Number of module: 6	Module: Plant Engineering
Coordinator of module	**Prof. Dr. M. Geweke**
Lecturer	**Prof. P. Hilgraf, others**
Period	First / second semester
Credits	5
Workload	150 h, distribution varies according to the choice of course “specialization”
Status	optional
Prerequisites	Basic knowledge: project management for process engineers
Max. number of participants	Approx. 25
Language	English

Skills to be acquired / Learning objectives Subject based and methodical skills The students are able • to structure and plan complex plant construction projects, to control its realization and to react adequately on disturbances during realization • to design, engineer and operate plants under special consideration of given boundary conditions, for example, environmental protection laws • to realize systematic product and process development including their evaluation and optimization • to apply available working techniques efficiently during the different phases of planning and realization • to apply adequate management methods, for example how to lead personnel and teams, to use up-todate negotiation techniques, to apply problem solving methods, etc. **Personal and social skills** The students are able • to apply the special knowledge gained during his studies for the construction of actual plants • to develop alternative plant designs, to evaluate these and to select the most appropriate solution for given boundary conditions • to analyse and classify complex structures and to apply their knowledge to fulfill defined targets • to work task-oriented, independently and self-critically in a project team and to accept the different roles in the team

Contents • Project sequence: organization, planning and project controlling • Preliminary planning, feasibility study and basic engineering • Systematic product and process development, process evaluation, process optimization • Order acquisition, quotations, contracts • Determination of the process sequence, process design of plant components • Mechanical design, construction and arrangement of plant components, plant model • Engineering of main systems and components • Procurement, inspection and dispatch • Construction and erection, planning and execution

• Commissioning and operation • Documentation

Related courses • Plant Engineering • Specialization

Teaching skills	Presentation with Beamer and Overhead Solving of case studies Teamwork of small groups
exam	Written exam and results of case studies
Literature / Teaching aids	- Script - Sattler, K., Kasper, W.: Verfahrenstechnische Anlagen – Planung, Bau und Betrieb, Band 1 und 2. WILEY-VCH Verlag, Weinheim 2000 - Helmus, F. P.: Anlagenplanung – Von der Anfrage bis zur Abnahme. WI-LEY-VCH Verlag, Weinheim 2003 - Ebert, B.: Technische Projekte – Abläufe und Vorgehensweise. WILEY- VCH Verlag, Weinheim 2002 - Weber K. H.: Inbetriebnahme verfahrenstechnischer Anlagen. VDI-Ver-lag, Düsseldorf 1996 (the above books are available in english language!)

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