AESTIT Affordable & Efficient Science Teacher In-service Training

1. Objectives

The aim of the project is the development of an affordable, sustainable and efficient in service training scheme for the Science teacher. This scheme has two main axes: a. face-to-face training courses, and b. online training courses. The face-to-face courses focus on the learning of the recent theoretical paradigms on the Science teaching and the relevant supporting pedagogical principles. The e-learning system to be developped, will be used by Science teachers and specialised scientists in the area of Science Teaching. The focus of the project is on the promotion of the collaboration and cooperation between teachers, schools and institutions involved in the Science teaching and in Science Teaching education. The fundamental philosophy is that learning can be developed and enhanced through the sharing of knowledge and best field practice experience of diferent groups involved in such activities. A further objective is the establishment of a network of people including scientists, school-teachers and researchers to promote Science and Technology education.

Physics by Inquiry Seminar

Physics by Inquiry is a set of laboratory-based modules that provide a step-by-step introduction to physics and the physical sciences. It has been designed to address the needs and abilities of different student populations (K-12 preservice and inservice teachers, secondary education introductory science courses). *Physics by Inquiry* has been developed on the basis of extensive classroom experience and many years of research on the learning and teaching of physics. The modules have been thoroughly class-tested and revised repeatedly to safeguard their effectiveness and an emphasis on developing conceptual understanding, methodological skills and epistemological awareness.

Physics by Inquiry emphasizes the process of science. Starting from their own observations, students develop basic physical concepts, use and interpret different forms of scientific representations, and construct explanatory models that have predictive capability. The modules do not teach by telling; students are required to take an active role and work collaboratively to construct their own understanding.

This workshop focused on using *Physics by Inquiry* as an illustrative example and as a teaching model for elementary and secondary school teachers to teach physical science and physics by inquiry. In addition to providing hands-on experience with the instructional materials, the workshop covered various aspects of designing a course based on *Physics by Inquiry*. Participants also gained an understanding of how physics education research has guided the design of the modules.

The Workshop focused on the topics of Heat and Temperature and Light and Colour. A total of 48 teachers met twice per week for 12 weeks during the months February – May 2006.

eeting that took place in Braga, Portugal.