



## COURSE DESCRIPTION CARD - SYLLABUS

Course name

Design of sedimentation tank [N1TCh2>PO]

### 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

Polish

Form of study

part-time

Requirements

elective

### Number of hours

Lecture

0

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

15

### Number of credit points

2,00

### Coordinators

dr hab. inż. Szymon Woziwodzki prof. PP  
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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 main objective of the course is to acquire knowledge in the fundamentals of process liquids treatment. In particular, the student acquires the skills of designing an apparatus (on the example of a clarifier design) with instrumentation selected on the basis of currently applicable norms.

### Course-related learning outcomes

Knowledge:

1. The student knows basic types of clarifiers [K\_W04].
2. The student knows legal basis of liquids purification [K\_W07].
3. The student knows methods and principles of liquid purification apparatus design, [K\_W15].

#### Skills:

1. Knows how to design a settling tank for separation of a liquid heterogeneous system [K\_U15].
2. Knows to solve computational problems arising during design [K\_U15]

#### Social competences:

1. The student is aware and understands the aspects of practical application of the acquired knowledge and skills in the field of apparatus design and the related responsibility [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 (40 points) and project defense (60 points). The credit threshold is 50 pts.

### Programme content

Issues related to sedimentation tank design.

### Course topics

Fundamentals of settling tank construction; methods of designing settling tanks; calculation of settling tank diameter on the basis of particle drop velocity; sedimentation models.

### 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. Ziolo, 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. Rzycki, 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	50	2,00
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)	35	1,50