



## COURSE DATASHEET

<b>Semester:</b>	2016/17/1
<b>Course:</b>	Membrane separation processes
<b>Code:</b>	VEMKBMB412M
<b>Responsible department:</b>	Research Institute on Bioengineering, Membrane Technology and Energetics
<b>Department code:</b>	MKBME
<b>Responsible instructor:</b>	dr. Katalin Bélafiné Bakó

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### Course objectives:

To introduce the students into the fundamentals of membrane separation, the operation of various membrane separation techniques and their applications.

### Course content:

1. Introduction, classification, driving forces
2. Pressure driven membrane processes
3. Ultrafiltration
4. Microfiltration, nanofiltration, reversed osmosis
5. gas separation
6. Pervaporation
7. Dialysis, haemodialysis
8. Electrodialysis
9. Liquid membranes
10. Integrated systems
11. integration in chemical processes
12. Integration in bioconversions
13. Case studies

### Requirements, evaluation and grading:

Terms of signature:

Participation on the lectures.

After a half an hour's preparation the examinee gives an oral presentation on the topic for about 20-25 minutes. Fail (1) when the examinee is unable to prove either the definition of the basic notions or the short scheme of things connected with the topic.

Pass (2) when the examinee is able to interpret the basic notions of the topic.

Satisfactory (3) when the examinee is well - versed in the basic notions of the topic and is able to present their logic connections - with the help of the examiner.

Good (4) when the examinee provides a logic, well - structured presentation with all the important facts and



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connections but he does not know or partly knows the required reading material connected with the topic.  
Very good (5) when the examinee gives a logic, excellent, well-structured, perfect in details oral presentation that completely reveals the connection of the concepts within the topic.

### Required and recommended readings:

Scott, K.: Handbook of Industrial Membranes, Elsevier, 1995.  
Staupe, E.: Membranen und Membranprozesse, Grundlagen und Anwendungen, VCH Verlagsgesellschaft mbH, Weinheim, 1992.  
Bélafiné Bakó Katalin: Membrános műveletek, Veszprémi Egyetemi Kiadó 2002.