

Summer Semester

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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:	3D Computer Modeling Laboratory
LECTURER'S NAME:	Leszek Dawid, PhD
E-MAIL ADDRESS OF THE LECTURER:	leszek.dawid@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+3DCMlab
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Continuous assessment, class test
COURSE CONTENT:	The course will introduce AutoCAD, including basic tools and an understanding of the workspace. In addition, the course will give a background in designing in CAD systems. Furthermore, an introduction will be provided on basic conceptions of work in 3D space and generating regular solids models. Finally, the course will teach about processing data obtained with photogrammetric methods and laser scanning.
ADDITIONAL INFORMATION:	Prerequisites for the course include a background in methods of presenting geometric shapes and solids in drawings and the ability to read and understand the latter. Additionally, basic knowledge in general information technology, computer and program use is required.

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E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Basics of Surveying Project
LECTURER'S NAME:	Anna Bernatowicz, PhD
E-MAIL ADDRESS OF THE LECTURER:	anna.bernatowicz@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+BSpro
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Project classes
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test, written reports
COURSE CONTENT:	Horizontal and vertical angle measurements; Level traverse- field procedures, determine the elevation of benchmarks; The scattered point levelling method, Principles of geodetic sketches for different surveying purposes. An orthogonal and polar method in situational surveying; Preparation of a large-scale map. Total station and some applications in surveying.
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:	CAD Basics 2
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>0000E+CADB2
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Computer laboratory
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Continuous assessment
COURSE CONTENT:	Selecting and filtering objects in the drawing. Advanced layer management, layer isolation. Local coordinate systems. Dynamic blocks. Printing drawings. Working with sheet sets. Parameterization and tool palettes.
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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	CAD Laboratory 1
LECTURER'S NAME:	Renata Pigoń
E-MAIL ADDRESS OF THE LECTURER:	renata.pigon@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+CADlab1
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Computer laboratory
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Preparing architectural and construction drawings in AutoCAD and continuous assessment of work in the classroom.
COURSE CONTENT:	<p>The following topics will be taught:</p> <ul style="list-style-type: none"> • Introduction to CAD. • The principal rules of creating a drawing in AutoCAD. • Selecting commands and working with drawing. • Viewing drawings and working with coordinates. • Creating simple entities by using draw commands. • Layers. • Modifying entities. • Getting drawing information. • Working with text and practice. • Dimensioning drawing and practice. • Descriptive elements in the drawing. • Isometric views. • Working with blocks. • Preparing drawings for printing.
ADDITIONAL INFORMATION:	All the above will be conducted following the current standards and regulations.

