanić, PhD, Josip Ljubica, PhD Introduction to the microfluidizer Microfluidics™ LM20 workshop
11:00 – 13:00	Prof. Željka Vanić, PhD, Josip Ljubica, PhD Microfluidisation technique for liposome preparation workshop
13:00 – 15:00	Lunch break
15:00-17:00	Josip Ljubica, PhD, Anđela Nosić, Jelena Štimac Microfluidisation technique for nanoemulsion preparation Workshop
Friday, September 12, 2025	

9:00 – 10:00	Prof. Željka Vanić, PhD, Josip Ljubica, PhD Physicochemical characterisation of nanoemulsions and liposomal formulations lecture
10:00-13:00	Prof. Željka Vanić, PhD, Josip Ljubica, PhD, Mirna Perkušić, PhD, Anđela Nosić, Jelena Štimac Physicochemical characterisation of nanoemulsions and liposomal formulations workshop - Particle size analysis by dynamic light scattering (Malvern Panalytical, Zetasizer Ultra) - Zeta potential analysis by electrophoretic light scattering (Malvern Panalytical, Zetasizer Ultra) - Rheological characterisation (Anton Paar MCR 102)
13:00-14:00	Closing and feedback

