Course: Process Equipment 1 — credits: 5

Course code	CTVP23APPARAT1
Name	Process Equipment 1
Study year	2023-2024
ECTS credits	5
Language	Dutch, with parts in English
Coordinator	G. Lammers
Modes of delivery	Assignment Lecture Practical / Training Project-based learning Tutorial
Assessments	Practicum - Other assessment Theorie - Written, organised by STAD examinations

Learning outcomes

The curriculum component Process Equipment I covers the following components of the Chemical Engineering BOKS:

Knowledge:

Safety: PED aspects of pressurized equipment and piping.

Physical transport phenomena: transport of liquids and gases

Materials Science: knowledge of corrosion properties of structural materials: SS 304, SS 316, SS 14462 and Hastelloy

Skills:

Experimenting with pilot setups, specifically pumps

Working safely in laboratory and industrial environments

Research skills and systematic problem solving

This module has the following learning outcomes:

You perform engineering of pumps and compressors in a process plant. You know how to apply the following aspects in engineering of pumps: pump type, head, effect speed and effect rotor diameter, operating point, efficiency. Aspects in compressors: compressor type, compression and expansion conditions, volumetric efficiency, temperature rise, capacity

You compare documentation from suppliers to arrive at a choice of pumps and compressors as part of a functioning process. You document choice criteria and selection.

You use a PED calculator (e.g., PED cat select) to independently determine the PED classification of pressure equipment (piping & vessels) for two presented cases (process piping & pressure vessel.

PED calculators to be used:

Play store: PED cat select

Apple store: PED Selec.com

You perform experiments with centrifugal pumps to determine volume flow and head for different speeds and configurations (single, series, parallel). You reflect on the results obtained, in the light of your knowledge and skills.

You select the construction material for a pump and pipe and justify

Content

The aim of the module is competence development in engineering and procurement of process equipment and working with applicable standards.

The module is part of the Process Equipment Learning Line. The follow-up module of this learning line is Process Equipment 2 in quarter 1 of study year 2.

the choice of material.

DAS competencies

Competency	Level (I-IV)
Research	I
Experimentation	I
Development	I
Management	
Advise	I
Instruction	I
Leadership	
Self-management	I

Included in programme(s)

Chemical Engineering

School(s)

Institute for Life Science & Technology

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