

Educational Programme	Engineering and Information Technology of Biochemical and Chemical Processes
Degree Awarded	Bachelor
Standard Length of Studies (Number of ECTS Credits)	4 years - 8 semesters - 240 ECTS
Type of Study	Full-Time
Higher Education Institution	Babeş-Bolyai University
Faculty / Department	Faculty of Chemistry and Chemical Engineering
Contact Person	Prof. PhD. AGACHI Paul-Şerban Assoc. Prof. PhD. IMRE-LUCACI Árpád
Phone	0264-593.833
Fax	0264-590.818
E-mail	sagachi@chem.ubbcluj.ro aimre@chem.ubbcluj.ro
Profile of the Degree Programme	Chemical Engineering
Target Group / Addressees	Graduates of secondary education with basic level of knowledge in chemistry wishing to further develop competencies in this field.
Entrance Conditions	30% baccalaureate examination score + 70% average grade at the subject of chemistry over forms IX-XII.
Further Education Possibilities	Master Studies
Description of Study	Mission of this specialty is a result of a good exploitation of the industrial process, based on mathematical modelling, simulation, optimized and evolved direction.
Purposes of the Programme	<ol style="list-style-type: none"> 1. Train chemical engineers by assuring basic competencies in assisted process computer engineering; 2. Assuring a proper skill force for Romania's chemical engineering needs, enabling graduates to satisfy workplace criteria with multidisciplinary traits in chemical and process engineering, process and applied informatics (industry, small and medium enterprises, secondary education); 3. Assuring quality preparation by relating the acquired skills to the revolutions in the new technologies of information and chemical and biochemical system engineering; 4. Ensure compatibility in the preparation of local chemical engineers with European Union quality standards; 5. Develop competencies which will allow the chemical engineer to strengthen its knowledge by following masters and doctoral degree studies; 6. Ensure the training of chemical engineers in the present study programme as to be able to become potential researchers and professors in higher education institutions.
Specialization / Area of Expertise	The holder of the diploma of Chemical Engineering in the specialization of Engineering and Information Technology of Biochemical and Chemical Processes can work in any economic and administrative institution or

	<p>company to accomplish the following fundamental professional roles:</p> <ul style="list-style-type: none"> • <i>Technological Engineer</i> (plant exploitation in process industry); • <i>Design Engineer</i> (design elaboration by using well-established methods and principles in plant process industry); • <i>Engineer in the Department of Processes Automation</i> (exploitation of monitoring and automatic processes systems); • <i>Engineer in the Department of Development</i> (development of mathematical models); • <i>Management and marketing activities</i> in processes industry as well as in the professional training and development of personnel.
Extra Peculiarities	-
Practical Training	Throughout the course students are required to undertake the practical work at Babeş-Bolyai University, industrial companies, laboratories of chemical analysis.
Final Examinations	Graduation thesis
Gained Abilities and Skills	<p>I. General competences</p> <p>The knowledge and understanding of basic concepts, principles and theories, phenomena and processes in chemical and biochemical engineering, and also of fundamental principles with direct application in interrelated fields (electronics, mechanical engineering). The ability to apply the theories of chemical processes engineering, to use interdisciplinary knowledge in interrelated fields, as well as standard investigation methods in process engineering for the quantitative and qualitative solving of the main problems of a chemical system.</p> <p>The optimum control of a chemical process on the basis of data collection and critical analysis according to the legal safety norms on apparatus use and according to the regulations on environmental protection and long-term development.</p> <p>The ability to design, carry out and conduct practical experiments on the scale of pilot and industrial laboratories by using recognized methods and specific apparatus, to interpret the meaning of the results obtained and also to transpose these experiments to an optimum scale.</p> <p>The communication and argumentation of own ideas and points of view clearly and concisely by using various approaches of oral and written communication based on information technology, not only in the native language but also in a foreign language. The ability to establish interpersonal relationships that facilitate teamwork and to assign tasks to the subordinate levels.</p> <p>The ability to teach speciality technical disciplines in the educational system on condition that the holder of the</p>

	<p>graduation diploma in Chemical Engineering owns the Certificate acknowledging the graduation of The Program of Psychopedagogical Studies.</p> <p>II. Speciality competences</p> <p>The ability to apply general knowledge of: organic chemistry, inorganic chemistry, analytical chemistry, physical chemistry, mathematics, physics, mechanics, electrotechnics, transport phenomena and property transfer, chemical reactions engineering, biochemical processes engineering, computer use, analysis and synthesis of chemical processes, automatic control and chemical processes optimization for the implementation of chemical engineering.</p> <p>The ability to know and apply basic mathematical instruments to the description of phenomena specific to chemical engineering. The ability to understand, evaluate and co-ordinate the chemical process in a systemic manner.</p> <p>The ability to elaborate mathematical and statistical models, in stationary and dynamic stage, and to build software stimulators that represent the real behaviour of the chemical system, according to the purpose of its investigation.</p> <p>The ability to understand how to operate and use the instruments of measurement and automatic adjustment for the chemical system control.</p> <p>The ability to understand and elaborate software applications by using languages specific to chemical systems.</p> <p>The ability to use and apply the basic concepts of integrated design and optimization to the elaboration of new solutions with a view to improving the system economic performances and the environmental protection.</p> <p>The ability to use information technologies for documentation, data processing, modeling, simulation and management of chemical processes. The ability to understand and adapt to new hardware and software products of information technology and implement them in chemical engineering.</p>
<p>Job Placement, Potential Field of Professional Activity</p>	<p>The graduate of the specialization Engineering and Information Technology of Chemical and Biochemical Processes can work in:</p> <ul style="list-style-type: none"> • departments of production, exploitation and design of chemical plants in industrial companies; • management departments of companies, particularly those in chemical and petrochemical industry, food industry, cosmetics industry, pharmaceutical industry, wood and furniture industry, textile industry; • consulting services at firms marketing materials and equipment specific to chemical plants and

	<p>laboratories (including research) but also in every company running activities that involve chemical processes.</p> <ul style="list-style-type: none">• On condition of promoting The Program of Psycho-Pedagogical Studies Ist Level, the holder of this certificate can work as a teacher in the compulsory pre-university educational system.
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Date: 28.10.2010

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