Civil Engineering

Winter Semester

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Investment process management
LECTURER'S NAME:	Eng., PhD, Maciej Król
E-MAIL ADDRESS OF THE LECTURER:	maciej.krol@gmail.com
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	15+15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture + group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written exam for lecture, project work for group tutorials
COURSE CONTENT:	L1 The investment process, forms and stages. Classification of building objects, L2 Participants in the investment process, Supervision and architectural and construction services, L3 Legal forms of construction companies. Functions of construction companies. Investment implementation systems, L4 Use of buildings, L5 Construction investment process and environmental protection, L6 Basic principles of awarding public contracts, FIDIC procedures, E1 Transport algorithm, E2 Determining the optimal assortment structure, E3 Elements of dynamic programming, E4 Linear programming - graphical method, E5 Quotient programming, E6 A task about mixtures.
ADDITIONAL INFORMATION:	Course is about to give knowledge of the issue concerning the investment process and construction law. Classification of investment projects. Additionally course gives data about the issues of planning, control and efficiency of the construction investment process. Course introduce the basic principles of awarding contracts for works and construction services.

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ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Concrete Structures 1
LECTURER'S NAME:	dr inż. Mariusz Staszewski
E-MAIL ADDRESS OF THE LECTURER:	mariusz.staszewski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	6
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	45+30+30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Group tutorials, seminar, individual consultations
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam, Project work
COURSE CONTENT:	Basic information: historical review, definitions, classifications. Properties of concrete and reinforcing steel. Bond between reinforcing steel and concrete. Durability of reinforced concrete structures. Bending with or without axial force, shear, torsion, punching. Design with strut and tie models. Cracking and deflection. Rules for detailing reinforcement.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Design of timber structures
LECTURER'S NAME:	Robert Adamczyk
E-MAIL ADDRESS OF THE LECTURER:	robert.adamczyk@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30+30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture and group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test.
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:	

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FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Steel structures
LECTURER'S NAME:	Przemysław Krystosik, PhD, BSc
E-MAIL ADDRESS OF THE LECTURER:	przemyslaw.krystosik@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	45+30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lectures and exercises
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	**Lectures** **L1** - Introductory information, steel grades, types and mechanical properties of construction steels - 4h **L2** - Welded joints, rules of calculation and construction - 6h **L3** - Connections using structural bolts and high-strength bolts, rules of calculation and construction – 8h **L4** Beams made of hot-rolled cross sections, rules of dimensioning, the use of plastic properties of the material, bearing capacity of bent beams – 7h **L6** Plate girders, construction rules, dimensioning taking into account local and global loss of stability, plate girder joints – 7h **L7** Steel columns, rules of dimensioning and design - 7h **L8** Trusses - applications, principles of design and dimensioning – 6h **Exercises** **E1** - Repetition of the strength of materials – 2h **E2** - Calculation and construction of welded joints -6h **E3** - Calculation and construction of bolt connections with the use of structural bolts -8h **E4** - Calculation and construction of bolt connections with the use of high-strength bolts – 8h **E5** - Dimensioning of beams with taking into account the lateral- torsional buckling – 3h **E6** - Dimensioning of columns with taking into account the lateral buckling – 3h
ADDITIONAL INFORMATION:	Literature:

	- James M. Gere - *Mechanics of Materials* (SIXTH EDITION). - B.Bresler et al. Design of Steel Structures (second edition) - Leroy Gardner, David Nethercot, Haig Gulvanessian - ***Designers' Guide to Eurocode 3: Design of Steel Buildings EN 1993-1-1, -1-3 and -1-8.*** - *EN 1993-1-1* (2005): Eurocode 3: Design of steel structures - Part 1-1: General rules and rules for buildings. - *EN 1993-1-5* (2006): Eurocode 3: Design of steel structures - Part 1-5: General rules - Plated structural elements. - *EN 1993-1-8* (2005): Eurocode 3: Design of steel structures - Part 1-8: Design of joints.

