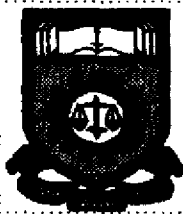# SCHEDULING OF BATCH PROCESS PLANT

Thesis presented in partial fulfilment for the award of the
Advanced Diploma in Electrical Engineering of
INSTITUT TEKNOLOGI MARA

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ABSTRACT

Batch production is used throughout the process industries for the manufacture of fine chemical, plastics, pharmaceuticals, paints, ceramics, cosmetics, or whatever production quantities are small, product value is very high or product demand pattern is changeable.

This research work is devoted to software development of scheduling and control algorithm of batch process plant using shortest path method developed by Dijkstra and K^{th} shortest path method developed by Jin Y. Yen. These methods are selected due to the practicality and wide acceptance from the experts in the field.

The software developed is menu-driven graphical tool for simulating schedules for studied model. By using Turbo Pascal programming language, major programs are linked and displayed. Basically this tool can successfully simulate the graphical presentation to solve the shortest path and K^{th} shortest path problem.

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CHAPTER ONE

1. INTRODUCTION

The main aim of this project is to design and implement computer control package for batch process plant especially for the schedule of the process. In current control strategy, there is lack of integration between the planning and the control activities. Production planning is done off-line and information is only passed from the production planning system to the control system through the actions of the process operators.

The operation of a modern multi-product batch processing plant necessarily involve a great deal of scheduling and coordination[2]. It is noted that, proper scheduling is required to meet market demands, allocate constrained resources, to feed downstream units efficiently, to minimize inventory, and to allow the performance of preventive maintenance. Scheduling is done in batch plants in ways that range from analytical to simulations. The ability to do these automatically with computer assistance can improve plant throughput and profitability.

Scheduling is routinely done in batch process plants by people with great experience, but, in fact, the task is clerical. Work on computer-aided scheduling has often proven unsatisfactory because the stated objectives were to replace and improve upon the scheduling techniques of human scheduler.

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