

# Winter Semester

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\*elective course, announced at the beginning of the semester

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
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
COURSE CODE (USOS):	0511>3300-Bs
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	<b>English</b>
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, sulphur 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.

	<p>2.Hogg S., 2005. Essential microbiology. John Wiley &amp; Sons, Ltd, England.</p> <p>3.Salyers A.A., Whitt D. D., 2001. Microbiology. Diversity, Disease, and The Environment. Fitzgerald Science Press, Inc. of Bethesda, MD, USA.</p>
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FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	General Construction 2
LECTURER'S NAME:	Maciej Król, PhD
E-MAIL ADDRESS OF THE LECTURER:	maciej.krol@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
COURSE CODE (USOS):	0511>0200-BO2
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written exam/oral exam
COURSE CONTENT:	<p>W1 Impact on structures, snow and wind loads.</p> <p>W2 Basics of designing and calculating masonry structures.</p> <p>W3 Vaults and arches - principles of work and construction.</p> <p>W4 Roofing materials - types, applications and methods of execution.</p> <p>W5 Partition walls - types, possible applications, methods of execution.</p> <p>W6 Windows and doors - types and types, possible applications, ways of embedding in the wall.</p> <p>W7 Light walls and shielding systems - types, rules of application and execution.</p> <p>W8 Finishing walls and ceilings with plaster, types of plaster, methods of plastering.</p> <p>W9 Floors and floor coverings on the ground and ceiling. Floor construction. Types of floors and methods of execution.</p> <p>W10 Paint coatings, types of paints and paint coatings used in construction. Painting techniques.</p>
ADDITIONAL INFORMATION:	<ol style="list-style-type: none"> <li>1. Fundamentals of Building Construction: Materials and Methods, <b>Edward Allen, Joseph Iano</b>, SBN13 (EAN): 9781119446194, editor: Wiley,</li> <li>2. Handbook for Building Construction: Administration, Materials, Design, and Safety (2021) Christine Fiori, ISBN13 (EAN): 9781260456882, Clifford Schexnayder</li> </ol>

	<b>3.</b> Building Construction Illustrated, Ching, F, ISBN-10: 111958308X, WILEY; Edit 6 (2020)
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FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Chemistry 2
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
COURSE CODE (USOS):	0511>3300-C2
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written exam, oral exam
COURSE CONTENT:	Organic chemistry. Preparation, structure, nomenclature, chemical and physical properties of: aliphatic hydrocarbons (alkanes, alkenes and alkynes); aromatic hydrocarbons; organohalogen compounds; alcohols, phenols, aldehydes and ketones; ethers; carboxylic acids and esters, heterocyclic compounds. Chemistry of plastics. Preparation, structure, chemical and physical properties of amino acids, proteins, nucleic acids and carbohydrate.
ADDITIONAL INFORMATION:	

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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Higher Geodesy
LECTURER'S NAME:	Katarzyna Kraszewska Ph.D., Miłostawa Rutkowska prof.
E-MAIL ADDRESS OF THE LECTURER:	Katarzyna.kraszewska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
COURSE CODE (USOS):	0511>0900-GW
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30 lectures + 30 group tutorials
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, group tutorials
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test, written exam
COURSE CONTENT:	<ol style="list-style-type: none"> <li>1. Historical development of the geodetic investigation and application.</li> <li>2. Calculation of the spherical triangles to geodetic purposes.</li> <li>3. Definition of the earth figure; Approximation of the earth by mathematical surface of the rotational local or global ellipsoid or by geoid. The relationship between geoid and ellipsoid definition.</li> <li>4. Determination of precise global three dimensional point positions on the earth ellipsoid.</li> <li>5. Computation of the geodetic points on ellipsoid for big triangle (more than 10000km) using Bessel method, for triangle (about 200km) using mean Gauss method and for small triangle (30km) using Clarke method.</li> <li>6. Global reference frames; satellite systems in modelling of the Earth figure.</li> </ol>
ADDITIONAL INFORMATION:	

