عنوان مقاله:

MODELING THE COMPRESSIVE STRENGTH OF CONCRETE MADE WITH EXPANDED PERLITE POWDER

محل انتشار:

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خلاصه مقاله:

In recent years, soft computing and artificial intelligence techniques such as artificial neural network (ANN) and adaptive neuro-fuzzy inference system (ANFIS) have been effectively used in various civil engineering applications. This study aims to examine the potential of ANN and ANFIS for modeling the compressive strength of concrete containing expanded perlite powder (EPP). For doing this, a total of forty-five EPP incorporated concrete mixtures were produced and tested for compressive strength at different curing ages of ۳, ۷, ۲۸, ۴۲ and ۹۰ days. Two different ANN models were developed and the suitable and stable ANN architecture for each model was considered by calculating various statistical parameters. For comparative purposes, two ANFIS models with different membership functions were also trained. According to the results, it can be concluded that the proposed ANN models relatively give a good degree of accuracy in predicting the compressive strength of concrete made with EPP, higher than that of observed from ANFIS models.

کلمات کلیدی:

Concrete, Expanded Perlite Powder, Compressive Strength, Artificial Neural Network, Adaptive Neuro-Fuzzy Inference System.