Courses in English
Course Description

Department 05 Building Services Engineering, Paper and Packaging Technology and Print and Media Technology

Course title Chemical Engineering

Hours per week (SWS) 4

Number of ECTS credits 5

Course objective
The students are able to derive and solve steady-state and transient material balance reactions.
• They can calculate balance constants of reactions, work with the characteristic magnitude for the technical processes and have a detailed knowledge how to convert data from the laboratory to the production scale.
• They have mastered the thermodynamics of interface phenomena and know in detail the two-phase combinations of interface surfaces and their physical-chemical properties.
• They have detailed knowledge about the use and applications of the interface phenomena in technical processes.

Prerequisites Knowledge of physics, mathematics, chemistry and thermodynamics

Recommended reading
James O. Wilkes, Fluid Mechanics for Chemical Engineers, Prentice Hall PTR, 1999
Stokes, Robert und Evans, D. Fenell, Fundamentals of Interfacial Engineering, Wiley-VCH.
Dörfler, Hans-Dieter, Grenzflächen- und Kolloidchemie, Wiley-VCH

Teaching methods Lectures; Exercises (individual and group work)

Assessment methods Written examination

Language of instruction English

Name of lecturer Prof. Dr. Daniel Eggerath

Email

Link

Course content
• Balance equations for mass, energy and impulses taking all the relevant physical and chemical phenomena into account
• Principles and significance of the kinetics of chemical reactions
• The specific characteristic magnitudes of heat transfer and mass transport
• The interaction of chemical reactions and transport of material, as well as behaviour during the resting periods
• The principles and details of the thermodynamics of interface phenomena and their application
• Scale-up calculations

Remarks