

# **UNIVERSITY OF PANNONIA**

## **COURSE DATASHEET**

Semester:	2015/16/2
Course:	Down-stream processing lab training
Code:	VEMKBMB332F
Responsible department:	Research Institute on Bioengineering, Membrane Technology and Energetics
Department code:	МКВМЕ
Responsible instructor:	dr. Béla Nándor Nemestóthy

#### Course objectives:

Study downstream processes like centrifugation, membrane separation. Students are work individually or groups of 3-4.

### Course content:

- 1. To carry out a whole fermentation process (steps, sampling, decontamination)
- 2. Centrifugation, liofilzation Ultrafiltration (3DTA)
- 3. Adsorptive product recovery
- 4. Extractive Product recovery

### Requirements, evaluation and grading:

Terms of signature: Accomplishment of the allocated measurements. One substitution is allowed. Average of the final test and the lab tests. It's can be improved on time.

### Required and recommended readings:

Ladisch, Michael R Bioseparations Engineering: Principles, Practice, and Economics. Wiley. 2001

Pécs Miklós: A biológiai iparok elválasztási műveletei BME 2010