

Plant Design

Code of Module 11B0479

Content

The construction and design of process plants with its huge variety of components, pipes and instruments is highly complex. The planning and execution of such plants, whose investment costs sometimes exceed the billion Euro limit, is performed by interdisciplinary teams.

Thus the key aim of this module is to learn the main activities of process plant projects. This comprises intelligent 3D-CAD-Tools for flow diagrams and detail layout. The module consists of a lecture and a practical part for the CAD-Tools.

1. Project Planning Phase

1.1 Request/Invitation to tender

1.2 Basic Engineering

1.3 Tender Preparation

2. Processing

2.1 Detail Engineering

2.2 EMC-Part

2.3 Layout

2.4 Civil Part

2.5 Piping Planning

2.6 Documentation

2.7 Mounting

2.8 Commissioning

3. CAD Programme: Piping and Instrumentation Diagramme and detail Layout

Learning Outcomes

Knowledge Broadening

Successful participants of this module have learned the main activities of planning and executing a process plant project. They can also handle a professional CAD-Tool for piping and instrumentation diagrammes as well as for detail layout.

The necessity of working in group will improve their communication and language skills, especially technical English.

Knowledge Deepening

Based on the fundamentals of instrumentation given in the module Physics the methods of measuring the most important process properties such as level, flow, pressure, temperature etc. are described. Furthermore typical example for process controls and steering devices are shown.

Instrumental Skills and Competences

The module consists of a lecture part and a practical part.

The practical part consists of a training with the CAD-Programme parts (AutoCAD: Plant 3D and P&ID). This knowledge is required for the subsequent module "Project", where they must use the CAD-Programme to design and develop a P&ID and a detail layout for a specific process plant section in groups.

Communicative Skills and Competences

The students improve their English, especially the specific vocabulary of plant design. The sensitivity towards costs is increased.

Systemic Skills and Competences

The performance and creativity of the students is improved by small mindfulness elements.

Mode of Delivery

The theory of plant design is covered with a lecture part.

The practical part comprises a training with a professional CAD-Tool for detail layout and piping and instrumentation diagrams.

Responsible of the Module

Prof. Dr. Frank Peter Helmus

Credits: 5