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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
COURSE CODE (USOS):	0511>0000E+Chem1
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT:	<p>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, the 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.</p>
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:	Chemistry in Civil Engineering
LECTURER'S NAME:	Beata Janowska PhD, DSc, Eng.
E-MAIL ADDRESS OF THE LECTURER:	beata.janowska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+CCE
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT:	Fundamentals of general chemistry (atom structure, periodic table, chemical bonds). States of matter. Surface phenomena and their importance in construction. Dispersion systems (colloidal systems, their preparation and properties, classification and application of emulsions). Chemical reactions - characteristics and classification. Chemical equilibrium and kinetics of chemical reactions. Basics of chemical thermodynamics. Phase changes. Structure and properties of water. Water for construction purposes. Chemical reactions in the aquatic environment (hydrolysis and hydration). Chemistry of mineral building materials. Chemistry of mineral binders. Hydraulic and air binders. Processes during the preparation, setting and hardening of mineral binders. Mechanism of corrosion processes of mineral building materials. Metal chemistry. Basic electrochemistry. Corrosion of metals. Protection of metals against corrosion. Introduction to organic chemistry (structure and properties of organic compounds). Chemistry of plastics and bitumen. Synthetic resins and adhesives. Modifications of building materials. The use of composite materials. Recycling of building materials.
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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Computer Aided Design in Building Engineering
LECTURER'S NAME:	dr inż. Kamil Stachecki
E-MAIL ADDRESS OF THE LECTURER:	kamil.stachecki@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1
COURSE CODE (USOS):	0511>0000E+CADBE
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT:	<ul style="list-style-type: none"> • General rules of computer aided design. • Modelling of 2-D structures. • Static calculations using linear and nonlinear analysis using computer programs. • Loads, combinations. • Analysis of two-way bent slabs, including determining finite element mesh in span and support zone. • Impact of beam supports and dimensions of finite element mesh on static analysis of slabs • Footings and foundations. • Methodology of modelling and preparing calculation reports.
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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Computer Aided Design in Building Engineering Laboratory
LECTURER'S NAME:	dr inż. Kamil Stachecki
E-MAIL ADDRESS OF THE LECTURER:	kamil.stachecki@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+CADBELab
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Group tutorials, seminars, individual consultations
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work
COURSE CONTENT:	<ul style="list-style-type: none"> • Basics of computer modelling. • Supports of structures, including spring support. • Loads and their combination according to existing standards. • Static analysis of multi-storey, statically indeterminable frame. • Interpretation of computer aided static analysis. • Ultimate Limit State and Serviceability Limit State. • Dimensioning of the reinforced concrete frame. • Analysis of a slab based on finite element methods using computer programs.
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:	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>0000E+CMDA
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15+30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures + Practical classes
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work
COURSE CONTENT:	<p>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 chosen applications supporting data analysis.</p> <p>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, GNU PLOT).</p>
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:	Energy Resources or Energy Management * *elective course, announced at the beginning of the semester
LECTURER'S NAME:	Magdalena Orłowska
E-MAIL ADDRESS OF THE LECTURER:	magdalena.orlowska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
COURSE CODE (USOS):	0511>0000E+ER 0511>0000E+EM
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT for Energy Resources:	The role and importance of energy in the country's economy. Energy resources in Poland and their extraction. Fossil fuels, their distribution and extraction. Natural gas and crude oil transport systems. Types of power plants. Energy law - basic information. Environmental issues, rules and regulations. Structure of energy resources in the production of energy and electricity. Energy consumption in selected countries of the world. Development of energy systems in the country.
ADDITIONAL INFORMATION for Energy Resources:	Literature: Marecki J., Podstawy przemian energetycznych, WNT, Warszawa 2007 Charun H., Podstawy gospodarki energetycznej w zarysie. T. 1, Politechnika Koszalińska, 2016 Młynarski T., Tarnawski M., Źródła energii i ich znaczenie dla bezpieczeństwa energetycznego w XXI wieku, Difin, 2016
COURSE CONTENT for Energy Resources:	Energy acquisition and use. National energy system. Energy subsystems: solid fuels, liquid fuels, gas and electricity. Energy subsystems: thermal energy and renewable energy sources. Energy and the environment. Human-friendly energy. Nuclear energy and distributed energy. Rationalization of energy use. Conventional energy resources. Selected issues of fuel combustion. Elemental

	analysis of solid fuels. Associated energy management. Energy issues in water and sewage management.
ADDITIONAL INFORMATION for Energy Resources:	Literature: 1. Chmielniak T. 2013. Technologie energetyczne. Wydawnictwo WN-T Warszawa. 2. Charun H. 2004. Podstawy gospodarki energetycznej. Cz. 1, 2 i 3. Wydawnictwo Politechnika Koszalińska. 3. Ziębik A. 2008. Wprowadzenie do energetyki. Politechnika Częstochowska.

