

ON THE ASSESSMENT OF STUDENTS' KNOWLEDGE IN THE LESSONS OF
STRUCTURAL MECHANICS

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Abstract: The possibility of using the confusing logic chain method in the science of structural mechanics is detailed in a number of examples.

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The pedagogical skills of professors and teachers play an important role in achieving the effectiveness of classes organized in higher education institutions. The teacher has a perfect knowledge of his specialty, can explain it to students using modern information and communication and advanced pedagogical technologies, can guide them to a thorough study of the basics of independently studied science, a good understanding of the psychology of modern youth, as well as methods of educating students. and be required to be a highly cultured professional. In order to achieve these goals, the teacher must be able to prepare materials based on advanced pedagogical technologies of teaching and use them skillfully.

Numerous studies have been conducted by many pedagogical scholars on the teaching of general engineering sciences on the basis of advanced pedagogical technologies. The organization of lessons using Venn diagrams in lessons is given in [1,4,8,13]. Practical solutions have been given in the study [3,16] to increase the visibility in the classroom through the use of the cluster method in the classroom. Research on [2,12,15] discusses ways to increase student engagement in the classroom. An unconventional method based on the production of electricity using wind energy has been described in [5,14,17,18]. The results of research in the field of digitization of the educational process are given in [7,19-22]. The issues of organizing lessons using the confusing logical chain method are discussed in detail in [6,9,10,11].

The science of structural mechanics is one of the most important general technical sciences for future engineers. As a result of a thorough study of this subject, the student acquires the concepts that will serve as a basis for his future career. Therefore, the improvement of methods of teaching the

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science of structural mechanics and assessment of students' knowledge has become one of the main tasks today. This article discusses the possibilities of using the “confusing logic chain” method below.

From this method the department of statics of structural mechanics “Structural mechanics. General Information ”in the teaching process. Copies of the tables prepared according to the confusing logical chain method are distributed to students according to the number of students. They study the table thoroughly and write down the correct answer number for each question on the left and the order on the right. The teacher collects and checks the answers from all the students and announces the results. The following is a table corresponding to the above topics.

Determine the compatibility in the questions:

1	What does the science of construction mechanics teach civil engineers?	1	The active force acting on a structure is called external loads. External loads are divided into payloads, structure weights and atmospheric loads according to their impact on the structure.
2	What is the computational history of buildings?	2	External loads are divided into permanent and temporary loads according to the exposure time. Permanent loads include weight loads that regularly affect the structure, while temporary loads include atmospheric loads.
3	What device is called a base and what types are there?	3	Devices that attach structures to a foundation or ground and restrict their movement are called supports.
4	What are external loads and what types do you know?	4	It is a science that teaches civil engineers how to design, build, and find economical, robust, durable, and alternative forms of construction and its elements.
5	What types of external loads are divided according to the time of exposure to the structure?	5	When calculating structures, it is either theoretically impossible or extremely complex to accurately account for the size and shape of individual elements and the connections between them. The computational history of a structure is said to be a simplified description of its actual condition.

Correct answers (4,5,3,1,2).

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We will now use this method for a section of science. In this case, students can use their knowledge in a non-traditional way to test the level of mastery of the studied topic and to conduct an intermediate assessment. The table below covers all the topics in the section Theory of Impact Lines Theory of Construction Mechanics.

Determine the compatibility of the questions:

