POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)
pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Chemical Engineering

Course

Field of study	Year/Semester
Chemical Technology	III/5
Area of study (specialization)	Profile of study
	general academic
Level of study	Course offered in
First-cycle studies	English
Form of study	Requirements
full-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
Tutorials	Projects/seminars	
	30	

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

dr hab. inż. Sylwia Różańska

e-mail: Sylwia.Rozanska@put.poznan.pl

tel. 61 665 2147

Responsible for the course/lecturer:

dr hab. inż. Jacek Różański

e-mail: Jacek.Rozanski@put.poznan.pl

tel. 61 665 2147

Prerequisites

Students starting this subject should have basic knowledge in mathematics, physics, chemistry, engineering graphics, and materials technology. They should also have the ability to use spreadsheets, and be ready to work in a team.

Course objective

The aim of the course is to provide the ability to perform design calculations.

Course-related learning outcomes

Knowledge

1. Student knows the fundamental methods of scale-up - [K_W13]

Skills

1. Student can to design equipments where momentum, heat and mass transfer take place - [K_U15]

1

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Social competences

1. The student can cooperate and work in a team [K_K03]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Skills and knowledge acquired during project classes are verified on the basis of the heat exchanger project and test, consisting of 3-4 tasks. Minimum threshold: 50% points.

Programme content

Course covers the following topics:

1. Convective heat and mass transfer

2. Condensation

3. Overall heat transfer coefficient

4. Calculation of heat transfer area

5. Overall mass transfer coefficient

Teaching methods

Multimedia presentation, illustrated with tasks solved on the board.

Bibliography

Basic

1. Serth R.W., Lestina T.G., Process Heat Transfer, Principles, Applications and Rules of Thumb, Elsevier, 2nd edition, 2014

2. Coulson J.M., Richardson J.F.: Chemical Engineering, vol. I-VI, Butterworth Heinemann, Oxford 1999-2002.

3. Manglik Raj, Heat Transfer Fluid Flow Data Books, Genium Publishing Corporation, 2015

4. André B. de Haan, Hans Bosch, Industrial Separation Processes, Fundamentals, Walter de Gruyter GmbH, Berlin/Boston, 2013

5. Richardson J.F., Harker J.H., Backhurst J.R., Chemical Engineering Volume 2 - Particle Technology and Separation Processes (5th Edition), Elsevier, 2002

6. Kothandaraman C.P., Fundamentals of Heat and Mass Transfer, New Age International Ltd. Publisher, 2006

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Additional

1. Hobler Tadeusz., Mass Transfer and Absorbers, 1st edition, International Series of Monographs in Chemical Engineering, 1966

2. Sinnott R.K. Towler G.: Chemical Engineering Design, 5th Edition, Elsevier, 2009.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,0
Classes requiring direct contact with the teacher	40	1,6
Student's own work (literature studies, preparation for design classes, preparation for tests, project preparation) [1]	10	0,4

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[1] delete or add other activities as appropriate