FACULTY OF CIVIL ENGINEERING AND ARCHITECTURE

List of classes

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1	Advanced Architectural design I (B-1)	1	Advanced architectural design II (B-25)
2	Architectural design of multi-functional buildings I (B-2)	2	Aesthetics in Design and Construction of Transport Infrastructures (B-26)
3	Architectural Material Science (B-3)	3	Architectural design of multi-functional buildings II (B-27)
4	Basic design - compositions (B-4)	4	Architectural design of public service facilities (B-28)
5	Concrete Structures I (B-5)	5	Basic design - analysis (B-29)
5	Construction Economics and Estimating (B-6)	6	BIM in Design and Construction of Transport Infrastructure (B-30)
6	Construction Management (B-7)	7	BIM in General Construction (B-31)
7	Design of landscape architecture (B-8)	8	Chemistry of Construction Materials (B-32)
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9	Drawing and painting I (B-10)	10	Computer Methods (B-34)
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11	Fundamentals of Bridge Engineering (B-12)	12	Construction project management with regard to the environmental aspects (B-36)
12	Individual housing design (B-13)	13	Contemporary architecture (B-37)

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14	Introduction into urban planning (B-15)	15	Drawing and painting II (B-39)
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16	Presentation techniques (B-17)	17	History of Polish Architecture, Town Planning and Culture (B-41)
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18	Rural planning/ Regional planning (B-19)	19	Universal design (B-43)
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GENERAL RULES

- Total amount of ECTS credits chosen by student for each semester cannot exceed 33 ECTS.
- Learning Agreement changes made at the beginning of each semester should not exceed 10 ECTS credits.
- The Faculty Coordinator must be informed about classes taken at other Faculties of LUT.
- Student is obliged to attend classes and be there on time.

Coordinators:
Michał Dmitruk (m.dmitruk@pollub.pl)
Andrzej Szewczak (a.szewczak@pollub.pl)

Advanced Architectural design I (B-1)

(INTERNAL CODE: IIAK1-1)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (60)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: winter	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language. Subject require basic knowledge of construction, installation and architectural law.
CONTENTS: Prepare proposals for the design, the layout and the function of an exact architectural object and elaborate approved proposals for its actual construction, prepare technical drawings using CAD, presentation and communication about project results to fellow students and lecturers by analyzing and rationalizing decisions made
EFFECTS OF EDUCATION PROCESS: Understand the specific rules for designing a building with its surrounding, public spaces, etc., explain all requirements concerning the layout of the plot of surrounding area (urban space)
LITERATURE (OPTIONAL):
TEACHING METHODS: project, design practice, individual, or group design corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design
TEACHER: MSc. Eng. Arch. Krystian Patyna (k.patyna@pollub.pl) or equivalent teacher

Architectural design of multi-functional buildings I (B-2)

(INTERNAL CODE: IAK9b-1)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (60)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: Prepare proposals for the design, the layout and the function of a sports hall, a stadium, playing fields, or other sport objects, proposals for its actual function and construction, presentation and communication about project results to fellow students and lecturers by analyzing and rationalizing decisions made
EFFECTS OF EDUCATION PROCESS: Understand the rules of designing sport and leisure building with its surrounding, public spaces, etc., explain the main requirements concerning the layout of the plot of surrounding area (urban space)
LITERATURE (OPTIONAL):
TEACHING METHODS: project, design practice, individual, or group design corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design
TEACHER: PhD. Eng. Arch. Piotr Gleń (p.glen@pollub.pl) or equivalent teacher

Architectural Material Science (B-3)

(INTERNAL CODE: IAK19)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (30) + LABORATORY (15)
NUMBER OF HOURS: 3/week (45/semester)	**ECTS:** 4
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Basic knowledge of math, physic and chemistry (secondary school level)

CONTENTS: Classification of architectural materials and correlation between architecture & material science. Properties of materials and estimation of their quality. Wood materials and products. Natural stone materials . Ceramic (clay) products . Materials made of glass and other mineral melts. Metal materials and products. Materials and products made of mineral binders. Polymeric materials and products. Paintwork materials. Roll finishing materials. Efficiency materials and products of the equal purpose

EFFECTS OF EDUCATION PROCESS: Knowledge of main natural and artificial architectural materials and elements . Knowledge of principal properties of architectural materials (functional, aesthetical, economic) and their composition. Application of materials different by origin.
Achievement of basic practical skills for selection of the materials at construction, renovation and service of building.

LITERATURE (OPTIONAL):

TEACHING METHODS: lectures, laboratory works, individual works (sketchbook of architectural materials, elements and assemblies, and written essays)

ASSESSMENT METHODS: midterm and final tests

TEACHER: MSc. Eng. Tomasz Nicer (tomasz.nicer@konstrukcje.lublin.pl) or equivalent teacher.

Basic design - compositions (B-4)

(INTERNAL CODE: IAK2)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (60)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH

PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.

CONTENTS: Introduction in program, basic sketching, preparing poster: composition with association, modeling a piece of paper, conversion of model into architectural building, presentation of prepared project using paper model

EFFECTS OF EDUCATION PROCESS: know the rules of composition, material use and perspective drawing

LITERATURE (OPTIONAL):

TEACHING METHODS: project, design practice, individual, or group design corrections

ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design

TEACHER: PhD. Eng. Arch. Wojciech Kocki (w.kocki@pollub.pl) or equivalent teacher

Concrete Structures I (B-5)

(INTERNAL CODE: IK14a)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (30) + PROJECT (30)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: structural mechanics

CONTENTS:

Definition and classification of concrete structures

- Physical and mechanical properties of concrete
- Mechanical characteristic of reinforcing steel
- Safety and reliability of concrete structures
- Dimensioning rules for reinforced concrete sections in flexure
- Shear design in support zones in beams
- Serviceability limit states

EFFECTS OF EDUCATION PROCESS:

- knowledge of design rules of reinforced concrete structure,
- knowledge of testing methods of compressive strength of concrete, tensile strength of concrete and modulus of elasticity

LITERATURE (OPTIONAL):

EN 1992-1-1:2004, Eurocode 2: Design of concrete structures. Part 1: General rules and rules for buildings. European Committee for Standardization, 2004

TEACHING METHODS:

power point presentations, tables and constructional drawings

ASSESSMENT METHODS: design exercise

TEACHER: PhD. Eng. M. Słowik, (m.slowik@pollub.pl) or equivalent teacher

Construction Economics and Estimating (B-6)

(INTERNAL CODE: IIST3)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (30) + PROJECT (30)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: winter	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Basic knowledge in construction project management. Basic skills in project scheduling and estimating. Ability to gather, evaluate and analyse relevant information from published sources.

CONTENTS: Lecture: Introduction to corporate finance and managerial economics: a business principal of operation; financial reports and factor analysis as source of information on a company's standing; accounting vs economic profit, alternative cost; time value of money. Basic techniques of financial and economic assessment of project proposals. Models and methods of planning cost of construction projects at consecutive stages of project development. Building design cost management. Sources of cost data. Life cycle cost of built facilities. Value engineering. Role of construction in the economy. Housing. Economic problems of urbanisation. Sustainable development.
Tutorial: Problem solving (financial reports, factor analysis, depreciation of fixed assets, cost of capital, financial leverage, financial and economic assessment of projects (simple and discounted methods), risk analysis. Construction cost plan preparation.

