

**SIMULINK IMPLEMENTATION OF LINEAR INDUCTION
MACHINE MODEL
-A MODULAR APPROACH-**



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**LAPORAN AKHIR PENYELIDIKAN “SIMULINK IMPLEMENTATION OF
LINEAR INDUCTION MACHINE MODEL-A MODULAR APPROACH-.**

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- a. Empat (4) naskah Laporan Akhir Penyelidikan, dan
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yang bertajuk “Simulink Implementation of Linear Induction Machine Model - Modular Approach-” untuk makluman pihak tuan.

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ABSTRACT

Application of a Linear Induction Machine for translation gives the possibility to reduce weights of drive moving parts and entire drives for electromechanic system, and enlarges operating speeds and accelerations. Linear Induction Machine must be designed according to specific construction features, speeds and loads.

The driving principles of the Linear Induction Machine are similar to Rotary Induction Machine but its control characteristics are more complicated and the control parameters are time- varying due to the change of operating conditions such as speed of mover, temperature and configuration rail. The mathematical model is used to describe the dynamic behaviour of a Linear Induction Machine. The complicated dynamic model of the Linear Induction Machine increases the complexity of the analysis and the design of controllers.

The purpose of this project is to model a Linear Induction Machine using Matlab/Simulink software. The Linear Induction Machine dynamics is modelled with five order nonlinear differential equations. A modular Simulink implementation of a Linear Induction Machine model is described in a step by step approach. With the modular system, each block solves one of the model equations; unlike black box models, all the machine parameters are accessible for control and verification purpose. The model topology is presented and the mathematical model is described in

detail. The validity of the topology is verified through simulation. Results are presented and conclusions are drawn regarding the proposed topology.