

PROGRAMME PROFILE

Educational Programme	Biochemical Engineering
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	Babes-Bolyai University
Faculty / Department	Faculty of Chemistry and Chemical Engineering
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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 the application of chemical engineering principles to conceive, design, develop, operate, or utilize processes and products based on biological and biochemical phenomena; this field is included in a wide range of industries, such as health care, agriculture, food, enzymes, chemicals, waste treatment, and energy.
Purposes of the Programme	<ol style="list-style-type: none"> 1. Train chemical engineers by assuring basic competencies in bioprocess engineering; 2. Assuring a proper skill force for Romania's needs, enabling the development of biological processes associated with everything from raw materials preparation to product recovery, relevant to industries as diverse as medical/healthcare, food and environmental protection. 3. Graduates to satisfy work-place criteria with multidisciplinary traits in bioprocess engineering (industry, small and medium enterprises, secondary education); 4. Assuring quality preparation by relating the acquired skills to the revolutions in the new technologies of information and biochemical system engineering; 5. Ensure compatibility in the preparation of local chemical engineers with European Union quality standards; 6. Develop competencies which will allow the chemical engineer to strengthen its knowledge by following masters and doctoral degree studies; 7. Ensure the training of biochemical 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 Biochemical Engineering can work in any economic, medical and pharmaceutical institution or company to accomplish the following fundamental professional roles: Biotechnological Engineer; Design Engineer; Bioanalysis in the Department of Food and Drug processes, Development; management and marketing activities in bioprocesses 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 biochemical processes, thermodynamics and kinetics of biotechnology. 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 bioprocess.</p> <p>The optimum control of a bioprocess 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 graduation diploma in Biochemical 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, biochemistry, analytical chemistry, physical chemistry, mathematics, physics, electrotechnics, transport phenomena and property transfer, chemical reactions engineering, biochemical processes engineering, computer use, analysis and synthesis of bioprocesses, automatic control and chemical processes optimization for the implementation of bioengineering.</p>

	<p>The ability to know and apply basic mathematical instruments to the description of phenomena specific to bioengineering. The ability to understand, evaluate and coordinate the chemical process in a systemic manner.</p> <p>The ability to use information technologies for documentation, data processing, modeling, simulation and management of bioprocesses.</p> <p>The programme include lectures in Biochemistry, Microbiology, Enzymology, specific biotechnologies (of Food and of Drug), Bioprocess Engineering, proteins engineering, downstream and upstream processing.</p>
<p>Job Placement, Potential Field of Professional Activity</p>	<p>The graduate of the specialization Biochemical Engineering can work in: departments of production, exploitation and design of biotechnological plants in industrial companies; management departments of companies, particularly those in food industry, pharmaceutical industry, cosmetics industry, wood and furniture industry, textile industry; in consulting services at firms marketing materials and equipment specific to chemical plants and laboratories (including research) but also in every company running activities that involve bioprocesses.</p> <p>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-universitary educational system.</p>

Date: 29/10/2010

Signature: