



COURSE DESCRIPTION CARD - SYLLABUS

Course name

ADVANCES IN WATER TREATMENT [S5ISGIE>PUW]

Course

Proposed by Discipline

–

Year/Semester

3/6

Level of study

Doctoral School

Course offered in

English

Form of study

full-time

Requirements

elective

Number of hours

Lecture

8

Laboratory classes

0

Other

0

Tutorials

0

Projects/seminars

0

Number of credit points

2,00

Coordinators

dr hab. inż. Joanna Jeż-Walkowiak prof. PP
joanna.jez-walkowiak@put.poznan.pl

Lecturers

dr hab. inż. Joanna Jeż-Walkowiak prof. PP
joanna.jez-walkowiak@put.poznan.pl

Prerequisites

Student should have a basic knowledge about mathematics, chemistry, fluid mechanics and hydrology.

Course objective

Knowledge of the importance of water treatment for public health. World, international and national regulations for drinking water quality. Knowledge of principles of processes and water treatment technological systems.

Course-related learning outcomes

Knowledge: P8S_WG, P8S_WK,
Skills: P8S_UW,
Social Competences: P8S_KR

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture activity checkup

Written final exam, with possible oral evaluation

Programme content

History and importance of water treatment for public health. World, international and national regulations for drinking water quality.

Sources of microbiological and anthropogenic threats to surface and groundwater: classification of water pollutants, micro-pollutants, toxicity, biodegradability.

Treatment technological systems: treatment efficiency and reliability, the principle of multi-stage barriers.

Processes : sedimentation, coagulation, adsorption, rapid and membrane filtration, chemical and catalytic oxidation processes, biological processes, iron removal and manganese removal, disinfection, by-products, post-disinfection of microbial activation

Water quality in the water supply network: organoleptic quality, chemical stability of the water composition, chemical and electrochemical corrosion, biological water stabilization, biological corrosion, maintenance of water quality in the disinfection process.

Course topics

1. History and importance of water treatment for public health. World, international and national regulations for drinking water quality, goals of water treatment
2. Processes and systems of water treatment
3. Importance of experiment in water treatment
4. Novelty and future in water treatment

Teaching methods

multimedial presentation

Bibliography

1. AWWA, Technical Editor F. W. Pontius, Water Quality and Treatment, Mc Coraw-Hill, Inc, New York, 1990
2. MWA, Water Treatment, Principles and Design, John Wiley and Sons, Inc., Hoboken, New Jersey, 2005

Breakdown of average student's workload

| | Hours | ECTS |
|---|-------|------|
| Total workload | 50 | 2,00 |
| Classes requiring direct contact with the teacher | 8 | 0,00 |
| Doctoral student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) | 42 | 2,00 |