

SYLLABUS

1. Information regarding the programme

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|-------------------------------------|---------------------------------------|
| 1.1 Higher education institution | Babes-Bolyai University Cluj-Napoca |
| 1.2 Faculty | 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

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|----------------------------|---|--------------|---|-------------------------|---|------------------------|------------|
| 2.1 Name of the discipline | Ingineria produselor farmaceutice - CMX7342 | | | | | | |
| 2.2 Course coordinator | Conf. dr. ing. Vasile Miclaus | | | | | | |
| 2.3 Seminar coordinator | Conf. dr. ing. Vasile Miclaus | | | | | | |
| 2.4. Year of study | II | 2.5 Semester | 4 | 2.6. Type of evaluation | C | 2.7 Type of discipline | Compulsory |

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

| | | | | | |
|---|----|----------------------|----|------------------------|-------|
| 3.1 Hours per week | 3 | Of which: 3.2 course | 2 | 3.3 seminar/laboratory | 1 |
| 3.4 Total hours in the curriculum | 42 | Of which: 3.5 course | 28 | 3.6 seminar/laboratory | 14 |
| Time allotment: | | | | | hours |
| Learning using manual, course support, bibliography, course notes | | | | | 33 |
| Additional documentation (in libraries, on electronic platforms, field documentation) | | | | | 30 |
| Preparation for seminars/labs, homework, papers, portfolios and essays | | | | | 38 |
| Tutorship | | | | | 4 |
| Evaluations | | | | | 3 |
| Other activities: | | | | | - |
| 3.7 Total individual study hours | | | | | 108 |
| 3.8 Total hours per semester | | | | | 150 |
| 3.9 Number of ECTS credits | | | | | 6 |

4. Prerequisites (if necessary)

| | |
|-------------------|---|
| 4.1. curriculum | <ul style="list-style-type: none"> • Not necessary |
| 4.2. competencies | <ul style="list-style-type: none"> • Not necessary |

5. Conditions (if necessary)

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|--------------------------------------|---|
| 5.1. for the course | <ul style="list-style-type: none"> • Not necessary |
| 5.2. for the seminar /lab activities | <ul style="list-style-type: none"> • Not necessary |

6. Specific competencies acquired

| | |
|----------------------------------|---|
| Professional competencies | <ul style="list-style-type: none"> • Use of creative expertise, methods and concepts for analysis and synthesis of new chemical processes. • Use of integrated chemical analysis and synthesis for process development and production of innovative products. • Application of performance evaluation of new modern facilities to improve the decision making processes for the synthesis. |
| Transversal competencies | <ul style="list-style-type: none"> • Realization of tasks according to the demands in required terms, with the respect of the ethical professional norms • Solving the tasks according to the general objectives established in the work group • Permanent information and documentation in the field. |

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

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| 7.1 General objective of the discipline | Pharmaceutical agents based on organic molecules which have been synthesised and modified to provide medicinal products on a large scale |
| 7.2 Specific objective of the discipline | Review of pharmaceutical industry and available drugs, retro-synthetic analyse of active compounds, industrial organic synthesis for pharmaceutical agents. Provide success in research and development laboratories, make contribution to basic understanding of industrial organic synthesis |

8. Content

| 8.1 Course | Teaching methods | Remarks |
|---|---------------------|---------|
| 1. The features of pharmaceutical industry | Interactive lecture | |
| 2. Pharmaceutical agents and therapeutically area | Interactive lecture | |
| 3. Chemiotherapies | Interactive lecture | |
| 4. Antinfectives I | Interactive lecture | |
| 5. Antinfectives II | Interactive lecture | |
| 6. Neuropharmaceuticals I | Interactive lecture | |
| 7. Neuropharmaceuticals II | Interactive lecture | |
| 8. Cardiovascular drugs | Interactive lecture | |
| 9. Antiinflammatory-Antireumatic drugs | Interactive lecture | |
| 10. Gastrointestinal drugs | Interactive lecture | |
| 11. Endocrine and metabolic drugs | Interactive lecture | |
| 12. Related technologies | Interactive lecture | |
| 13. Pharmaceutical dosage forms | Interactive lecture | |
| 14. Drug testing | Interactive lecture | |

Bibliography

1. C. Oniscu: Chimia si tehnologia medicamentelor. Ed. Tehnica, Bucuresti 1988
2. C. Daescu: Chimia si tehnologia medicamentelor. Ed. Did. Ped., Bucuresti 1994
3. E. Cioranescu, Medicamente de sinteza.
4. D. Lednicer, L.A. Mitscher, Organic chemistry of drug synthesis, Wiley New 1980.
5. Pharmaceuticals J. L. McGuire, Wiley- VCH Weinheim, 2000

| 8.2 Seminar / laboratory | Teaching methods | Remarks |
|---|-------------------------|---------|
| 1. The features of pharmaceutical industry | Problems Discussions | |
| 2. Pharmaceutical agents and therapeutically area | Problems Discussions | |

| | | |
|--|-------------------------|--|
| 3. Endocrine and metabolic drugs | Problems Discussions | |
| 4. Neuropharmaceuticals | Problems Discussions | |
| 5. Antiinflammatory-Antireumatic drugs | Problems Discussions | |
| 6. Related technologies | Problems Discussions | |
| 7. Pharmaceutical dosage forms | Problems Discussions | |

Bibliography

1. C. Oniscu: Chimia si tehnologia medicamentelor. Ed. Tehnica, Bucuresti 1988
2. C. Daescu: Chimia si tehnologia medicamentelor. Ed. Did. Ped., Bucuresti 1994
3. E. Cioranescu, Medicamente de sinteza.
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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

- To the establishing of formative content of the course and laboratory work have been participated teaching personal from chemistry and chemical engineering departments from our faculty and from other universities.

10. Evaluation

| Type of activity | 10.1 Evaluation criteria | 10.2 Evaluation methods | 10.3 Share in the grade (%) |
|---|---|-------------------------|-----------------------------|
| 10.4 Course | The ability to establish and to choose the models proper to the studied properties of materials, applying the correct research methods. | colloquium | 80 |
| 10.5 Seminar/lab activities | Capacity to analyze the models in real applications. | | |
| | The activity during the work and the quality of reports. | | 20 |
| 10.6 Minimum performance standards | | | |
| ➤ 6 (six) in lab and examination according to the standard. | | | |

Date

20.05.2013

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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