Environmental Engineering and Systems

Winter Semester

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Sanitary Biology
LECTURER'S NAME:	Katarzyna Lewicka-Rataj, PhD
E-MAIL ADDRESS OF THE LECTURER:	katarzyna.lewicka@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	Diversity and history of microorganisms. Cell structure and organization of bacteria, fungi and protista. Viruses – viral structure, replication cycles, states of viral infections. Microbial metabolism: enzymes, catabolic and anabolic reaction, aerobic respiration, fermentation and anaerobic respiration, type of metabolism: chemoorganotrophy =heterotrophy, chemolithotrophy, phototrophy. The share of microorganisms in the circulation of matter and energy flow - biogeochemical cycles of carbon, oxygen, nitrogen, phosphorus, sulfur and other elements. Types of lakes and life zones on the bottom and in the water depth. Ecological groups of aquatic organisms and their importance in the process of maintaining homeostasis of reservoirs. Eutrophication of lakes, mechanisms, "vicious circle", toxic cyanobacterial blooms and the related threats to human life and health. Methods of control and reduction of cyanobacterial blooms. Organisms inhabiting water industrial installations and water treatment devices. The role of microorganisms in the formation of biofilms on abiotic surfaces of water distribution system and air conditioning equipment. Waterborne diseases and pathological agents in soil and air. Biological processes in wastewater treatment - the activated sludge method. Self-cleaning process - participation of microorganisms, plants and animals. Bioremediation.
ADDITIONAL INFORMATION:	References: 1.Nicklin J., Graeme-Cook K., Paget T., Killington R., 2001. Instant Notes in Microbiology. BIOS Scientific Publishers Limited, Oxford. 2.Hogg S., 2005. Essential microbiology. John Wiley & Sons, Ltd, England. 3.Salyers A.A., Whitt D. D., 2001. Microbiology. Diversity, Disease, and The Environment. Fitzgerald Science Press, Inc. of Bethesda, MD, USA.

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Sanitary Biology - laboratory
LECTURER'S NAME:	Katarzyna Lewicka-Rataj, PhD
E-MAIL ADDRESS OF THE LECTURER:	katarzyna.lewicka@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test, written reports
COURSE CONTENT:	Sterilization and disinfection methods. Microbiological media. Macroscopic evaluation of morphology of bacterial colonies on the culture medium. Procedures for the preparation of microscopic slides; simple and complex staining methods; microscopic observation by using light microscope. Determination of physiological and biochemical properties of bacteria by using media and API kit for identification. Microbiological analysis of water and air samples; estimation number of colony forming units (CFU) of bacteria and fungi; estimation the most probable number (MPN) of bacteria and estimation of cell number by membrane filtration in the water samples. Assessment of the sanitary condition of the air in the tested rooms. Test methods for selected indicators of faecal contamination: coliform bacteria and faecal streptococci used in the monitoring of tap water. Activated sludge biocenosis - microscopic analysis. Microscopic analysis of plant cell structure. Phytoplankton, zooplankton, zoobenthos - structure and importance for the functioning of a water reservoir, selected indicator species. Sanitary threats caused by parasites – the way of infection.
ADDITIONAL INFORMATION:	References: 1.Nicklin J., Graeme-Cook K., Paget T., Killington R., 2001. Instant Notes in Microbiology. BIOS Scientific Publishers Limited, Oxford. 2.Hogg S., 2005. Essential microbiology. John Wiley & Sons, Ltd, England. 3.Salyers A.A., Whitt D. D., 2001. Microbiology. Diversity, Disease, and The Environment. Fitzgerald Science Press, Inc. of Bethesda, MD, USA.

