

**DEPARTMENT OF ELECTRICAL ENGINEERING
DELHI TECHNOLOGICAL UNIVERSITY
BAWANA ROAD, DELHI**



CERTIFICATE

This is to certify that the work entitled, “Intelligent Approach for Short Term Electrical Load Forecasting” has been submitted for the fulfillment of the requirements for the award of Degree of M.Tech in Electrical Engineering (Power System), carried out by Dinesh Kumar Meena under my supervision, at Delhi Technological University.

To the best of my knowledge, the matter embodied in the dissertation has not been submitted to any other University/Institute for the award of any Degree or Diploma.

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CANDIDATE’S DECLARATION

I hereby certify that the work which is being presented in this dissertation entitled “Intelligent Approach for Short Term Electrical Load Forecasting” by Dinesh Kumar Meena in the partial fulfillment of requirements for the award of Master of technology in Electrical Engineering (Power System), submitted to the Department of Electrical Engineering, Delhi Technological University, Delhi, is an authentic record of my own work carried out during a period of August 2012 to June 2013, under the supervision of Dr. M. Rizwan, Assistant Professor, Delhi Technological University. The matter presented in this dissertation has not been submitted to any other University/Institute for the award of M.Tech or any other Degree/Diploma.

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This is to certify that the above statement made by the candidate is correct to the best of my knowledge and belief. He has completed all the requirements (attendance, no dues, dissertation fee of the university) to appear in the university examination.

Signature of Supervisor

ABSTRACT

Load forecasting play very important role in the operation of electricity companies. It helps the electric utility to make unit commitment decisions, efficient energy planning, reduce spinning reserve capacity and schedule device maintenance plan properly. It is therefore necessary that the electricity companies should have prior knowledge of future electricity demand with great accuracy. This dissertation focuses on study of short term load forecasting using two different types of computational intelligence methods. It includes fuzzy logic and artificial neural network based approach. In this dissertation, the daily demand of Shahpura, Jaipur, India has been collected from Rajasthan Electricity Board (Shahpura Sub-station), India. To avoid the convergence problems, the input and output load data are scaled down such that they remain within the range of (0.1-0.9). The inputs of the fuzzy logic and ANN based models are the electrical demand during the day for the four consecutive and the output or forecasted value is the demand of the fifth day. The results obtained from fuzzy logic and ANN models have been validated with the actual value and found accurate. The mean absolute percentage error (MAPE) in the fuzzy logic model is 2.515% and using ANN 2.165%.

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