Master Educational Programme	**Advanced Chemical Process Engineering**
Degree Awarded	Master in Chemical Process Engineering; Profile Chemical Engineering
Length of Studies	2 years – 4 semesters – 120 ECTS (additionally, 10 ECTS are awarded for the master thesis dissertation)
Institution	Babeş-Bolyai University of Cluj-Napoca, Romania
Faculty/ Department	Faculty of Chemistry and Chemical Engineering, Chemical Engineering Department
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Target Group / Addressees	Bachelor graduates of the Chemical, Biochemical, Environmental, Mechanical and Electrical engineering fields or Chemistry, Physics and Mathematics, aimed to perform design, integration of process computer systems, research, CAD design and programming type of activities, with applications in chemical and petrochemical, food, cosmetics, pharmaceutical, pulp and paper, food and textile industries, in environmental protection and health care laboratories as well as in research institutions.
Entrance Conditions	The Admission procedure consists in an interview. Candidates have to present a Linguistic Proficiency Certificate for English language (Tőefl, Cambridge or equivalent proficiency certificates) or to pass a linguistic test performed at the Faculty of Chemistry and Chemical Engineering during the admission period.
Further Education Possibilities	The master programme aims at providing students with the appropriate skills and knowledge for further doctoral studies and become professional experts in the field.
Description of Study	Education of master students in Advanced Chemical Process Engineering is based on a modern curriculum merging knowledge from exact sciences, information technology and engineering, complemented with molecular design. On the basis of the gained knowledge, the graduate master engineers will be able to use the concepts and methods of advanced computer aided process engineering in industry, pilot or laboratory scale applications. *Core courses:* Process Intensification, Advanced Chemical Process Control, Heat Integration and Pinch Technology, Mathematical Modelling and Artificial Intelligence, Process Design Using Specialized Software, Rheology of Disperse Systems, Acquisition and Processing of Experimental Data, Advanced Physical Chemistry, Molecular Modelling and Design. *Partner universities*: ETH Zurich, Lappeenranta University, Rovira i Virgili University of Tarragona, Loughborough University.
Objectives of the Programme	The main objectives of the Master programme are: • Professional build-up of chemical engineers with the master degree by giving competences based on advanced knowledge of chemical, biochemical and environmental process engineering, accompanied by proficient computer aided process engineering expertise. • Development the master students abilities for performing design, research, optimization, advanced control and innovation activities, as response to the information technology demand in the chemical and biochemical engineering fields. • Developing master graduates capable to fulfil demands of the jobs featuring multidisciplinary activities in process engineering, process IT and applied computer science. • Setting up a source of specialists for recruiting the future scientific researchers aimed to work in institutions performing research activities, with national or international collaboration, and serving as human resource for the higher education system. • Preparation of highly qualified master graduates able to continue their studies at the PhD level.

Specialization / Area of Expertise	The holder of the diploma of Master in Advanced Chemical Process Engineering can work in any economic and administrative institutions or companies for accomplishing the following fundamental professional roles: Technological Engineer (plant exploitation in process industry); Design Engineer (design elaboration by using advanced methods and principles in plant process industry); Engineer in the Department of Processes Automation (design and operation of monitoring and control systems); Engineer in the Department of Development (development of complex, dynamic mathematical models); management and marketing activities in processes industry as well as in the professional training and development of personnel. The Master graduate will be able to perform research work in Research and Development institutions or universities as scientific researcher in the field of chemical engineering.
Practical Training	Research activities performed in own laboratories, in the partner universities and Romanian companies.
Final Examination	Research master thesis (dissertation).
Gained Abilities and Skills	On the basis of the gained knowledge, the graduate master engineers will be able to use the concepts and methods of advanced computer aided process engineering for industry, pilot or laboratory scale applications. The gained competences and skills are devoted to : • Development, design and retrofit of chemical processes and equipment. • Mathematical modelling and simulation of chemical processes for lumped and distributed systems, in dynamic and steady state. • Performing research activities in the chemical engineering field for process optimization and advanced control • Management of the resources and quality insurance for process industry. • Participating as member/leader to a research team for accomplishing the goals of a scientific research project. • Self evaluation of the own professional performance and identification of new development directions.
Job Placement, Potential Field of Professional Activity	The graduate of the Master programme **Advanced Chemical Process Engineering** can work in: departments of production, design and research of chemical plants in industrial, small and medium size companies and research institutions; management departments of the companies, particularly those in chemical and petrochemical industry, food industry, cosmetics industry, pharmaceutical industry, pulp and paper industry, food and textile industry, building materials and cement industry; in consulting services at companies marketing materials and equipment specific to chemical plants and laboratories (including research); in environmental protection and health care laboratories but also in every company running activities that involve chemical processes. Admission period: First session: 15-30 July 2015 (Interview and language test on the 21-st of July 2015). Second session: September 2015. Note: Please follow announcements on the site of the Faculty of Chemistry and Chemical Engineering.