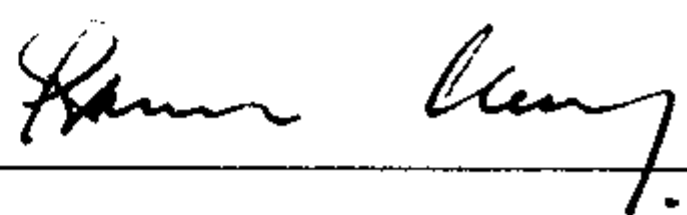


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Thesis Title : Design and Construction of Pendulum Machine with  
Induction Motor  
Major Field : Electrical Technology  
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Academic Year : 1996

### Abstract

This thesis investigates the possibility of design and construction of pendulum machine with three phase induction motor from the material that can be obtained locally. The motor is controlled by inverter so that it can be operated in any torque - speed regions. The motor frame can swing in both directions. The torque is measured by load cell and is displayed in digital form. The speed is measured by the ferromagnetic material sensor and is displayed also in digital form.

The constructed pilot unit employs 0.75 kW 4 poles three phase induction motor which is controlled by open loop VVVF inverter. The speed can be controlled within the range of  $\pm 3000$  rpm. The magnitudes of torque that can be measured are in the range of  $\pm 8$  Nm. The pilot unit was used to test 0.37 kW 4 poles three phase induction motor in every mode of operation successfully in both directions of rotation. The introduction sheets for performing three phase induction machine testing is included in the thesis.



Committee Chairperson