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Engineering thermodynamics
LECTURER'S NAME:	Prof. Alexander Shkarovskiy
E-MAIL ADDRESS OF THE LECTURER:	szkarowski@wp.pl
ECTS POINTS FOR THE COURSE:	5
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30+30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + practical studies
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Oral or written exam
COURSE CONTENT:	Basic concepts. Thermodynamic systems. Closed and isolated systems. Working medium. Thermodynamic parameters. Pressure. Specific volume. Temperature. "Zero" law of thermodynamics. Perfect gas model. Boyle low. Gay-Lussac low. Avogadro low. Perfect gas equation. Universal and individual gas constant. Gas mixtures. Average molecular weight. Internal energy. Thermodynamic work. Heat. Heat capacity. Specific heat. First law of thermodynamics. Enthalpy. Thermodynamic process. Quasi-static process. Isobaric, isochoric, isothermal, adiabatic and polytropic processes. Second law of thermodynamics. Carnot cycle. Entropy. The principle of entropy increasing. Gas outflow processes. Outflow velocity. Gas throttling processes. Joule-Thomson effect. Water and steam. Evaporation processes. Water and vapor diagram "pressure - specific volume". Critical state and critical parameters
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Hydrology and Earth Sciences
LECTURER'S NAME:	Leszek Kaczmarek
E-MAIL ADDRESS OF THE LECTURER:	leszek.kaczmarek@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15+15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	1. Structure, history of the Earth, geological processes, minerals and rocks - characteristics. 2. The water cycle in nature. Surface and underground waters. 3. Hydrographic systems. Sub-basin, basin, hydrometric measurements. 4. Hydrogeological maps, geological and engineering documentation.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Water supply and sewage disposal systems
LECTURER'S NAME:	Wojciech Kuczyński
E-MAIL ADDRESS OF THE LECTURER:	wojciech.kuczynski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30+15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture, group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written exam
COURSE CONTENT:	- legislation policies and procedures, - specification of materials and devices, - technical calculations, - application in different buildings.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Water supply and sewage disposal systems - project
LECTURER'S NAME:	Agnieszka Maliszewska
E-MAIL ADDRESS OF THE LECTURER:	agnieszka.maliszewska@tu,koszalin.pl
ECTS POINTS FOR THE COURSE:	1
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work, continuous assessment
COURSE CONTENT:	1. Development of design documentation for plumbing, including hydraulic calculations and a graphic part. 2. Development of design documentation for sewage systems in buildings, including hydraulic calculations and a graphic part.
ADDITIONAL INFORMATION:	Completion of the course depends on obtaining a positive assessment of the project and its presentation.

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Basics of CAD
LECTURER'S NAME:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE LECTURER:	tomasz.dabrowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Group tutorials in computer laboratory
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work
COURSE CONTENT:	The course is an introduction to CAD. It shows Elements of interface and communication with the program. Essential functions creating objects, hatching, and precise drawing are discussed. Then functions for modifying created objects are presented. Layers and operations on them, properties of objects and methods of their adjusting, processes using blocks, and dimensioning of objects are discussed.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Mathematics I
LECTURER'S NAME:	Dr hab. Volodymyr Sushch, Prof. PK
E-MAIL ADDRESS OF THE LECTURER:	volodymyr.sushch@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	5
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30 + 30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + practice
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	**Linear algebra** **Complex numbers:** the unit imaginary number, the Cartesian form or algebraic form of complex numbers, complex plane, absolute value, conjugation and distance, geometric interpretation of complex numbers, the operations on complex numbers, the polar form of complex numbers (the trigonometric form), Euler formula, Moivre's formula, Powers and roots of complex numbers, solutions of polynomial equations. **Matrices:** definition and notation, matrix operations, matrix multiplication, square matrices, determinant of a matrix, properties of determinants, matrix inverses, rank of a matrix . **System of linear equations:** matrix equation, solution set, solving linear systems (eliminations of variable - Gauss-Jordan elimination, Cramer's rule and other methods). **Vectors in Euclidean space:** vector operations, linear combination, linear independence, scalar product, vector product. **Differential calculus** **Differentiation and the derivative of real-valued functions of a single real variable:** definition via difference quotients, the derivative as a function, continuity and differentiability, higher derivatives. **Computing the derivative:** derivatives of elementary functions, product rule, quotient rule, chain rule. **Applications of the derivative:** L'Hospital's rule, critical points, monotone increase and decrease, minimization and maximization, local minima and maxima (the first derivative test), using the second derivative, the concavity of the graph of a function.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Atmosphere protection
LECTURER'S NAME:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE LECTURER:	tomasz.dabrowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15+15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, seminar, group exercises
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test, project work
COURSE CONTENT:	The course presents in formation on Earth's atmosphere, processes which take place in it. The crucial part of the course discusses the most important air pollutants, their impact on the environment, and human health. The course also presents necessary information on methods of flue gas treatment. During group exercises students calculate pollutant concentrations, exhaust gas composition, combustion air consumption, dust emissions.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Basics of Heating, Ventilation and Air Conditioning
LECTURER'S NAME:	Magdalena Orłowska
E-MAIL ADDRESS OF THE LECTURER:	magdalena.orlowska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, group tutorials, presentations
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	The principle of operation of the water and gravity central heating installation. Thermal comfort. Heaters - types. Boilers. Boiler rooms and chimneys. Cables and insulation of central water heating installations. Bleeding the central heating installation Operation and maintenance of central heating installations.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Basics of Heating, Ventilation and Air Conditioning - project
LECTURER'S NAME:	Magdalena Orłowska
E-MAIL ADDRESS OF THE LECTURER:	magdalena.orlowska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	laboratory, group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	project work,
COURSE CONTENT:	Discussion of the design guidelines, technical description and determination of the scope of work on the design of two-pipe, gravity central heating, with a lower distribution in a single-family house. Determination of thermal resistance and heat conduction coefficient for individual partitions of the building. Determining the heat demand of individual rooms. Hydraulic calculations of the central heating system gravity with lower distribution. Selection of heaters, a boiler and the necessary fittings securing the designed central heating installation Preparation of the necessary technical documentation for the designed installations. Technical drawings of the designed installation solutions in compliance with the principles set out in the standards and regulations
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Selected physicochemical processes applied for sewage treatment
LECTURER'S NAME:	Pawel Zarzycki
E-MAIL ADDRESS OF THE LECTURER:	pkzarz@wp.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, multimedia presentations,
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other - students critical discussion based on literature seek
COURSE CONTENT:	Introduction to the key physicochemical processes of sewage treatment including molecular interactions, water structure and properties, adsorption, electrophoresis, osmosis, diffusion, extraction, inclusion, complexation biodegradation (chemical, biological), micropollutants behavior in complex matrices and similar.
ADDITIONAL INFORMATION:	Introduction to basic nanomaterials (graphene oxide nanoparticles, supramolecular complexes) that may increase selectivity and removal efficiency of pollutants/micropollutants during technological processes of sewage treatment, based on P.K.Zarzycki and co-workers scientific publications in the field of sewage treatment.

