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Teacher's training in Cyprus

The educational system in Cyprus includes the Kindergarten, the elementary and the secondary schools as the three compulsory levels of education. The elementary education consists the levels/classes from one to six and the secondary school the levels/classes from seven to twelve. The Natural Sciences are one of the most important subjects in all levels of education, having common goals. Nevertheless, teachers' training for Kindergarten and elementary schools differs from the corresponding teachers' training in secondary schools.

The training of teachers who are intend for the Kindergarten and Elementary schools is general and considers methodology and philosophy of education, psychology modules and cognitive object (γνωστικό αντικείμενο). For a Bachelor's degree in elementary school teaching or kindergarten school teaching, a student must successfully complete at least 240 ECTS.

For the subject of Natural Sciences the kindergarten teachers have to complete two compulsory courses for a total of twelve ECTS, which are the following:

- *Science Concepts in the kindergarten school (EDU 175):* living organism, similarities and differences among them, their living conditions and their reactions to seasonal and everyday environmental changes. Human body, its structure and basic functions. Earth and planets in space and climate. States of matter forms of energy and their transformation. Emphasis on the methods and processes of science.

- *Natural Sciences in the kindergarten school (EDU 335)*: the development of preschool-age children's mechanisms of understanding the physical environment and its changes and employing simple methods and processes of natural sciences. Design of teacher interventions which can sensitize preschool-age children to the interaction between man and the environment and develop their readiness and appropriate attitudes for learning natural sciences at the elementary level.

In addition, they have to successfully complete school experience, where they teach among others lessons of Natural Sciences.

The primary teachers, for the subject of Natural Sciences have to complete three compulsory courses giving them a total of eighteen ECTS. These are the following:

- *Natural Science in the elementary school. Environment and living organism (EDU 177)*: living organism and environment. Basic function and interrelations of living organisms. Flow of mass and energy in the ecosystems. Technological culture and environment, environmental education and consciousness, environmental and ecological projects.
- *Natural Science in the elementary school. Physical and chemical phenomena and changes (EDU 276)*: physical and chemical phenomena and changes. States of matter and their structure and properties. Changes of state of matter. Physical and chemical phenomena. Forces, forms of energy, transfer and transformations of energy. Heat, sound, light, magnetism and electricity, their sources, transfer and effects. Emphasis on methods and processes of science and experimental study phenomena.
- *The teaching of Natural Sciences (EDU 336)*: the basic variables of the teaching-learning process which have special importance for teaching natural science at the elementary level based on research evidence. In-depth examination of elementary students' mechanism of understanding and their preconceptions about physical reality. Design and evaluation of teaching interventions in an attempt to promote students' cognitive, affective, and psychomotor development and to activate their innate capacities.

Additionally, they have to successfully complete school experience in the third and fourth year of their study. In the third year they sit under in public schools for a period of approximately three weeks. During this period they attend two Natural Sciences lessons and they teach one lesson. In the fourth year they get involved in school activities for one semester. The preparation is achieved after a three-week slot of lectures which take place before the entering in public schools. As far as the subject of Natural Sciences is concerned, the students have to attend the lessons from the class teacher for ten weeks. They also have to teach about ten periods under the guidance of their mentor (class teacher) and the supervision of an academic staff.

Students are required to complete four compulsory courses (twenty four ECTS) for their respective specialization during their fourth year studies. One alternative specialization relates to the teaching Natural Sciences and students have to attend the following courses:

- *Modern Trends in Science teaching at the primary school (EDU 476)*: Cognitive demands of science curricula and students' cognitive capacity. Educational interventions and cognitive accelerations: research evidence. Misconceptions in science and the process of conceptual change. Children's science. Support for students' cognitive, psychomotor and affective development. Scientific and technological literacy at the primary school. The importance of experimental science teaching.
- *Computer Science application in the teaching of science in elementary school (EDU 477)*: the course examines ways in which computer technology may support the teaching of science in elementary school. The purpose of the course is to make students aware of the computer as a simulation instrument and as a research medium.
- *Special Issues in Mathematics Education (EDU 471)*.
- One additional course from the Department of Physics, or the department of chemistry, or the Biology department. This course relates to content knowledge from physics, chemistry, or biology, respectively.

The teaching of Natural Sciences in secondary school is divided into discrete subjects: Physics, Chemistry, and Biology. Any person holding a BA in physics, chemistry, and biology is considered as a prospective teacher of the respective subject (Physics, Chemistry, and Biology) provided that (s)he has completed a one-year pedagogical training from an Educational department (i.e., the Department of Education, University of Cyprus).

The structure of this pedagogical training is as follows:

1. Four compulsory courses (4x4=16 ECTS) that relate to educational theory, multicultural education and the educational system (4 ECTS), curriculum and instruction (4 ECTS) research and evaluation in education (4 ECTS), and educational psychology (4ECTS).
2. One compulsory course (enrichment) from their respective specialization (4 ECTS).
3. One elective course among a list of 10 several courses relating to the sociology, psychology, history of education etc., depending on their interests and/or needs.
4. Two compulsory courses (8 ECTS) in teaching methodology and related topics, such as action research, constructivistic approaches of teaching, and how to integrate ICT in their teaching. These two course focus exclusively on teaching physics, chemistry and biology at the secondary school.
5. Prospective secondary school teachers should also complete school experience. During that period, students participate in school activities and they undertake teaching in actual classrooms under the guidance of special personnel. They get a lot of feedback and have opportunities to be involved in action research and reflection on their teaching and how to become more effective teachers.