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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Final Project Seminar 1
LECTURER'S NAME:	Jacek Domski
E-MAIL ADDRESS OF THE LECTURER:	jacek.domski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+FPS1
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Seminar
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Presentation
COURSE CONTENT:	Layout and structure of the diploma thesis. Methodology of preparing diploma theses. Literature selection, use and citation. The initial concept of the thesis. The subject and purpose of the study. Theses and the scope of the diploma thesis. The use of multimedia techniques in the presentation of the diploma thesis. Presentation of selected chapters of the diploma thesis. Evaluation of the adopted design solutions, comparative analyses, statistical evaluation of the results of experimental studies and numerical calculations. Analysis of calculation and construction errors. Evaluation of the results of empirical research.
ADDITIONAL INFORMATION:	Presentation of articles similar to the diploma thesis. Presentation of unusual, original design solutions (results of experimental tests/numerical modelling) of building structures.

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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	General Construction 1
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>0000E+GC1
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written / oral exam
COURSE CONTENT:	<p>W1 Introduction to the subject, basic concepts and terminology, systems and building elements.</p> <p>W2 Principles of building work construction systems, spatial stiffness, dilatations, safety and durability.</p> <p>W3 General principles of structure calculations, the method of limit states, checking with the method of partial factors.</p> <p>W4 Dimensional coordination in construction, modular coordination, system design, and dimensioning of elements.</p> <p>W5 Walls and supports, tasks and classification, rules for erecting from small-scale, prefabricated, and monolithic elements.</p> <p>W6 Foundation of a building, principles of cooperation, soil and foundation, types of foundation. Direct and indirect foundation.</p> <p>W7 Ceilings and flat coverings, ceiling tasks, structures of particular types of ceilings. Balconies and bay windows.</p> <p>W8 Elements of vertical communication in the building, stairs, ladders, ramps and elevators. Stair constructions.</p> <p>W9 Roofs and flat roofs, types, shape and structure. Wooden, steel and reinforced concrete structures. Roof drainage.</p> <p>W10 Chimneys in the building. Chimney flues, types, principles of guidance and methods of implementation. Chimney systems.</p>
ADDITIONAL INFORMATION:	<p>1. Fundamentals of Building Construction: Materials and Methods, Edward Allen, Joseph Iano, SBN13 (EAN): 9781119446194, editor: Wiley,</p> <p>2. Handbook for Building Construction: Administration, Materials, Design, and Safety (2021) Christine Fiori, ISBN13 (EAN): 9781260456882, Clifford Schexnayder</p> <p>3. Building Construction Illustrated, Ching, F, ISBN-10: 111958308X, WILEY; Edit 6 (2020)</p>

