



Таким чином, узагальнюючи викладене, можна твердити, що використання ресурсів Інтернету при вивченні іноземних мов являє собою необхідний аспект ефективної організації академічного процесу.

Інноваційні за сутністю методики покликані забезпечити процес моделювання хай і віртуальних, але життєвих ситуацій, актуалізуючи принцип автентичності спілкування, вмотивовану поведінку студентів щодо вивчення іноземної мови.

ЛІТЕРАТУРА

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Ірина Прудка

METHODS OF TEACHING “ELECTRODYNAMICS” IN SENIOR SCHOOL

New content of physical education in secondary school is built on two logically concluded centres. In a basic school physics is studied at a level of acquaintance with physical concepts and laws, which enable explanation of the most widespread processes of the world. In senior school teaching of physics is at a deeper level of learning which is based on fundamental theories, including electrodynamics – the one, supposed to be studied by school-leavers since the following year.

The 2011–2012 academic year is going to be the first for the graduates, who will study according to the new curriculum. But it should be noted that there are certain difficulties in the transition to new educational content. On the one hand, we have already had the experience of the beginning the year without any textbooks and manuals for 11 class pupils, including the required textbooks on physics. On the other hand, to create new and qualitative books is not so easy, because there could be different profile of a secondary school student (the standard level, academic or profile), so that the content and requirements to learning are different and require appropriate textbook.

Therefore, to facilitate studies of future school-leavers and help teachers of physics in the first term we try to offer a variant for solv-



ing these problems – the manual of “Electrodynamics” for the 11 classes of academic level.

While preparing the book, we strove to adhere the principles of “humanization and democratization of education, incorporation of knowledge interests and intentions of pupils, differentiation of content and requirements based on learning abilities and educational needs of pupils” [1, p. 67].

Program provides a sequence of themes of the course: an electric field, electrical capacity, laws of direct current, electric current in semi-conductors, electromagnetic interaction, magnetic properties of matter, electromagnetic induction and alternating current. These topics are covered in the textbook.

Special attention in the course “Electrodynamics” for class 11 was paid to the motivation of learning.

Pupils who chose the academic level, of course, may have technical skills and propensities for certain professions (for example, electrical engineering), which are based on electrodynamics. It is therefore necessary to provide a level of physical knowledge, skills and abilities of students to the content enough to continue studying physics as an academic subject in higher education.

In order to increase their interest in learning physics, the information presented in this book, contains many examples taken from life, the content of tasks and objectives are closely associated with life, technology, manufacturing, farming etc. The system of various levels of quality, computational, experimental tasks is provided as well.

Considerable attention was given to use of analogies and models.

Similarities are especially useful in study of inaccessible for direct observation phenomena. For example, when determining the role of a source of electric current, the concept of electromotive force and consideration of energy transformation in circuits of electric current, mechanical analogy were introduced to facilitate understanding of these issues, namely comparison of the current movement of the balls on an inclined spiral path [2, p. 98].

The models that refer mainly to those objects which are not observed directly: atoms, electrons, ions, are of no less importance in study of electrodynamics. For example, in Ohm’s law when bringing the electron theory we using an idea of electron gas, where electrons are considered as material points with electric charges [2, p. 99].



It is known that human thinking is activated when there is some problematic situation. So we decided to include to the book some experiments and experimental tasks that create problematic situations. For example, experimentally for filament bulbs was determined voltage characteristic, which proved a curve, not a straight line, as was found previously in study of metal conductors [2, p. 99]. Pupils should task themselves of studying the dependence of conductors resistance on temperature.

The introduction of study the construction and operation of modern equipment and facilities (such as a computer display, the elements of PC motherboard, etc.) in the course “Electrodynamics” aimed to ensure growth and knowledge of pupils’ interests.

The given book can also be used for training pupils who learns Physics in accordance with programs for both standard and profile levels.

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Олександр Радченко

A GENERIC CLASSIFICATION OF THE EQUATION OF FILTRATION

The determination of many fundamental problems of different nature needs building and solving mathematical models of the processes under investigation. In many cases, the concept of mathematical model is corresponding to some completely defined differential equations, which allow solutions with a certain accuracy to describe the process. Typically, the differential equations and additional conditions (initial, boundary) derived both from the general laws (e.g. conservation laws), and specific laws, are typical to each process (they reflect its most characteristic features).

If we consider a set of differential equations and a set of transformation groups isolated from one another, the issue of classification of objects belonging to them are considered on the basis of input attributes of different nature. That’s way, for differential equations linearity and quasilinearity can be featured as classification properties. For transformation groups isomorphism and homomorphism, structural