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FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Selected physicochemical processes applied for water and wastewater treatment - project
LECTURER'S NAME:	Krzysztof Piaskowski
E-MAIL ADDRESS OF THE LECTURER:	krzysztof.piaskowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	computational and design exercises
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	project work
COURSE CONTENT:	The student prepares a design of a water purification system in the ion exchange process. In terms of course, the student describes a process system chosen for the design intent obtained (softening of water, demineralization, etc.), Performs ion exchange system required, and the valve is set, and ion exchange resin device. The design requires a technical drawing of a schematic diagram of the designed system.
ADDITIONAL INFORMATION:	Basic knowledge of AutoCAD technical drawing is required.

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FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Water treatment systems
LECTURER'S NAME:	Robert Nowak, PhD., Eng.
E-MAIL ADDRESS OF THE LECTURER:	robert.nowak@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written and oral exam
COURSE CONTENT:	Drinking water quality requirements: WHO requirements, EU Directive, Polish Health Ministry Directive. Water sources and quality: surface water, groundwater, infiltration water, contaminants and water quality indicators. Water treatment processes and devices: coagulation, storage and installation of reagents, mixing and flocculation tanks; sedimentation and clarifiers; slow and rapid filtration, filters and filtration materials; deacidification of water, devices for aeration of water; iron and manganese removal technology and devices; disinfection, chlorine, chlorine dioxide, ozone, disinfection byproducts, UV-disinfection.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Water treatment system - project
LECTURER'S NAME:	Robert Nowak, PhD., Eng.
E-MAIL ADDRESS OF THE LECTURER:	robert.nowak@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	a design method using multimedia presentations
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	- checking the progress of the project in each activity, - oral presentation of the project, - evaluation of the project.
COURSE CONTENT:	Technological design of an groundwater treatment plant with specified physical and chemical composition for the assumed efficiency. Selection and calculations of installation, including: 1. Selection of water aeration method and calculations of water aeration devices, 2. Selection and calculation of filters for iron and manganese removal from water, 3. Selection of water disinfection method and disinfection devices. Drawings of technological devices.
ADDITIONAL INFORMATION:	

