

CHEMICAL ENGINEERING, DESIGN COURSE

1.1. Identification

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|-------------|---|---|----------------|--|----------------|------------------------------|----------------|---|-------------|---|--------------|
| University: | Kungl Tekniska Högskolan (KTH), Stockholm, Sweden | | | | | | | | | | |
| School: | School of Chemical, Science and Technology | | | | | | | | | | |
| Course: | Organic chemistry, advanced course | | | | | | | | | | |
| ECTS: | 15 | | | | | | | | | | |
| Semester: | <i>Winter</i> | | | | | <i>Summer</i> | | | | X | |
| Category | <i>Fundamental course</i> | | | | | <i>Specialisation course</i> | | | | X | |
| Module | <i>MFI</i> | | <i>MFII</i> | | <i>MFIII</i> | | <i>MSI</i> | X | <i>MSII</i> | | <i>MSIII</i> |
| Teachers: | | | | | | | | | | | |
| Language: | <i>English</i> | X | <i>Italian</i> | | <i>Swedish</i> | X | <i>Spanish</i> | | | | |

1.2. Learning-outcomes

- knowledge of the incorporate environmental aspects into the system analysis.
- knowledge in gather information and use it for solving engineering problems
- knowledge about train working in a group, and oral and written communication

1.3. Competencies

▪ General

- to have critical understanding of technical and scientific tools
- to work and manage teams
- communication skills (both written and oral)
- to work in an international context

▪ Specific

- to give broader knowledge and to develop personal skill in combining processes into systems, and doing a study estimate of a system. A study estimate is a technical and economic analysis.

- to give self confidence to work and solve complicated problems, and to take the responsibility for the results

1.4. Contents

Discussions on relevant items concerning work in a group, work in a project and the art of making a study estimate. System analysis: technical and economical analysis. Optimization. Cost engineering. Design and sizing of systems based on chemical

processes. Sensitivity analysis. Constructing material. Safety issues. Environmental aspects.

1.5. Teaching Methodology

- lecture sessions
- practical sessions: “cooperative work” for solving problems
- laboratory sessions

1.6. Evaluation

- written exams
- oral evaluation of the problems solved by “cooperative work”
- evaluation of laboratory work

1.7. Bibliography

Coulson & Richardson's Chemical Engineering Vol. 1, 6th Ed. and Vol. 2, 5th Ed., Butterworth-Heinemann, Course compendium