VIEW ON ANALYTICAL CHEMISTRY TRAINING IN UNIVERSITIES AND ISO/EC 17025 REQUIREMENTS TO PERSONNEL COMPETENCE OF TESTING LABORATORIES

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Decisions on such issues as the liberty of the citizen, human and animal health, consumer and environmental protection, international trade and the integrity of sport are all dependent on the validity of analytical measurements and the interpretation placed upon them by professional analytical chemists. As a consequence of these, chemists are, for their part, coming under increasing pressure to demonstrate the professionalism and fitness for purpose by giving a measure of the confidence that can be places on the result. Thereupon for educators in many countries the critical question is: “Did the modern universities and analytical chemistry education is sufficient for practical activity, training and makes use of the opportunities for reform or did they stumble on the obstacles?”

The new degree descriptions of university teaching are formulated for general qualifications (i.e., Bachelor’s, Master’s, and Ph.D.) and professional qualifications as objectives under three headings: knowledge and understanding, skills and abilities, and judgment and approach. Unfortunately when the traditional method to teaching used we always face the following problems: a) students don’t know how to apply the analysis method, they have learnt to solve a real problem, they cannot tackle unfamiliar and/or open-ended problems and thus, are unable to apply their chemical knowledge; b) they don’t know how to handle data and information; and c) they don’t know how to report the results. In the upshot graduating student of universities do not agree the requirements high performance these activity.

At the same time, in conformity with ISO/EC 17025 “General requirements for the competence of testing and calibration laboratories” “the laboratory shall have sufficient personnel with the necessary education, training, technical knowledge and experience for their assigned functions; ensure that personnel who make professional judgments are competent and have the applicable theoretical and practical backgrounds (they must also have integrity and a good reputation); maintain records of the relevant competence, educational and professional qualification. Personnel performing specific tasks must be qualified on the basis of appropriate education, training, experience, and/or demonstrated skills, as required”.

The high standards of professional conduct and importance of the role of specialists in field of analytical chemistry have been recognized throughout our industrialized history. In response to this demand the forming of quality personnel management system is seems relevantly. The testing of universities students professional knowledge and competence of personnel more than 70 industrial laboratories in the Southern part of Ukraine have reflected some corresponding problems and allowed to conclude on topicality: formation of the “National register of chemists-analysts” (like USA, Great Britain and Canada); improvement system of raising level of one’s skill; implantation of “practical experience diploma”, as well as interlaboratory quality assurance and necessity of more active participation their personnel on rounds intercalibrations. Paraphrasing the words of Lord Kelvin it is possible to say: “When you measured what you are speaking about and express it in numbers you must know something about it.”