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FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski PhD
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Mathematics I
LECTURER'S NAME:	Dr hab. Volodymyr Sushch, Prof. PK
E-MAIL ADDRESS OF THE LECTURER:	volodymyr.sushch@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	6
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30 + 30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + practice
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	**Linear algebra** **Complex numbers:** the unit imaginary number, the Cartesian form or algebraic form of complex numbers, complex plane, absolute value, conjugation and distance, geometric interpretation of complex numbers, the operations on complex numbers, the polar form of complex numbers (the trigonometric form), Euler formula, Moivre's formula, Powers and roots of complex numbers, solutions of polynomial equations. **Matrices:** definition and notation, matrix operations, matrix multiplication, square matrices, determinant of a matrix, properties of determinants, matrix inverses, rank of a matrix . **System of linear equations:** matrix equation, solution set, solving linear systems (eliminations of variable - Gauss-Jordan elimination, Cramer's rule and other methods). **Vectors in Euclidean space:** vector operations, linear combination, linear independence, scalar product, vector product. **Differential calculus** **Differentiation and the derivative of real-valued functions of a single real variable:** definition via difference quotients, the derivative as a function, continuity and differentiability, higher derivatives. **Computing the derivative:** derivatives of elementary functions, product rule, quotient rule, chain rule. **Applications of the derivative:** L'Hospital's rule, critical points, monotone increase and decrease, minimization and maximization, local minima and maxima (the first derivative test), using the second derivative, the concavity of the graph of a function.
ADDITIONAL INFORMATION:	

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FIELD OF STUDY:	Civil Engineering
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
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30+30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture, group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written exam
COURSE CONTENT:	1. Introduction to structural engineering (2) 2. Linear 3D model of elastic rods (3) 3. Reduction of 3D model to 1D model (3) 4. Matrix displacement method (6) 5. Virtual work principles in structural analysis (6) 6. Force method (4) 7. Influence functions (6)
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
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
LECTURER'S NAME:	Jarosław Filipiak
E-MAIL ADDRESS OF THE LECTURER:	jaroslaw.filipiak@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	4
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30+15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	1. Physical features and soil conditions. 2. Water in the ground and its influence on physical properties and soil conditions. 3. Problems related to the flow of water in the ground. 4. Protection of structures against water. 5. Strength and deformability of soils. 6. Ground pressure problems (retaining walls, excavation protection). 7. Foundations.
ADDITIONAL INFORMATION:	

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Laboratory of Soil Mechanics and Foundation Engineering
LECTURER'S NAME:	Jarosław Filipiak
E-MAIL ADDRESS OF THE LECTURER:	jaroslaw.filipiak@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	W
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written reports
COURSE CONTENT:	1. Macroscopic examination and determination of the basic physical properties of the soil. 2. Determination of the oedometric modulus of soil compressibility. 3. Determination of soil consistency boundaries. 4. Determination of soil filtration parameters. 5. Determination of optimum soil moisture by the Proctor method. 6. Determination of soil shear strength. 7. Calculating dependencies between soil physical properties – tasks. 8. Determination of stress distribution in soil due to external load – tasks. 9. Subsidence of the ground under direct foundations – tasks.
ADDITIONAL INFORMATION:	

Civil Engineering

Summer Semester

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Advanced Building Chemicals
LECTURER'S NAME:	dr hab. Paweł K. Zarzycki, prof. PK
E-MAIL ADDRESS OF THE LECTURER:	pkzarz@wp.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Group tutorials and/or Seminar
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written reports and/or presentation
COURSE CONTENT:	This course is focusing on the future of chemicals and advanced complex materials, which are used in buildings/constructions. All aspects of hybrid and smart chemicals that are manufactured and can be implemented for advanced buildings, including new nanomaterials, will be discussed from practical point of view. Moreover, ecotoxicological impact of engineered chemicals and nanomaterials on environment and the humans will be evaluated, based on data available in scientific literature.
ADDITIONAL INFORMATION:	LITERATURE: **[1]** A. M. Grumezescu (Editor), Handbook of Food Bioengineering, Volume 19; Role of Material Science in Food Bioengineering; Chapter 3, pp 73-107: K. Mitura, P.K. Zarzycki; Biocompatibility and Toxicity of Allotropic Forms of Carbon in Food Packaging; Academic Press/Elsevier 2018, ISBN: 978-0-12-811448-3; PII: B978-0-12-811448-3.00003-6; DOI: http://dx.doi.org/10.1016/B978-0-12-811448-3.00003-6 **[2]** P.K. Zarzycki, Editor, "Pure and Functionalized Carbon Based Nanomaterials: Analytical, Biomedical, Civil and Environmental Engineering Applications", CRC Press, 2020

