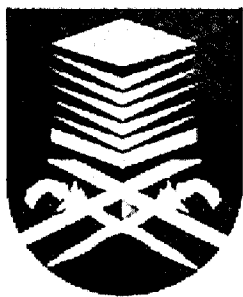


**APPLICATION OF SHUFFLED FROG LEAPING ALGORITHM  
FOR ECONOMIC DISPATCH WITH MULTIPLE FUEL OPTIONS**

This thesis is presented in partial fulfillment for the award of the  
Bachelor of Engineering (HONS) Electrical



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## **ABSTRACT**

This thesis discusses about an alternative approach towards solving economic dispatch problem with multiple fuel options using shuffled frog leaping algorithm (SFLA). Thermal unit with multiple fuel option is expressed as a segmented piecewise quadratic function. This study proposes the SFLA method to determine the optimal combination of power outputs of the generating units with the most minimum fuel cost while taking into considerations the constraints of the generating units. The proposed method in solving economic dispatch problem combines the evolutionary algorithm with analytical approach is capable in performing much better in directing the search towards the optimal region. Simulations were conducted by applying the SFLA method to solve for the economic dispatch problem of ten units with multiple fuel options. Based on the results obtained, it shows that the SFLA method managed to solve the economic dispatch problems with multiple fuel options.

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