Integrated Didactic Software Package for Computer Based Analysis of Power Quality

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Abstract— The actual state and operation of the Romanian power system ask for a certain expertise in detecting the causes of electromagnetic perturbations and their evaluation in power grids. Consequently, all the aspects regarding the power quality issues became a common characteristic of the power systems' curricula within Romanian power engineering faculties. The students attending these classes are involved in computer-based laboratory works. This paper describes the authors' contribution regarding the development of an integrated software package for power quality analysis at the Faculty of Electrical Engineering, University of Craiova. This software structure is built on a link between professional specialized software packages and software subroutines conceived by the authors. The parameters related to voltage/current harmonics can be analyzed using MATLAB subroutines and EDSA package - *Electrical Power System Design Software*. The results can be visualized as different types of reports. They can be further exported to EDSA program or/and MATLAB subroutine in order to size the harmonic filters and evaluate their effect on power quality in the analyzed power grids. EDSA programs package, as well as the subroutines developed in MATLAB environment are traditional tools used by the students attending the Power Quality classes within the Faculty of Electrical Engineering.