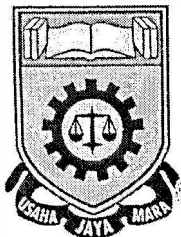# SIMULATION FOR POWER SYSTEMS DISTRIBUTION

The Thesis is presented in partial fulfilment for the reward of
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APRIL 1999.

ACKNOWLEDGEMENT

ABSTRACT

Most power system analysis are performed on transmission networks because of their over-riding importance in terms of security of supply and very high investment cost. Distribution analysis has traditionally been neglected due to its localized impact on system and customers. Nowadays, the use of distribution analysis is becoming common for power utilities partly due to its close proximity to the customer. This thesis first briefly reviews the distribution network peculiarities, information and facilities provided by common distribution software and some functions of distribution automation. The thesis was focused on simulation of distribution system case study. Results obtained from the case study will be useful for user in distribution planning and operation.

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CHAPTER 1

COMPUTER SIMULATION

1.1   Introduction

The advent of the new electrotechnologies with the flexibility afforded by the use of personal computer, presents an opportunity to analyze and automate power systems. It becomes possible to simulate the dynamic behavior of very large power systems fastly and accurately. The modeling of power system elements has been improved and the simulations could be carried out easily. Simulation can help to analyze faults and suggest possible improvements for the system. In addition, the system operation can be optimized in order to provide more economic and reliable operation. The combination of software and the skill of the users made it possible to operate a system economically and response to system contingency effectively.

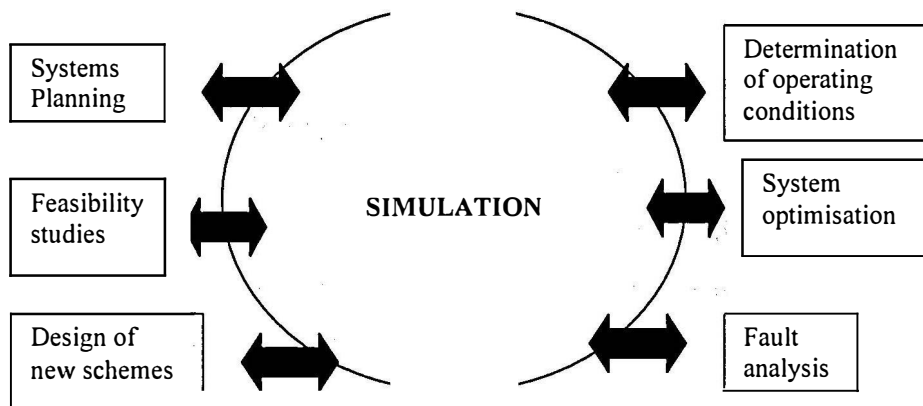Figure 1.1 below shows the fields in which the simulation is used in power system [1].

Figure 1.1: Simulation for Power Systems