TRAINING COURSE

ON

"SCHOOL' ROBOTICS"

Science and Technology are fundamental to the sound development of our knowledge-based society. In one hand a fast development of science and technology is required to maintain world's sustainable development. On the other hand there is a major lack of human resources in this field and the number of students willing to take science and or technology studies at EU schools is decreasing every day.

Pedagogical approaches that motivate and bring the students to an active role in the learning of science and technology subjects, should be studied, implemented and disseminated. Hands-on experimentation in the classroom have proved success in raising Science&Technology learning but also in improving essential skills as autonomy and responsibility, critical reasoning, self-organisation self-commitment self-motivation and reward, method and social interaction. If this hands-on practice is complemented or involves building, constructing or developing a final product to perform a specific task, its success can be highly potentiated. Especially if the subject dealt with is of innovating striking actuality as robotics is to all of us but especially to our youngsters.

The experience of the organiser and lecturers of this course in many different projects in different countries and different types of schools and student's age levels, have demonstrated clearly how successful these activities can be.

The goal of this course is to provide schoolteachers, from primary secondary and vocational schools, both theoretical but specially practical information and tools, pedagogical and technical, that may enable them to begin teaching robotics to their students. Teaching robotics itself as a topic of utmost actuality and importance, but also as a vehicle to convey the learning of important knowledge and competencies in a variety of disciplines. We also expect that those teachers will become promoters of further activities in this field.

Our methodological training approach is focused in providing teachers the basic theoretical information allowing the immediate learning of robotics and in-school teaching strategies in a practical hands-on way.

The participants will receive ahead written material on hands-on and constructivism pedagogical theories. Description of the robots to be used as well as the FLL and Robocup competitions will be provided in advance. Detailed bibliographic list will be provided. The course will begin with a presentation of the theme robotics followed by an in-depth presentation and discussion of the hands-on experiments and constructivism teaching/learning approaches. Theories will be presented as well as practical examples. Particular issues of great importance as the use of ICT and gender problems will be discussed and examples of good practice presented. Two target groups will be identified and differentiated approaches presented: primary and secondary education. From a certain level of development of the course parallel practical sessions will be delivered for teachers of those different school levels. The organisation of festivals and robot's contests has proved to be very important in the success of these kinds of activities. In this subject practical questions will be presented and discuss. Support material will be provided. The course will end with a robotics festival where students of Portuguese schools (and probably also from France) will present their robots and compete in a variety of robots' competitions. Close interaction between our trainees and the students will happen. We will try to induce the establishment of cooperation projects between the schools of the teachers participating in the training course. In the end we hope that several Comenius 1 school and lingua projects could be prepared or delineated. Open and friendly two folded contacts between trainers and trainees will be maintained after the end of the school. The evaluation of this first training course will be of utmost important for next courses in this topic to be organised in the following months and years.

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The Course delivered in English with partial support in Portuguese and French, will take place in Braga, Portugal in September 2004, from the 4th to the 12th. For further information please check at http://hsci.no.sapo.pt/robocourse.html or send an email to the organiser at mfcosta@fisica.uminho.pt.

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(Chair)

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