EFFECTS OF EDUCATION PROCESS: To get familiar with methods and input for planning and assessing economic and financial effects of decisions taken at consecutive stages of construction project development.

LITERATURE (OPTIONAL): Hendrickson Ch.: Project Management for Construction. Fundamental Concepts for Owners, Engineers, Architects and Builders. Version 2.2 . Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, 2008 http://pmbook.ce.cmu.edu/

TEACHING METHODS: Lecture with multimedia presentations. Problem solving (group work and individual work). Discussion.

ASSESSMENT METHODS: lecture: written examination; tutorials: financial assessment of a project – individual problem to solve, 2) quantity takeoff for construction works, 3) oral presentation or written essay, 4) field trip report.

1) financial assessment of a project – individual problem to solve (20%), 2) quantity takeoff for construction works (20%), 3) oral presentation or written essay (20%), 4) field trip report (20%), 5) final test (covers all subjects) (20%)

TEACHER: PhD. Eng. A. Czarnigowska, (a.czarnigowska@pollub.pl)

Construction Management (B-7)

(INTERNAL CODE: IT1)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (30) + PROJECT (30)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Basic knowledge in general construction and construction technology. Completed academic course in mathematics. Computer literacy.

CONTENTS: Lecture: Introduction to construction management. Resources management. Estimating project costs. Construction contracts. Construction planning. Construction scheduling. Monitoring project costs and performance. Safety during construction.
Project: Application of queueing theory for earthwork planning. Construction site layout planning. Construction scheduling. Construction scheduling with various conditions and constrains. Scheduling with repeating activities. Critical Path Method for construction processes.

EFFECTS OF EDUCATION PROCESS: The student acquires basic knowledge in the scope of construction management, develops skills in analysis of designs and scheduling construction works, becomes aware of impact and influence of decision taken during construction process.

LITERATURE: Hendrickson Ch., Project Management for Construction. Fundamental Concepts for Owners, Engineers, Architects and Builders. Version 2.2. Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, 2008, http://pmbook.ce.cmu.edu/
Jackson B.J., Construction Management. JumpStart, 2nd Edition, Wiley Publishing Inc., Indianapolis, Indiana 2010
Knutson K., Schexnayder C.J., Fiori Ch., Mayo R., Construction Management Fundamentals, 2nd Edition, McGraw Hill, New York 2009

TEACHING METHODS: Lectures with multimedia presentations. Individual problem solving. Discussion.

ASSESSMENT METHODS: Lecture: Written test. Project: Assessment of the completeness and correctness of individual tasks.

TEACHER: PhD. Eng. Michał Tomczak (m.tomczak@pollub.pl) or equivalent teacher

Design of landscape architecture (B-8)

(INTERNAL CODE: IIAK2)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (30)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: winter	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: History and development of landscape architecture and urban gardening, elements of equipment for public space, define urban and landscape interior, prepare proposals for the design, the layout and the function of a modern public space, final project – designing a multifunctional park including variety of different public spaces dedicated for Lublin city center, final presentation
EFFECTS OF EDUCATION PROCESS: Know the rules of designing green spaces
LITERATURE (OPTIONAL):
TEACHING METHODS: project, design practice, individual, or group design corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design
TEACHER: PhD. Eng. Arch. Kamila Boguszewska (k.boguszewska@pollub.pl) or equivalent teacher

Design of public buildings and their Urban surrounding (B-9)

(INTERNAL CODE: IAK8a)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (60)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: Prepare proposals for the design of multi – storey building, clarify the structural system of both – designed object and surrounding area (including various neighborhood), clarify building services status, clarify the environmental potential and limitations, presentation of leading design
EFFECTS OF EDUCATION PROCESS: Understand the rules of designing public building with its surrounding, public spaces, etc., explain the main requirements concerning the layout of the plot of surrounding area (urban space)
LITERATURE (OPTIONAL):
TEACHING METHODS: project, design practice, individual, or group design corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design
TEACHER: PhD. Eng. Arch. Michał Dmitruk (m.dmitruk@pollub.pl) or equivalent teacher

Drawing and painting I (B-10)

(INTERNAL CODE: IAK27)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LABORATORY (45)
NUMBER OF HOURS: 3/week (45/semester)	**ECTS:** 4
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH

PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.

CONTENTS: ·Presentation of various advanced drawing techniques: tempera/acrylic/water colors, still life drawing, mosaic, drawing nature, drawing outdoors (historic buildings), drawing architectural details, final presentation

EFFECTS OF EDUCATION PROCESS: know the rules of composition, perspective drawing, using various materials and colors – theory of color, know the rules of drawing a human

LITERATURE (OPTIONAL):

TEACHING METHODS: practical exercises, studies in situ, individual, or group design corrections

ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final work

TEACHER: PhD. Agnieszka-Chęć-Małyszek (a.chec-malyszek@pollub.pl) or equivalent teacher

Environmental Protection in Design and Construction of Transport Infrastructure (B-11)

(INTERNAL CODE: IISD4A)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (30) + _LABORATORY (15) + PROJECT (15)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: winter	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Having basic knowledge about roads and bridges designing and European legislation in environmental protection.

CONTENTS: Lecture: European and national legislation in environment protection. Definitions, scope, aims and rules of environment protection in transport infrastructure. Authorities and institutions of the environment protection. Positive and negative impacts in transport infrastructure. Environment protection against road noise and vibrations. Air, water protection and wastewater management. Soil protection. Waste management and land area's protection. Landscape, land and mineral resources' protection. Nature protection, including forms of nature's protection. Environmental compensations. Monument and archeological sites and cultural property protection. Impact of transport on people's health. Cumulated impacts. Reduced impact area.

EFFECTS OF EDUCATION PROCESS: Gaining basic knowledge about environment protection in transport infrastructure, aims of environment protection and rules of environment protection in transport infrastructure. Gaining basic knowledge about European and national legislation in environment protection in transport infrastructure. Gaining basic knowledge in the scope of environment protection in transport infrastructure for particular resource of the environment. Gaining basic knowledge about negative impact of transport influence on health of people and environment protection methods as well as negative impact of transport infrastructure on people. Gaining basic knowledge about cumulated impacts. Obtaining basic skills in the scope of performing road noise measurements. Gaining basic knowledge in the scope of analysis and designing the protection against negative impact of transport infrastructure on the environment and health of people.

LITERATURE (OPTIONAL): Bohatkiewicz J., Adamczyk J., Tracz M., Kokowski A. I in. Podręcznik dobrych praktyk wykonywania opracowań środowiskowych dla dróg krajowych. GDDKiA. Warszawa, 2008.

TEACHING METHODS: Informative lectures. Practical lectures. Multimedia presentations, including theoretical content. Analysis and design of devices for environment protection. Road noise measurements. Exercise with the use of computer.

ASSESSMENT METHODS: Written exam – theoretical part. Projects - completed tasks. Laboratory - active participation measured at each class level of completed tasks.

TEACHER: PhD. Eng. Marcin Dębiński (m.debinski@pollub.pl)

Fundamentals of Bridge Engineering (B-12)

(INTERNAL CODE: ISW4a)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (15) + PROJECT (30)
NUMBER OF HOURS: 3/week (45/semester)	**ECTS:** 4
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Having knowledge of structural mechanics, mathematics, strength of materials. Having knowledge of transport constructions. Having knowledge of the ultimate limit state and serviceability one. Knowledge of bridge standards.

