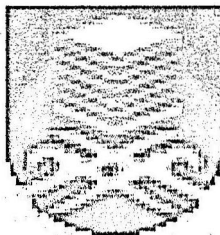


# **SOLVING ECONOMIC DISPATCH PROBLEM USING EVOLUTIONARY PROGRAMMING METHOD**

**Project Report is presented in partial fulfillment for the award of the Bachelor of**

**Electrical Engineering [Hons]**

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## **ABSTRACT**

Economic operation in power system concern with minimum cost of production it is called Economic Dispatch. Economic Dispatch determines the active power to be generated by a generating unit in a power system at minimum generation cost, while meeting the load demand simultaneously. The Evolutionary Programming developed uses the total generation cost function as the objective functions for the Economic Dispatch optimization problem. The proposed method was applied to a three generating system consider losses and without losses. The results were obtained compared with the classical method namely LaGrange Method to show its feasibility. This program was written in "C" Language.

# TABLE OF CONTENTS

<b>CHAPTER</b>		<b>PAGE</b>
<b>1</b>	<b>INTRODUCTION</b>	
	1.1 Introduction	1
	1.2 Scope of work	2
	1.3 Organization of thesis	3
<b>2</b>	<b>ECONOMIC DISPATCH</b>	
	2.1 Introduction	4
	2.1 Economic Dispatch problem	7
	2.2.1 ED problem without losses	8
	2.2.2 Operating cot of a thermal plant	9
	2.2.3 ED when transmission losses neglect	10
	2.2.4 ED during transmission losses	13
<b>3</b>	<b>EVOLUTIONARY PROGRAMMING</b>	
	3.1 Introduction	16
	3.2 The operation of EP	17
	3.2.1 Initialization	17
	3.2.2 Mutation	17
	3.2.3 Combination	18
	3.2.4 Competition & Selection	18
	3.3 EP algorithm	18
	3.4 The type of EP	20
	3.4.1 Classical EP	20
	3.4.2 Original EP	20
	3.4.3 Meta EP	21

# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

In a large power generating plant, many generators work in co-operation to meet the power demand of all the connected loads. The Economic Dispatch targets to minimize the total cost of the generating power at many power stations while satisfying the demand load, despite losses in the transmission link [7].

Economic operation in power system concerns with the minimum cost of production it is called Economic Dispatch.

Economic Dispatch is an important optimization tasks in power system operation. The Economic Dispatch problem is a constrained nonlinear dynamic problem, which was complicated by uncertain environmental conditions. Research in optimal operation of power generation systems is divided in two schools of thoughts. One of the schools of thoughts works towards the development and formulation of rigorous theory. However, it is realized that conventional optimization technique becomes more complicated as the complexity in Economic Dispatch problem escalates.

Furthermore, solutions derived from conventional optimization techniques are limited by their lack of robustness and efficiency in practical application. Thus the search for a reliable, fast and efficiency algorithm still remains an active area in economic operation of power system. The other school of thoughts seeks solution based on optimization technique, such as linear programming, dynamic programming, genetic algorithm, simulated annealing and evolutionary programming. All this technique may proved to be very effective in solving non-linear economic dispatch problems [6].