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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Water and wastewater management in industry
LECTURER'S NAME:	Robert Nowak, PhD., Eng.
E-MAIL ADDRESS OF THE LECTURER:	robert.nowak@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1.5
COURSE CODE (USOS):	0511>1300-GW-ŚwP
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15 Lectures + 15 Practical classes
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures + Practical classes
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written and oral exam
COURSE CONTENT:	Lectures: Water supply and sewage disposal systems. Water categories in industry. The structure of the water supply and sewage disposal system. Directions of water consumption in industrial plants. Practical classes: Balancing of single and complex technological nodes. Calculation of equipment used for phase separation.
ADDITIONAL INFORMATION:	

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FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Cartography
LECTURER'S NAME:	Katarzyna Kraszewska Ph.D.
E-MAIL ADDRESS OF THE LECTURER:	Katarzyna.kraszewska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	6
COURSE CODE (USOS):	0511>0900-KA.ma
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30 lectures + 30 group tutorials
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, group tutorials
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	Types of maps and methods of their creation. Cartographic projections (azimuth, cylindrical, conical), Gauss Kruger projection. Common planar systems used in Poland after World War II.
ADDITIONAL INFORMATION:	

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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Managing the investment process
LECTURER'S NAME:	Maciej Król, PhD
E-MAIL ADDRESS OF THE LECTURER:	maciej.krol@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1.5
COURSE CODE (USOS):	0511>0201-KPI
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15 lectures + 15 practical classes
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture, practical classes
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	presentation, written reports
COURSE CONTENT:	<p>W1 The investment process, forms and stages. Classification of building objects.</p> <p>W2 Participants in the investment process, Supervision and architectural and construction services.</p> <p>W3 Legal forms of construction companies. Functions of construction companies. Investment implementation systems.</p> <p>W4 Use of building structures</p> <p>W5 Construction investment process and environmental protection</p> <p>W6 Basic principles of awarding public contracts, procedures FIDIC</p> <p>C1 Transport algorithm</p> <p>C2 Determination of the optimal assortment structure</p> <p>C3 Dynamic programming items</p> <p>C4 Linear programming - graphic method</p> <p>C5 Quotient programming</p> <p>C6 The problem of mixtures</p>
ADDITIONAL INFORMATION:	<p>Engineering Investment Process: Making Value Creation Repeatable 1st Edition, Publisher: ISTE Press - Elsevier; 1st edition, ISBN-10 : 1785481622</p> <p>Engineering Investment Process, Florian Ielpo, Chafic Merhy, Guillaume Simon, Publisher: Elsevier Science, ISBN 9780081011485</p>

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Computer methods of data collection or Computer methods of data analysis *
LECTURER'S NAME:	Jacek Piekarski
E-MAIL ADDRESS OF THE LECTURER:	jacek.piekarski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
COURSE CODE (USOS):	0511>3300-KMGD or 0511>3300-KMAD
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15 Lectures + 30 Practical classes
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures + Practical classes
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work
COURSE CONTENT for Computer methods of data collection:	Lecture: Basics of algorithmics (flowcharts), implementation of algorithms. The structure of the program and the methods of collecting and saving data. Numerical aided design of installations and the database of ion exchangers. Numerical aided design of pump installations and a pump database. Numerical aided design of selected wastewater treatment installations. Practical Classes: Block diagrams of calculations in the field of databases and selected construction installations. Implementation of algorithms in the selected programming language. Creation of a database for the numerical simulation of the operation of ion exchanger installations. Creation of a database for the numerical simulation of the operation of the pump system. Use of other applications to collect data and perform calculations.
COURSE CONTENT for Computer methods of data analysis	Lecture: Basics of algorithmics (flowcharts), implementation of algorithms. Characteristics of the selected programming language. Structure of a program written in the selected programming language. Basic instructions, procedures and functions of selected applications supporting data analysis. Practical classes: Data analysis by linear, polynomial and central point approximation methods. Data analysis by nonlinear

	estimation method. Creation of computer programs for data analysis (LAZARUS). Data analysis using selected numerical applications (EXCEL, STATISTICA, GNUPLOT).
ADDITIONAL INFORMATION:	

