



### #81 (1570377799): Optimization of PID Control Parameters with Genetic Algorithm plus Fuzzy Logic in Stirred Tank Heater Temperature Control Process

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**Authors** Nurul Ikhlis Septiani, Ike Bayusari and Caroline Herry (Sriwijaya University, Indonesia); Triya Haiyunnisa (Indonesian Institut of Sciences, Indonesia); Bhakti Yudho Suprpto (University of Sriwijaya, Indonesia)

**Paper title** Optimization of PID Control Parameters with Genetic Algorithm plus Fuzzy Logic in Stirred Tank Heater Temperature Control Process Only the chairs can edit

**Conference and track** 2017 International Conference on Electrical Engineering and Computer Science (ICECOS) - Electronics, Circuits, and Systems

**Abstract** Only the chairs can edit This paper discusses Stirred Tank Heater temperature control system using Proportional Integral...

**Topics** Electronic Instrumentations Only the chairs can edit

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**Status** Accepted

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**Presented** by Nurul Ikhlis Septiani in session ELC: Electronics, Circuits, and Systems from Mon, August 21, 2017 12:00 WIB until 18:00 (4th paper) (36.0 min.)

**Final manuscript** Stamped Stamped-e

#### ICECOS Review

Actions	Relevance and timeliness	Technical content and scientific rigour	Novelty and originality	Quality of presentation
completed	Acceptable 3	Valid work but limited contribution. 3	Minor variations on a well investigated subject. 3	Readable, but revision is needed in some parts. 3
Strong aspects	Weak aspects	Recommended changes		
- Fine tuning PID using GA and Fuzzy methods for the process control is one of the challenge methods known.	Based on the overall scheme of the control system it seems it is not an adaptive system, means "only one proper Kp, Ki, and Kd configuration" for getting the best result ignoring unknown dynamics and disturbances. So that the paper should describe what are the best Kp, Ki, and Kd using the Ziegler-Nichols method and using GA-Fuzzy method. In this case the data (of quantity) exposed were very limited. Fig.8: It is likely the overshoot is caused by the tuning result (using Ziegler Nichols) is not optimal, i.e. derivative component is poor Fig.9: time to get steady state is longer...(means, which better?)	* Kp, Ki, and Ki results for each method should be declared clearly * The figure related should use marks or name of variables that matched with the explanation (Fig. 8 & 9: what does x and y means?)  Conclusion: "From the comparison result of temperature control with PID that use Genetic Algorithm plus Fuzzy Logic with Ziegler- Nichols method, steady state is achieved faster with Ziegler- Nichols method, but in Ziegler-Nichols method there are still many steady state errors and too high overshoot produced." >> It should be guaranteed with the "best" results using Ziegler-Nichols method.  "On the other hand, if the Genetic Algorithm plus fuzzy logic used, the steady state achieved slower, but no steady state error and a very small maximum overshoot." >> please consider if there disturbances when the process is run.  please develop the conclusion.		
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