

Learning Objects for Demanding Themes in Electronics Teaching

Clovis Antonio Petry, Fernando S. Pacheco,
Gustavo Ribeiro Alves, Manuel Carlos Felgueiras

Abstract—This work reports the application of learning objects (LOs) for Electronics teaching, specially for themes that students struggle to grasp understanding. Two themes for Electrical and Electronics Engineering are illustrated here: equipment insulation and grounding, and the relationship between nonlinear loads and harmonic distortion. Using different learning objects, students were asked to answer some questions. Initial results are presented in this work.

Index Terms—Electronics, engineering, learning objects, teaching.

I. INTRODUCTION

New learning approaches have been developed over the years, and it also occurs for Electrical and Electronics Engineering teaching [1-2]. Some themes in this area require advanced modeling or math skills, or demand some technical experience and maturity to be completely understood. Learning Objects have been shown as an option for helping teachers and students grasp complex themes [3-5]. The main goal of this work is to verify how effective LOs are for two hard to understand subjects: equipment insulation and grounding, and the relationship between nonlinear loads and harmonic distortion.

II. DESCRIPTION OF THE WORK

This work will be initiated from a pre-course survey for checking previous knowledge from students. Then, students will be oriented to use some LOs for each theme. Afterwards, a technical questionnaire will be applied. This way, we can verify how students grasp understanding and we can adapt new material, explanations and different tasks for them to complete their understanding. This initial research included students of a vocational degree in Electronics in Federal Institute of Santa Catarina. Students are in their last semester of studies and we estimate they have enough maturity, technical commitment, and responsibility to take part in this research [6].

III. RESULTS

From our initial results, we could reason how effective learning objects are for teaching demanding themes in Electronics. A learning object repository might be established from these results, identifying themes, approaches and results, for both Portuguese and Brazilian institutions.

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