STUDYING AND APPLYING EXISTING PROBLEM SITUATIONS IN MATERIALS SCIENCE USING MODERN PEDAGOGICAL TECHNOLOGY.

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Annotation: One of the most urgent scientific problems today is certainly the use of modern technologies in education. Therefore, the method we would like to propose, that is, if we connect the concept of technological development directly with pedagogical processes, then achieving the common goal based on the realization of educational and training satisfactions, discovering the unique aspects of their new laws is positive. It is understood to form the personality of a mature generation with quality changes. Or pedagogical technology can be understood as a systematic process of organization, management and implementation of education, designing new qualitative changes in the individual, guaranteeing the expected result.

Key words: strength, deformation, torsion, equal effort, compression, sewing-knitting, innovative,

The science of "Resistance of Materials" is considered a science of general engineering and teaches the methods of calculating the strength, uniformity and durability of constructions (structures), constructions, parts of machines and mechanisms. In order to ensure the normal operation of engineering structures, it is necessary to limit the deformation of their parts, that is, the change in shape and size under the influence of external forces. Uniformity is the ability of parts of engineering structures to resist deformation under the influence of external forces. The ability of parts of engineering structures to maintain their initial state of equilibrium under the influence of external forces is called stability. It is extremely important that the part of the structure does not qualitatively change its initial equilibrium shape and deformation mode under the influence of external forces. The requirements for strength, uniformity and priority of engineering structures have conflicting solutions with economic requirements. Because, to satisfy the first three requirements, it is required to spend more material, while economic requirements imply a reduction in material consumption in order to reduce costs. These conflicting requirements are brought to cross-sectional solutions using "Resistance of Materials" calculation methods. This science solves its problems based on other sciences and in connection with them. The science of strength of materials is particularly related to the science of theoretical mechanics. At the same time, there are different approaches to some issues among them. For example, while theoretical mechanics considers bodies to be absolutely rigid, in the science of material resistance, their deformation is also assumed. As a result of this main contradiction, the rules of theoretical mechanics for moving the accumulated force along the line of action and the couple force in its own plane of action cannot be applied in the mechanics of deformable bodies. The elements of complex engineering structures are schematically made to appear as simple objects. They include the following:1. Beam is a large body whose two dimensions of the cross-section are much higher than the third dimension (length). Brushes have straight and curved axes. Cross-sections form the geometric position of the center of gravity along the length of the beam. Parts of engineering structures receive external influence in the form of force during work and transmit them to each other. External forces are primarily divided into volume and surface types according to the conditions of application. Volumetric forces affect all constituent particles of the body (gravity of

the body, inertial forces, (magnetic effect). External forces are transmitted to the bodies through the touching surface of the neighboring body. External forces can be concentrated and distributed. After determining the tension in the dangerous section of the stretching (compressing) boom and determining the permissible stress for the boom material, it is possible to conclude about the strength of the boom. For this, the stress in the dangerous section is compared with the allowable stress for the stem material.

$$\sigma = \frac{N}{F} \leq [\sigma]$$

If the mast material has different resistance to stretching and compression, the calculation of strength is done separately for stretching and separately for compression. The strength condition can be used to solve the following three types of problems. Checking the strength of the existing structure. In this case, the actual stress is calculated according to the magnitudes of the external forces and the dimensions of the cross section, and is compared with the permissible stress.

Distributed forces can be uniformly distributed or not uniformly distributed. External forces are divided into static and dynamic forces according to the way they change over time. A force that goes away and then stays the same or changes imperceptibly is a static force. A vivid example of this is the weight of the snow on the roof. The forces that change over time and cause the body to accelerate and vibrate are dynamic forces. An example of this can be the impact, the force that was applied unintentionally. In general, dynamic force differs from static force in that it is applied at a certain acceleration. This, in turn, causes the formation of inertial forces in much larger values. External forces, in addition to these, are permanent (the specific weight of the bridge) and temporary (the weight of the train passing over the bridge), as well as stickiness (can be a periodic variable or a recurring variable). As defined above, bodies change their shape and size under the influence of external forces, that is, they are deformed is called deformity. If the deformation occurs according to the size of the body, it is about the deformation of the body at this point in a certain direction. Relative elongation or relative contraction is used as a measure of linear deformation. The size of the angular deformation is the displacement angle. Experiments show that linear and angular deformations can disappear completely or partially after the load is removed. then the ability to maintain its initial size and shape is called elasticity. Deformation that remains even after the force is removed is residual or plastic deformation, and the property of objects to give residual deformation without deformation is called plasticity, it is possible to determine the displacements of its points, their post-deformation situations (coordinates). Scientific and technical progress in the development of society leads to technological production. In the current period, the process of technological development is rapidly entering our lives. Technological development is an objective process that penetrates into all areas of production, which lays the foundation for the qualitative solution of new tasks of their evolution. Pedagogical technologies are a unique innovative approach to the educational process. It is the expression of social-engineering thinking in pedagogy, standardizing the process of teaching and upbringing to a certain extent. By the help of such an approach to teaching, it is possible to achieve cooperative work of students and mastering of a large amount of educational materials.

Conclusion: This subject which is resistance of materials is more important every kind of mechanics and engineers. Due to the extensive use of theoretical research and experimental results in the science of material resistance, it is considered a theoretical and experimental science. The reason behind this is that, the science of material resistance is widely used in engineering practice.

Material resistance is the science of strength, uniformity and superiority of elements of engineering structures.

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