

SYLLABUS

1. Information regarding the programme

1.1 Higher education institution	Babeş–Bolyai University of Cluj–Napoca
1.2 Faculty	Faculty of Chemistry and Chemical Engineering
1.3 Department	Chemical Engineering
1.4 Field of study	Chemical Engineering
1.5 Study cycle	Master
1.6 Study programme / Qualification	Advanced Chemical Process Engineering

2. Information regarding the discipline

2.1 Name of the discipline		Practical activities of research and development - CME7342					
2.2 Course coordinator		-					
2.3 Seminar coordinator		Scientific advisor for the dissertation thesis					
2.4. Year of study	II	2.5 Semester	4	2.6. Type of evaluation	Cont. Ev.	2.7 Type of discipline	Compulsory

3. Total estimated time (hours/semester of didactic activities)

3.1 Hours per week	11	Of which: 3.2 course	-	3.3 seminar/laboratory	11
3.4 Total hours in the curriculum	154	Of which: 3.5 course	-	3.6 seminar/laboratory	154
Time allotment:					hours
Learning using manual, course support, bibliography, course notes					100
Additional documentation (in libraries, on electronic platforms, field documentation)					90
Preparation for laboratory work, homework, papers, portfolios and essays					90
Tutorship					12
Evaluations					4
Other activities:					
3.7 Total individual study hours					296
3.8 Total hours per semester					450
3.9 Number of ECTS credits					18

4. Prerequisites (if necessary)

4.1. curriculum	<ul style="list-style-type: none"> It is not the case
4.2. competencies	<ul style="list-style-type: none"> It is not the case

5. Conditions (if necessary)

5.1. for the course	<ul style="list-style-type: none"> It is not the case
5.2. for the seminar /lab activities	<ul style="list-style-type: none"> Students should be present at the meetings with the dissertation thesis advisor, according to their mutual agreement, in order to perform the scheduled research and development activities

6. Specific competencies acquired

Professional competencies	<ul style="list-style-type: none"> • Performing an extended study of the scientific literature associated to the specific research and development selected theme, organizing and structuring the data, together with the assimilation of the particular terminology • Usage of the field of study knowledge for setting the research strategy; explaining and interpreting the results • Usage of the concepts, methods, and advanced theories for the development of the new theoretical and practical approaches, in the research activities • Proper selection and usage of the assessment criteria and methods for the pertinent interpretation of the research results. Statement of the conclusions and argumentation of the proposed solutions • Innovative application of the concepts and advanced theories for solving a research theme in the chemical engineering field • Identification and definition of a research subject • Elaboration of a plan for achieving the proposed objectives and for the valorisation of the obtained results • Fulfilling the proposed plan and its associated objectives • Valorisation of the obtained results
Transversal competencies	<ul style="list-style-type: none"> • Performing the requested tasks according to the specified requirements in due date and conforming to the profession ethical and moral conduct rules, following a preset working plan • Solving the requested tasks according to the established general objectives • Documenting and continuous informing on the specific subjects belonging to the associated field of activity, using both the Romanian and the English language • Demonstrating concern for improving results of the professional activity by active participation in the deployed activities

7. Objectives of the discipline (outcome of the acquired competencies)

7.1 General objective of the discipline	<ul style="list-style-type: none"> • Familiarizing the graduates with the specificity of the scientific research in the chemical engineering field
7.2 Specific objectives of the discipline	<ul style="list-style-type: none"> • Acquiring knowledge related to the organising and synthetizing of the accumulated data by the study of the profession literature associated to the chosen research theme • Gaining knowledge necessary for setting the research strategy • Gaining knowledge for the explanation and interpretation of the original experimental results • Laying down conclusions and argumentation for the proposed solutions

8. Content

8.1 Course	Teaching methods	Remarks
8.2 Seminar / laboratory	Teaching methods	Remarks
Modelling, simulation, control and optimization of chemical processes	Laboratory experiments, Modelling, Elaboration of software applications	
Applications of statistical methods and artificial	Laboratory experiments,	

intelligence tools in chemistry and chemical engineering	Modelling, Elaboration of software applications	
Performing specific analysis work	Laboratory experiments, Modelling, Elaboration of software applications	
Bibliography Literature sources specific to the research theme (books, scientific papers in journals associated to the research field)		

9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

- Practical activities associated to the elaboration and transfer into practice of the research plan in the chemical engineering field, in order to develop competencies necessary to the following professions: process engineer for the chemical, petrochemical, food, pharmaceutical and cosmetics industries and for consultancy, design and research professional activities, but also for enrolling in a PhD programme.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
10.4 Course			
10.5 Seminar/laboratory activities	Assessing the level of knowledge acquired in the field of the dissertation thesis theme Application of the engineering knowledge and the research methodology to proposed theme	Cont. Ev.	100%
10.6 Minimum performance standards			
<ul style="list-style-type: none"> • Carrying out correctly the experiments, applications and the accurate interpretation of the obtained results. 			

Date

1.04.2015

Signature of course coordinator

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Signature of seminar coordinator

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Date of approval

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Signature of the head of department

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