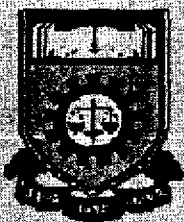


**24-HOURS FUZZY LOGIC TECHNIQUE FOR
LOAD FORECASTING**

**This thesis presented in partial fulfillment for the award of the
Bachelor in Electrical Engineering (Hons) of
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**MOHD DAUD BIN ALANG HASSAN
(96093802)
Faculty of Electrical Engineering
INSTITUT TEKNOLOGI MARA
40450 Shah Alam, Malaysia
NOVEMBER 1998**

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ABSTRACT

Load forecasting is an important in energy management system. It can be used as an aid in operation and planning of distribution power system. In this thesis a knowledge-based expert system is proposed for the short term load forecasting in which *fuzzyTECH* software is employed to manipulate actual value of previous load forecast. To develop fuzzy logic system, three different load profiles from data collection are establish. The fuzzy logic based expert system utilizes the historical relationship between load and dry-bulb temperature and forecast load for 1-24 hour ahead. Experiments were carried out to develop the short term load forecasting (STLF) system. Based on these experiments a triangular membership function with five linguistic term and twenty five appropriate fuzzy rule base give accurate forecast and it used as a forecaster . Overall forecast give a percentage error less then 5 %.

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CHAPTER 1

INTRODUCTION

1.0 Introduction

Forecasting is one of the oldest human concerns. It seems that most of human have a frequent need for gazing into the future. In today's complex world, management is faced with a never-ending flow of planning and decision making [1]. A forecast of some kind is often times used as a basis to meet these needs, whereby the more reliable the forecasts are, the better is the outcome from the planning and decisions. Forecasting is not a new problem, it has plagued management for centuries. In the recent past, however, with the event of computers, it has become possible to use forecasting methods that were previously impossible to explore.

Forecasting techniques can be categorised into three-group [1]. The first is called *qualitative*, where all information and judgement relating to an item are used to forecast the item demand. This technique is often used when little or no demand history is available. The second is *causal*, where a cause-and-effect type of relation is sought. The forecaster seeks a relation between an item's demands and other factors. The relationship is used to forecast the future demands of the item. The third group is called *time-series analysis*, where a statistical analysis on past demands is used to generate the forecasts.

The load forecasting is important in the management of power distribution such as in online scheduling of a utility [2,3]. This forecasting is aimed at predicting system load over an interval of one day or one week. It plays an important role in the on-line scheduling and security functions of the energy management system of a utility such as unit commitment, economic dispatch, hydro-thermal co-ordination and load management [2,4,5]. It's to be used as an aid in operation and