



A SIMPLIFIED MODEL STRUCTURE FOR AN ACTIVATED SLUDGE SYSTEM

M.S. Gaya¹, N. A. Wahab^{*1}, Y. M. Sam¹, A.N Anuar², S.I. Samsuddin³, M.C.Razali¹

¹Control and Mechatronics Engineering Department

Universiti Teknologi Malaysia, Skudai, 81310

Johor Bahru, Malaysia

²Department of Environmental Engineering

Universiti Teknologi Malaysia, Skudai, 81310

Johor Bahru, Malaysia

³Department of Industrial Electronics

Universiti Teknikal Malaysia, Durian Tunggal 76100

Melaka, Malaysia

Emails: muhdgayasani@gmail.com, aliza@fke.utm.my, yahaya@fke.utm.my,
Sharatul@utem.edu.my, mrc410@gmail.com

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Abstract- Activated sludge system is the essential technology in use for municipal wastewater treatment plant. The system design for pollutants removal, safety analysis and experimentation relied upon an effective, straightforward and reliable model. However, most of the available models are too complex to use for control purposes either practically or via simulation. Therefore, vehement need for a simplistic and efficient model could not be avoided. This paper presents a simplified model structure for an activated sludge system using neuro-fuzzy system. Efficiency, ease of use, effectiveness and fast convergence are some of the alluring qualities of neuro-fuzzy

technique. Building a reliable and flexible model requires validation with full scale or experimental data. Therefore, with the use of the full-scale data from the domestic wastewater treatment plant in Malaysia, the validation was achieved. For comparison, auto regressive with exogenous input (ARX) model was used. Simulation studies showed that the proposed method produced promising results, thus revealing the technique is effective and robust in modelling the activated sludge system.

Index terms: Model, pollutants, neuro-fuzzy, anfis, parameters.