CONTENTS:

Lecture: Types of bridges and superstructures cross-sections in case of road and railway bridges. Bridges' mechanical models and materials used. Loads on bridges, the standard BS-EN 1991-2. Definition of the composite of steel-concrete type structure. Beam composite: steel-concrete, concrete-concrete, stainless-steel (hybrid), steel-glulam. The idea of the integration in bridges. Integration by using various connector types. PN-E 1994-2. The geometrical characteristics of the transformed to steel the composite cross-section. The analysis of actual v. initial configurations in order to determine the redistribution of internal forces on the components of the composite beam - axial force, bending moment, shrinkage, temperature. Newmark-Rżanicyn theory in the case of bending for dimensioning of a bridge girder. Designing of rigid and flexible connectors between members. Delaminating in the interface. The environmental aspects and limitation of aggressive effects fauna and flora in the bridge surrounding in the bridge design and maintenance. The beauty of the bridge construction and its monumental impact.

Project: Architectural and structural assumptions to design of the composite bridge steel-concrete type. Establishing of geometric parameters and the bridge cross-sectional design. Adoption of load models. Lateral distribution of loads, the COURBON method. Static-strength calculations of bridge elements. Graphic part of the bridge - development of technical drawings

EFFECTS OF EDUCATION PROCESS: Gaining general knowledge of composite bridge design. Skills to develop the technology of composite bridges.

LITERATURE:

Bridge Engineering Handbook, W.F. Chen, Lian Duan, Wai-Fah Chen

TEACHING METHODS: Multimedia presentations, including theoretical content. Materials related to the issues discussed, communicated to students. The topics to execute projects by students. Computer programs for editing drawings and calculations perform.

ASSESSMENT METHODS: Students' activity, Design results, Presentation of the paper, Test results, Presence

TEACHER: PhD. Eng. Marcin Dębiński (m.debinski@pollub.pl)

Individual housing design (B-13)

(INTERNAL CODE: IAK6)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (60)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: Prepare proposals for the design of a single family house, design nearby area of house, presentation of prepared project of single family house
EFFECTS OF EDUCATION PROCESS: know and understand rules of designing single family houses with its surrounding
LITERATURE (OPTIONAL):
TEACHING METHODS: project, design practice, individual, or group design corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design
TEACHER: MSc. Eng. Arch. Małgorzata Kozak (m.kozak@pollub.pl) or equivalent teacher

Interior design (B-14)

(INTERNAL CODE: IIAS3a)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (30)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: winter	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH

PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.

CONTENTS:
Prepare apartment interior proposals for the selected family. Preparation of technical drawings clearly showing the solutions adopted. Preparation of executive drawings of furniture. Preparation of visualization of designed interiors. Presentation in a graphic and oral manner of accepted design solutions

EFFECTS OF EDUCATION PROCESS: Gain knowledge about the design of residential interiors, the layout of functions and the creation of technical drawings

LITERATURE (OPTIONAL):

TEACHING METHODS: project, design practice, individual, or group design corrections, excursions

ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design

TEACHER: NAME, EMAIL CONTACT): MSc. Eng. Arch. Olga Skoczylas **(o.skoczylas@pollub.pl)**, PhD. Eng. Arch. Rafał Strojny (r.strojny@pollub.pl) or equivalent teacher

Introduction into urban planning (B-15)

(INTERNAL CODE: IAK12)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LECTURE (15) + PROJECT (15)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH

PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English language.

CONTENTS: Each of the lectures is focused on the important subject connected with the urban planning. The subject is presented and discussed. The presentation in some cases will be the lecture, in some cases the film, in some cases the short excursion to the place significant for the urban planning.

EFFECTS OF EDUCATION PROCESS: Knowledge on the complexity of urban planning. Knowledge on the different factors important for the urban planning.

LITERATURE (OPTIONAL):
- Jane Jacobs „Death and Live of Great American Cities”
- Christopher Alexander „ Patern language”
- Robert Venturi, Denise Scott Brown, Steven Izenour „Ucząc się od Las Vegas”
- Charles Correa “A Place in the Shade. The New Landscape & Other Essays”
- Jan Gehl “Life between buildings”

and more

TEACHING METHODS: Traditional lectures with use of the multimedia presentations

ASSESSMENT METHODS: students are to prepare at each lecture the notes from the consist of the lecture

TEACHER: MSc. Eng. Arch. Małgorzata Kozak (m.kozak@pollub.pl) or equivalent teacher

Masonry structures (B-16)

(INTERNAL CODE: IISK4A)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (15) + PROJECT (15)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: winter	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Having of knowledge from building materials connected with mortars and masonry elements. Having of knowledge from basics of civil engineering, structural mechanics and strength of materials to solve engineering problems.

CONTENTS:

Lecture: Classes of mortars and masonry elements, masonry strengths. Effective height, reduction coefficients of capacity. Checking of ultimate limit state of masonry pillar in outer wall. Calculations of inner walls on both sides loaded by floor slabs. Calculation models of stiffening walls (horizontally loaded). Reinforced masonry with vertical and horizontal bars (bars in joints). Composite masonry-concrete and masonry-reinforced concrete structures.

Project: Calculation of masonry strength and effective height of walls. Capacity checking of outer wall pillar in selected cross-sections on calculated floors. Capacity of inner walls on both sides loaded by floor slabs. Modelling of stiffening walls and capacity checking with taking into account horizontal load caused by wind.

EFFECTS OF EDUCATION PROCESS: Getting of knowledge and competences in range of forming and calculation of unreinforced masonry structures. Getting of knowledge and competences in range of forming and calculation of reinforced masonry structures.

LITERATURE (OPTIONAL):

C. Beall, R. Jaffe – Concrete and Masonry Databook, McGraw-Hill 2003, A. W. Hendry, B. P. Sinha, S. R. Davies, Design of Masonry Structures, Chapman & Hall 2004

TEACHING METHODS:

Multimedia presentations with theoretical content. Sets of tasks prepared for individual calculation elements of project. Project topics for independent executions by students.

ASSESSMENT METHODS:

Written assessment of lectures. Execution of project task. Discussion about solving project task. Written exam.

TEACHER: PhD. Eng. M. Grabias (m.grabias@pollub.pl)

Presentation techniques (B-17)

(INTERNAL CODE: IAK29 a/b)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LABORATORY (30)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: Introduction of program and various presentation techniques, individual work on subject using Archicad and other graphic programs (Adobe Photoshop or similar), individual work on subject using Archicad, final work presentation – correction, final work presentation and discussion
EFFECTS OF EDUCATION PROCESS: Know the rules composition, design presentation and methods of communication between client and architect.
LITERATURE (OPTIONAL):
TEACHING METHODS: exercises, design practice, individual, or group corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final work
TEACHER: PhD. Eng. Arch. Rafał Strojny (r.strojny@pollub.pl) or equivalent teacher

Physicochemical methods for analysis of building materials (B-18)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LECTURE (15) + LABORATORY (30)
NUMBER OF HOURS: 3/week (45/semester)	**ECTS:** 4
SEMESTER: winter	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 8 or more Erasmus+ students), Student must be able to fluently communicate in English language.