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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Geodetic Investment Service
LECTURER'S NAME:	Czesław Suchocki, PhD
E-MAIL ADDRESS OF THE LECTURER:	czeslaw.suchocki@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+GIS
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written / oral exam
COURSE CONTENT:	<ul style="list-style-type: none"> - Structural survey of high-rise buildings and structures. - Displacement and deformation study of engineering structures. - Types of control networks for surveying. - As-built geodetic inventory of buildings and structures.
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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Geodetic Investment Service Laboratory
LECTURER'S NAME:	Czesław Suchocki, PhD
E-MAIL ADDRESS OF THE LECTURER:	czeslaw.suchocki@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+GISlab
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work / class test
COURSE CONTENT:	<ul style="list-style-type: none"> - Preparation of control network projects for surveying and setting out of a building. - Development of measurement results for mast deviation from verticality. - Measurement of the underground utility network cable. - Surveying of building and structures geometry.
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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Heat Exchange
LECTURER'S NAME:	Sylwia Janta-Lipińska
E-MAIL ADDRESS OF THE LECTURER:	sylwia.janta-lipinska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
COURSE CODE (USOS):	0511>0000E+HE
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15+15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures + Practical classes
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
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>Lectures:</p> <ol style="list-style-type: none"> 1. Heat conduction. 2. Heat transfer. 3. Radiation heat transfer. 4. Composite heat exchange. 5. Heat exchangers. 6. Class Test <p>Practical classes:</p> <ol style="list-style-type: none"> 1. Calculation exercises of the heat conduction. 2. Calculation exercises of the heat transfer. 3. Calculation exercises of the radiation heat transfer. 4. Calculation exercises of the composite heat exchange. 5. Calculation exercises of the recuperative heat exchanger. 6. Class test
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:	Land Surveying and Geomatics 2
LECTURER'S NAME:	Prof. Marcin Jagoda
E-MAIL ADDRESS OF THE LECTURER:	marcin.jagoda@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
COURSE CODE (USOS):	0511>0000E+LSG2
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	Standards and specifications for geodetic situational and height control networks; Fundamentals of height measurements; Types of height measurements; Basics of direct levelling; Technical levelling of benchmarks; Geodetic high-altitude field measurements- levelling of scattered points, grid levelling, profile levelling; Principles of presenting the relief on large-scale maps.; Interpolation and plotting of contours.
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:	Least Square Adjustment Alignment Method 2
LECTURER'S NAME:	Prof. Miłoslawa Rutkowska
E-MAIL ADDRESS OF THE LECTURER:	miloslawa.rutkowska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
COURSE CODE (USOS):	0511>0000E+LSAM2
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	Least squares parametric method for measurement adjustment. Formulation of observation equations for selected techniques (angular, range, level, GNSS, SLR, DORIS, VLBI) and adjustment based on observation equations. Analysis of covariance matrix and determination accuracy of estimated unknowns. Exemplary computations performed for different kinds of measurements.
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:	Least Square Adjustment Alignment Method 2 Laboratory
LECTURER'S NAME:	Katarzyna Kraszewska, PhD
E-MAIL ADDRESS OF THE LECTURER:	katarzyna.kraszewska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+LSAM2lab
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory, group tutorials
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT:	Least square method; alignment of networks: levelling, angular, angular-linear; accuracy of alignment; use of computer methods in alignment.
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 2
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>0000E+Math2
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30+30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures + Practical classes
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	<p>Integral calculus</p> <p>The indefinite integral of real-valued functions of a single real variable: formal definition, properties of integrals, finding the value of an integral (integration).</p> <p>Techniques for computing integrals: integration by substitution, integration by parts, integration by trigonometric substitution, integration by reduction formulae, integration by partial fractions, and integration using Euler's formula.</p> <p>The definite integral (the Riemann integral): definition and properties, fundamental theorems of calculus (the Newton-Leibniz theorem).</p> <p>Applications of definite integrals: calculating areas, volumes, arc length.</p> <p>Improper integrals: convergence of the integral singularities.</p> <p>Ordinary differential equations (ODE)</p> <p>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.</p> <p>First-order ODE: separable equations, homogeneous equations, exact equations, linear equations (homogeneous and non-homogeneous), Bernoulli equations, and solved problems.</p> <p>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.</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:	Mechanical-biological Waste Treatment Installations or Thermal Waste Treatment Installations * *elective course, announced at the beginning of the semester
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>0000E+MBWTI 0511>0000E+TWTI
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30+15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures + Practical classes
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written / oral exam, written reports
COURSE CONTENT Mechanical-biological Waste Treatment Installations	Lectures: The current legal status of waste management and circular economy. Collection and disposal of waste. Waste segregation. Municipal waste recycling. Waste neutralization technologies. Modern technologies for the construction of landfills. Processes of mechanical and biological waste treatment. Methods of biological waste treatment. Basics of the composting process. Composting of municipal waste. Examples of technical solutions for the oxygen processing of the organic fraction of waste. Composting process and equipment. Practical classes: Capital expenditure on construction and operation of a municipal waste landfill. Impact of the facility on the natural environment and people. Capital expenditure and construction costs of a waste sorting plant, mechanical and biological plant (MBP), composting and fermentation facilities. Examples of land area calculations for a compost heap. Comparative analysis of the processing costs of composting, mechanical-biological and thermal methods.
COURSE CONTENT for Thermal Waste Treatment Installations	Lectures: The current legal status of waste management and circular economy. Collection and disposal of waste. Waste

