

# **DESIGN FEATURES OF LIGHT CONCRETE BUILDING STRUCTURES**

(course title)

## **COURSE SYLLABUS ABSTRACT of higher education institution speciality**

### **7-06-0732-01 Construction**

(speciality code and name)

### **Industrial and civil engineering**

(specialisation code and name)

	STUDY MODE	
	full-time	part-time
Year	2	2
Semester	3	4
Lectures, hours	34	8
Pass/fail, semester	3	4
Contact hours	34	8
Independent study, hours	74	100
Total course duration in hours / credit units	108/3	

**1. Course outline.** 1. Production of Lightweight Aggregates and Its Properties. 2. Supplementary Cementing Materials. 3. Mix Proportioning. 4. Lightweight Aggregate Concrete Microstructure. 5. Physical Properties of Lightweight Aggregate Concrete. 6. Lightweight Aggregate Concrete Structures. Basis of Design According to Eurocode 2 (EN 1992-1. Section 11, SP 5.03.01). 7. Expanded Clay Fiber-Reinforced Concrete with Polypropylene Fiber.

**2. Course learning outcomes.** Upon completion of the course, students will be expected to

**know:** the role of the national school in the design of buildings and structures made of concrete on porous aggregates; the production of expanded clay plants in the Republic of Belarus, its technical characteristics; research by scientists of Belarus, CIS and far abroad countries in the development of methods of calculation and construction using lightweight concrete; methods of mathematical statistics and probability theory in determining strength and deformative characteristics of building materials; modern computational models of cross-section resistance of reinforced concrete structures;

**be able to:** correctly evaluate the work of progressive building structures under load and apply the knowledge gained in the design, manufacture, construction and operation of buildings and structures made of light concrete; determine the basic physical and mechanical characteristics of light concrete;

**possess:** application of modern methods of calculation and design of structures of buildings and structures made of reinforced concrete; use of specialized software systems used in the design of building structures of buildings and structures; application of elements of mathematical statistics and probability theory in solving practical problems related to the determination of bearing capacity and deformability of structures; application of basic calculation principles and the design of buildings made of monolith reinforced concrete.

**3. Competencies.** - To use innovative methods and technologies in the design, organization, construction and manufacture of building structures of buildings and structures, installation of foundations of industrial and civil buildings.

**4. Requirements and forms of midcourse evaluation and summative assessment.** The current certification of students is carried out to determine the compliance of the results of their educational activities with the requirements of educational standards, educational and program documentation of educational programs of higher education. The form of the current certification of students is a credit. The current certification is carried out orally and in writing. The form of intermediate certification is oral and written surveys during lectures.