CONTENTS: Classification of material research methods. Optical microscopy in transmitted and reflected light. X-ray phase analysis. Electron microscopy method. Thermal methods in construction products analysis. Spectroscopic research methods. Textural properties analysis of construction products. X-ray fluorescence method.

EFFECTS OF EDUCATION PROCESS: The knowledge of the research methods for phase and chemical composition of construction products, the knowledge of sample preparation techniques for phase and chemical analyses. Ability to prepare samples for phase and chemical analyses. Ability to recognize the phase composition of building materials with the use of methods of optical and electron microscopy, X-ray diffraction, thermal analysis, infrared spectroscopy. Ability to determine the texture of construction products.

LITERATURE (OPTIONAL):

TEACHING METHODS: Multimedia presentations. Overview of sample graphs of various research methods for mineral composition based on selected methods. Using tables of chemical compositions of construction products. Using microphotographs to describe the morphology of minerals and the texture of construction products.

ASSESSMENT METHODS: Written exam on lecture. Laboratory - active participation measured at each class level of completed task. Report on laboratory experiments. Passing theory to experiments.

TEACHER: PhD. Rafał Panek **(r.panek@pollub.pl)**, PhD. Szymon Malinowski (s.malinowski@pollub.pl) or equivalent teacher

Rural planning/ Regional planning (B-19)

(INTERNAL CODE: IAK11)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LABORATORY (30)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: Introduction into program, history and development of regional architecture, design elements of equipment for public spaces, buildings and infrastructure, definie urban and landscape interior for specific type of buildings, prepare proposals for the design, the layout and the function of a modern public space based on regional type of architecture, final project – designing a multifunctional public service buildings including variety of different public spaces located near Lublin city, final presentation
EFFECTS OF EDUCATION PROCESS: know the rules of designing regional areas
LITERATURE (OPTIONAL):
TEACHING METHODS: project, studies in situ, design practice, individual, or group design corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final work
TEACHER: Prof. Bartłomiej Kwiatkowski (b.kwiatkowski@pollub.pl) or equivalent teacher

Scaffolds (B-20)

(INTERNAL CODE: IISK3A)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (15) + LABORATORY (15)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: winter	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Having knowledge of structural mechanics and strength of materials. Having a basic knowledge of computational methods applied in building engineering. Having knowledge of steel structures.

CONTENTS: Lecture: Getting to know the definitions and legislation, scaffolds systems and rules of scaffolds design. The overview of the preparation process of scaffolding for the production and marketing. The overview of the scaffolding operating on building sites, including the necessary documentation, rules of erection, exploitation and dismantling. The overview of laboratory tests of scaffolds and methods of statistical analyses of their results. The design of untypical scaffolds. The presentation of implementation of scaffolds.
Laboratory: Assembly of the scaffolds. The creation of scaffold models with using AUTOCAD program. The statics-strength analyses for exemplary scaffolds.
The measurements of strains for facade frame with using Zwick strength machine. The measurements of the bearing capacity for scaffold modular node with using VBai strength machine. The measurements of the bearing capacity for scaffold modular node with using MTS strength machine.

EFFECTS OF EDUCATION PROCESS: Obtaining knowledge of the rules of design and exploitation of scaffolds according to actual standards and law acts. Obtaining knowledge of methods of the technical assessment of scaffold structures and the analysis of their statics work. Gaining the ability to make the statics-strength analysis of scaffold structures.

LITERATURE (OPTIONAL): Zienkiewicz O.C., Taylor R.L., Finite Element Method. Volume 1, McGraw-Hill, London 1989
Podgórski J., Błazik-Borowa E.: The introduction to FEM in statics of structural mechanics, IZT, Lublin 2001
Regulation of the Minister of Infrastructure of 6.02.2003 on health and safety during construction work, Journal of Law 2003, No. 47, item 401

TEACHING METHODS: Multimedia presentations, including theoretical content. Laboratory teaching guidelines. Assembly of the scaffolds. Exercises with the use of computer. Laboratory exercises with the use of strength machine.

ASSESSMENT METHODS: Written test. Active participation measured at each class level of completed tasks. Ranking on the base of the research report and calculations.

TEACHER: Prof. Ewa Błazik-Borowa, **(e.blazik@pollub.pl)**, PhD. Eng. Michał Pieńko, (m.pienko@pollub.pl)

Structural Mechanics I (B-21)

(INTERNAL CODE: IK5)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (45) + PROJECT (30)
NUMBER OF HOURS: 5/week (75/semester)	**ECTS:** 6
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Having a knowledge and skills in mathematics and physics which allow solving engineering problems. Having a knowledge in theoretical mechanics.

CONTENTS:

Lecture: Analysis of statically determinate rod systems. Virtual work principle, reciprocity theorems. Calculation of general displacements in statically determinate systems. Analysis of statically indeterminate rod systems with use of force method. Reduction theorems and their application. Calculation of general displacements in statically indeterminate systems. Analysis of ultimate limit state of simple rod elements.

Project: Calculation of general displacements in statically determinate systems (beams, frames, trusses). Static analysis of beams and frames with use of force method.

EFFECTS OF EDUCATION PROCESS:

To get a knowledge of the linear static analysis of the 2D statically determinate and indeterminate rod structures as well as the ultimate limit state analysis of simple statically indeterminate rod systems To get a skill in solving engineering problems connected with linear static analysis of the 2D statically determinate and indeterminate rod systems as well as in the ultimate limit state analysis of simple statically indeterminate rod systems

LITERATURE (OPTIONAL):

Z. Cywiński: Mechanika budowli w zadaniach, PWN, Warszawa 1999.

G. Rakowski i inni: Mechanika Budowli. Ujęcie komputerowe t. I, Arkady, Warszawa.

TEACHING METHODS:

Theoretical bases lectures. Case studies lectures. Multimedia presentations, including theoretical contents. Procedures for solving exercises. Exercises with case studies.

ASSESSMENT METHODS:

Exam with exercises to solve. Project. Defense of the Project. Active participation in classes.

TEACHER: PhD. Eng. Bartosz Kawecki, (b.kawecki@pollub.pl)

Sustainable revitalization of degraded areas (B-22)

(INTERNAL CODE: IIAK7)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LECTURE (15) + PROJECT (30)
NUMBER OF HOURS: 3/week (45/semester)	**ECTS:** 4
SEMESTER: winter	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH

PRELIMINARY REQUIREMENTS:
Knowledge of the history of architecture; Knowledge of terminology in the field of architectural forms and detail; Ability to analyze the architectonical objects and spatial assumptions. Student must be able to fluently communicate in English.

CONTENTS:
Forms of cultural landscape protection; Methodology of the cultural landscape study adjusted to the specific requirements of the architect and urban planner work; Protection of the cultural landscape and preservation of identity considering the transformations in the process of natural development of towns and villages; Examples of degraded areas revitalization in Poland and worldwide; Development of guidelines for revitalization design; Elaboration of the design of the revitalization of degraded area; Development of conservation design of selected architectural object - concept

EFFECTS OF EDUCATION PROCESS:

- Gaining knowledge on the potential value of the cultural environment (concepts, methods)
- Ability to analyze the cultural context in terms of tasks of revitalization of degraded areas and to undertake design activities
- Gaining knowledge of the form of legal protection of the cultural landscape in the process of sustainable development (revitalization)
- Knowledge of exemplary design solutions at European level in the field of urban revitalization of degraded areas

LITERATURE (OPTIONAL):

TEACHING METHODS:
Multimedia presentations, including theoretical content, Presentations and evaluation of designs and their descriptions on the subsequent stages of development

ASSESSMENT METHODS:
Written examination, Assessment of the final design

TEACHER: Prof. Bogusław Szmygin (b.szmygin@pollub.pl) or equivalent teacher

Technical Drawing and CAD (B-23)

(INTERNAL CODE: IK2)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LABORATORY (30)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: winter	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS:

Having a computer skill. Knowledge of the principles of creating technical drawings.

