

## Processes in Practice (I002776)

**Course size** *(nominal values; actual values may depend on programme)*

**Credits 3.0**

**Study time 90 h**

**Course offerings in academic year 2024-2025**

A (semester 1)

English

Gent

**Lecturers in academic year 2024-2025**

Volcke, Eveline

LA24

lecturer-in-charge

**Offered in the following programmes in 2024-2025**

[Bachelor of Science in Environmental Technology](#)

**crdts**

**offering**

3

A

[International Master of Science in Sustainable and Innovative Natural Resource Management](#)

3

A

[Master of Science in Bioscience Engineering: Chemistry and Bioprocess Technology](#)

3

A

[Master of Science in Chemical Engineering](#)

3

A

[Master of Science in Chemical Engineering](#)

3

A

**Teaching languages**

English

**Keywords**

process design, process diagrams, practical implementation, equipment, instrumentation, integration

**Position of the course**

The aim of this course is to gain insight in the design and operation of installations, for (bio)chemical production processes and/or for environmental engineering applications. An important part of the course is devoted to the interpretation of process diagrams, mainly P&IDs, as an indispensable tool for process engineers. Particular attention is paid to the practical implementation of unit processes and their integration in a larger whole, involving process engineering aspects, equipment needs, energy requirements and process control. Overall, this course enables the students to implement the physical-chemical or biological unit processes known from other courses in practice, and to integrate them in the context of larger installations.

**Contents**

1. Process diagrams
  - block flow diagrams
  - process flow diagrams
  - Piping & Instrumentation Diagrams (P&IDs)
2. Practical implementation of installations
  - case studies from environmental and chemical engineering: benzene production, wastewater treatment plants, waste incineration with energy recovery and waste gas treatment, air scrubbers, implementation and energy balance of an anaerobic digester, energy conversion processes,...
  - (virtual) site visits with special attention for equipment, instrumentation, automation and integration

**Initial competences**

'Processes in Practice' builds on certain learning outcomes of the course units 'Heat and mass transport', 'Thermodynamic processes', 'Process Engineering' and 'Process Control'; or the learning outcomes have been achieved differently.

**Final competences**

- 1 Being capable of interpreting process diagrams, in particular P&IDs
- 2 To have knowledge on the practical implementation of unit processes in the field of environmental engineering and chemical process engineering and
- 3 on their integration in a larger whole

**Conditions for credit contract**

Access to this course unit via a credit contract is determined after successful competences assessment

**Conditions for exam contract**

This course unit cannot be taken via an exam contract

**Teaching methods**

Seminar, Excursion, Lecture

**Extra information on the teaching methods**

Lecture  
Lecture: plenary exercises  
Seminar: coached exercises  
Group work  
Study visit

**Study material**

Type: Slides

Name: Lecture slides  
Indicative price: Free or paid by faculty  
Optional: no

Type: Handouts

Name: Process diagrams (P&ID's) A3 format  
Indicative price: € 2  
Optional: no  
Number of Pages : 14

**References****Course content-related study coaching****Assessment moments**

end-of-term and continuous assessment

**Examination methods in case of periodic assessment during the first examination period**

Oral assessment, Oral assessment open-book

**Examination methods in case of periodic assessment during the second examination period**

Oral assessment, Oral assessment open-book

**Examination methods in case of permanent assessment**

Oral assessment, Participation, Peer and/or self assessment, Assignment

**Possibilities of retake in case of permanent assessment**

examination during the second examination period is possible in modified form

**Calculation of the examination mark**

Non-period aligned evaluations (group work): 30% of final mark  
Period-aligned evaluation: 70% of final mark  
Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.