

Course in the 2nd study period (3rd – 5th Semester)

Bioprocess Engineering

Description	
Objective	The educational aim of the practical laboratory course is to give a thorough understanding of the theoretical basis of various important technical/engineering principles and their application in bioprocess technology
Prerequisites	Introduction to Process Engineering, Mathematics, Physics, Thermal and Mechanical Process Engineering
Content	In a series of practicals, the following five operations are carried out, evaluated and discussed independently by the students <ol style="list-style-type: none"> 1. Mixing and stirring: Energy transfer of different impellers in a stirred bioreactor (development of performance characteristics) 2. Mass transfer: Determination of the volumic oxygen transfer coefficient ($k_L a$-value) in a stirred bioreactor. 3. Filtration techniques: different filtration procedures for membrane sterile filters with the help of a filter testing system which is commonly used in pharmaceutical establishments. 4. Control engineering: Parameterisation of a controlled process using the example of flow regulation and with the help of a simulation program. 5. Extraction with a pilot plant
Course material	<ul style="list-style-type: none"> – Chmiel, H.: Bioprozesstechnik: Einführung in die Bioverfahrenstechnik, Bd. 1; UTB, Stuttgart, 1991 – Zlokarnik, M.: Rührtechnik; Theorie und Praxis, Springer-Verlag Berlin Heidelberg New York 1972 – Tröster, F.: Steuerungs-und Regelungstechnik für Ingenieure, Oldenbourg Wissenschaftsverlag GmbH, München, 2001
Language	German <input checked="" type="checkbox"/> English <input type="checkbox"/>
Media	Presentation <input checked="" type="checkbox"/> Blackboard <input checked="" type="checkbox"/>
Time schedule	Weekly <input type="checkbox"/> Block schedule <input checked="" type="checkbox"/>
Cycle	Each semester <input checked="" type="checkbox"/> Annually <input type="checkbox"/>
Status	Compulsory subject <input checked="" type="checkbox"/> Optional subject <input type="checkbox"/>
Last modified	24.02.2011