CONTENTS:

Creating and modifying simple and complex graphic objects

Dimensioning and annotating drawings, reading out data

Data exchange, OLE technology

Preparation of technical drawings to printing and publishing

EFFECTS OF EDUCATION PROCESS:

Getting acquainted with the practical skills of standard Auto-CAD use, create and publish two-dimensional drawings for a technical documentation.

Getting acquainted with a skill how to use OLE tools for teamwork.

LITERATURE (OPTIONAL):

Jaskulski A., AutoCAD 2012 /LT2012/WS+. Kurs projektowania parametrycznego i nieparametrycznego 2D i 3D.Wersja polska i angielska, PWN Warszawa, 2011

Pikoń A., AutoCAD 2013 Pierwsze kroki, Helion Gliwice, 2013

TEACHING METHODS:

Multimedia presentations. Individual performance of practical tasks prepared for each issue. Performance of project tasks within the teamwork.

ASSESSMENT METHODS: Credits for individual performed practical tasks. Credits for teamwork performed project task. Control test.

TEACHER: PhD. Eng. Ewa Zarzeka-Raczkowska (e.zarzeka-raczkowska@pollub.pl)

Wooden Engineering Constructions (B-24)

(INTERNAL CODE: IISK5A)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (15) + PROJECT (15)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: winter	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS:
Knowledge and skills in the field of Structural Mechanics allowing for solving engineering problems. Knowledge and skills in the field of Strength of Materials allowing for solving engineering problems.

CONTENTS:
Lecture: Properties of wood as a construction material. Traditional and modern solid wood constructions. Manufacture of glued laminate wood and its application in engineering structures. Joints of the wooden elements. Methods of checking of the limit states conditions applied to the wooden structures. Protection of the wooden structures against biological corrosion and against fire.
Project: The calculations of the wooden element in terms of the ultimate and serviceability limit state on the example of composite double T beam with nailed joints, selecting mechanical fasteners, protecting against biological corrosion. Making of construction drawings. Shaping the cross section and calculating of the glued laminated element.

EFFECTS OF EDUCATION PROCESS:
Obtaining knowledge about the structural properties of wood, applications of wood in structures and methods of their shaping. Obtaining skills in solving specific engineering problems arising in the designing of complex wooden structures.

LITERATURE (OPTIONAL):
Breyer D.E., Fridley K.J., Cobeen K.E. Design of wood structures, 1999, Kermani A., Structural timber design, 1999

TEACHING METHODS: Multimedia presentations of lecture content. Individual preparing of the project by a student. Oral answers about the project.

ASSESSMENT METHODS: Final test and evaluation of the correctness of individual exercises

TEACHER: PhD. Eng. J. Szerafin (j.szerafin@pollub.pl)

Advanced Architectural Design II (B-25)

(INTERNAL CODE: IIAK1-2)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (60)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: summer	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH

PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language. Subject require basic knowledge of construction, installation and architectural law.

CONTENTS: Prepare proposals for the design, the layout and the function of an exact architectural object and elaborate approved proposals for its actual construction, prepare technical drawings using CAD, presentation and communication about project results to fellow students and lecturers by analyzing and rationalizing decisions made

EFFECTS OF EDUCATION PROCESS: Understand the specific rules for designing a building with its surrounding, public spaces, etc., explain all requirements concerning the layout of the plot of surrounding area (urban space)

LITERATURE (OPTIONAL):

TEACHING METHODS: project, design practice, individual, or group design corrections

ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design

TEACHER: MSc. Eng. Arch. Krystian Patyna (k.patyna@pollub.pl) or equivalent teacher

Aesthetics in Design and Construction of Transport Infrastructures (B-26)

(INTERNAL CODE: IISD3A)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (15) + PROJECT (15)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: summer	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Knowing a fundamentals of bridges. Having a basic knowledge of road and rail structures.

CONTENTS:

Lecture: Aesthetic canons in architecture and in bridges. The overview of bridge shaping from ancient to nowadays. Simplicity, harmony, dominant, disharmony, eclecticism, form unity with relation to the bridge mechanics. A. Palladio, E, Malinowski, R. Maillart, S. Calatrava bridges. Main elements and details their role in the whole bridge image. What does it mean the beauty of a bridge structure?. Philosophical, somatic, social and statistical aspects of positive/negative aesthetical impression - de gustibus non est disputandum. The Wasiutyński and Leonhardt analyses of bridge architecture and beauty. The traffic marking and safety, driver comfort and aesthetics. Graffiti as a form of artistic expression on bridges.

Project: Aesthetic assessment of a chosen real bridge. The conceptual study of possible changes in the bridge appearance by means of reshape, colour, arranging the surrounding. Digital or other form of visualization. Public presentation of the results.

EFFECTS OF EDUCATION PROCESS: Gaining knowledge of aesthetics canons in architecture. Be aware with bridge aesthetics by means of monographs by Wasiutynski Z, and F. Leonhardt. Knowing the aesthetics comfort for traffic users. Obtaining knowledge about visualization techniques for aesthetic design. Gaining the ability to design a bridge/eco-bridge with using aesthetics' tool

LITERATURE (OPTIONAL): Wasiutynski Z., O architekturze mostów, PWN, 1971. (In Polish), Leonhardt F., Bridges: Aesthetics and Design, The MIT Press; Bilingual edition, 1984.

TEACHING METHODS: Informative lectures. Practical, field lectures. Multimedia presentations. Field and cameral work on project.

ASSESSMENT METHODS: Written exam – practical part. Written exam – theoretical part. Project - active participation measured at each class level of completed tasks. Project – problem to solve.

TEACHER: PhD. Eng. Michał Jukowski (m.jukowski@pollub.pl)

Architectural design of multi-functional buildings II (B-27)

(INTERNAL CODE: IAK9b-2)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (60)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH

PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.

