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## **ASSESSMENT OF THE NEEDS FOR STUDIES**

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The assessment of the needs for studies was based on gained experience of training the teachers of natural sciences in Lithuania. The curricula of preparing the teachers of natural and exact sciences are implemented only through the studies at university level. 4 Lithuanian universities train the above mentioned teachers. The assessment of the training curricula of natural science teachers disclosed the major drawbacks which allowed defining the needs for teacher training studies.

**1. The qualitative curricula of studies corresponding to the students' needs.** The training curricula of natural science teachers include the tendencies displaying alienation from a parallel model of teacher training. Two rather independent but not equivalent parts can be distinguished in the above mentioned curricula:

Part 1 (130 – 134 credits per 4 years of studies) focuses on scientific issues (biology, chemistry, physics) and on gaining a bachelor's degree which is defined by the structure of general university studies;

Part 2 (16-30 credits) is directly concentrates on acquiring teacher's qualification defined by the structure of the subjects of a specific (professional) part.

Obviously, the pedagogical qualification of would-be teachers is devoted scant attention. The development of professional pedagogical competence covers such general subjects as education management, introduction into Educology, didactics, hodegetics and subjects discussing methodologies (Nature Study didactics, Biology didactics, Chemistry didactics etc.). However, the curricula do not clearly disclose the situation, for example, it is unclear how didactics integrate, augments or meets with chemistry (biology, physics) didactics.

A few curricula are only partly oriented towards development of didactical competence of natural sciences i.e. only narrow methodical aspects are emphasized, for example completing school tasks, Olympiad assignments etc.

In conclusion, in order to gain general competence of pedagogical activity, teaching/learning general subjects are not enough. Following the parallel model, teacher training must be legally defined and an optimal qualitative curriculum for integration of the content of a subject and pedagogical activity must be created.

**2. The optimization of the natural science teachers' training model.** It should be discussed whether an officially and universally applied coherent model '4 years + 1 year' should be more promising in the process of training the teachers of natural sciences. The future of professional studies following the acquisition of a bachelor's degree is confirmed by the possibility of preparing the new curricula of professional studies which may include a general thematic unit of the subjects that concentrate on developing pedagogical competence as well as didactical matters of particular directions in science that focus on increasing didactical competence in a certain subject. Clear methodologies of how to arrange self-expressed students' learning are required. The quantity of practice, experiments, seminars etc. in the curricula of studies should relatively grow. A burning need is development of students' abilities to operate information and be computer literate.

**3. The system of methodological support for designers of the curricula of studies.** While designing the curricula of studies at University level, no methodology is provided and no methodological support is received. That is why the process of planning the curricula of studies at University level is rather liberal and not defined by standardized competencies. On the one hand, it offers possibilities of making the curricula more flexible considering educational competencies; however, on the other hand due to lack of common methodology, too wide diversity appears in developing them.

**4. Dissemination of good experience.** To solve the problem of integrated training of natural science teachers in Lithuania, there is shortage of specified methodologies, the examples of good experience and recommendations.

**5. The model of optimal integration of information communication technologies (ICT) into natural sciences.** Applying ICT in the teaching/learning process is one of the methods of constructive self/education. Nevertheless, no detailed systemic, methodical recommendations on how to integrate modern ICT in the teaching/learning process are produced. There is a severe lack of constructive software. Therefore, the teachers of natural sciences feel shortage of general competence in the field of modern ICT as well as have no methodical experience of how to efficiently apply ICT in the process of natural science education. Similar experience should be gained during training activities such as seminars etc., within specific pedagogical practice at school using modern training aids based on ICT and certainly along the process of studying. Consequently, appropriate training curricula and those at university level are required.

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