

FORMING PATRIOTIC AWARENESS OF STUDENTS IN THE PROCESS OF TEACHING ENGINEERING AND TECHNICAL DISCIPLINES

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Abstract

In the article the authors emphasize the importance of patriotism, a sense of national pride in students while teaching in technical and engineering disciplines using examples of performance of outstanding scientists of Ukraine, their discoveries and achievements, real structures, vehicles, buildings, inventions.

Key words: patriotism, technical and engineering disciplines, outstanding scientists of Ukraine.

ФОРМИРОВАНИЕ ПАТРИОТИЧЕСКОГО СОЗНАНИЯ СТУДЕНТОВ В ПРОЦЕССЕ ПРЕПОДАВАНИЯ ИНЖЕНЕРНО-ТЕХНИЧЕСКИХ ДИСЦИПЛИН

Аннотация

В статье авторами подчеркивается важность формирования патриотизма, чувства национального достоинства у студенческой молодежи в процессе преподавания инженерных и технических дисциплин на примерах результатов деятельности выдающихся ученых Украины, их научных открытий и свершений, реальных конструкций, аппаратов, сооружений, изобретений.

Ключевые слова: патриотизм, инженерные и технические дисциплины, выдающиеся ученые Украины.

1 Article

Changes which take place in our society in the last years substantially displaced basic priorities in the world-view of modern student's youth. But the patriotic attitude to the native country must always be the basis, the core of every modern young man. So the teaching staff of the higher educational establishments must pay considerable attention to education of patriotic world-view of modern young people studying at the higher educational establishments. And, if the teachers of Humanities pay this attention because of the specific character of their subjects, then the teachers of technical and engineering disciplines must address more frequently to the history of development of modern scientific thought, to the results of scientific and technical progress in different directions for the development of humanity and show on concrete examples the contribution of engineers and scientists of our country in these processes.

Forming high national awareness and dignity of modern youth must be carried out as the unique process on psychological, ideological, obvious levels of information perception. As the scientists claim, the process of forming feelings, views, habits, attitudes, aspirations starts firstly at the level of perception and then is formed as an idea (1).

It is well known that patriotism is one of the deepest public feelings, its elements appeared as far back as in the days of the primitive society, in the form of feeling of love to the land, family, motherland, to the countrymen, nationals. The well-known teacher V.O.

Sukhomlinskiy said that «patriotism is the core of a man», the basis of his active position (2). Patriotism is found in practical activity and directed on development of the team, leisure and, on a large scale, the country.

Patriotism must be formed in a family, as soon as a child begins to understand the concepts «we» and «they», then be formed in the preschools and the schools together with other feelings. Forming patriotism, patriotic awareness must become the foundation of modern training of new generation at the higher educational establishments. And the one of the components of patriotic education of young people is an emotional excitement and honour to the national heroes of Ukraine, prominent scientists of our country, glorious countrymen thanks to the results of their scientific research activity.

We know many political and literary figures of our country, but practically nobody knows, except narrow circles of specialists, those, whose genius, scientific intellect, engineering mind created practically everything, what surrounds us, what we use or are proud of, at what people from the whole world go to look.

It is historically established that in the process of teaching technical and engineering disciplines the students are taught laws and theorems (Hook's Law, Cauchy theorem, Lagrangian method and others) and on the level of subconsciousness respect to the foreign scientific school is formed.

It is obvious that it is necessary to speak about scientists which formed or stood at the beginnings of theoretical engineering and technological directions for the development of scientific thought. But on the lectures and practical classes it is also necessary on the examples of the results of researches give young people information about nationals, and, possibly, near countrymen which made an outstanding contribution to the development of science and technology.

In fact who better than specialists, research workers know the names of technicians and the results of their research which worked and devoted the life to prosperity, and to the greatness of their native country.

Hundreds and hundreds of aircrafts with the brand of AN fly in the whole world. The unpretentious AN-2 and the most modern and powerful AN-255 (Mriya) are constructed by the genius and creative engineering work of prominent aircraft designer kievite **Antonov O.K.**

Practically all jet national planes lift in air turbine-generators, and our countryman the prominent engineer and designer academician **Liulyka A.M.** made significant contribution to the forming of their principles of work and construction.

Thousands of people in their everyday life use the unique in the world the largest all-welded bridge, which got the name of his creator **Paton E.O.** He is famous for structural mechanics and iron bridge construction. He formulated principles of calculation and construction of riveted bridges. He chaired and initiated more than 50 iron riveted bridge projects. He was a pioneer researcher of welding technology as well implementation of welding in industry, design and production of the assembly-welding lines. He chaired and headed more than 100 welded bridge projects included an all welded bridge over the Dnieper (Kiev) that is one of the biggest bridges in the world and known as **Paton's Bridges**. In 1934 for the first time in history he founded specialized Research Electric Welding Institute.

