

## Bachelor Degree in Process Engineering

2<sup>nd</sup> year

### Fall Semester

| Courses   | Credits   | Coefficient | weekly time load |             |             | Time load/semester (15 weeks) | Additional Work in Consultation (15 weeks) | Evaluation mode            |      |
|---|-----------|-------------|------------------|-------------|-------------|-------------------------------|--|----------------------------|------|
|   |           |             | Lectures         | DW          | PW          |                               |  | Continuous Assessment Exam | Exam |
| Mathematics 3   | 6         | 3           | 3h00             | 1h30        |             | 67h30                         | 82h30                                      | 40%                        | 60%  |
| Waves and Vibrations  | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| Fluid Mechanics   | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| Inorganic Chemistry   | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| Probability and Statistics  | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| Computer Science 3  | 2         | 1           |                  |             | 1h30        | 22h30                         | 27h30                                      | 100%                       |      |
| Technical Drawing   | 2         | 1           |                  |             | 1h30        | 22h30                         | 27h30                                      | 100%                       |      |
| Lab Work for Waves and Vibrations                                 | 1         | 1           |                  |             | 1h00        | 15h00                         | 10h00                                      | 100%                       |      |
| Health, Safety, and Environment (HSE) in Industrial Installations | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| Regulations and Standards   | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| Technical English.  | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| <b>Total</b>  | <b>30</b> | <b>17</b>   | <b>13h30</b>     | <b>7h30</b> | <b>4h00</b> | <b>375h00</b>                 | <b>375h00</b>                              |                            |      |

### Spring Semester

| Courses  | Credits   | Coefficient | weekly time load |             |             | Time load/semester (15 weeks) | Additional Work in Consultation (15 weeks) | Evaluation mode            |      |
|--|-----------|-------------|------------------|-------------|-------------|-------------------------------|--|----------------------------|------|
|  |           |             | Lectures         | DW          | PW          |                               |  | Continuous Assessment Exam | Exam |
| <b>Solution Chemistry</b>                          | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| <b>Organic Chemistry</b>                           | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| <b>Chemical Thermodynamics</b>                     | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| <b>Numerical Methods</b>                           | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| <b>Chemical Kinetics</b>                           | 2         | 1           | 1h30             |             |             | 22h30                         | 27h30                                      |                            | 100% |
| <b>Lab Work for Solution Chemistry</b>             | 2         | 1           |                  |             | 1h30        | 22h30                         | 27h30                                      | 100%                       |      |
| <b>Lab Work for Organic Chemistry</b>              | 1         | 1           |                  |             | 1h00        | 15h00                         | 10h00                                      | 100%                       |      |
| <b>Lab Work for Fluid Mechanics</b>                | 2         | 1           |                  |             | 1h30        | 22h30                         | 27h30                                      | 100%                       |      |
| <b>Lab Work for Numerical Methods</b>              | 2         | 1           |                  |             | 1h30        | 22h30                         | 27h30                                      | 100%                       |      |
| <b>Lab Work for Chemical Kinetics</b>              | 2         | 1           |                  |             | 1h30        | 22h30                         | 27h30                                      | 100%                       |      |
| <b>Introduction to Refining and Petrochemicals</b> | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| <b>Fundamentals of Transfer Phenomena</b>          | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| <b>Techniques of Expression and Communication.</b> | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| <b>Total</b>                                       | <b>30</b> | <b>17</b>   | <b>12h00</b>     | <b>6h00</b> | <b>7h00</b> | <b>375h00</b>                 | <b>375h00</b>                              |                            |      |

**3<sup>rd</sup> year**

**Spring Semester**

| Courses   | Credits   | Coefficient | weekly time load |             |             | Time load/semester (15 weeks) | Additional Work in Consultation (15 weeks) | Evaluation mode            |      |
|---|-----------|-------------|------------------|-------------|-------------|-------------------------------|--|----------------------------|------|
|   |           |             | Lectures         | DW          | PW          |                               |  | Continuous Assessment Exam | Exam |
| <b>Heat Transfer</b>  | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| <b>Mass Transfer</b>  | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| <b>Momentum Transfer</b>  | 2         | 1           | 1h30             |             |             | 22h30                         | 27h30                                      |                            | 100% |
| <b>Electrochemistry</b>   | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| <b>Instrumentation and Sensors</b>                                | 2         | 1           | 1h30             |             |             | 22h30                         | 27h30                                      |                            | 100% |
| <b>Homogeneous Kinetics and Catalysis</b>                         | 2         | 1           | 1h30             |             |             | 22h30                         | 27h30                                      |                            | 100% |
| <b>Analytical Techniques</b>                                      | 4         | 2           | 1h30             |             | 1h30        | 45h00                         | 55h00                                      | 40%                        | 60%  |
| <b>Lab Work for Physical Chemistry and Chemical Engineering 1</b> | 2         | 1           |                  |             | 1h30        | 22h30                         | 27h30                                      | 100%                       |      |
| <b>Macroscopic Balances</b>                                       | 3         | 2           | 1h30             | 1h00        |             | 37h30                         | 37h30                                      | 40%                        | 60%  |
| <b>Pharmaceutical Processes</b>                                   | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| <b>Agri-food Processes</b>  | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| <b>Pollution: Air, Water, Soil.</b>                               | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| <b>Total</b>  | <b>30</b> | <b>17</b>   | <b>16h30</b>     | <b>5h30</b> | <b>3h00</b> | <b>375h00</b>                 | <b>375h00</b>                              |                            |      |

**Spring Semester**

| Courses   | Credits   | Coefficient | weekly time load |             |             | Time load/semester (15 weeks) | Additional Work in Consultation (15 weeks) | Evaluation mode            |      |
|---|-----------|-------------|------------------|-------------|-------------|-------------------------------|--|----------------------------|------|
|   |           |             | Lectures         | DW          | PW          |                               |  | Continuous Assessment Exam | Exam |
| <b>Unit Operations</b>  | 6         | 3           | 3h00             | 1h30        |             | 67h30                         | 82h30                                      | 40%                        | 60%  |
| <b>Thermodynamics of Equilibria</b>                               | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| <b>Homogeneous Reactors</b>                                       | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| <b>Surface Phenomena and Heterogeneous Catalysis</b>              | 4         | 2           | 1h30             | 1h30        |             | 45h00                         | 55h00                                      | 40%                        | 60%  |
| <b>End-of-Cycle Project</b>                                       | 4         | 2           |                  |             | 3h00        | 45h00                         | 55h00                                      | 100%                       |      |
| <b>Process Simulators</b>   | 3         | 2           | 1h30             |             | 1h00        | 37h30                         | 37h30                                      | 40%                        | 60%  |
| <b>Lab Work for Physical Chemistry and Chemical Engineering 2</b> | 2         | 1           |                  |             | 1h30        | 22h30                         | 27h30                                      | 100%                       |      |
| <b>Cryogenic Processes</b>  | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| <b>Corrosion</b>  | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| <b>Professional Project and Business Management.</b>              | 1         | 1           | 1h30             |             |             | 22h30                         | 02h30                                      |                            | 100% |
| <b>Total</b>  | <b>30</b> | <b>17</b>   | <b>13h30</b>     | <b>6h00</b> | <b>5h30</b> | <b>375h00</b>                 | <b>375h00</b>                              |                            |      |