1	What design is called a multi-gap static precision hinged beam?	1	The graph representing the change in bending moment, transverse force, and longitudinal forces along the beam axis is called the internal stress diagram.
2	How is the calculation of multi-spaced beams done?	2	A system of uniformly distributed forces concentrated in a structure, if a moment is applied, the stresses are determined by the following formula using the impact lines. $S = \sum_{i=1}^n P_i \cdot y_i + \sum_{i=1}^n q_i \cdot w_i + \sum_{i=1}^n M_i \cdot tg\varphi_i$
3	How is the procedure for calculating multi-spaced beams performed?	3	From all the forces on one side of the section, the section is equal to the algebraic sum of the projections of the forces obtained with respect to the vertical axis passing through the center of gravity.
4	What does the term line of influence mean?	4	Longitudinal forces, bending moment, transverse force
5	How are voltages determined using impact lines?	5	To calculate static precision beams with multi-span hinges, interconnections or layered designs of their elements are constructed. To do this, it is divided into primary and secondary beams.
6	What force are the impact lines built on?	6	From all the forces on one side of the section, the section is equal to the algebraic sum of the moments obtained relative to the center of gravity.
7	What is a voltage diagram?	7	Geometrically constant static precision systems formed by joining several simple beams using reciprocating hinges are called multi-spaced static precision hinged beams.

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8	What is the bending moment in any section of the beam?	8	Voltage-affected lines are constructed under the influence of unit force moving across the structure.
9	What internal stress forces are generated when an external force acts on a structure?	9	The graph representing the change in the amount of stresses generated in its elements (base reactions or arbitrary cross-sections) when a unit force moves across a structure is called the line of action of these stresses.
10	What is the shear force on an arbitrary section of the beam?	10	The calculation of static precision beams with multi-span hinges is always from the suspension or auxiliary beam, then the main beam.

Correct answers (7,5,10,9,2,8,1,6,4,3).

The method can also be developed for the entire course of structural mechanics. In this case, materials from the question bank were selected from the departments of static precision systems of science. The table covering the topics of structural mechanics is given below.

Determine the compatibility of the questions:

1	What do you mean by strength of structures?	1	It refers to the number of unrelated geometric parameters that completely determine the state of a building or system element.
2	What do you mean by consistency calculation?	2	Hinged connection structures, single connection structures, combined connection structures
3	What is a clamped base?	3	Is equal to the algebraic sum of the projections of all the forces on one side of the section on the axis of the experiment transferred to this point on the back axis.
4	What is a three-hinged back?	4	To determine the dangerous cross section of the beam
5	What is a three-hinged frame?	5	It is said to be a force that drastically changes its value and direction in a short time.
6		6	Angular and linear
7	What is a three-hinged arch farm?	7	It is said to be a force that gradually reaches its greatest value.

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8	How are the stresses in the tertiary elements of the Sprengelli farm determined?	8	Make the structures resistant to external forces
9		9	A device that resists twisting, vertical and horizontal movement of a structure
10	What do you mean by the degree of freedom of the building?	10	A three-hinged system in which the axis lines of discs I and II consist of a straight or broken straight line is called a frame.
11		11	To determine the voltage in the third category of rods, the sum of the values found in a separate calculation of the main truss and the shprengel is found in the form of a view
12	What is the longitudinal force on the cross section of the arch?	12	A beam that is statically precise and geometrically invariant is said to accept loads placed on secondary beams in addition to the loads placed on it.
13		13	The I and II discs are said to be a three-hinged system composed of farms
14	What force is called dynamic force?	14	To prevent large displacements of the structure under the influence of external loads and to increase their resistance to various vibrations and to ensure their moderate use
15		15	A three-hinged system in which the axis lines of discs I and II consist of a curved line is called an arc

Correct answers (8,14,9,15,10,13,11,1,3,5,7,12,6,2,4).

Of course, professors are required to regularly compile a bank of questions on the sections and topics of the science of structural mechanics, which is regularly updated during the academic year. The method of logical chain, which is confused in the lessons of structural mechanics, develops students' skills such as organizing the topics they have mastered, dividing them into components, comparing them with other parts of the subject, understanding the information on the new topic.

In short, the regular application of this method in lectures gives an opportunity for students to systematically study the materials on science. As a result, the level of knowledge of students will increase significantly. The activity of students in lectures and practical classes will also increase. The

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teacher will be able to use this method to fill in the tables for an objective and fair assessment of students' knowledge, intermediate and final assessment.

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