	<p>segregation. Municipal waste recycling. Characteristics of waste for thermal processing. Technologies of thermal waste neutralization. Examples of installations operating in Poland and other European Union countries. Collection and preparation of waste for incineration. Construction of a municipal waste incineration chamber. Methods of heat recovery from combustion and its management. Emissions of pollutants from the incineration process. Methods of exhaust gas treatment. Examples of incineration of municipal waste and other organic waste. The impact of incineration plants on the natural environment and people.</p> <p>Analysis of exemplary costs of building incineration plants. Future of municipal waste incineration plants in Poland. Practical classes:</p> <p>Calculations of energy generated from the incineration of the organic fraction of municipal waste. Calculations of the emission of volatile pollutants generated in the process of incineration of municipal waste. Analysis of the degradation kinetics of selected groups of toxic organic compounds. Comparative analysis of the processing costs of composting, mechanical-biological and thermal methods.</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:	Metal Structures 2
LECTURER'S NAME:	dr inż. Przemysław Krystosik
E-MAIL ADDRESS OF THE LECTURER:	przemyslaw.krystosik@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
COURSE CODE (USOS):	0511>0000E+MS2
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30+15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures + Practical classes
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam, continuous assessment
COURSE CONTENT:	Trusses - applications, principles of design and dimensioning. Industrial halls - types of halls, static schemes, frame corners. Industrial halls - hall bracings (roof and wall bracings); dimensioning of bracing according to EC3. Composite steel and concrete structures - rules for dimensioning beams and composite columns according to EC3. Industrial halls - types of halls with traditional plate girders; with a web of corrugated sheets. Runway beams, flyovers - technological loads, principles of construction and dimensioning in terms of load-bearing capacity, stiffness and durability conditions.
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:	Municipal Waste Management Project
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>0000E+MWMpro
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Project classes
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work
COURSE CONTENT:	Legal basics of installations for mechanical and biological processing and examples of real objects at an industrial scale. Balance of municipal waste. Technological calculations. The effectiveness of the applied processes in the context of the recovery of raw materials and energy.
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:	Photogrammetry and Remote Sensing 2 Laboratory
LECTURER'S NAME:	Piotr Kędziorski
E-MAIL ADDRESS OF THE LECTURER:	piotr.kedziorski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+PRS2lab
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work, written test
COURSE CONTENT:	<ul style="list-style-type: none"> • calibration, • aerotriangulation, • digital terrain models, • rectification and orthoprojection, • laser scanning.
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:	Photogrammetry Field Exercises
LECTURER'S NAME:	Piotr Kędziorski
E-MAIL ADDRESS OF THE LECTURER:	piotr.kedziorski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+PFE
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Practical classes
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Presentation
COURSE CONTENT:	Photogrammetric field surveying. Aerotriangulation. Image processing.
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:	Pumps or Fans * *elective course, announced at the beginning of the semester
LECTURER'S NAME:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE LECTURER:	tomasz.dabrowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
COURSE CODE (USOS):	0511>0000E+Pump 0511>0000E+Fans
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15+15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures + Practical classes
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Exam test
COURSE CONTENT for Pumps:	Lectures: Pumps and pumping systems, calculations, parameters, energy balance. Pump characteristics. Construction and operation of vortex pumps. Construction and operation of reciprocating and special pumps. Cavitation phenomenon. Anti-cavitation surpluses. Installation, start-up and operation of pumps. Practical classes: Pump calculations. Pump characteristics. Pump performance regulation. Calculations of the pumping system.
COURSE CONTENT for Fans:	Lectures: Division and scope of application of fans and compressors. Construction and operation of fans. Operating parameters of fans and compressors. General principles of operation of fans and compressors. General characteristics of motors used in pumps, compressors and blowers. Practical classes: Calculations of parameters of fans and compressors. Calculating the efficiency of fans and their cooperation with the network. Selection of fans, compressors and motors for their drive.
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:	Reinforced Concrete Structures Project
LECTURER'S NAME:	Joanna Laskowska-Bury
E-MAIL ADDRESS OF THE LECTURER:	joanna.laskowska-bury@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
COURSE CODE (USOS):	0511>0000E+RCSpro
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Project exercise
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work
COURSE CONTENT:	<ul style="list-style-type: none"> • Exercises involving the design of a beam slab. The student learns the summation of loads, the design of the slab, and beams. • Designing reinforced concrete elements using Ultimate Limit State and Serviceability Limit State. • Designing of elements statically determinate: slab and T-beam. • The rules of making reinforced concrete construction drawings. • Makes construction drawings of elements.
ADDITIONAL INFORMATION:	All the above will be conducted following the current standards and regulations.

