

STRUCTURAL MECHANICS

COURSE SYLLABUS ABSTRACT

7-07-0732-01 Construction of buildings and structures

Industrial and Civil engineering, Highways

	STUDY MODE			
	full-time	part-time	part-time (shortened program)	
	Industrial and Civil engineering (7-07-0732-01-1.1, Highways (7-07-0732-01-1.2))	Industrial and Civil engineering (7-07-0732-01-1/3)	Industrial and Civil engineering (7-(07-0732-01-1.1/3c)	Highways (7-07-0732-01-1.2/3c)
Year	3	3, 4	2, 3	2
Semester	5, 6	6, 7	4, 5	3, 4
Lectures, hours	68	12	12	12
Practical classes (seminars), hours	68	12	12	12
In-class test (semester, hours)	-	6, 7sem. (4 h.)	4, 5 sem. (4 h.)	3, 4 sem (4 h.)
Exam, semester	5, 6	6, 7	4, 5	3, 4
Contact hours	136	28	28	28
Independent study, hours	80	188	188	188
Total course duration in hours / credit units	216/6			

6-05-0732-02 Real Estate Expertise and Management

	STUDY MODE
	full-time
Year	3
Semester	5, 6
Lectures, hours	68
Practical classes (seminars), hours	50
In-class test (semester, hours)	-
Exam, semester	5
Pass/fail, semester	6
Contact hours	118
Independent study, hours	98
Total course duration in hours / credit units	216/6

1. Course outline.

Structural mechanics is studying methods of holding a kinematic analysis of design schemes of items; studies methods of stresses and displacements determining in statically defined and hyperstatic rod systems (beams, frames, arches, trusses) under the steady, temporary load, static and

mobile loads action; supports the future engineer with necessary for industrial, civil, agricultural and other structures design and construction knowledge.

2. Course learning outcomes

Upon completion of the course, students will be expected to

know:

- Structural mechanics basic concepts, hypotheses and assumptions;
- formation principles and classification of flat and spatial rod systems design schemes;
- purpose and methods of structural design schemes kinematic analysis;
- calculation features of defined and hyperstatic systems for various loads and influences as well as methods for determining displacements in these systems;
- methods for determining the dynamic characteristic of structures and methods for dynamic loads and impacts calculating;
- stability of structures and their elements studying methods.

be able to:

- determine rod systems' kinematic analysis;
- determine the internal forces in rods' elements;
- determine nodes' displacements in rod systems;
- determine the natural frequencies and the corresponding natural vibration modes of the rod system and calculate the system for the vibration load action;
- calculate the critical load and give a conclusion of the rod system balance stability.

To possess a skill:

- in kinematic analysis and main and minory parts structure establishment;
- - of equilibrium equations composing and forces calculating;
- in stress diagrams and influence lines construction;
- in practical displacements calculation.

3. Competencies

Mastering this course should ensure the formation of the basic professional competence of BPC-5 – Be able to perform of building items and its elements calculations on strength, stability and rigidity.

4. Requirements and forms of midcourse evaluation and summative assessment

To assess the midcourse evaluation a written form is used (individual assignments, individual assignments assistance) and for a summative assessment – both oral and written (graded exam, pass/fail).