COURSE DESCRIPTION CARD - SYLLABUS

Course name

Aparatura przemysłu chemicznego - projekt cyklonu (Chemical Industry Equipment - design of cyclone)

Course

Field of study

Technologia chemiczna (Chemical Technology)

Year/Semester

II/4

Area of study (specialization)

Profile of study

general academic

Level of study

First-cycle studies

Course offered in

Polish

Form of study

full-time

Requirements

compulsory

Number of hours

Lecture

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars

15

Number of credit points

2

Lecturers

Responsible for the course/lecturer:

dr hab. inż. Szymon Woziwodzki

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tel. 61 665 21 47

Wydział Technologii Chemicznej

ul. Berdychowo 4, 61-131 Poznań

tel.: 61 665 2147

Responsible for the course/lecturer:

Prerequisites

basics math, physics and chemistry; principles of engineering drawing; ability to use CAD software; ability to use calculation software; familiarity with the moodle.put.poznan.pl service; ability to create engineering design documentation; The student is aware of the advantages and limitations of individual and group work in solving the problems of an industrial nature and design; The student knows the limits of his knowledge and sees the need to deepen their knowledge.

Course objective

The major objectives of the course is to obtain skills and knowledge about design of gas-solid separators (cyclone)

Course-related learning outcomes

Knowledge

1.Student knows the basic types of cyclones K_W04

2.Student knows the regulations for gas treatment, K_W07

3.Student knows the methods and principles of design of gas purification apparatus, K_W16]

Skills

1.Student is able to design a cyclone for the solid-gas separation of the heterogeneous system, K_U15

2.Student is able to solve computational problems that occur during design, K_U15

Social competences

1.The student shall be aware and understood the aspects of the practical application of the acquired knowledge and skills in the design of equippments and related responsibilities, K_K02

2.The student is aware of the advantages and limitations of group work, K_K03

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

The skills acquired in the project classes are verified in the form of a defense taking place in the last and penultimate classes. The final assessment is the sum of the sub-points for documentation (40points) and project defense (60points). The credit threshold is 50 pts.

Programme content

During the course are discussed:

principles of construction of cyclones; principles of design of cyclones; calculation of separation efficiency; pressure drop in cyclone; selection, calculation and optimization of cyclone size; estimation of the costs..

Teaching methods

Multimedia presentation, presentation illustrated with examples on the table, and resolving tasks provided by the lecturer

Bibliography

Basic

1. J. Warych, Procesy oczyszczania gazów. Problemy projektowo-obliczeniowe, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 1999.

2. J. Warych, Oczyszczanie przemysłowych gazów odlotowych, WNT, Warszawa 1994.

3. J. Warych, Aparatura chemiczna i procesowa, Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2004.

Additional

1. A. Heim, B. Kochanski, K.W. Pyć, E. Rzyski, Projektowanie aparatury chemicznej i procesowej, Wydawnictwo Politechniki Łódzkiej, Łódź 1993.

2. Ustawa z dnia 27 kwietnia 2001 roku Prawo ochrony środowiska, (Dz.U.2001.62.627 z dnia 20 czerwca 2001 r.)

Breakdown of average student's workload

	Hours	ECTS
Total workload	45	2,0
Classes requiring direct contact with the teacher	25	1,1
Student's own work (literature studies, preparation fo classes, preparation for defence, project preparation) [1]	20	0,9

[1] delete or add other activities as appropriate