



Course title: EQUIPMENT FOR WATER AND SEWAGE TREATMENT

ECTS credit allocation (and other scores): 3.0

Semester: spring

Level of study: ISCED-6 - first-cycle programmes (EQF-6)

Branch of science: Engineering and technology

Language: English

Number of hours per semester: 30/30

Course coordinator/ Department and e-mail: dr hab inż. Joanna Rodziewicz, prof. UWM/Department of Environmental Engineering; joanna.rodziewicz@uwm.edu.pl

Type of classes: classes and lectures

Substantive content

CLASSES: Calculation of devices for storage and preparation of reagents. Dimensioning of hydraulic mixers with partitions and culverts. Calculation of flocculation chambers with horizontal water movement. Dimensioning of post-coagulation horizontal longitudinal settling tanks. Dimensioning of clarifiers with suspended sediment. Calculation of devices for mechanical wastewater treatment: grating chamber, horizontal sand trap, preliminary horizontal radial settling tank. Dimensioning of activated sludge chambers.

LECTURES: Basic technological schemes of the WWTP and WWTP. General principles of designing the SUW. Technical characteristics of groundwater treatment equipment. Devices for the treatment of surface waters (grids, meshes, micro-screens, quick and slow mixing chambers, settling tanks, clarifiers, filters, devices for membrane processes). Devices and facilities for reagent storage, preparation of reagent solutions and dosing of reagents. Input data for the dimensioning of sewage treatment plant equipment. Devices for mechanical wastewater treatment (grates, crushers, sieves, sand traps, settling tanks). Devices for biological wastewater treatment (activated sludge chambers, biological deposits).

Learning purpose: Getting to know the basic principles of operation and operation of water and wastewater treatment plants as well as the principles of designing devices in water and wastewater treatment plants.

On completion of the study programme the graduate will gain:

Knowledge: He knows the principles of designing devices for water treatment stations and sewage treatment plants. He explains the principles of operation and the purpose of devices of water treatment plants and sewage treatment plants.

Skills: Selects the technological system of the wastewater treatment plant for different characteristics of raw wastewater, selects technological lines of the water treatment plant depending on the type and composition of raw water. Calculates the basic dimensions of selected devices of water and wastewater treatment plants. Has the ability to self-educate.



Social Competencies: Has the ability to independently solve issues related to sewage treatment plant equipment and water treatment plants and is aware of the need for continuous training and improvement of professional competences.

Basic literature:

1) praca zbiorowa, Poradnik eksploatatora oczyszczalni ścieków, wyd. PZliIT Poznań, 1997; 2) Łomotowski J., Szpindor A., Nowoczesne systemy oczyszczania ścieków, wyd. Arkady, 1999; 3) Mielcarzewicz E., Wartalski J., Systemy zaopatrzenia w wodę i usuwanie ścieków. Wybrane zagadnienia, wyd. Politechnika Wrocławska, 1990; 4) Heidrich Z., Witkowski A., Urządzenia do oczyszczania ścieków. Projektowanie, przykłady obliczeń, wyd. "Seidel-Przywecki"Sp. z o.o., 2005; 5) Heidrich Z., Roman M., Tabernacki J., Zakrzewski J., Urządzenia do uzdatniania wody. Zasady projektowania i przykłady obliczeń, wyd. Arkady, 1980

Supplementary literature:

1) Błaszczak W. H., Stamatello P., Błaszczak P., Kanalizacja. Sieci i pompownie, wyd. Arkady, 1984; 2) Imhoff K. i K. R., Kanalizacja miast i oczyszczanie ścieków, wyd. Oficyna Wydawnicza Proj. Przem. EKO, 1996; 3) M. Abramowicz, Poradnik majstra budowlanego, wyd. Arkady, 1992; 4) Magrel L., Uzdatnianie wody i oczyszczanie ścieków. Urządzenia, procesy, metody, wyd. Wydawnictwo Ekonomia i Środowisko, 2000; 5) Bever J., Stein A., Reichmann H., Zaawansowane metody oczyszczania ścieków, wyd. Oficyna Wydawnicza Proj-przem-EKO, 1997

The allocated number of ECTS points consists of:

Contact hours with an academic teacher: 2.56

Student's independent work: 0.44