\*elective course, announced at the beginning of the semester

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Design of timber structure
LECTURER'S NAME:	Robert Adamczyk
E-MAIL ADDRESS OF THE LECTURER:	robert.adamczyk@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
COURSE CODE (USOS):	0511>0201-KD
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30 lectures + 30 practical classes
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture and practical classes
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT:	Basic properties of wood. Checking the limit states with the method of partial factors. Structure load and serviceability classes. Design strength of timber. ULS states: tension, compression, pressure, bending, shear, complex state of stresses. Stability of elements: columns in compression and compression with bending, beams bent and bending with compression. SLS states: slips in joints, beam deflections, flexible joints. Uniform and complex beams with flexible connectors: principles of calculation and construction. Principles of forming joints and calculating metal fittings. Transverse load capacity of the dowel pins. Uniform and complex columns: internal and external ties, principles of calculation and construction. Purlins. Truss girders, additional stresses and deflections: principles of construction and calculations. Structures made of glued laminated timber: beams, arches and frames. Composite sections of timber and wood-based materials. Beams with thin webs. Bracing of timber structures: calculations and construction. Fire resistance of wooden structures. Impregnation of sawn timber.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Metal structures 1
LECTURER'S NAME:	dr inż. Przemysław Krystosik
E-MAIL ADDRESS OF THE LECTURER:	przemyslaw.krystosik@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
COURSE CODE (USOS):	0511>0201-KM1
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	45 lectures + 30 practical classes
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + practical classes
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written exam + project work
COURSE CONTENT:	<p>L1 - Introductory information, steel grades, types and mechanical properties of construction steels (5h)</p> <p>L2 - Welded joints, rules of calculation and construction (10h)</p> <p>L3 - Connections with structural and high-strength bolts, rules of calculation and construction (10h)</p> <p>L4 – Hot-rolled beams, rules of dimensioning, the use of plastic properties of the material, load-bearing resistance of bending beams (10h)</p> <p>L5 - Uniform and build-up steel columns, principles of dimensioning and design (10h)</p> <p>E1 - Calculation and construction of joints for butt and fillet welds (10h)</p> <p>E2 - Calculation and construction of the bolt connections (6h)</p> <p>E3 - Calculation and construction of the high-strength bolt connections (the slip-resistance and the end-plate joints) (6h)</p> <p>E4 - Dimensioning of the hot-rolled beams with taking into account lateral-torsional buckling (4h)</p> <p>E5 - Dimensioning of the hot-rolled beams using the method of plastic equalization of moments (4h)</p>
ADDITIONAL INFORMATION:	Academic books and Eurocodes

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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
COURSE CODE (USOS):	0511>3300-LBs
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test, written reports
COURSE CONTENT:	<p>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.</p> <p>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.</p>
ADDITIONAL INFORMATION:	<p>References:</p> <ol style="list-style-type: none"> <li>1. Kołzan B., Adamiak W., Rybak J., 2011. Sanitary Biology. Environmental Quality Management. Łódź: PRINTPAP.</li> <li>2. Wastewater Biology: The Microlife, 2017, Water Pollution Control Federation, Alexandria, VA.</li> </ol>

