Process Plant Design part of a 2 year Post Graduate Program

Master of Technology Design
Post MSc course, >250 graduated in Twente since start in 1989

2nd yr: Design or Development assignment
1st yr: Process Plant Design + 6 courses

Master of Science Chemical Engineering, NL/abroad

Engineers need to respond to conventional & new challenges: competition + business, reduction of energy and costs, ecology, sustainability, social factors

Education needs a broad look, technology + new tools to prepare students for their jobs

our education is also a process

input process output/product

graduated engineers

teachers

projects

facilities department

5x2.5 days lectures+workshops

process design team, 2 engineers

3.5 month

know how & ability

process design package

master basics+application+creativity, design industry relevant process

Course profile

Conceptual design / process synthesis,
Project phasing & organization, flowsheets
Apply to project case HDA, ->Flowsheet

HDA

Process simulation, workshops
Separation, new techniques + basics

heat integration + recap basics,
heat exchangers, types, selection,

Process safety, from properties of components, F&EI, to accidents analysis

P&ID’s, Safeguarding, Economics, new developments e.g. Process Intensification TEST

From synthesis steps to operations, all process attributes have to contribute

Task or functional approach creates new opportunities to meet future demands

Process design assignment
• Per team of 2 students, 12 new cases/yr, 2-3 from industry, 2-3 originating from research groups in CE lab
• Deliverable is a basic design – concept, M&E balances, UO sizing, control, HSE, economics
• Team to take lead, monthly review meetings
• Project+organisation, new technology search, integration of disciplines, use of tools, reporting

Cooperation, integration, “project” challenge

Conclusion Process Plant Design
• a learning experience for teams; for assignment + rest of 2 yr curriculum
• 150 different designs completed in 15 years
• proven valuable in industry and jobs
• several designs published or presented at conferences
• continuous effort needed to implement new tools and technologies, to do the right things right:
• Academics: focus on need of industry and society, sell fundamentals + technology + tool
• Industry: transfer to new technology + accept new process synthesis for future challenges

University process design + Industries …… we need to cooperate in an inventive way

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