

ROAD DIAGNOSTICS  
(course title)  
**COURSE SYLLABUS ABSTRACT**  
**of higher education institution**  
**speciality**

**Specialty 1-70 03 01 Road Construction**

	STUDY MODE	
	full-time	part-time (shortened program)
Year	5	
Semester	9	
Lectures, hours	32	
Practical classes (seminars), hours	16	
Laboratory classes, hours	16	
Course paper, semester	9	9
Exam, semester	9	
Contact hours	64	
Independent study, hours	62	
Total course duration in hours / credit units	126/3	36/1

1. Course outline. The discipline refers to the cycle of general professional and special disciplines (a component of a higher education institution).

The list of academic disciplines studied earlier, the assimilation of which is necessary for the study of this discipline:

- survey and design of highways;
- construction of roads;
- road building materials and products;

The list of academic disciplines (cycles of disciplines) that will be based on this discipline: diploma design

The purpose of the discipline is to study the system for assessing and predicting the technical and operational condition of roads and making managerial decisions.

The objectives of the discipline are to study the requirements of State standards for the technical level and operational condition of roads; assessment of the technical condition of roads; accounting for the impact of traffic flows and weather and climate factors on road structures; determine transport and operational characteristics; determination of the degree of defectiveness and the causes of their occurrence; work to improve the quality of roads.

2. Course learning outcomes

Upon completion of the course, students will be expected to know:

theory of reliability and durability of road structures; engineering methods for assessing the performance of roads; database of road diagnostics; regulatory framework for assessing the technical condition of roads; road engineering requirements; prospects for the development of road transport; international experience in experimental diagnostics of roads and trends in improving the quality of roads.

be able to:

assess the technical and operational condition of the road (make a defective statement); solve problems to determine the transport and operational characteristics; conduct experiments in laboratory and road conditions to assess the strength, evenness, roughness and grip of the road; determine the types of defects and their causes; establish the degree of defectiveness and design work to improve the quality of roads.

possess:

regulatory and technical documentation in the field of road diagnostics.

### 3. Competencies

As a result of mastering the discipline, the student should have the following competencies: - AK-1 Be able to apply basic scientific and theoretical knowledge to solve theoretical and practical problems; -AK-2 Own system and comparative analysis; - AK-3 Possess research skills; - AK-4 Be able to work independently; - AK-7 Have skills related to the use of technical devices, information management and computer work; - AK-8 Possess oral and written communication skills; - SLK-2 Be capable of social interaction; - SLK-3 Possess the ability to interpersonal communications; - SLK-4 Be able to work in a team; – PC-1 Conduct analysis and assessment of engineering-geological and hydrological conditions for the construction of transport facilities; take into account the influence of these conditions on the choice of design and technological solutions; – PC-2 Develop terms of reference for the projected object, taking into account the results of research and development work; – PC-17 Carry out constant technical supervision of the condition of operated transport facilities; - PC-19 Determine the carrying capacity of transport structures; – PC-20 To know and improve the methods of diagnostics, repair and reconstruction of roads; – PC-21 Implement in practice modern approaches to organizing the efficiency of the functioning of transport facilities; - PC-22 Monitor compliance with labor protection standards, safety precautions during repair and reconstruction of transport facilities, fire safety; - PC-23 Identify the causes of damage to structural elements, keep records of them, develop proposals for their prevention; – PC-24 Provide training for personnel working on repair work. safety rules and carry out timely verification of knowledge; – PC-40 Determine the goals of innovation and ways to achieve them; – PC-42 Develop business plans for the creation of new equipment, technology; – PC-47 Own innovative technologies for the maintenance and repair of roads.

### 4. Requirements and forms of midcourse evaluation and summative assessment.

The following forms are used to diagnose competencies:

- oral questioning during practical classes;
- conducting current control questions on individual topics;
- defense of individual assignments completed in practical and laboratory classes;
- student's presentation at the conference with a report prepared on topical scientific topics.

To assess the level of knowledge of students, the following diagnostic tools are used:

- protection of the course project;
- exam.