

ABSTRACT

This dissertation is a study and develop a proposal for a learning environment, to any institution of higher education, three levels of education in the area of control and automation: undergraduate, graduate and Lato Sensu stricto sensu. First, visits were made to laboratories in universities and interviews with teachers who teach the disciplines of automation and control in three levels of learning. Strengths and weaknesses were found in the methodological issue of laboratory practice in relation to industrial aspects of electrical engineering in the area of three institutions in the State of Rio de Janeiro, being one federal, one state and one private. Subsequently, we analyzed mechanisms and instruments to interact with experimental models proposed in the interviews in a didactic manner for the purpose of providing the learning environment in automation, in which he was elected as the LABVIEW interface more favorable for the application of controls, keeping an analogy for practical industrial. From these analysis have been suggested yet typical elements of automation and three case studies: a thermal system, a speed control motor and an inverted pendulum, through simple and advanced controls such as fuzzy control, characterized by the strengthening of academic-industrial activity.

Keywords: Learning environment; Automation and control; PID and Fuzzy and practical models.