	<p>3. Nicklin J., Graeme-Cook K., Paget T., Killington R., 2001. Instant Notes in Microbiology. BIOS Scientific Publishers Limited, Oxford.</p> <p>4. Hogg S., 2005. Essential microbiology. John Wiley &amp; Sons, Ltd, England.</p> <p>5. Salyers A.A., Whitt D. D., 2001. Microbiology. Diversity, Disease, and The Environment. Fitzgerald Science Press, Inc. of Bethesda, MD, USA.</p>
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FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	CAD laboratory 2
LECTURER'S NAME:	Renata Pigoń
E-MAIL ADDRESS OF THE LECTURER:	renata.pigon@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1
COURSE CODE (USOS):	0511>0200-CAD2
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	laboratory
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Preparation of construction drawings in AutoCAD and continuous assessment of work in the classroom.
COURSE CONTENT:	<p>The following topics will be realized on the lessons in AutoCAD:</p> <ul style="list-style-type: none"> <li>• Project 1 - technical drawing of auxiliary elements.</li> <li>• Project 2 - technical drawing of an exemplary geotechnical profile.</li> <li>• Project 3 - technical drawing of an exemplary car parking.</li> <li>• Project 4 - technical drawing of an exemplary wooden construction</li> <li>• Project 5 - technical drawing of an exemplary steel construction.</li> <li>• Project 6 - technical drawing of an exemplary reinforced concrete construction.</li> </ul>
ADDITIONAL INFORMATION:	All the above will be conducted in accordance with the actual standards and regulations.

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E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Chemistry laboratory
LECTURER'S NAME:	Beata Janowska PhD,
E-MAIL ADDRESS OF THE LECTURER:	Beata.janowska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	1511>3300-Ch-lab
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written reports
COURSE CONTENT:	Organizational activities, health and safety regulations. Basics of chemical calculations (percentages, molar concentrations, pH, calculations of chemical analyses). Practical exercises: Characteristic reactions of cations and anions; basics of acid-base titrations; determination of water hardness; determination of the content of aggressive carbon dioxide; determination of the titre of the HCl solution; determination of the oxygen content; determination of chloride content using the Mohr method; determination of phenol content; Colorimetric determination of iron.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Electronic techniques of measurement - laboratory
LECTURER'S NAME:	Krzysztof Deska Ph.D.
E-MAIL ADDRESS OF THE LECTURER:	krzysztof.deska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0900-ETP-lab
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	laboratory
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	test, written reports, project work
COURSE CONTENT:	Geodetic instruments: levels, precision levels, theodolites, EDM, manual and robotic total stations, optical and laser plummets – practical part. Construction, principles of operation, software, settings and usage of instruments – practical part. Laboratory procedures using collimators for testing, calibrating and adjusting geodetic instruments. Field procedures for testing. Techniques of measurement using geodetic instruments.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	CAD basics 1
LECTURER'S NAME:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE LECTURER:	tomasz.dabrowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>3300-GWPCAD1-lab
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Computer laboratory
LANGUAGE OF INSTRUCTION:	<b>English</b>
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:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Soil mechanics and foundation engineering laboratory
LECTURER'S NAME:	Jarosław Filipiak
E-MAIL ADDRESS OF THE LECTURER:	jaroslaw.filipiak@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0201-MGiF-lab.
