COURSE DESCRIPTION CARD - SYLLABUS

Course name
General construction III

Course

Field of study
Civil Engineering

Year/Semester
5/9

Area of study (specialization)

Profile of study
general academic

Level of study
First-cycle studies

Course offered in
Polish

Form of study
part-time

Requirements
elective

Number of hours

Lecture
18

Laboratory classes

Other (e.g. online)

Tutorials

Projects/seminars
18

Number of credit points

4

Lecturers

Responsible for the course/lecturer:
dr inż. Marcin Kanoniczak

Responsible for the course/lecturer:
dr inż. Mariusz Gaczek

Prerequisites

Basic knowledge of the chemistry of building materials, building physics and general construction. Basic knowledge of the Windows operating system and EXCEL spreadsheet. The ability to obtain information from the indicated sources.

Course objective

Getting to know modern finishing materials and building systems and the rules of their use, damage and repair options.

Course-related learning outcomes

Knowledge

1. The student knows the principles of the production of basic building materials and elements and their assembly, the selection of tools, machines and equipment for the implementation of works, technologies for the execution of building structures

2. The student knows the basics of building physics regarding the migration of heat and moisture in buildings and energy supply

3. The student knows the most commonly used building materials and their properties, the basic elements of their design, manufacturing technology and testing, methods of assessing and maintaining the technical condition of buildings

4. The student knows the basic technical and construction requirements that must be met by a properly designed, constructed and operated building or its structural and functional element.

Skills

1. The student is able to obtain information from technical and construction regulations.

2. The student is able to perform simple experiments leading to the assessment of the quality of building materials and finishing elements

3. The student is able to assess the threats in the implementation of construction works and implement the appropriate rules for maintaining the technical condition of buildings

4. The student is able to select building materials in accordance with their intended use

5. The student can evaluate the technical condition of building facilities and indicate appropriate methods for their maintenance.

Social competences

1. The student understands the need to independently supplement and expand knowledge in the field of modern techniques, processes and technologies

2. The student is aware of the need to care for their own health and that of society

3. The student is aware of the need to improve professional and personal competences

4. The student understands the need to ensure the proper safety of the building in its design, construction and operation.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Lecture. Final test containing 25-30 questions on the program content presented during the lectures. 50% correct answers to a positive rating are required.

Design exercise. Continuous control of the acquired knowledge during consultations on the design exercise. Assessment determined on the basis of the correctness of the design exercise performed and questions related to the knowledge acquired during its performance.

Programme content

Lecture. Facade systems (technical and material solutions, advantages and disadvantages, execution, errors, fire safety): ETICS and related systems, VETURE kits, systems for repair and renovation (insulation) of ETICS systems, ventilated facade systems, shading systems, acoustic protection systems, other (media, green, dynamic facades, enabling the collection of rainwater). Plasters, putties, paint

coatings. Wall coverings and floor coverings. Green roofs. Solutions for obtaining energy from solar radiation.

Design exercise. Design of the outer wall of a residential building, insulated with the ETICS system. The scope of the exercise: calculation of the wind impact on the external walls of the building, calculation of the load capacity of the mechanical fastener system and the load-bearing capacity of the ETICS system, determination of the required number of mechanical fasteners per 1 m2 of insulation in individual wall areas, calculation of the heat transfer coefficient of the external wall, calculation of the temperature factor on the internal wall surface necessary to avoid critical surface moisture, calculating the dew point temperature.

Teaching methods

Lecture. Multimedia presentations with the teacher's comments and additional explanations in response to the questions asked.

Design exercise. Explanation of the scope of the project, presentation of the use of the shared computer software to perform design calculations, checking the correctness of the implementation of individual stages of the project.

Bibliography

Basic

1. Riedel W., Oberhaus H., Frössel F., Thermal protection of buildings. ETICS insulation systems. Polcen, 2011

2. Marchwiński J., Zielonko-Jung K., Contemporary pro-ecological architecture. PWN, Warsaw 2012

3. ETAG 004, Guideline for European Technical Approval of External Thermal Insulation Composite Systems (ETICS) with Rendering. EOTA, Brussels, February 2013

4. Gaczek M., Fiszer S., Plasters. XVIII National Conference Workshop of Structural Designers, Ustroń 2003. New constructional, material and technological solutions, general construction, vol. III, pp. 323-383

5. Fiszer S., Gaczek M., Special plasters part 1, Builder, 5/2014, pp. 70-74. Special plasters part 2, Builder, 6/2014, pp. 60-62 and 64

Additional

1. Gaczek M., Jasiczak J., Kuiński M., Siewczyńska M., Izolacyjność termiczna i nośność murowanych ścian zewnętrznych - Rozwiązania i przykłady obliczeń. WPP, Poznań 2011

2. Wołoszyn M.A., Projektowanie rewitalizacji zabudowy czynszowej z uwzględnieniem uwarunkowań ekologicznych na wybranych przykładach śródmiejskiej zabudowy z XIX i XX w. Prace Naukowe Politechniki Szczecińskiej nr 585, Instytut Architektury i Planowania Przestrzennego nr 44. Wydawnictwo Uczelniane Politechniki Szczecińskiej, Szczecin 2005

3. Rokiel M., Hydroizolacje w budownictwie - poradnik. Dom Wydawniczy Medium, Warszawa 2009

4. Izolacje styropianowe w budownictwie - poradnik. Stowarzyszenie Producentów Styropianu

5. Sopro Planer (wydanie 9). Sopro Bauchemie GmbH, 2019

6. Katalog produktów z przeglądem technologii budowlanych. Kreisel - Technika Budowlana Sp. z o.o.

7. Czasopisma techniczne: Builder, Izolacje, Materiały Budowlane, Wokół Płytek Ceramicznych

Breakdown of average student's workload

	Hours	ECTS
Total workload	100	4,0
Classes requiring direct contact with the teacher	38	1,5
Student's own work (literature studies, preparation for laboratory classes/tutorials, preparation for tests/exam, project preparation) [1]	62	2,5

[1] delete or add other activities as appropriate