Title	Code
Theory of Chemical Machines and Chemical Industry Equipment	**1010704241010720461**
Field: **Chemical Technology**	Year / Semester: **2 / 4**
Specialty: **-**	Course: **core**
Hours: Lectures: **2** Classes: **-** Laboratory: **-** Projects / seminars: **30**	Number of credits: **10**
	Language: **polish**

Lecturer:

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Status of the course in the study program:

fundamental

Assumptions and objectives of the course:

The student should to get both the knowledge of the theory of machines, of the design fundamentals of structural components of industrial apparatuses as well as of fundamental equipments and plants useful in chemical industry and the others processing industries. The special attention is directed on the plant design technique on the basis of brief fore design and process standards valid.

Contents of the course (course description):

Fundamentals of mechanics of materials. Examples of complex shearings and bucklings. Machine elements. Design of pins, shafts and bearings. drives, transmissions, gears. Pipelines and fittings. Directions of fastening of the metallic and plastic pipes. Thermal expansion pipe joints. Fundamental elements of chemical apparatuses constructions. Classification of the process equipment taking into account unit operations. Storage and batching equipment of fluids and solids. Gas, liquid and solid tanks. Fluid transport transportation of solids. Heat exchangers: types and constructions, schemes of the design calculations for chosen type. Mass exchangers: theoretical basis for design, hydrodynamical problems, constructions of columns. Dynamic operation plants. Two- and three-phase fluidized bed equipment (characteristics, principles of selection). Simultaneous heat and mass transfer exchangers. Plants for mechanical operations. Chemical and biotechnological reactors. Modern equipment constructional solutions.

Introductory courses and the required pre-knowledge:

Theoretical fundamentals of the current objectives analyzed

Courses form and teaching methods:

lectures + projects

Form and terms of complete the course - requirements and assessment methods:

permanent control during the design course, preparation of the 1 individual project of industrial process installation, final examination after semester 4, written

Basic Bibliography:

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Additional Bibliography:

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