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	laboratory
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written reports
COURSE CONTENT:	<ol style="list-style-type: none"> <li>1. Macroscopic examination and determination of the basic physical properties of the soil.</li> <li>2. Determination of the pedometric modulus of soil compressibility.</li> <li>3. Determination of soil consistency boundaries.</li> <li>4. Determination of soil filtration parameters.</li> <li>5. Determination of optimum soil moisture by the Proctor method.</li> <li>6. Determination of soil shear strength.</li> <li>7. Calculating dependencies between soil physical properties – tasks.</li> <li>8. Determination of stress distribution in soil due to external load – tasks.</li> <li>9. Subsidence of the ground under direct foundations – tasks.</li> </ol>
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Fluid mechanics laboratory
LECTURER'S NAME:	Prof. Robert Sidelko
E-MAIL ADDRESS OF THE LECTURER:	robert.sidelko@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>3300-MP-lab
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	laboratory
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written reports, class test
COURSE CONTENT:	<p>Viscosity measurement with Hoppler viscometer.</p> <p>Pressure measurement with liquid manometers, calibration of the spring pressure gauge.</p> <p>Determination of the gas flow rate with the measurement of local velocities</p> <p>Determination of the gas flow rate using the flange.</p> <p>Determination of local and linear loss coefficients. Serial and parallel cooperation of pumps.</p>
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	GIS 1 (Geographic Information System 1) laboratory
LECTURER'S NAME:	Zofia Szczepaniak-Kořtun
E-MAIL ADDRESS OF THE LECTURER:	zofia.szczepaniak@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
COURSE CODE (USOS):	0511>0900-SIP-lab1
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	laboratory
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	project work, presentation
COURSE CONTENT:	<ul style="list-style-type: none"> <li>- spatial analyses, database, application of the SQL language,</li> <li>- creating your own thematic maps,</li> <li>- raster calibration,</li> <li>- vectorization of objects of various types, supplementing attribute tables,</li> <li>- vector analyses, topology of objects,</li> <li>- implementation of the project using ArcGIS software,</li> <li>- presentation of projects.</li> </ul>
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Mathematics 1
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
COURSE CODE (USOS):	0511>0200-Mat1, 0511>3300-Mat1, 0511>0900-Mat1
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30 lectures + 30 practical classes
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lectures + practical classes
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	<p style="text-align: center;"><b>Linear algebra</b></p> <p><b>Complex numbers:</b> 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.</p> <p><b>Matrices:</b> definition and notation, matrix operations, matrix multiplication, square matrices, determinant of a matrix, properties of determinants, matrix inverses, rank of a matrix .</p> <p><b>System of linear equations:</b> matrix equation, solution set, solving linear systems (eliminations of variable - Gauss-Jordan elimination, Cramer's rule and other methods).</p> <p><b>Vectors in Euclidean space:</b> vector operations, linear combination, linear independence, scalar product, vector product.</p> <p style="text-align: center;"><b>Differential calculus</b></p> <p><b>Differentiation and the derivative of real-valued functions of a single real variable:</b> definition via difference quotients, the derivative as a function, continuity and differentiability, higher derivatives.</p> <p><b>Computing the derivative:</b> derivatives of elementary functions, product rule, quotient rule, chain rule.</p>