Environmental Engineering and Systems

Summer Semester

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Chemistry 1
LECTURER'S NAME:	Beata Janowska PhD, DSc, Eng.
E-MAIL ADDRESS OF THE LECTURER:	beata.janowska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	class test
COURSE CONTENT:	Introduction to general chemistry: basic concepts and definitions, fundamental chemical laws. Structure of the atom (Bohr model of the atom, electron configuration). Periodic table of elements. Chemical bonds, structure of the molecule. Intermolecular interactions. Structure and properties of inorganic compounds. Properties of complex compounds. Characteristics of the physical states of matter. Elements of chemical thermodynamics, thermochemistry (heat of chemical reactions). Types of chemical reactions. Kinetics of chemical reactions. Chemical equilibrium (the law of mass action, Braun-Le Chatelier principle). Surface phenomenon. Chemical Equilibrium in aqueous solutions (constant and degree of dissociation, the ionic product of water, pH, hydrolysis). Theories of acids and bases. Chemistry mineral building materials: setting and hardening a cement, the mechanism of the corrosion processes of mineral building materials. Fundamentals of electrochemistry: electrochemical electrode potential, electromotive force, galvanic cells, electrolysis. The mechanisms of metal corrosion - corrosion protection.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Soil science and reclamation
LECTURER'S NAME:	Bartosz Walendzik
E-MAIL ADDRESS OF THE LECTURER:	bartosz.walendzik@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15+15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture, group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	class test, written reports, presentation
COURSE CONTENT:	L1. Organic matter in soils, biological properties of soils and soil fertility. L2. Soil as an element of the environment. L3. Utility, valuation and habitat classification of soils. L4. Soils systematics in Poland. L5. Erosion and ways to prevent it. L6. Soil contamination and monitoring. L7. Soil reclamation - legal aspects. L8. Reclamation postulates, directions and phases of soil reclamation L9. Reclamation methods and principles. L10. Plants in soil reclamation. L11. Classification of reclaimed soils and methods of assessing the progress of reclamation L12. Summary T1. Reclamation of post-mining areas. T2. Reclamation of post-industrial areas. T3. Reclamation of oily land. T4. Reclamation of burial grounds. T5. Reclamation of industrial and municipal landfills. T6. Fertilizers as a source of soil contamination and degradation. T7. Pesticides and soil environment degradation. T8. Sewage sludge as an element for the rehabilitation of degraded areas.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Energy management. Energy resources.
LECTURER'S NAME:	Alexander Shkarovskiy
E-MAIL ADDRESS OF THE LECTURER:	alexander.shkarovskiy@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture, group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	oral exam, presentation
COURSE CONTENT:	- energy consumption, - types of energy, - energy resources, - energy use.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Process engineering
LECTURER'S NAME:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE LECTURER:	tomasz.dabrowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT:	The course presents individual processes used in environmental engineering, such as sedimentation, coagulation, flocculation. During course also construction and principles of operation of devices used in environmental engineering in above mentioned processes is discussed.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Process engineering laboratory
LECTURER'S NAME:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE LECTURER:	tomasz.dabrowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written reports, class test
COURSE CONTENT:	During course students analyze, assess and try to explain the influence of selected technological parameters (e.g. time, velocity, pressure, grain size, concentration, flocculant dose) on the result of a process used in environmental engineering (centrifugal sedimentation, centrifugal filtration, pressure filtration, gravitational sedimentation, flocculation).
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Sewage Systems
LECTURER'S NAME:	Danuta Usidus
E-MAIL ADDRESS OF THE LECTURER:	danuta.usidus@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT:	The discussed topics cover the types of sewage systems along with the basic elements of their equipment and the principles of their design. The topics of the classes also include methods of calculating the amount of domestic and industrial wastewater, principles of designing slopes and depressions depending on the slope of the terrain and diameters, flow height and velocity. Other issues discussed include: Hydraulic calculations of channels. Materials used in the construction of sewage systems. Design of sewage systems. Principles of designing of accessories of sewage systems. Sewage pumping stations: division and design principles. Basics of determining rainwater runoff. Formulas describing the relationship q = f (t, p) and the probability of rain. Methods of determining the maximum flows in the channels. Design of rainwater drainage systems.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Sewage systems - project
LECTURER'S NAME:	Agnieszka Maliszewska
E-MAIL ADDRESS OF THE LECTURER:	agnieszka.maliszewska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work, continuous assessment
COURSE CONTENT:	3. Development of design documentation for sanitary and industrial sewage systems, including hydraulic calculations and a graphic part. 4. Development of the concept of storm water drainage with hydraulic calculations and a graphic part.
ADDITIONAL INFORMATION:	Completion of the course depends on obtaining a positive assessment of the project and its presentation.

