

### **T3\_98 A CONTRIBUTE TO MOSEM2 PROJECT: COMPUTER ON-LINE E MODELING INTEGRATION ON ELECTROMAGNETIC INDUCTION**

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Electromagnetic induction is a relevant topic in upper secondary school for its role in recognizing the link between electricity and magnetism, on the theoretical point of view as well as on the experimental evidence one, for the different technological applications of it in many context, also of the everyday life. Learning problems documented in literature are related to a partial vision of the phenomena, or to a lack in a deep comprehension of the phenomena and the processes involved, or more often in the comprehension of the role of the flux of magnetic B field as organizer of the phenomenology. In the context of the European Projects MOSEM2 a set of experimental activities integrated with computer modeling was designed on electromagnetic induction. The experimental proposals based on computer-interface-sensors systems to acquire data and construct graphs in real time. It aims to create a context in which students have experience of electromagnetic phenomena, recognizing flux of B field as the quantity always involved in this phenomenology and for this reason the quantity used to describe and to interpret it. A modeling activity related to the experimental one aims to overcome a qualitative approach to the phenomenology and it give to students the opportunity to recognize the role of induction in the dynamical evolution of the observed systems. The set of experiment suggests a path in which the exploration of the B field produced by the magnet is strictly correlated to the exploration of the electromagnetic induction phenomena. Measurements are made using a commercial Hall effect B field probe as well as using a very simple home made B fluxmeter. The modeling activity related to the experimental one is proposed in two main context. The first concern the magnet falling into a coils and is based on the equivalence of the B field produced by a magnet and by a coil, with opportune dimension and current. The second one is the role of induction in circuits single on coupled when the transient processes are studied.