

COURSE SYLLABUS

1. Information about the study program

| | |
|-----------------------------------|-----------------------------------------------|
| 1.1 University | “Babeş-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 Program level (BA or MA) | Master |
| 1.6 Study program / Qualification | Advanced Chemical Process Engineering |

2. Information about the subject

| | | | | | | | |
|----------------------------------|-------------------------------------------------------------------------------|--------------|---|-------------------------|---|--------------------|---------|
| 2.1 Subject title | Speciality Practice – CME7348 (CME7341) | | | | | | |
| 2.2 Course activities professor | - | | | | | | |
| 2.3 Seminar activities professor | A supervisor for every laboratory in which the practice stage is carried out. | | | | | | |
| 2.4 Year of study | II | 2.5 Semester | 4 | 2.6. Type of assessment | E | 2.7 Subject regime | DS/Obl. |

3. Total estimated time (teaching hours per semester)

| | | | | | |
|------------------------------------------------------------------------------------------------------------------|-----|--------------------------|---|--------------------------|-------|
| 3.1 Number of hours per week | 7 | Out of which: 3.2 course | - | 3.3 seminar / laboratory | 7 |
| 3.4 Total number of hours in the curriculum | 98 | Out of which: 3.5 course | - | 3.6 seminar / laboratory | 98 |
| Time distribution: | | | | | hours |
| Study based on textbook, course packet, references and lecture notes | | | | | - |
| Additional research in the library, on specialist electronic platforms (databases) and through field activities. | | | | | - |
| Preparing seminar/laboratory work, homework, reports, portfolios and essays. | | | | | 24 |
| Tutoring | | | | | - |
| Assessment (examinations) | | | | | 3 |
| Other activities | | | | | - |
| 3.7 Total hours for individual study | 27 | | | | |
| 3.8 Total hours per semester | 125 | | | | |
| 3.9 Number of credits | 5 | | | | |

4. Pre-requisites (where applicable)

| | |
|-----------------|------------------------------------------------------------------|
| 4.1 Curriculum | <ul style="list-style-type: none">• Not applicable |
| 4.2 Competences | <ul style="list-style-type: none">• Not applicable |

5. Conditions (where applicable)

| | |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.1 For course development | <ul style="list-style-type: none">• The students will attend the program of the internship specialized activities set up by the supervisor of the internship/ /laboratory/ scientific advisor of the dissertation.• The students will realize the documentation using the existing sources in the specialized libraries, in both the international electronic databases, and those provided by the scientific advisor of the dissertation.• The students will know the goals, means, instrumentation, and stages of the laboratory works that they are going to do/attend.• The students will comply with the work safety and conduct norms in force with the laboratory/institution where they perform their internship.• The students will attend the laboratory with safety equipment (overall, gloves, goggles).• The students cannot perform their activities unattended in the internship site and cannot leave the premises unless the consent is given by the internship/laboratory supervisor /scientific advisor of the dissertation.• The papers will be delivered and defended to the scientific advisor of the dissertation. |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

6. Specific competences

| | |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Professional competences | <ul style="list-style-type: none"> • Ability to recognize the types of technologies in the chemical process engineering and the practical applications thereof. • Ability to use the modelling, simulation, and conduct of the pilot/industrial software applications. • Ability to build the functional laboratory/pilot installations for various chemical processes. • Ability to select the most adequate synthesis way for a certain product. • Capacity to use the parameters of a pilot installation/technological process for the monitoring, automation, and optimization thereof. • Capacity of correct interpretation of the achieved data (output calculus, analysis of the spectral data). • Ability to manipulate toxic and flammable solvents, to work with flammable or very toxic substances. • Knowledge of the measures of prevention and first aid in case of laboratory accidents. • Ability to work in a team. |
| Transversal competences | <ul style="list-style-type: none"> • Executing the required tasks in accordance with the exigencies stipulated in the imposed terms, in compliance of the professional ethics and moral conduct norms, following a pre-set work plan. • Resolving the required tasks in accordance with the general goals set out by integrating in a work group. • Permanent information and documentation in their field of activity, in Romanian. • Concern for the improvement of the professional activity results by getting involved in the developed activities. Resolving the required tasks in accordance with the objectives. • Permanent information and documentation in their field of activity. |