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Civil Engineering
LECTURER'S NAME:	Eng., PhD, Maciej Król
E-MAIL ADDRESS OF THE LECTURER:	maciej.krol@gmail.com
ECTS POINTS FOR THE COURSE:	4
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30+30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture + group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	written exam for lecture, project work for group tutorials
COURSE CONTENT:	Topics of classes (block of classes): L1: The apartment and its functions, L2: Determination of basic building components, L3: Technical conditions to be met by buildings and their location, L4: Selected graphic symbols in the archtectional and construction building drawings, L5 Basic materials used in construction and their characteristics, L6 Walls. Sandwich walls. Thermal insulation materials, L7 Thermal and humidity issues of building partitions, L8 Foundations, L9 Floors and floor coverings. Waterproofing insulations, L10 Ceilings. Wreaths and lintels, L11 Ceilings and flat coverings, ceiling tasks, structures of particular types of ceilings. Balconies and bay windows. L12 Roof truss. Roofing materials. Pipes and downspouts, L13 Stairs, L14 Chimneys in the building. Chimney pipes, types, principles of routing and methods of execution. Chimney systems.
ADDITIONAL INFORMATION:	Course is about to give knowledge of basic concepts and terminology in the field of construction and technical conditions to be met by buildings and their positioning. Additionally course gives data about graphic symbols on the architectural drawing, rules for the use of basic building materials, rules for shaping the body of a building with walls. Knowledge of the basic principles of building physics related to the transfer of heat and moisture through a partition. Knowledge of the basic construction elements of a single-family house (foundations, walls, ceilings, wreaths and lintels, stairs, roof truss. The ability to shape an architectural single-family house - meeting the requirements in terms of the function and aesthetics of the facility.

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

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Theoretical mechanics
LECTURER'S NAME:	Dr hab. inż. Mirosław Wesołowski
E-MAIL ADDRESS OF THE LECTURER:	miroslaw.wesolowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	6
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30+30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Written exam
COURSE CONTENT:	The aim of the course is to introduce students to the statics and the equilibrium equations for a planar structures. Introduce students to the description of the equation of motion of a point and a rigid body. Introduction to the problems related to vibrations of one degree of freedom systems. The main problems consider during the course are: Models of a continuum body; Force and a force balance; Definition of a torque; Definition of structural supports; Definition of a friction; Equation of motion; Vibrations.
ADDITIONAL INFORMATION:	References: Douglas Thorby, Structural Dynamics and Vibration in Practice: An Engineering Handbook 1st Edition.

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FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Numerical methods
LECTURER'S NAME:	Dr hab. inż. Mirosław Wesołowski
E-MAIL ADDRESS OF THE LECTURER:	miroslaw.wesolowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Lecture
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Class test
COURSE CONTENT:	The aim of the course is to introduce students into the general problems of computational methods in solving engineering problems. To provide basic information on selected numerical methods. To make students familiar with the basics of practical skills in the application of selected numerical methods for civil engineering. The main problems consider during the course are: Basic information on numerical methods; Modelling – simulation and analysis; Numerical methods for matrix calculus (Linear equations); Numerical methods in elementary mathematical analysis; Data interpolation and approximation; Approximate numerical methods in civil engineering; Introduction to the Finite Element Method
ADDITIONAL INFORMATION:	References: 1. Thomas J. R. Hughes, Finite Element Method: Linear Static And Dynamic Finite Element Analysis, 2020 2. MathWorks (2020) Matlab - The Language of Technical Computing. Natick, MA, USA 3. https://helion.pl/ksiazki/numerical-methods-piotr-tatjewski,e_1x94.htm#format/e

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Laboratory of numerical methods
LECTURER'S NAME:	Dr hab. inż. Mirosław Wesołowski
E-MAIL ADDRESS OF THE LECTURER:	miroslaw.wesolowski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Laboratory
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Computer subroutines
COURSE CONTENT:	The course covers the practical implementation of numerical methods for civil engineering problems. The students are supposed to implement the following problems related to the numerical methods: Implementation of MATLAB subroutines; Matrix calculus; Elementary mathematical analysis: roots of a function, extremum of a function, numerical differentiation and integration; Data interpolation; Data approximation; Finite Element Method implementation in Structural Mechanics
ADDITIONAL INFORMATION:	References: 1. Thomas J. R. Hughes, Finite Element Method: Linear Static And Dynamic Finite Element Analysis, 2020 2. MathWorks (2020) Matlab - The Language of Technical Computing. Natick, MA, USA 3. https://helion.pl/ksiazki/numerical-methods-piotr-tatjewski,e_1x94.htm#format/e