	<b>Applications of the derivative:</b> 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:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Structural mechanics 1
LECTURER'S NAME:	Staff member
E-MAIL ADDRESS OF THE LECTURER:	Head: marek.nowakowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
COURSE CODE (USOS):	0511>0201-MB1
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30 lectures + 30 practical classes
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, practical classes
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written exam
COURSE CONTENT:	<ol style="list-style-type: none"> <li>1. Introduction to Structural Mechanics</li> <li>2. Strain energy and virtual work</li> <li>3. Calculation of displacement</li> <li>4. Force method of analysis of statically indeterminate structures</li> <li>5. Displacement method of analysis</li> <li>6. Influence functions</li> </ol>
ADDITIONAL INFORMATION:	The course is about statics of framed structures (beams, trusses, frames; statically determinate and indeterminate structures) - calculation of displacements and internal forces.

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Soil mechanics and foundation engineering 1
LECTURER'S NAME:	Jarosław Filipiak
E-MAIL ADDRESS OF THE LECTURER:	jaroslaw.filipiak@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
COURSE CODE (USOS):	0511>0201-MGiF1
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30 lectures + 15 practical classes
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures, practical classes
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	<ol style="list-style-type: none"> <li>1. Physical features and soil conditions.</li> <li>2. Water in the ground and its influence on physical properties and soil conditions.</li> <li>3. Problems related to the flow of water in the ground.</li> <li>4. Protection of structures against water.</li> <li>5. Strength and deformability of soils.</li> <li>6. Ground pressure problems (retaining walls, excavation protection).</li> <li>7. Foundations.</li> </ol>
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Fluid mechanics
LECTURER'S NAME:	Prof. Robert Sidelko
E-MAIL ADDRESS OF THE LECTURER:	robert.sidelko@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
COURSE CODE (USOS):	0511>3300-MP
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30 Lectures + 15 Practical Classes
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures + Practical Classes
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT:	Fluid mechanics covers: basic concepts and properties of fluids, hydrostatic pressure and the preparation of pressure diagrams, mathematical methods of fluid motion description, hydrodynamic concepts describing the movement of a fluid, fluid energy equation and a diagram of the energy of an ideal fluid, criteria describing the type of movement in a closed conduit, energy equation of a real fluid and energy losses during flow, description of the linear loss coefficient for types of flow, methods of calculating fluid movement with the use of the energy description equation, methods of calculating the pipes and the operation of the lever, cooperation of tanks with networks and the methods of calculating flows, methods of calculating branch and ring networks as well as devices for pumping liquids, calculation of the outflow from a big and small flooded and non-flooded hole, fluid flow in overflows, open channels and channels, criteria of the flow type in open channels, flow of water in the ground and the calculation of ditches and wells outputs, laws of gas flow in a pipe and the calculation of pipes, methods of calculations in sanitary engineering, based on fluid mechanics.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Geodetic and construction law
LECTURER'S NAME:	Agnieszka Czajka
E-MAIL ADDRESS OF THE LECTURER:	agnieszka.czajka@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	6
COURSE CODE (USOS):	0511>0901-PGiB
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30 lectures + 15 group tutorials
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, group tutorials
LANGUAGE OF INSTRUCTION:	<b>English</b>
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
COURSE CONTENT:	Lectures: The Geodetic and Cartographic Law. Glossary of statutory terms. Geodetic and cartographic service. Land and building records. Geodetic record of utilities networks. Records of towns, streets and addresses. State geodetic and cartographic resource. Geodetic and cartographic works. Property demarcation. Professional qualifications in geodesy. Spatial planning. Types of planning documents. The Construction Law Act. Basic concepts of the act. Participants in the construction process. Proceedings preceding the commencement of construction works. Construction and commissioning of buildings. Maintenance of construction facilities. Construction disaster. Architectural and construction administration and construction supervision authorities. The role and tasks of the organs. Practical classes: Code of Administrative Procedure. Preliminary issues. General rules in administrative proceedings. Properties of public administration bodies. The concept of the party. Handling matters before public administration bodies. Rules for the delivery of official correspondence. Summons and notices. Time limits for settling matters. Initiation of administrative proceedings. Suspension of the proceedings. Decisions, settlements, provisions. Appeals and Complaints. The reopening of the proceedings. Expiry, revocation, amendment, annulment of the decision.
ADDITIONAL INFORMATION:	Internet, AutoCAD and legal acts will be used.