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Mathematics II
LECTURER'S NAME:	Dr hab. Volodymyr Sushch, Prof. PK
E-MAIL ADDRESS OF THE LECTURER:	volodymyr.sushch@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	6
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30 + 30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + practice
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	**Integral calculus** **The indefinite integral of real-valued functions of a single real variable:** formal definition, properties of integrals, finding the value of an integral (integration). **Techniques for computing integrals:** integration by substitution, integration by parts, integration by trigonometric substitution, integration by reduction formulae, integration by partial fractions, integration using Euler's formula. **The definite integral (the Riemann integral):** definition and properties, fundamental theorems of calculus (the Newton-Leibniz theorem). **Applications of definite integrals:** calculating areas, volumes, arc length. **Improper integrals: convergence of the integral, singularities.** **Ordinary differential equations (ODE)** **Basic concepts and classifying of differential equations:** solutions of differential equations (a particular solution and the general solution of a differential equation), initial-value and boundary-value problems. **First order ODE:** separable equations, homogeneous equations, exact equations, linear equations (homogeneous and non-homogeneous), Bernoulli equations, solved problems. **Second order linear ODE:** linear differential equations (linearly independent solutions, the Wronskian), linear homogeneous ODE with constant coefficients, the characteristic equation, linear non-homogeneous ODE with constant, coefficients, the method of undetermined coefficients, variation of parameters, linear ODE with variable coefficients.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Heating systems
LECTURER'S NAME:	Sylwia Janta-Lipińska
E-MAIL ADDRESS OF THE LECTURER:	sylwia.janta-lipinska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2.5
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30+15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture + group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	class test + written reports
COURSE CONTENT:	Lecture: 1. Classification of central heating systems according to various criteria. 2. The principle of operation of a pump heating system. Principles of performing hydraulic calculations. 3. Central heating system protection elements in a closed system. 4. Characteristics of materials used in the design of central heating systems. 5. Compensation of thermal elongations in the central heating system pipes made of various materials. 6. Classification of steam heating systems. 7. The principle of operation of a steam heating installation. 8. Elements of securing the steam heating system. 9. Underfloor heating system. Requirements and guidelines for the design. 10. Technical conditions for the installation of central heating system. Group tutorials 1. Calculation exercises in heating water pump installations. 2. Calculation exercises in steam heating installations.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Heating systems - project
LECTURER'S NAME:	Sylwia Janta-Lipińska
E-MAIL ADDRESS OF THE LECTURER:	sylwia.janta-lipinska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	project
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	project work
COURSE CONTENT:	1. Determination of the thermal conductivity coefficient of building partitions. Selection of radiators. 2. Determining the heat demand for individual rooms. 3. Hydraulic calculations of designed installations. 4. Selection of boilers and boiler fittings. 5. Preparation of technical documentation in the field of designed installations. 6. Technical drawings of designed installation solutions based on standards and regulations.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Wastewater treatment systems
LECTURER'S NAME:	Krzysztof Piaskowski
E-MAIL ADDRESS OF THE LECTURER:	krzysztof.piaskowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	Lectures include topics on current issues of municipal wastewater treatment. The basic quality parameters of wastewater, their impact on the environment, processes and technologies used in sewage treatment plants and devices are discussed. Particular attention is paid to the processes of biological removal of nutrients from wastewater and the diversity of integrated wastewater treatment systems.
ADDITIONAL INFORMATION:	Lectures are conducted in the multimedia form and end with a visit to the municipal sewage treatment plant.

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Wastewater treatment systems - project
LECTURER'S NAME:	Krzysztof Piaskowski
E-MAIL ADDRESS OF THE LECTURER:	krzysztof.piaskowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	computational and design exercises
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	project work
COURSE CONTENT:	As part of the course, students prepare a technological project of a municipal wastewater treatment plant for individual assumptions issued by the teacher. The project includes calculations of facilities and devices, selection of devices and fittings, preparation of technical drawings and technical description.
ADDITIONAL INFORMATION:	Basic knowledge of AutoCAD technical drawing is required.

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Ventilation and air conditioning
LECTURER'S NAME:	Magdalena Orłowska
E-MAIL ADDRESS OF THE LECTURER:	magdalena.orlowska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2.5
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30+15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, group tutorials, presentations
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written exam
COURSE CONTENT:	Physical calculation parameters of humid, internal and external air. Thermal comfort. Ventilation of public utility rooms. Ventilation of industrial plants. Schematic diagrams of air conditioning systems and their classification. Working conditions and adjustment of air conditioning systems devices. Physical properties of humid air and processes of changes in its state. Processes of changes in the state of air on the i-x diagram - an example of calculations. Air-conditioning units. Working conditions and adjustment of air conditioning systems devices.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Environmental Engineering and Systems
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Ventilation and air conditioning - project
LECTURER'S NAME:	Sylwia Janta-Lipińska
E-MAIL ADDRESS OF THE LECTURER:	sylwia.janta-lipinska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	project
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	project work
COURSE CONTENT:	1. Determining heat gains for rooms from devices operating in it. 2. Determining the dimensions of the hood above the thermal stove. 3. Calculation of local exhausts from the industrial baths. 4. Calculation of air curtains.
ADDITIONAL INFORMATION:	