COURSE DESCRIPTION CARD - SYLLABUS

Course name
Design of sedimentation tank [S1TCh2E>PrO]

Course

Field of study
Chemical Technology

Year/Semester
2/4

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
English

Form of study
full-time

Requirements
elective

Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
15

Number of credit points

1,00

Coordinators

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Lecturers

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 are to obtain skills and knowledge about design of the sedimentation tank as well as training of ability to creation of flowsheets of process installations as well as obtaining skills to create process flow diagrams

Course-related learning outcomes

Knowledge:
1. Student knows construction of various sedimentation tanks - [K_W12]
2. Student knows the legal basis for the purification of liquids - [K_W07]
3. Student knows methods and principles of design of sedimentation tanks [K_W12]

4. Student knows creation of process flow diagrams [K_W14]

Skills:
1. Student knows how to design a basic installation for sedimentation process - [K_U15]
2. Student knows how to solve computational problems appearing during the design. - [K_U33]
3. Student can collect information from literature data and from catalogues [K_U01]
4. Student can create technological schemes od installations [K_U03]

Social competences:
1. Student has the awareness and understanding of aspects of the practical application of knowledge. - [K_K01]
2. Student knows the limits of his own knowledge and understands the need for continuing education. - [K_K02]
3. Student knows the limitation of work in groups. [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 or in remote mode using eKursy platform. 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

Issue related to design of sedimentation tank.

Course topics

During the course are discussed:
principles of construction of sedimentation tanks and installation; principles of sedimentation; selection of flocculants and coagulants; models of sedimentation; calculation of sedimentation area (settling velocity method); selection of pumps; calculation of drop pressure in pipelines; selection of pipelines fittings; creation of flow sheet diagrams.

Teaching methods

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

Bibliography

Basic:
1. J. Bandrowski, H. Merta, J. Zioło, Sedymentacja zawiesin: zasady i projektowanie, Wydawnictwo Politechniki Śląskiej, Gliwice 2001.
2. T.A. Malinowskaja, I.A. Kobrinskij, O.S. Kirsanow, W.W. Rejnfart, Rozdzielanie zawiesin w przemyśle chemicznych, WNT, Warszawa 1986.
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	25	1,00
Classes requiring direct contact with the teacher	15	0,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,50