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:	Remote Sensing
LECTURER'S NAME:	Tomasz Oberski
E-MAIL ADDRESS OF THE LECTURER:	tomasz.oberski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+RS
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Exam, presentation
COURSE CONTENT:	<ul style="list-style-type: none"> - Introduction to remote sensing. - Electromagnetic radiation. - Spatial and radiometric resolution. - Sensors. - Histogram. - Extracting objects from an image.
ADDITIONAL INFORMATION:	The course allows you to understand remote sensing fundamentals.

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:	Satellite Geodesy in Engineering Practice
LECTURER'S NAME:	Miłosława Rutkowska and Krzysztof Deska
E-MAIL ADDRESS OF THE LECTURER:	miloslawa.rutkowska@tu.koszalin.pl krzysztof.deska@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	5
COURSE CODE (USOS):	0511>0000E+SGEP
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30+30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + group tutorials
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam, written reports, project work
COURSE CONTENT:	<p>Lecture (30 h): Construction of the earth satellites for geodetical and geophysical purposes. Two body problems, formulation of motion equation for artificial satellite. Computation and conversion of Keplerian and Cartesian orbital elements. Theory of the numerical integration methods for satellite orbit estimation. Osculating and mean orbital elements. Gravitational and nongravitational perturbations of satellite orbits. Description of measurement techniques used to satellite geodesy: Satellite Laser Ranging (SLR), Doppler Orbitography and Radiopositioning Integrated by Satellite (DORIS), Global Navigation Satellite Systems (GNSS), Very Long Base Interferometry (VLBI) and Satellite Altimetry. International Terrestrial Reference Frame (ITRF) based on different kinds of satellite measurements.</p> <p>Group tutorial part I (15 h):</p> <ol style="list-style-type: none"> 1. Description of construction of the selected geodetic satellite. 2. Computation of satellite orbits. 3. Conversion of Keplerian elements to Cartesian elements and Cartesian to Keplerian elements. 4. Computation of station position and correction caused by plate motion. <p>Group tutorial part II (15 h): Actual GNSS status. Static and kinematic (RTK/RTN) measurements. Planning of GNSS measurements. Analysis using Trimble GNSS Planning Online.</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:	Structural Mechanics 1
LECTURER'S NAME:	Mariusz Ruchwa, PhD, BSc, MSc
E-MAIL ADDRESS OF THE LECTURER:	mariusz.ruchwa@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
COURSE CODE (USOS):	0511>0000E+SM1
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30+30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, practical classes
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Calculation reports and written exam
COURSE CONTENT:	<ol style="list-style-type: none"> 1. Introduction to Structural Mechanics. 2. Strain energy and virtual work. 3. Calculation of displacements. 4. The Force Method of analysis of statically indeterminate structures. 5. The Direct Stiffness Method. 6. The Influence Lines.
ADDITIONAL INFORMATION:	The course is intended for people who have completed the Strength of Materials course. The course is about statics of rod structures (beams, trusses, frames; statically determinate and indeterminate structures) - calculating 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:	Technical Drawing Laboratory
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>0000E+TDL
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test and continuous assessment of work in the classroom.
COURSE CONTENT:	<p>The following topics will be taught:</p> <ul style="list-style-type: none"> • Introduction to technical drawing. Different equipment in manual engineering drawings. Drawing Standards, literature. • Different types of construction drawings, drawing sheet formats, drawing tables, and sheet preparation for classes under the standard requirements. • Different types of lines used in a technical construction drawing and their application. • Graphical markings in the architectural and construction drawings. • Technical writing. • Dimensioning rules on a building drawing as per the standard. • Drawing symbols used on building drawings. • Preparation and marking of cross sections.
ADDITIONAL INFORMATION:	All the above will be conducted following the current standards and regulations.