CONTENTS: Prepare proposals for the design, the layout and the function of a sports hall, a stadium, playing fields, or other sport objects, proposals for its actual function and construction, presentation and communication about project results to fellow students and lecturers by analyzing and rationalizing decisions made

EFFECTS OF EDUCATION PROCESS: Understand the rules of designing sport and leisure building with its surrounding, public spaces, etc., explain the main requirements concerning the layout of the plot of surrounding area (urban space)

LITERATURE (OPTIONAL):

TEACHING METHODS: project, design practice, individual, or group design corrections

ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design

TEACHER: PhD. Eng. Arch. Piotr Gleń (p.glen@pollub.pl) or equivalent teacher

Architectural design of public service facilities (B-28)

(INTERNAL CODE: IAK8b)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (60)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: Prepare proposals for the design of industrial, transport or healthcare building, redesign of existing building, new function, new surroundings, clarify the structural system of both designed object and surrounding area (including various neighborhood), clarify building services status, clarify the environmental potential and limitations, presentation of final design
EFFECTS OF EDUCATION PROCESS: Understand the rules of designing industrial, transport or healthcare building with its surrounding, public spaces, etc., explain the main requirements concerning the layout of the plot of surrounding area (urban space)
LITERATURE (OPTIONAL):
TEACHING METHODS: project, studies in situ, design practice, individual, or group design corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design
TEACHER: PhD. Eng. Arch. Dariusz Gaweł (d.gawel@pollub.pl) or equivalent teacher

Basic design - analysis (B-29)

(INTERNAL CODE: IAK3)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (60)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: Scheme design, Prepare proposals for the design of a small architecture, visual presentation of prepared basic project, prepare proposals for the design of a architecture assigned to different functions
EFFECTS OF EDUCATION PROCESS: Gain an understanding of scale, function and visual interaction between geometrical shapes that create architecture, be able to select component materials and constructions elements used in architecture.
LITERATURE (OPTIONAL):
TEACHING METHODS: project, design practice, individual or group design corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design
TEACHER: PhD. Eng. Arch. Wojciech Kocki (w.kocki@pollub.pl) or equivalent teacher

BIM in Design and Construction of Transport Infrastructure (B-30)

(INTERNAL CODE: IISD1A)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (30) + LABORATORY (45)
NUMBER OF HOURS: 5/week (75/semester)	**ECTS:** 6
SEMESTER: summer	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Having knowledge about Computer Aided Design. Having knowledge about design elements of the transport infrastructure. Having knowledge about impact of transport infrastructure on the environment.

CONTENTS:

Lecture: Definition of BIM, BIM role in investment: buildings and transport infrastructure. Key assumptions of BIM. Standardization and maturity of BIM. Towards a BIM-oriented organization. Project management and BIM. BIM capabilities - from 2D to 7D. Computer systems in BIM - review and application.

Laboratory: Preparation for teamwork on a project transportation infrastructure. Preparation of design elements of the transportation infrastructure for the design in the system 3d. Preparation of design work schedule for each task and project participants. Preparation of BIM design standards. Designing collaborative design elements using BIM system.

EFFECTS OF EDUCATION PROCESS: Gaining knowledge about Building Information Modelling (BIM) in transport infrastructure. Gaining knowledge in the use of BIM by the designer, the contractor and the investor. Knowledge of computer software used in BIM. Gaining the ability to use computer software (BIM) in transport infrastructure. Obtaining teamwork skills in designing transportation infrastructure.

LITERATURE (OPTIONAL):

Task 056 Collaborative Planning & BIM. M4/M5 VisiLean Implementation Report. Highways Agency. May 2013
OpenBIM: http://www.openbim.org/

TEACHING METHODS: Informative and practical lectures. Multimedia presentations, including theoretical content. Teaching laboratory exercises. Exercises with the use of computer.

ASSESSMENT METHODS: Written exam – practical part. Written exam – theoretical part. Laboratory - active participation measured at each class level of completed tasks

TEACHER: PhD. Eng. Jerzy Kukiełka, (jerzy.kukielka@pollub.pl)

BIM in General Construction (B-31)

(INTERNAL CODE: IISK1A)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (30) + LABORATORY (45)
NUMBER OF HOURS: 5/week (75/semester)	**ECTS:** 6
SEMESTER: summer	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Having knowledge and skills of general construction, steel construction and reinforced concrete structures covered by the first-cycle studies. Having knowledge in the field of information technology and practical computer skills

CONTENTS: Lecture: The essence of the BIM technology. Parametric modeling - methodology and the possibilities. Integration and data exchange between applications. Use of BIM in the design and erection of buildings (from the point of view of investor, construction manager, engineer, architect, contractor, subcontractor and manufacturer). Case studies - examples of practical use of BIM technology.
Laboratory: Creating grids and sketches, basic operations on objects. Modeling of steel elements, manually creating connections between them and by components. Modeling of concrete and reinforced concrete elements, manual execution of the reinforcement and by components. Control and model numbering. Creating and editing of drawings: summarized, single component, assembly and formwork. Generating of reports and bills.

EFFECTS OF EDUCATION PROCESS: Gaining knowledge about the possibilities of using BIM technology in the design and erection of buildings. Understanding the possible use of computer programs based on BIM technology for supporting the design of buildings. Gaining the ability to design simple buildings objects with selected computer software compatible with BIM technology.

LITERATURE (OPTIONAL): Szeląg M., Szewczak A., Brzyski P., BIM in General Construction, 2016
Eastman C. et al., BIM Handbook: A guide to building information modeling for owners, managers, designers, engineers and contractors. John Wiley & Sons, 2011
Krygiel E., Nies B., Green BIM: Successful sustainable design with building information modeling. Wiley Publishing, 2008
Garber R., BIM design: realizing the creative potential of building information modeling, John Wiley & Sons, 2014

TEACHING METHODS: Multimedia presentations, including theoretical content. Multimedia presentations, including examples of practical applications of discussed issues. Laboratory exercise instruction. Exercises with the use of computer.

ASSESSMENT METHODS: Written assessment of the lecture. The presence and active participation in the laboratory. Assessment tasks performed by the student at the end of the laboratories.

TEACHER: PhD. Eng. Andrzej Szewczak (a.szewczak@pollub.pl)

Chemistry of Construction Materials (B-32)

(INTERNAL CODE: IIK6A)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (15) + LABORATORY (30)
NUMBER OF HOURS: 3/week (45/semester)	**ECTS:** 4
SEMESTER: summer	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Having basic knowledge in chemistry and the ability to understand the basic physicochemical changes in construction materials.

CONTENTS:

Lecture: Structure of matter. Construction of solid-body lattice, crystal systems, crystal lattice defects, the binding of atoms in the crystal, glass, ceramics. Chemical bonds and types of building materials- cohesive forces. Mineral chemistry building materials, adhesive-bonding materials. Components and properties of concrete. Introduction to the Chemistry of silicates, organosilicon compounds, the structure and chemical composition of materials. Physical chemistry of water and processes of chemical technology for natural water treatment, the effect of water quality in engineering materials. Chemistry of polymeric materials important in construction, modification of polymer materials and their practical application. Corrosion of materials, processes and the environment. Protection against corrosion, security techniques-of mineral materials (sealing of concrete mechanical and chemical) protection of materials, inhibitors. Road materials, asphalt- tarmac. The chemistry of the rock-forming materials and their occurrence. Physicochemical methods of materials. Advanced technologies in surface engineering of materials.

EFFECTS OF EDUCATION PROCESS: Understanding the chemical structure and chemical processes in building materials. Gaining knowledge of protection against corrosion of building materials. Gaining the ability to evaluate the suitability of water. Systematic habit of self-education, self-reliance, learning skills, learn new techniques and experimental methods.

LITERATURE (OPTIONAL): W. Kurdowski, Cement and Concrete Chemistry , Springer Science+Busines Media B.V. 2014
Lawrence S. Brown, Thomas A. Holme , Chemistry for Engineering students II Edition, Cengage Learning 2009
J. Jaroszyńska-Wolińska, D.Dziadko, Chemia w laboratorium budownictwa, Wyd. Politechnika Lubelska, Lublin 2011

TEACHING METHODS: Multimedia presentations, including theoretical content. Materials containing instructions and tasks of the problem to the individual experimental tasks. Report for each experimental exercises passed to students in the class for self-development and interpretation of experimental results.

