

## HUMANITARIAN EDUCATION IN TECHNICAL UNIVERSITIES OF RUSSIA

### Professor Pavel Sarkisov

Rector  
Mendeleyev University  
of Chemical Technology, Russia

### Dr. Oleg Altakh

Director, International Department  
Mendeleyev University  
of Chemical Technology, Russia

The final years of the 20th century promise to be a time of profound and fast-moving change. Today, it is necessary to change all activities in our institutions of higher learning so that university graduates will enter the work-force more prepared to meet the challenges of these new conditions. This report is based on personal experience of teaching humanitarian sciences in technical universities in Russia, and in particular, at Mendeleyev University.

Radical reforms in higher education levels are taking place, with a transition to a new quality of training, based on the humanisation of higher education and the integration of professional and social-humanitarian training. This is a general trend in the development of higher education all over the world.

The role of the engineer, in modern society, is changing. Today, engineers represent, not only technical but, also, social and political progress. Engineering science and practice can actually transform the direction of society and, as a result, the responsibility of the engineer to society has increased significantly. Together with this greater responsibility, new requirements for engineering training are needed. The first requirement is to increase the humanitarian content of such training. At present, only the humanities provoke students to master human cultural and civilisation values. Future specialists will reach the highest level of culture by familiarising themselves with human cultural values, while, at the same time, acquiring the natural base for their professional growth.

Modern times need socially active personalities and highly qualified engineers with high cultural standards. The humanisation of technical training, is the main means of overcoming the contradictions between "technical culture" and "human culture," or the tendency for one-sided personality development. History demonstrates that there is a need for humanitarian knowledge every time the formulation of a creative solution to a problem is required.

Most students are able to solve technical tasks but there are not enough specialists who are able to analyse the results of their experiments or foresee the results and the consequences of their activities. To possess these qualitative traits, every chemical engineer must be a humanitarian. It is only in this manner that the vast knowledge needed to approach solving problems can be acquired.

A modern engineer has to learn to adapt to the common culture. Students need to learn to cultivate their receptivity to the different processes and forms of culture, because culture can, actually, nourish the individual personality. As we meditate on the way to perfect the "human being," we must realise that the only means is through culture and education. Unfortunately, education has existed for a long time with clear deficiencies in spiritual culture. This cultural and intellectual deficiency among university graduates is one of the major problems we face today.

Adding humanitarian principles to technical education is a very complicated problem. First of all, it is necessary to revise the traditional opinion about humanitarian education. We are under a delusion that humanitarian education is the responsibility of the humanities, only. The humanitarian component must be included in all branches of education. It needs the closest co-ordination and interdependence between humanitarian and technical education and the correlation between the courses in the humanities and the courses in the sciences.

The development of creative thinking must become the fundamental purpose of education. The forming of such creative thinking is the sphere where the humanities can carry a valuable contribution. It is possible to develop creative thinking if you have the following goals for humanitarian education:

- an understanding of society's nature and human culture, as well as of the position of personality in the human relationship system
- the ability to apprehend the different aspects of culture in its unity, to understand the importance, complementarity and interaction of different cultures
- the ability to see the human aspect of science, technology and production

- mastering the bases of scientific analysis of social systems including conceptual and technological ones

In other words, there must be a distinctive "Socratic revolution," transforming humanitarian education from "a theory for the masses" to "a reality for the individual." The goal of the Mendeleyev University of Chemical Technology of Russia is to prepare intellectual, cultivated, realistic, noble and healthy students, who will be able to work effectively under the new "market economy" conditions. This goal can be realised only by developing methods for stimulating the activity of the humanities' departments.

Fifteen years ago the Faculty of Social Sciences was founded. This faculty consists of five departments: philosophy, political science, humanities, Russian language and physical education. The faculty of social sciences oversees basic training in the following branches: history, political science, philosophy, sociology, psychology, teacher training, as well as, economic theory and culture.

Students have the choice of a range of electives, as well as fundamental courses. These elective courses give students a good opportunity to master social technology, self-knowledge, individual development, ethics, aesthetics and develop a business-image. The elective courses also satisfy the varied interests of the students in the areas of history, science, music, theatre, arts and literature, archaeology, sports and physical education.

At present the faculty of social sciences is developing a new concept of humanitarian training in non-humanitarian universities. Different forms of training are used by the faculty of social sciences, including lectures, seminars, round-table discussions, workshops, press-conferences, field trips and museum visits. Some classes may even take place in museums, musical facilities or libraries. Famous writers, actors, musicians, artists, as well as, occasionally, the students of the Moscow Conservatory and Musical Academy are invited to conduct these classes.

Working under the UNESCO patronage, the departments of the Faculty of Social Sciences can invite professors from different countries who popularise different points of view on various phenomena in nature, politics and social life. We think that it helps our students to be exposed to these various ideas in order to formulate their own opinions. Acknowledging that humanitarian environment institution is the integral part of humanitarian space, we are preparing a humanitarian club in our university, that is scheduled to become the centre of the university's cultural life.

It is essential to think not only of the students graduating today but also of those who will work in the next century. In the present world, it is essential to realise the role played by universities, regarding humanistic ideas, since universities are charged with the responsibility of preparing graduates suitable for the 21st century.

---

**Professor Pavel Sarkisov** has been Rector of D.I. Mendeleyev University of Chemical Technology of Russia, since 1985. A Chemical Engineer, specialising in silicon industry, he received his Ph.D. from Mendeleyev University and subsequently served as junior and senior scientific fellow and professor on the faculty. He has published over 300 scientific papers and patents in the field of chemical technology and his current scientific interests lie in the fields of physical chemistry, technology of crystal glass materials and industrial environmental problems. Winner of the State Prize of the Republic of Ukraine, Professor Sarkisov is also Corresponding Member of the Russian Academy of Sciences, Vice-President of the Mendeleyev Chemical Society, Member of the New York Academy of Sciences and Council Member of the American Institute of Chemistry.

Dr. **Oleg Altakh**, a Chemical Engineer specialising in silicon industry, is the Director of the International Department at D.I. Mendeleyev University of Chemical Technology of Russia. Dr. Altakh received his Ph.D. from D.I. Mendeleyev University of Chemical Technology, as a Candidate of Technical Sciences. He has also held positions as junior and senior faculty member on the Silicon Faculty of Mendeleyev University.