# COURSE SYLLABUS

## 1. Program information

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|---|---|
| 1.1. Institution | Petroleum – Gas University of Ploiești |
| 1.2. Faculty | Petroleum Technology and Petrochemistry |
| 1.3. Department | Petroleum Processing Engineering and Environmental Protection |
| 1.4. Field of study | Chemical Engineering |
| 1.5. Study cycle | Master |
| 1.6. Study program | Chemical Engineering for Refineries and Petrochemistry |

## 2. Course information

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|---|---|---|---|
| 2.1. Course title | Practice for elaboration of the dissertation | | |
| 2.2. Course coordinator | | | |
| 2.3. Laboratory / seminar coordinator | Prof. Dragoș Ciuparu | | |
| 2.4. Project coordinator | | | |
| 2.5. Year of study | 2 | | |
| 2.6. Semester * | 3 | | |
| 2.7. Evaluation type | V | | |
| 2.8. Course type - formative category ** | DSI | 2.9. Type of subject matter *** | C |

* the semester number is in accordance with the curriculum;

** fundamental = DF; domain = DD; speciality = DS; complementary = DC; thoroughgoing = DA; synthesis = DSI.

*** compulsory = C; optional = O; elective = E

## 3. Total estimated time (teaching hours per semester)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3.1. Number of hours per week | 30 | of which: 3.2. course | - | 3.3. Seminars/laboratories | 30 | 3.4. Project | - |
| 3.5. Total hours from curriculum | 120 | of which: 3.6. course | - | 3.7Seminars/laboratories | 120 | 3.8 Project | - |

| 3.9Time distribution | hours |
|---|---|
| Study of textbook, course support, bibliography and notes | |
| Further reading in the library, on online platforms and fieldwork | 7 |
| Preparing seminars / laboratories, homework, portfolios and essays | |
| Tutoring | |
| Examinations | 1 |
| Other activities | |

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|---|---|
| 3.10. Total hours of individual study | 6 |
| 3.11. Total hours per semester | 126 |
| 3.12. Number of credits | 7 |

## 4. Prerequisites (where applicable)

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|---|---|
| 4.1. of curriculum | ➢ General chemical engineering and transfer phenomena; |
| 4.2. of skills | ➢ |

## 5. Requirements (where applicable)

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|---|---|
| 5.1. of course | ➢ |

| | |
|---|---|
| 5.2. of seminars/laboratory | ➢ Laboratories/companies with appropriate infrastructure needed for the elaboration of the dissertation thesis. |

## 6. Specific competences

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|---|---|
| **Professional competences** | ➢ Description, analysis and advanced utilization of engineering concepts and fundamental theories in petroleum refining;<br>➢ Conceptual design of chemical processes;<br>➢ Real time control of processes and plants in the chemical industry;<br>➢ Modeling, simulation and design of chemical processes. |
| **Cross-curricular competences** | ➢ Documentation, information and scientific literature research;<br>➢ Advanced knowledge of computer, internet and specific chemical engineering software;<br>➢ Independent and autonomous achievement of individual professional tasks. |

## 7. Course objectives (based on the competence grid)

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|---|---|
| 7.1. General objective | ➢ Elaboration of an original dissertation thesis, under coordination, observing the specific chemical engineering professional standards. |
| 7.2. Specific objectives | ➢ Detailed documentation, from updated and reliable sources, with respect to an industrial process;<br>➢ Apply in practice the general chemical engineering knowledge for case study or a certain process;<br>➢ Use computer and specific software modelling, simulation and optimization of chemical process;<br>➢ Analysis and/or design of chemical processes aiming to obtain quantifiable economic benefits. |

## 8. Contents

| **8.1. Course** | Time | Teaching methods | Comments |
|---|---|---|---|
| | | | |
| Bibliography | | | |
| **8.2. Seminar / laboratory** | Time | Teaching methods | Comments |
| Safety training and specific legislation | 6 | Place-specific training | |
| Documentation regarding the process, equipment and technology used for the process design or analysis; | 30 | Coordinated individual study | |
| Selection of technology and setting the working parameters of the analysed or designed process, using specific software | 60 | Coordinated individual study | |
| Economic analysis, calculations of expenditures and profitability analysis | 15 | Coordinated individual study | |
| Conception and writing of the dissertation | 9 | Coordinated individual study | |

| | | | |
|---|---|---|---|
| thesis. observing the chemical engineering quality and ethical standards. | | | |
| Bibliography<br>1. ***Operation manuals of chemical plants<br>2. Kirch-Othmer Encyclopedia of Chemical Technology, Web of Knowledge, Scopus, Compendex Engineering Library, Science Direct, Springer<br>3. ProII User manual, Unisim Design user manual | | | |
| **8.3. Project** | Time | Teaching methods | Comments |
| | | | |
| Bibliography | | | |

## 9. Correlation of the course contents with the demands of the epistemic community representatives, professional associations and representative employers in the field of the program

- The course syllabus was developed in cooperation with representatives of engineering companies in Ploiești and Bucharest that have hired graduates of similar master programs

## 10. Evaluation

| Activity | 10.1. Evaluation criteria | 10.2. Evaluation methods | 10.3. Percentage of final grade |
|---|---|---|---|
| 10.4 Course | | | |
| 10.5. Seminar / laboratory | Frequent and efficient collaboration with the coordinator | Periodic monitoring of the thesis progress | 50% |
| | Originality of the thesis, accuracy of calculations and synthetic capacity assessed by the coordinator | Oral evaluation | 25% |
| 10.6. Project | | | |
| 10.7. Minimum performance standard | | | |
| ➢ Students are capable to elaborate an original dissertation thesis regarding an industrial case study, using IT tools specific for chemical engineering computations and assessing the process economics . | | | |