ASSESSMENT METHODS: Written exam on lecture. Laboratory- active participation measured at each class level of completed task. Report on laboratory experiments. Passing theory to experiments.

TEACHER : PhD. Lidia Bandura (l.bandura@pollub.pl), PhD. Szymon Malinowski (s.malinowski@pollub.pl)

Collective housing design (B-33)

(INTERNAL CODE: IAK7)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (60)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: Prepare proposals for the design of a collective housing, design nearby area, public services, public spaces. Revitalize existing housing structures, maiking them more suitable for modern standards. Presentation of prepared project of collective housing.
EFFECTS OF EDUCATION PROCESS: · Understand the rules of designing collective housing with its surrounding, public spaces, protection of privacy, aestetics etc.
LITERATURE (OPTIONAL):
TEACHING METHODS: project, studies in situ, design practice, individual, or group design corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design
TEACHER: PhD. Eng. Arch. Michał Dmitruk (m.dmitruk@pollub.pl) or equivalent teacher

Computer Methods (B-34)

(INTERNAL CODE: IIK2)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (30) + PROJECT (30)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: summer	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: matrix analysis, mechanics of materials, intermediate computer skills

CONTENTS:

Finite Element Method (FEM) applied to engineering problems, computer modeling of engineering structures

EFFECTS OF EDUCATION PROCESS:

1) understanding the basics of Finite Element Method for building engineering applications

2) ability to solve engineering structures (truss, beam, plates) using Autodesk Algor software

LITERATURE (OPTIONAL):

O. C. Zienkiewicz, R. L. Taylor, J.Z. Zhu *The Finite Element Method: Its Basis and Fundamentals*

TEACHING METHODS:

1) brief lectures of Finite Element Method

2) programming FEM algorithms using Mathsoft Mathcad

3) computer modelling of building structures using Autodesk Algor

ASSESSMENT METHODS: design exercise, presentation of the job including discussion

TEACHER: PhD. Eng. T. Nowicki, (t.nowicki@pollub.pl) or equivalent teacher

Computer techniques (B-35)

(INTERNAL CODE: IAK30)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LABORATORY (30)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: Introduction into Autodesk Revit, individual work on subject using Autodesk Revit (modelling a simple residential building), the final work (boards with technical drawings and visualisations of the project) – correction, presentation, discussion, exhibition
EFFECTS OF EDUCATION PROCESS: know the basic rules of computer aided design
LITERATURE (OPTIONAL):
TEACHING METHODS: exercises, design practice, individual, or group corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final work
TEACHER: PhD. Eng. Arch. Rafał Strojny (r.strojny@pollub.pl) or equivalent teacher

Construction project management with regard to the environmental aspects (B-36)

(INTERNAL CODE: IIK5A)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (30) + PROJECT (30)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: summer	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Completed courses in construction technology, construction methods, construction planning and management, and construction documentation. Ability to prepare construction cost estimates. Computer skills: text editing, technical drawing, engineering calculations.

CONTENTS:

Lecture: Introduction to project management in construction. Project management methodology. Basics of decision theory and decision support methods Decision problems in managing construction projects. Risk management in construction. Ecological issues in construction project management.

Project: Scheduling construction project with various conditions and constraints (e.g. limited availability of resources, random process durations).

EFFECTS OF EDUCATION PROCESS:

To provide the student with understanding of project management methodology.

To develop the learners understanding of typical decision problems and suitable decision support methods in managing project.

To introduce the concept of risk management.

To raise student awareness on the environmental impact of construction and civil engineering projects.

LITERATURE (OPTIONAL):

Walker A., Project management in construction, Blackwell Publishing, 2007

Code of practice for project management for construction and development. Chartered Institute of Building, Wiley-Blackwell, 2014

Smith N.J., Merna T., Jobling P., Managing Risk in Construction Projects, Wiley Blackwell, 2014

TEACHING METHODS: lectures: multimedia presentations, discussion; project: individual assignments

ASSESSMENT METHODS: Lectures: written examination. Project: partial checks of work progress, project defense and evaluation of complete work

TEACHER: PhD. Eng. Agata Czarnigowska **(a.czarnigowska@pollub.pl)**, PhD. Eng. M. Tomczak (m.tomczak@pollub.pl)

Contemporary architecture (B-37)

(INTERNAL CODE: IAK15)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LECTURE (30)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH

PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.

CONTENTS: Each of the lectures is focused on the idea or the aim which is important for the contemporary architecture. Each of the lectures consists of the newest examples (from the last 10 years) and the older examples (from the XXth and in the few cases XIXth century. The lectures present the architecture from around the Word but from the point of view of the teacher who is Polish. So there is overrepresentation of architecture from Poland and the countries which architecture has or had an impact on Polish architecture.
Few of the classes are held in the form of excursions to visit the examples of Contemporary Architecture in Lublin.

EFFECTS OF EDUCATION PROCESS: Knowledge on the complexity of contemporary architecture. Knowledge on the different currents and aims of contemporary architecture.

LITERATURE (OPTIONAL):
- Kenneth Frampton „Modern Architecture. A critical history”
- Hans Ibelings, „European Architecture Since 1890”
- Christopher Alexander „ Patern language”
- OMA, Rem Koolhaas, , Bruce Mau, „S, M, L, XL” , The Monacelli Press, New York, 1995

and more

TEACHING METHODS: Traditional lectures with use of the multimedia presentations

ASSESSMENT METHODS: Students are to prepare at each lecture the notes (both written form and drawings) from the consist of the lecture

TEACHER: PhD. Eng. Arch. Katarzyna Kielin (k.kielin@pollub.pl) or equivalent teacher

Descriptive Geometry (B-38)

(INTERNAL CODE: IK1)

FACULTY: Civil Engineering and Architecture	**CLASS TYPE:** LECTURE (30) + PROJECT (15)
NUMBER OF HOURS: 3/week (45/semester)	**ECTS: 4**
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Fundamental knowledge of planimetry and solid geometry. Basic skills in orthogonal projection.

CONTENTS:

Lecture: Projection methods classification and characteristics. Mongean projection method – representation of a point, line and plane; auxiliary views application; measuring distances and dihedral angles; regular polyhedral and their properties; surfaces of revolution: a sphere, a cylinder and a cone. Roof skeletons and developments. Axonometric pictorials. Topographic projection.

Project: Mongean projection method - measuring distances and dihedral angles. Interpretation of results. Mongean projection method - regular polyhedrals constructions (tetrahedron, cube, octahedron). Surfaces of revolution – planar intersections. Development of roof planes. Axonometric view of an engineering construction. Topographic projection: Earthworks. Interpretation of results. Discussion.

EFFECTS OF EDUCATION PROCESS: To get a knowledge of the fundamentals of technical representation of 3-D objects on a 2-D medium. To get familiar with projection methods and their characteristics. To get familiar with regular polyhedral and surfaces properties. Getting acquainted with the practical skills how to create and read technical documentation. Getting acquainted with the practical skills how to solve different civil engineer problems using geometrical methods.