7. Course objectives and learning outcomes (deriving from the acquired competences)

| | |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7.1 Subject's general objective | <ul style="list-style-type: none"> • Acquiring the needed knowledge for the achievement of the various experimental activities in the master field, including the use and development of software applications for monitoring, stimulating, and conducting chemical processes. |
| 7.2 Specific objectives | <ul style="list-style-type: none"> • Capitalizing the competences acquired by the student at the disciplines stipulated in the curriculum and studied during the master and bachelor program. • Thoroughness of the knowledge needed for performing the experimental activities. • Acquisition of the needed knowledge for collecting, interpreting, analyzing and systematizing the experimental data. |

8. Content

| | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|--------------|
| 8.1 Course | Teaching methods | Observations |
| 8.2 Laboratory: Specialized internship. The activity will be organized on 3 modules, in three different laboratories at the Faculty of Chemistry and Chemical Engineering, or in a research institute of the “Babeş-Bolyai” University. | Teaching methods | Observations |
| I. Active attendance to experiments developed in the profile laboratories in the area of the master program | Laboratory 1 | |
| 8.2.1. Active attendance to the preparation of the experimental activities (devices, glassware, reagents, computing systems and programs) | Explanation; Conversation; Description; Conceptualization | 6 hours |
| 8.2.2. Active attendance to the achievement of the experimental activities specific to the laboratory where they are performed. | Explanation; Conversation; Description; Conceptualization | 23 |
| 8. 2.3. Active attendance to the analysis of the experimental data, processing the results and drawing up the conclusions. | Explanation; Conversation; Description; Conceptualization | 4 hours |
| II. Active attendance to experiments developed in the profile laboratories in the area of the master program | Laboratory 2 | |
| 8.2.4. Active attendance to the preparation of the experimental activities (devices, glassware, reagents, computing systems and programs) | Explanation; Conversation; Description; Conceptualization | 6 hours |
| 8.2.5. Active attendance to the achievement of the experimental activities specific to the laboratory where they are performed. | Explanation; Conversation; Description; Conceptualization | 23 |
| 8. 2.6. Active attendance to the analysis of the experimental data, processing the results and drawing up the conclusions. | Explanation; Conversation; Description; Conceptualization | 4 hours |
| III. Active attendance to experiments developed in the profile laboratories in the area of the master program | Laboratory 3 | |
| 8. 2.7. Active attendance to the analysis of the experimental data, processing the results and drawing up the conclusions. | Explanation; Conversation; Description; Conceptualization | 6 hours |
| 8.2.8. Active attendance to the preparation of the experimental activities (devices, glassware, reagents, computing systems and programs) | Explanation; Conversation; Description; Conceptualization | 23 |

| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|---------|
| 8.2.9. Active attendance to the achievement of the experimental activities specific to the laboratory where they are performed. | Explanation; Conversation; Description; Conceptualization | 4 hours |
| References 1. Indicated by the scientific advisor of the dissertation (in accordance with the master program attended by the student). | | |

9. Corroboration / validation of the subject's content in relation to the expectations coming from representatives of the epistemic community, of the professional associations and of the representative employers in the program's field

- The content of the curriculum is in agreement with the partial competences required for the possible occupations provided in the Grid M1 – RNCIS.

10. Assessment (examination)

| 10. Assessment (examination) | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------|
| Type of activity | 10.1 Assessment criteria | 10.2 Assessment methods, on-line or on-site | 10.3 Weight in the final grade |
| 10.5 Seminar / laboratory | Preparing a paper/book of the internship activity. | Oral exam | 10% |
| | Activity during the internship – the mark will be granted by the supervisor of the laboratory where the internship is performed. | | 30% |
| | Defending the exam | | 50% |
| 10.6 Minimum performance standards | | | |
| <ul style="list-style-type: none">• The attendance to the 98 hours, the presentation of the internship activity, and the defense of the exam.• The mark 5 (five) for the exam. | | | |

Date of filling
12.04.2022

Signature of the
seminar professor

Date of approval by
the Department
26. 04. 2022

Head of Department
signature

Prof. dr. ing. Turdean
Graziella

