

**THE STUDY OF HARMONIC DISTORTION IN FACULTY OF
ELECTRICAL ENGINEERING**

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ABSTRACT

This paper presents the power quality problems on the distribution system of faculty electrical engineering (FEE). The power quality problem in this paper is to find out about the harmonic distortions. Firstly, Ion Meter 7330 is used to measure the entire harmonic distortion for the whole building of FEE. Then, the building was audited to analyse the equipment that involves the harmonic distortion.

After that, the measurement of equipment largely used in FEE that produced large harmonic distortion was measured using a fluke meter. The measurement is taken for four days to make sure that the data taken more accurate. There are two equipments largely used in the FEE, one is computer and secondly is fluorescent light. The Matlab Simulink version 2010a was used to design and simulate the harmonic data from the actual data.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Power Quality is a term used to broadly encompass the entire scope of interaction among electrical suppliers, the environment, the systems and products energized, and the users of those systems and products. It is more than the delivery of "clean" electric power that complies with industry standards. It involves the maintainability of that power, the design, selection, and the installation of every piece of hardware and software in the electrical energy system [1]. Stretching from the generation plant to the utility customer, power quality is a measure of how the elements affect the system as a whole.

Harmonic can be defined as a sinusoidal component of wave or quantity having frequency that is an integral multiple of the fundamental frequency [2]. It is well known that a nonlinear load draws a highly distorted current from the source, which consists of harmonics, fundamental active and reactive current components. If the source or/and the load is unbalanced, the source also contains negative sequence currents [2]. The harmonic currents in combination with line impedance of the distribution network in turn causes distortion in supply voltage.

The increase use of nonlinear load in industry is keeping harmonics distortion in distribution system network on the rise. Harmonic distortion is the changes in the waveform of the supply voltage from the sinusoidal waveform [4]. It is caused by the interaction of distorting customer loads with the