LITERATURE (OPTIONAL): Górska R. A.: Descriptive geometry. Freshman Level Course Adressed to the Engineering Students. Kraków 2013
Slaby S. M. : Fundamentals of Three Dimensional Descriptive Geometry, Wiley, 1976. PN- EN ISO 5456-1:2002 Technical Drawings - Projection Methods - Part 1: Synopsis. PN -EN ISO 5456-2:2002 Technical Drawings - Projection Methods - Part 2: Orthographic Representations. PN- EN ISO 5456-3:2002 Technical Drawings - Projection Methods - Part 3: Axonometric representations. PN- EN ISO 128-30:2006 General principles of presentation- Part 30: Basic convensions for views

TEACHING METHODS: Lecture and classes using multimedia presentations. “Step by step” drawings. Problem solving (group work and individual work). Discussion.

ASSESSMENT METHODS: Exam. Performing the design exercises. Oral presentation or written essay. Students’ activity.

TEACHER: PhD. Eng. Ewa Zarzeka-Raczkowska, (e.zarzeka-raczkowska@pollub.pl)

Drawing and painting II (B-39)

(INTERNAL CODE: IIAK27-2)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LABORATORY (45)
NUMBER OF HOURS: 3/week (45/semester)	**ECTS:** 4
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: ·Presentation of various advanced drawing techniques: tempera/acrylic/water colors, still life drawing, mosaic, drawing nature, drawing outdoors (historic buildings), drawing architectural details, final presentation
EFFECTS OF EDUCATION PROCESS: know the rules of composition, perspective drawing, using various materials and colors – theory of color, know the rules of drawing a human
LITERATURE (OPTIONAL):
TEACHING METHODS: practical exercises, studies in situ, individual, or group design corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final work
TEACHER: PhD. Agnieszka-Chęć-Małyszek (a.chec-malyszek@pollub.pl) or equivalent teacher

Dwelling design (B-40)

(INTERNAL CODE: IAK5)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (60)
NUMBER OF HOURS: 4/week (60/semester)	**ECTS:** 5
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH

PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.

CONTENTS: Prepare proposals for the design of an single family apartment building, terrain and elaborate approved proposals for its actual construction, prepare project of village/small town using common knowledge of composition, presentation of constructions and materials used in rural buildings, sketching and presenting environmental mapping

EFFECTS OF EDUCATION PROCESS: Gain knowledge about process of evolving types of rural spaces, gaining knowledge of functioning and how to design dwelling buildings

LITERATURE (OPTIONAL):

TEACHING METHODS: project, design practice, individual, or group design corrections

ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design

TEACHER: MSc. Eng. Arch. Karol Krupa (k.krupa@pollub.pl) or equivalent teacher

History of Polish Architecture, Town Planning and Culture (B-41)

(INTERNAL CODE: IAK18)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LECTURE (45)
NUMBER OF HOURS: 3/week (45/semester)	**ECTS:** 4
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: Introduction in program, romanesque, gothic, renaissance, baroque, neoclassical, and modern architecture in Poland, Medieval city planning in Europe and Poland – excursion to Cracow and Sandomierz (optional Lublin), renaissance city – excursion to Zamość, discussion, individual presentation, baroque planning and gardening, XIX century industrial revolution and its impact in city planning, modernism in city planning – polish examples, final paper presentation
EFFECTS OF EDUCATION PROCESS: know the historical styles of art and architecture in Poland and its stylistic features
LITERATURE (OPTIONAL):
TEACHING METHODS: lecture, studies in situ, excursions
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, final exam
TEACHER: Prof. Natalia Przesmycka (n.przesmycka@pollub.pl) or equivalent teacher

Introduction into urban design (B-42)

(INTERNAL CODE: IAK10)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LECTURE (15) + PROJECT (30)
NUMBER OF HOURS: 3/week (45/semester)	**ECTS:** 4
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH

PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.

CONTENTS: Analyzes of the different aspects of functioning of the city on the examples from the different places in Lublin, introduction into different kinds of spaces (private, semiprivate, semipublic, public), basic project for the city space, visit at the town planning office, visit at the area of the introduced urban renewal master plan, film shows and discussions – subject development of the cities

EFFECTS OF EDUCATION PROCESS: Understand the basic rules of designing urban spaces and city planning, know the elements of composition, correlation between main object and its surrounding

LITERATURE (OPTIONAL):

TEACHING METHODS: project, design practice, individual, or group design corrections

ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final design

TEACHER: MSc. Eng. Arch. Małgorzata Kozak (m.kozak@pollub.pl) or equivalent teacher

Universal design (B-43)

(INTERNAL CODE: IAK4a)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** PROJECT (30)
NUMBER OF HOURS: 2/week (30/semester)	**ECTS:** 3
SEMESTER: summer	**CLASS LEVEL:** undergraduate
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: ENGLISH
PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 10 or more Erasmus+ students), Student must be able to fluently communicate in English or Polish language.
CONTENTS: Design public space, office building, working place and social service space, private apartment /house, design of building main entrance, social and work space
EFFECTS OF EDUCATION PROCESS: · Understand physical needs and possibilities of disable people, define a basic surrounding space required for employment of an elder and disable people
LITERATURE (OPTIONAL):
TEACHING METHODS: laboratory, studies in situ, design practice, individual or group design corrections
ASSESSMENT METHODS: Presence on classes, partial assessments for work on classes, overall assessment for the final work
TEACHER: PhD. Eng. Arch. Katarzyna Kielin (k.kielin@pollub.pl) or equivalent teacher

Utilization and recycling of construction materials (B-44)

FACULTY: CIVIL ENGINEERING AND ARCHITECTURE	**CLASS TYPE:** LECTURE (15) + LABORATORY (30)
NUMBER OF HOURS: 3/week (45/semester)	**ECTS:** 4
SEMESTER: summer	**CLASS LEVEL:** master
MINIMAL NUMBER OF STUDENTS: 10 (should the number be smaller, the course may not be opened.)	

LANGUAGE OF INSTRUCTION: English

PRELIMINARY REQUIREMENTS: Study modules run in English separately for Erasmus students (these modules will be run only if they will be chosen by 8 or more Erasmus+ students), Student must be able to fluently communicate in English language.

CONTENTS: Waste as a threat to the environment. Legal acts on waste in European Union legislation. Worldwide approach to waste management. Classification of waste and its characteristics. Criteria of waste division. New approach to choosing the direction of waste utilization. Secondary raw materials. Principles of sustainable development in construction. Circular economy in the context of sustainable construction. Types and ways of waste recycling. Sustainable building materials. Methods of testing physical and chemical properties of waste and recycled building materials. Effect of waste addition on mechanical and physicochemical properties of building materials. Modern technologies of waste utilization and recycling.

EFFECTS OF EDUCATION PROCESS: The knowledge of terminology, basic concepts and problems concerning waste, in particular construction waste, and ways of its disposal, neutralization, and management. Ability to identify opportunities to reduce construction and demolition waste in accordance with the idea of sustainable development. Ability to indicate the possibility of using waste in technologies of production of various building materials.

LITERATURE (OPTIONAL):

TEACHING METHODS: Multimedia presentations, including theoretical content. Materials containing instructions and tasks of the problem to the individual experimental tasks. Report for each experimental exercises passed to students in the class for self-development and interpretation of experimental results.

ASSESSMENT METHODS: Written exam on lecture. Laboratory- active participation measured at each class level of completed task. Report on laboratory experiments. Passing theory to experiments.

TEACHER: PhD. Lidia Bandura **(l.bandura@pollub.pl)**, PhD. Szymon Malinowski (s.malinowski@pollub.pl) or equivalent teacher