



UNIVERSITATEA BABES-BOLYAI  
BABES-BOLYAI TUDOMÁNYEGYETEM  
BABES-BOLYAI UNIVERSITÄT  
BABES-BOLYAI UNIVERSITY  
TRADITIO ET EXCELLENTIA

Tradiție și Excelență prin  
Cultură - Știință - Inovație din 1581



Facultatea de Chimie și Inginerie Chimică

Str. Arany János nr. 11  
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## SYLLABUS

### *Elaboration of Master Dissertation*

University year 2025 - 2026

#### 1. Information regarding the programme

1.1. Higher education institution	"Babes-Bolyai" University
1.2. Faculty	Faculty of Chemistry and Chemical Engineering
1.3. Department	Department of Chemical Engineering
1.4. Field of study	Chemical Engineering
1.5. Study cycle	Master
1.6. Study programme/Qualification	Advanced Chemical Process Engineering
1.7. Form of education	Full time education

#### 2. Information regarding the discipline

2.1. Name of the discipline		Elaboration of Master Dissertation					Discipline code		CME7345
2.2. Course coordinator					-				
2.3. Seminar coordinator					Scientific advisor of the dissertation paper				
2.4. Year of study	II	2.5. Semester	4	2.6. Type of evaluation	C	2.7. Discipline regime		DS/Ob	

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

3.1. Hours per week	<b>6</b>	of which: 3.2 course	-	3.3 seminar/laboratory	<b>6</b>
3.4. Total hours in the curriculum	84	of which: 3.5 course	-	3.6 seminar/laborator	84
<b>Time allotment for individual study (ID) and self-study activities (SA)</b>					<b>hours</b>
Learning using manual, course support, bibliography, course notes (SA)					24
Additional documentation (in libraries, on electronic platforms, field documentation)					64
Preparation for seminars/labs, homework, papers, portfolios and essays					75
Tutorship					-
Evaluations					3
Other activities:					-
<b>3.7. Total individual study hours</b>	<b>166</b>				
<b>3.8. Total hours per semester</b>	<b>250</b>				
<b>3.9. Number of ECTS credits</b>	<b>10</b>				

#### 4. Prerequisites (if necessary)

4.1. curriculum	Not applicable
4.2. competencies	Not applicable

#### 5. Conditions (if necessary)

5.1. for the course	Not applicable
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5.2. for the seminar /lab activities	<ul style="list-style-type: none"> <li>• The students will attend the program of preparation of the dissertation paper established by the scientific advisor of the dissertation</li> <li>• The students will prepare the documentation using the existing sources both in the specialized libraries, in the international electronic databases, and in those provided by the scientific advisor of the dissertation.</li> <li>• The students will attend the laboratory with safety equipment (overall, gloves, goggles).</li> <li>• The students will know the goals, means, stages of the laboratory works they are going to attend.</li> <li>• The dissertation paper will be delivered to the scientific advisor of dissertation</li> </ul>
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## 6. Specific competencies acquired <sup>1</sup>

Professional/essential competencies	<ul style="list-style-type: none"> <li>• Applying the knowledge acquired during the master studies in preparing the dissertation paper, demonstrating the capacity to develop and capitalize the results obtained during the scientific research.</li> <li>• Applying the thorough knowledge and the specific research methods in the chemical processes engineering.</li> <li>• Detailed and pertinent use of the experiment as an assessment and foundation method of assessment of the decisions.</li> <li>• Designing, executing and capitalizing the results of the scientific research specific to process engineering.</li> </ul>
Transversal competencies	<ul style="list-style-type: none"> <li>• Preparing independently complex professional tasks and autonomous development of research-design activities, using computer assisted technology and complying with the norms of professional ethics and moral conduct.</li> <li>• Demonstrating the capacity of coordination of the activity, analytical thinking, adaptability and flexibility.</li> <li>• Self-assessment of the professional efficiency and establishing the needs of continuous formation, permanent information and documentation in the field of activity and related areas, in correlation with the needs of the labour market.</li> <li>• Capacity to conceive and prepare a scientific paper.</li> <li>• Capacity to defend a scientific presentation in a foreign language..</li> </ul>

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

7.1 General objective of the discipline	<ul style="list-style-type: none"> <li>• Elaboration of a scientific paper in the form of a publishable scientific article.</li> <li>• Development of the capacity and competences of applying the knowledge of the chemical process engineering in the realization of the proposed goals in the chosen research subject in order to achieve original results and capitalize the results of the scientific research...</li> </ul>
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<sup>1</sup> One can choose either competences or learning outcomes, or both. If only one option is chosen, the row related to the other option will be deleted, and the kept one will be numbered 6.



