

SOIL MECHANICS, SUBSTRATES AND FOUNDATIONS

(course title)

COURSE SYLLABUS ABSTRACT

Speciality 6-05-0732-02 – Expertise and property management

	STUDY MODE
	full-time
Year	3, 4
Semester	6, 7
Lectures, hours	68
Practical classes (seminars), hours	68
Laboratory studies, hours	16
Course work, semester	7
Credit (differentiated)	6
Examination, semester	7
Contact hours	152
Independent study, hours	116
Total course duration in hours / credit units	268/8 z.e.

1. Course outline

Includes questions about the laws of soil mechanics; properties of soils, distribution of stresses in the mass of soils under various influences; application of the most rational types of foundations and technologies for their construction in various geological and hydrogeological conditions to ensure reliable, economical and long-term operation of foundations and foundations of industrial and civil buildings and structures

2. Course learning outcomes

Upon completion of the course, students will be expected to

know: soil classification: types of soils, their physical and mechanical characteristics and building properties; methods for determining the physical, deformation, strength and filtration characteristics of soils and their areas of application; theoretical, tabulated and schematized methods for determining stresses in soils; phases of the stress state in soils, as well as a method for determining the design and ultimate load on the foundation soil; limit states of bases and foundations; foundation structures and the limits of their application, taking into account the purpose of the structure, the acting loads, the nature of the occurrence and properties of the foundation soils in the building spot; methods for ensuring reliable and safe operation of buildings and structures for various purposes, as well as methods for their reconstruction, repair, restoration, strengthening;

be able to: determine the types of foundation soils and their physical and mechanical properties; compose and read engineering-geological columns, sections; calculate the values and build stress diagrams in the soil strata; determine the type of foundation, develop its rational designs in various soil conditions; make calculations of probable settlement of foundations and rolls of structures; assess the stability of bases and foundations by analytical calculations and methods of round-cylindrical sliding surfaces; develop a project for the production of works on the construction of foundations; ensure the reliability of the bases and foundations of buildings and structures for various purposes; predict the behavior of foundation soils and building structures when the environment changes; fully design zero-cycle structures, draw up and draw up drawings and calculations in accordance with the requirements of a unified system of design documentation; use normative, reference and special literature.

have the skill of: determining the types of foundation soils and their physical and mechanical properties; drawing up engineering and geological sections; calculating the values and constructing stress diagrams in soil strata; determining the types of foundations and developing their rational design in various soil conditions; calculating probable foundation settlements and building inclinations; assessing the stability of foundations and foundations using analytical and graph-analytical methods; predicting the behavior of foundation soils and building structures when the environment changes; designing zero-cycle structures, drawing up and compiling drawings and calculations in accordance with the requirements of the unified system of design documentation; using regulatory, reference and specialized literature.

3. Competencies

Have a basic understanding of research activities, search, analyze and synthesize information.

Work in a team, tolerate social, ethnic, religious, cultural and other differences.

Assess the state of physical and mechanical properties of soils to correctly select the foundation design.

4. Current certification of students is carried out to determine whether the results of their educational activities comply with the requirements of educational standards, educational and program documentation of educational programs of higher education. The forms of midterm certification of students are differentiated credit and examination. Midterm certification is carried out in oral and written form. The forms of current certification are: survey, defense of individual practical assignment, term paper.