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:	Town Planning and Architecture
LECTURER'S NAME:	Maciej Siekierski
E-MAIL ADDRESS OF THE LECTURER:	maciej.siekierski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+TPA
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	presentation
COURSE CONTENT:	Architecture and urban planning - comparison of concepts. Principles of city design. Types of cities. The history of construction solutions in architecture.
ADDITIONAL INFORMATION:	The course is based on examples from Europe, Asia, Central America and South America

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E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Unit Processes in Water and Wastewater Treatment or Unit Processes in Industrial Waste Processing * *elective course, announced at the beginning of the semester
LECTURER'S NAME:	Jacek Piekarski
E-MAIL ADDRESS OF THE LECTURER:	jacek.piekarski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+UPWWT 0511>0000E+UPIWP
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lectures
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT for Unit Processes in Water and Wastewater Treatment:	Classification of mixtures. Characteristics of various mixtures. Mixture composition parameters. Balance equations of medium flow through devices. Separation process of gravitational sedimentation including coagulation and flocculation, as unit processes supporting gravitational sedimentation. Separation of suspensions under the influence of centrifugal force. Theoretical basics of the filtration and adsorption process. Other methods of water and wastewater treatment. Technical novelties in the field of water and wastewater treatment.
COURSE CONTENT for Unit Processes in Industrial Waste Processing	Technological basics of the screening process. Characteristics of selected devices for the screening process. Technological basics of the grinding process. Characteristics of selected devices for the grinding process. Theoretical basics of the flotation process. Systematics of flotation reagents and principles of their operation. Characteristics of selected devices for the flotation process. Application of the flotation process in various industries. Theoretical foundations of the separation process in heavy liquids. Separation in a pulsating water stream. Other methods of processing industrial waste. Technical novelties in the field of industrial waste processing.
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:	Unit Processes Laboratory
LECTURER'S NAME:	Jacek Piekarski
E-MAIL ADDRESS OF THE LECTURER:	jacek.piekarski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
COURSE CODE (USOS):	0511>0000E+UPlab
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written reports
COURSE CONTENT:	<p>Laboratory tests of the following processes: gravitational sedimentation, flocculation, gravitational filtration, centrifugal sedimentation, centrifugal filtration, pressure filtration</p> <p>Laboratory tests of the following processes: Granulometric analysis – screening, shredding, flotation, dynamic olfactometry, recycling of paper waste, identification of polymer waste.</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:	Use of Biomass Energy Laboratory
LECTURER'S NAME:	Bartosz Walendzik
E-MAIL ADDRESS OF THE LECTURER:	bartosz.walendzik@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1
COURSE CODE (USOS):	0511>0000E+UBElab
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written reports
COURSE CONTENT:	Determination of the bulk density in selected forms of biomass. Determination of moisture and ash in biomass sample. Determination of carbon content in biomass chosen samples. Testing the calorific value in selected biomass samples. Dry distillation of selected forms of biomass. Application of gas chromatography with mass spectrometry (GC-MS) for determining Volatile Organic Compounds in biomass. The use of the AAS technique to determine the content of main and trace elements in biomass and ash from biomass.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
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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
COURSE CODE (USOS):	0511>0000E+WWTS
ACADEMIC YEAR:	2023/2024
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1 st cycle, 2 nd cycle, 3 rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	English, Polish, (separate group with English depends from number of the incoming students)
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 essential 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 multimedia and end with a visit to the municipal sewage treatment plant.