

56S1-TOKS

ENVIRONMENTAL TOXICOLOGY

ECTS: 3.0

HOURS PER SEMESTER/WEEK: LECTURES: 15/1; CLASSES: 30/2

FIELD OF THE STUDY: Environmental protection

Level of study: First-cycle (Engineer's degree) program

Course status: optional *

Year of the study: III

COURSE CONTENTS

LECTURES: Toxicology - history. General definitions and terms used in toxicology. Toxic substances in the natural environment. Factors affecting the toxicity of xenobiotics. Selected issues in food toxicology. Harmful substances in agricultural crops. Food as an indicator of environmental pollution. Natural chemicals of plant and animal origin that contaminate food. Toxicological and ecotoxicological assessment of chemical plant protection products. Residues of active substances of plant protection products in agricultural products. Characteristics of food additives and their toxicological assessment. Health effects of food contamination. Legal regulations concerning food.

CLASSES: Regulations and health and safety regulations applicable to students participating in classes. Basic toxicological concepts. Toxicology of plant protection products. Preparation of samples for the determination of residues of active substances of chlorinated hydrocarbons in plant material. Food toxicology. Determination of preservatives in food of plant origin. Labels of food products as a source of information about additives. Detection of nitrates and nitrites in food and water. Environmental toxicology. Assessment of soil contamination with plant protection products. Determination of ascorbic acid content in the roots of plants grown on soil contaminated with various compounds. Determination of toxicity indicators.

EDUCATIONAL PURPOSE: Familiarizing students with the methods of determining harmful substances in the environment and food.

LEARNING OUTCOMES

Knowledge. Has general knowledge of pollution, their fate in the environment and the impact on living organisms and their consequences. Is able to select a bioindicator for quick detection of pollutants in various elements of the environment. Distinguishes ways and criteria for determining chemical safety levels. He has general knowledge of legal regulations regarding environmental protection in Poland and in the world.

Skills. Has the ability to select and use chemical and biological methods and correctly interpret the results. Has the ability to identify, detect and assess the risk resulting from the presence of toxic compounds in the environment and make decisions. It independently determines the effective concentration of selected toxic compounds against various bioindicators.

Social competences. He can work in a group. He is aware of the responsibility for the environment in connection with human activity. He is aware of the need for training and self-improvement.

TEACHING FORMS AND METHODS

Lectures. Informative lecture with multimedia presentation

Classes. Laboratory exercises.

FORM AND CONDITIONS FOR VERIFICATION OF LEARNING OUTCOMES

Lectures. Written test - written test with open questions.

Classes. Written test with open questions, reports from laboratory exercises, Test of knowledge necessary to participate in exercises.

BASIC LITERATURE

1) Manahan S. E., Toksykologia środowiska. Aspekty chemiczne i biochemiczne, Wyd. PWN Warszawa, 2006. 2) Sikorski Ł., Adomas B., Biotesty w badaniach toksykologicznych i ekotoksykologicznych, Tom 4, Wyd. PAN, 2010. 3) Laskowski R., Migula P., Ekotoksykologia, Wyd. PWRiL Warszawa, 2004. 4) Adomas B., Murawa D., Ćwiczenia z toksykologii środowiska, Wyd. UWM Olsztyn, 2006. 5) Traczewska T.M., Biologiczne metody oceny skażenia środowiska, Wyd. PW Wrocław, 2011. 6) Seńczuk W., Toksykologia współczesna, Wyd. PZWL Warszawa, 2005.

ADDITIONAL LITERATURE

1) Sadowska A., Ekotoksykologia z elementami mutagenyzy i kancerogenyzy, Wyd. SGGW Warszawa, 2010.

THE TEACHER/TEACHERS CONDUCTING THE CLASSES:

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