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<b>7.2 Specific objective of the discipline</b>	<p>Finalization of the proposed research plan by preparing the experimental research works/elaboration of original applications.</p> <ul style="list-style-type: none"><li>• Use of the specialized knowledge in order to establish the research strategy and the program of original experiments and simulations, explanation and partial interpretation of results.</li><li>• Use of the conceptual and methodological research apparatus in order to develop new/original theoretical approaches and products/technology with practical applications.</li><li>• Proper selection and use of the assessment methods for the pertinent interpretation of the original results of the research by formulating conclusions and arguing the proposed solutions.</li><li>• Use of fundamental and applicative concepts in the development of the research projects.</li></ul>
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## 8. Content

8.1 Laboratory	Teaching methods	Remarks
8.1.1. Presentation in the dissertation of the manner to prepare the experimental activities/applications for the achievement of the original elements in the dissertation according to the requirements of the presentation and elaboration of a scientific article.	Explanation; Conversation; Description; Conceptualization	6
8.1.2. Critical analysis and presentation in the dissertation of the stages of realization of the experimental activities/original applications according to the requirements of the presentation and elaboration of a scientific article.	Explanation; Conversation; Description; Conceptualization	10
8.1.3. Synthesis of the collection and interpretation methods of the original experimental data / results of original applications according to the requirements of the presentation and elaboration of a scientific article.	Explanation; Conversation; Description; Conceptualization	14
8.1.4. Presentation of the methodologies of analysis and systematization of the original experimental results / results of original applications according to the requirements of the presentation and elaboration of a scientific article.	Explanation; Conversation; Description; Conceptualization	10
8.1.5. Underlying in the dissertation paper of the relevance of the original results obtained in the context of the specialized literature according to the requirements of the presentation and elaboration of a scientific article.	Explanation; Conversation; Description; Conceptualization	18
8.1.6. Study of the manner of preparing and hearing scientific defenses (conferences, symposiums, public defenses of doctoral theses).	Explanation; Conversation; Description; Conceptualization	6



8.1.7. Elaboration of the research paper conclusions by reporting the final experimental results/final results of the applications according to the requirements of the presentation and elaboration of a scientific article.	Explanation; Conversation; Description; Conceptualization	20
<p><b>Bibliography</b></p> <ol style="list-style-type: none"> <li>1. Bibliographical sources mentioned in the course syllabuses in the curriculum for the Advanced Chemical Process Engineering program.</li> <li>2. Chemical Abstracts, Analytical Abstracts, Beilstein.</li> <li>3. Electronic databases (Science Direct, Scopus, SpringerLink, Web of Science, Wiley Journals, Proquest Journals, etc.)</li> <li>4. The bibliographical sources indicated by the scientific advisor of the dissertation..</li> </ol> <p>Note: The bibliographical elements can be consulted at the Library of the Department of Chemical Engineering, at the Library of the Faculty of Chemistry and Chemical Engineering – extension of the “Lucian Blaga” Central Library of the “Babeș-Bolyai” University, and the “Lucian Blaga” Central Library.</p>		

**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**

- The content of the discipline is in agreement with the partial competences required for the possible occupations and the competences and qualifications have been established in accordance with the competences in the Diploma Supplement and the qualifications of the NCA

**10. Evaluation**

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	-	-	-
10.5 Seminar/laboratory	Presentation of the appropriate methods, techniques and instruments for the preparation and achievement of the research objectives with original character.	Assessment of the techniques and instruments chosen for preparing and achieving the research objectives with original character	20 %
	Presentation of the manner of realization of the scientific papers with original character; collection and interpretation of final experimental data / final application results.	Assessment of the manner of realization of the scientific papers with original character; collection and interpretation of final experimental data / final application results	60 %
	Presentation of the dissertation in the form of a scientific article.	Assessment of the paper presentation with final experimental data/final application results.	20 %



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#### 10.6 Minimum standard of performance

- The mark 5 (five) for the assessment of each of the assessment criteria.
- Knowledge of the main means of documentation for the research in the field of computer assisted chemical process engineering.

#### 11. Labels ODD (Sustainable Development Goals)<sup>2</sup>



Date:  
...17.04.2025

Signature of course coordinator

Signature of seminar coordinator

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Date of approval:  
...24.04.2025

Signature of the head of department

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<sup>2</sup> Keep only the labels that, according to the [Procedure for applying ODD labels in the academic process](#), suit the discipline and delete the others, including the general one for *Sustainable Development* – if not applicable. If no label describes the discipline, delete them all and write „Not applicable.”.