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Metal structures project
LECTURER'S NAME:	Przemysław Krystosik, PhD, BSc
E-MAIL ADDRESS OF THE LECTURER:	przemyslaw.krystosik@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	2
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	design classes
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	project work
COURSE CONTENT:	**P1**- Scope of the project: steel structure of the warehouse building – 2h **P2**- Loads determination on structure - 2h **P3** - Dimensioning of beams made of hot-rolled sections - 2h **P4** - Practical rules of plate girder constructions - 2h **P5** - Analysis and dimensioning of plate girder - 8h **P6** - Shaping and dimensioning of welded and bolted joints used in the project - 4h **P7** - Design of compressed columns - 2h **P8** - Shaping and dimensioning of bases and heads of steel compressed columns - 2h **P9** - Development of graphic design documentation - 2h **P10** - Repetition of the material - 4h
ADDITIONAL INFORMATION:	Literature: - James M. Gere - *Mechanics of Materials* (SIXTH EDITION). - B. Bresler et al. Design of Steel Structures (second edition) - Leroy Gardner, David Nethercot, Haig Gulvanessian - ***Designers' Guide to Eurocode 3: Design of Steel Buildings EN 1993-1-1, -1-3 and -1-8.*** - *EN 1993-1-1* (2005): Eurocode 3: Design of steel structures - Part 1-1: General rules and rules for buildings. - *EN 1993-1-5* (2006): Eurocode 3: Design of steel structures - Part 1-5: General rules - Plated structural elements. - *EN 1993-1-8* (2005): Eurocode 3: Design of steel structures - Part 1-8: Design of joints.

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
ERASMUS COORDINATOR OF THE FACULTY:	Tomasz Dąbrowski
E-MAIL ADDRESS OF THE COORDINATOR:	tomasz.dabrowski@tu.koszalin.pl
COURSE TITLE:	Metal structures laboratory
LECTURER'S NAME:	Przemysław Krystosik, PhD, BSc
E-MAIL ADDRESS OF THE LECTURER:	przemyslaw.krystosik@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	1
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	laboratory
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	reports
COURSE CONTENT:	**Laboratory** **L1** - Measurements of geometrical deviations of hot-rolled cross sections - 2h **L2** - Computational and experimental determination of resistance of fillet welds - 2h **L3** - Computational and experimental determination of resistance of bolted connections (bearing type) - 3h **L4** - Computational and experimental determination of resistance of bolted connections (end-plate type) - 3h **L5** - Measurement of thickness of anti-corrosion coatings - 2h **L6** - Measurement of elements thickness of steel cross sections - 2h **L7** - Repetition of the material - 1h
ADDITIONAL INFORMATION:	Literature: - James M. Gere - *Mechanics of Materials* (SIXTH EDITION). - B. Bresler et al. Design of Steel Structures (second edition) - Leroy Gardner, David Nethercot, Haig Gulvanessian - ***Designers' Guide to Eurocode 3: Design of Steel Buildings EN 1993-1-1, -1-3 and -1-8.*** - *EN 1993-1-1* (2005): Eurocode 3: Design of steel structures - Part 1-1: General rules and rules for buildings. - *EN 1993-1-5* (2006): Eurocode 3: Design of steel structures - Part 1-5: General rules - Plated structural elements. - *EN 1993-1-8* (2005): Eurocode 3: Design of steel structures - Part 1-8: Design of joints.

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
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:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15+30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	lecture + group tutorials
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	presentation + project work
COURSE CONTENT:	Architecture and urban planning - comparison of concepts Principles of city design. Types of cities. The history of construction solutions in architecture + Construction project of single-family house in the indicated location
ADDITIONAL INFORMATION:	The course is based on examples from Europe, Asia, Central America and South America

FACULTY:	Civil Engineering, Environmental and Geodetic Sciences
FIELD OF STUDY:	Civil Engineering
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. Mariusz Staszewski
E-MAIL ADDRESS OF THE LECTURER:	mariusz.staszewski@tu.koszalin.pl
ECTS POINTS FOR THE COURSE:	3
ACADEMIC YEAR:	2021/2022
SEMESTER: (W – winter, S – summer)	S
HOURS IN SEMESTER:	15+30
LEVEL OF THE COURSE: (1st cycle, 2nd cycle, 3rd cycle)	1st cycle
TEACHING METHOD: (lecture, laboratory, group tutorials, seminar, other-what type?)	Group tutorials, seminar, individual consultations
LANGUAGE OF INSTRUCTION:	English
ASSESSMENT METHOD: (written exam, oral exam, class test, written reports, project work, presentation, continuous assessment, other – what type?)	Project work
COURSE CONTENT:	General rules, loads, combinations, two way bent slabs, flat slabs with and without drop panels, footings and foundations.
ADDITIONAL INFORMATION:	