COURSE DESCRIPTION CARD - SYLLABUS

Course name
Inorganic chemical technology (chemical installation project) [S1IChiP1>TCNpic]

Course

Field of study
Chemical and Process Engineering

Year/Semester
3/6

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
elective

Number of hours

Lecture
0

Laboratory classes
0

Other
0

Tutorials
0

Projects/seminars
30

Number of credit points

2,00

Coordinators

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Lecturers

Prerequisites

Knowledge: The student has a basic knowledge of: mathematics, physics, chemistry and information technology and engineering graphics, acquired during previous classes in chemical and process engineering, enabling understanding of the principles of designing process apparatus and construction of technical documentation. Skills: The student is able to acquire and supplement information on the construction and operation of process equipment from academic textbooks, scientific studies and the web. Has the ability to self- education, can work individually and in a team, is able to draw technical drawings of cameras and their parts and knows the basic principles of building technical documentation. Social competencies: The student understands the need to constantly improve their skills and the need to enrich the knowledge acquired during the course. He / she is aware of the responsibility for the tasks carried out in a team.

Course objective

Acquiring the ability to design the technological lines together with the instrumentation selected based on the currently valid standards on the example of a selected installation where the chemical reaction takes place. Acquiring knowledge in the field of operation of technological nodes on installation lines in the chemical industry and other related industries. Getting to know in practice the principles of building technical documentation of the designed installation.

Course-related learning outcomes

Knowledge:
1. strengthening of knowledge in the field of mathematics in the field allowing to perform calculations needed in engineering design practice. (k_w01)
2. acquisition of knowledge regarding the selection of apparatus found in chemical installations. (k_w03)
3. supplementing the knowledge necessary to characterize raw materials and products occurring in the processes used in the chemical industry. (k_w06)
4. mastering basic concepts in the field of material and machinery science. (k_w10)
5. understanding the methods and techniques used to solve simple engineering. (k_w12)
6. acquiring basic knowledge about the method of operation of installations in chemical and process engineering. (k_w13)
7. acquisition of knowledge about the legal consequences of running a project activity. (k_w14)

Skills:
1. strengthening effective teamwork. (k_u02)
2. extension of vocational vocabulary for terms appearing in technical documentation and used in the process of designing chemical installation. (k_u03)
3. acquisition of preparation skills, preparation of the problem and its professional presentation on group forms. (k_u04)
4. strengthening the skills of practical use of autocad to develop an offer drawing of the proposed chemical installation. (k_u07)
5. acquiring the ability to suggest various construction materials used in the construction of chemical installation. (k_u13)
6. understanding the necessity of taking into account the principles of health and safety at work and the methods of controlling the course of various processes at the design stage of the chemical installation. (k_u14)
7. acquiring the ability to prepare technical documentation of the designed chemical installation. (k_u17, k_u19)

Social competences:
1. strengthening the need for lifelong learning and raising professional competences. (k_k01)
2. understanding the importance of non-technical aspects of engineering activities, including its impact on the environment and the related responsibility for decisions. (k_k02)
3. acquiring awareness of responsibility for jointly implemented tasks, connected with teamwork. (k_k03, k_k06)

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Current control of work progress. Presentation and defense of the completed project.

Programme content

Design classes are focused on acquiring the ability to perform technical documentation of installations with chemical reactions.
The aim of the project is to propose and presentation of the group"s own original design solution technological installation with chemical reaction. Design works include the selection of the type of equipment and accessories, as well as the construction material from which individual elements of the instalation should be made. The project is carried out in teams of two to acquire the ability to cooperate in the implementation of various design work.

Course topics

Issues related to the design of process lines and instrumentation.

Teaching methods

1. Participation in design classes
2. Participation in consultations
3. Project implementation and defense (teamwork)

Bibliography

Basic
1, Alejski K., Staszak M., Wesołowski P.: Projektowanie systemów procesowych. Wydawnictwo Politechniki Poznańskiej, Poznań 2013.
2. Alejski K., Staszak M., Wesołowski P.: Wprowadzenie do inżynierii reaktorów chemicznych. Przepływy nieidealne w reaktorach i reaktory heterogeniczne. Wydawnictwo Politechniki Poznańskiej, Poznań 2013.
Additional
1. Synoradzki L.: Projektowanie procesów technologicznych. Od laboratorium do instalacji przemysłowej. Oficyna Wydawnicza Politechniki Warszawskiej, Warszawa 2006.
2. Wesołowski P., Borowski J.: Aparatura chemiczna i procesowa. I. Wymienniki ciepła i masy, Wydawnictwo Politechniki Poznańskiej, Poznań 2002.
3. Wesołowski P., Szaferski W., Borowski J.: Aparatura chemiczna i procesowa. II. Mieszalniki i separatory, Wydawnictwo Politechniki Poznańskiej, Poznań 2003.

Breakdown of average student's workload

	Hours	ECTS
Total workload	50	2,00
Classes requiring direct contact with the teacher	40	1,60
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	10	0,40