The academician **Glushkov V.M.** is a mathematician and a cybernetic engineer, a founder of information technologies in Ukraine. Glushkov was an initiator and main ideologist of development and design of the Statewide Automated System or Data Collection and Processing (OGAS) designed to automate the management of the state economy. He established a theory of Distributed Data Base Management System (DDBMS). He founded a

Chair of Theoretical Cybernetics at Kiev state university and a Chair at the Institute of Cybernetics of National Academy of Science of Ukraine (the latter is named after his name). In 1996 IEEE Computer Society (The Institute of Electrical and Electronics Engineers) awarded "Computer Pioneer" medal to V.Glushkov.

But not only Kyiv, Kharkiv or Dnipropetrovsk, gave such, well-known people.

Giving lectures to the students about new materials and their application in the modern technique and technology it is necessary to underline that the academician **I.M. Frantsevich**, who was born in Poltava, is one of the founders of the newest powder metallurgy in our country.

Over 15 years next to him the other prominent scientist from Poltava **G.S. Pisarenko** was working. He was a famous scientist, talented teacher, a person of an extraordinary soul. Under his direct guidance the Institute of Problems of Strength, the unique in the world, named after this great man, was created in 1966, the magazine «Problems of Strength» was founded. Due to the numerous publications with the results of original researches the Institute of Problems of Strength is now known in the whole world.

Researchers of the Institute have made a major contribution to theoretical and experimental studies towards determining strength criteria and improving the load-carrying capacity of materials and structural elements in advanced fields of engineering.

A prominent mechanic and a mathematician **Yurii Alekseevich Mitropolskiy** is also from Poltavshchina is known for his contributions to the fields of dynamical systems and nonlinear oscillations. Yurii Mitropolskiy was a student of a theoretical physicist and mathematician Nikolay Bogolyubov.

A prominent theorist of interplanetary flights **Yu. Kondratyuk**, is also from this region, now the Poltava National Technical University proudly bears his name. Working as a mechanic, he completed the manuscript of a book that he titled "The Conquest of Interplanetary Space", dealing with rocket motion and issues concerning the habitation of space. He also suggested using a gravitational slingshot trajectory to accelerate a spacecraft.

Timoshenko S.P. is a prominent scientist in the sphere of deformable body mechanics and analysis of structures (suspension bridges, metals, rods, axes of annulus, etc.). S.P.Timoshenko developed and read the course of materials strength, which later was published and became a classical book on this discipline, as well as his other book on the theory of elasticity. Timoshenko is known as a teacher, author of numerous publications and books, researcher and scientific consultant. S.P.Timoshenko is considered to be the founder of the technical mechanics scientific school in the USA. S.P.Timoshenko has developed the theory of beams and plates bending with taking in account shear strains (in modern structural mechanics terms "Timoshenko plate", "Timoshenko element" are widely used), published numerous works on torsion, thrust and pivot vibration, solved the problem about stresses concentration near holes (Timoshenko problem).

Near the small town Romny, Sumshchina region, **Yoffe A.F.** started his way. He is an academician, a nuclear physicist, the director of the Physical and Technical Institute of the USSR Academy of Sciences. In 1911 he (independently of Millikan) determined the electron charge, using charged microparticles of metals balanced in electric field against gravity (published in 1913). In 1918 he became a head of Physics and Technology division in State Institute of Roentgenology and Radiology. This division became the Leningrad Physico-Technical Institute (LPTI) in 1917. On his initiative and his direct participation the Physical and Technical Institutes were created in Kharkiv, Dnipropetrovsk, Sverdlovsk, Tomsk. His great services for the homeland is in creation of the School of Physics, which trained such well known nuclear physicist as A.P. Aleksandrov, P.L. Kapitsa, I.V. Kurchatov, L.I. Frenkel' and others (3).

Such talented scientists, rocketeers, specialists in the field of mechanics and processes of controlling objects on the earth orbit and in interplanetary flights as academicians **Korolev S.P.**, **Chelomey V.M.** and **Yagel' M.K.** grew on Ukraine. Everyday creative scientific and engineering labour of such personalities, and also teams of their upholders and specialists, which had worked alongside, allowed humanity to go out outside one planet and undertook the first steps in the Universe research.

It is only a small part of the scientific layer of our motherland, about which the teachers of technical and engineering disciplines must tell on the examples of real constructions, vehicles, buildings, inventions, scientific discoveries and on which they must educate the rising generation of the state Ukraine.

Telling about the scientific discoveries of the prominent people of Ukrainian cities or regions the teachers of technical and engineering disciplines can rise patriotic spirit of our young people, feelings of national dignity, help them to understand what they can contribute personally in the growth and progress of our country.

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