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Heat networks and centres design
LECTURER'S NAME:	Sylwia Janta-Lipińska
E-MAIL ADDRESS OF THE LECTURER:	sylwia.janta-lipinska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1
COURSE CODE (USOS):	0511>1304-SiCC-proj
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Practical classes on design
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work
COURSE CONTENT:	<p>P1 Calculations of the heat demand of the residential and public buildings (5h).</p> <p>P2 Delimitation of the heat network and determination of the compensation of the thermal extensions (2h).</p> <p>P3 Hydraulic calculations of the heat network systems. Drawing up of a piezometric graph (7h).</p> <p>P4 Overview of the graphic and theoretical section of the project based on the of designing and constructing principles of the heating networks (1h).</p>
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Gas networks and installations design
LECTURER'S NAME:	Agnieszka Maliszewska
E-MAIL ADDRESS OF THE LECTURER:	agnieszka.maliszewska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1
COURSE CODE (USOS):	0511>1304-SiIG-proj
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Practical classes on design
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work, continuous assessment
COURSE CONTENT:	<ol style="list-style-type: none"> <li>1. Development of design documentation for a gas installation for a multi-family residential building, including hydraulic calculations and a graphic part.</li> <li>2. Development of design documentation for the medium pressure gas network with hydraulic calculations and a graphic part.</li> </ol>
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:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Heat networks and centres
LECTURER'S NAME:	Sylwia Janta-Lipińska
E-MAIL ADDRESS OF THE LECTURER:	sylwia.janta-lipinska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1
COURSE CODE (USOS):	0511>1304-SiCC
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT:	<p>W1 Classification of the heating networks.</p> <p>W2 Schemes of the heating networks. Connection of the central heating and ventilation installations.</p> <p>W3 Water networks systems with direct heat water consumption.</p> <p>W4 Water networks systems with indirect heat water consumption.</p> <p>W5 Comparative analysis of the water heating network systems. Steam networks.</p> <p>W6 Thermal equilibrium of the heating systems.</p> <p>W7 Determination of a seasonal demand for the buildings heating.</p> <p>W8 Determination of a thermal equilibrium based on unit pointers.</p> <p>W9 Calculations of the hydraulic heating networks. Calculation the flow rate.</p> <p>W10 The theoretical basics of the hydraulic calculations.</p> <p>W11 Determination of the diameters and pressure loss.</p> <p>W12 Piezometric charts.</p> <p>W13 Classification of heating network pipes.</p> <p>W14 Compensation of the thermal extensions. Isolation of the heating network pipes.</p> <p>W15 Class test</p>
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Gas networks and systems
LECTURER'S NAME:	Wojciech Kuczyński
E-MAIL ADDRESS OF THE LECTURER:	wojciech.kuczynski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1.5
COURSE CODE (USOS):	0511>1304-SiIG
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test, presentation
COURSE CONTENT:	Design and calculation issues in the field of gas networks and systems. Calculation methodology for the design of gas networks and systems. Basic problems of gas networks and systems.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	GIS 1 (Geographic Information System 1)
LECTURER'S NAME:	Zofia Szczepaniak-Kořtun
E-MAIL ADDRESS OF THE LECTURER:	zofia.szczepaniak@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
COURSE CODE (USOS):	0511>0900-SIP1
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written exam
COURSE CONTENT:	<ul style="list-style-type: none"> <li>- main of use GIS,</li> <li>- ways of presenting spatial data,</li> <li>- methods of acquiring spatial data,</li> <li>- data models, creation and updating of spatial data bases,</li> <li>- analysis and presentation of spatial data.</li> </ul>
ADDITIONAL INFORMATION:	The course allows you to understand spatial information systems. The student learns the application to use of GIS in everyday life and it's continuous development.

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering, Environmental and Geodetic Sciences
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Threats for the natural environment or Principles of the environment protection *
LECTURER'S NAME:	Bartosz Walenzik
E-MAIL ADDRESS OF THE LECTURER:	bartosz.walenzik@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>3300-ZdŚP or 0511>3300-ZOŚ
ACADEMIC YEAR:	2022/2023
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 <sup>st</sup> cycle, 2 <sup>nd</sup> cycle, 3 <sup>rd</sup> cycle)	1 <sup>st</sup> cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures
LANGUAGE OF INSTRUCTION:	<b>English</b>
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	class test
COURSE CONTEN for Threats for the natural environment:	Basic concepts related to technology and protection of the natural environment. The condition of the natural environment in Poland and in the world. The sense of modern ecological packaging. The problem of global warming and climate change. Decline of biodiversity and extinction of species. Impact of nutrients (nitrogen and phosphorus) on the natural environment. Threats to the forest environment. Water shortage problems. Environmental problems and health effects. The impact of demographic changes on the degradation of the natural environment. Legal aspect of the protection of the natural environment. Economic aspects of the protection of the natural environment. New concepts and technologies in the protection of the natural environment.
COURSE CONTEN for Principles of the environment protection:	The main objectives of the protection of the natural environment. Characteristics and potential threats to terrestrial ecosystems. Characteristics and potential threats to aquatic ecosystems. Air protection - goals and methods of protection. Basics of waste management. Sewage management. The condition of the natural environment in Poland and in the world. Contemporary threats to the natural environment. The problem of global warming and climate change. Biodiversity decline. Environmental degradation and health. The impact of demographic changes on the degradation of the natural environment.

	<p>Legal aspects of environmental protection. Economic aspects in the protection of the natural environment. Concepts of environmental protection. New technologies in the protection of the natural environment.</p>
<p>ADDITIONAL INFORMATION:</p>	

\*elective course, announced at the beginning of the semester