COURSE	Name	: Signal Processing for Control
	Code	: EE184923
	Credits	: 3
	Semester	: Elective

Description of Course

This course discusses methods of processing signals that are contaminated by interference and noise to obtain mathematical models (also called system identification), and systems that generates such signals. The models are discrete-time linear models and they are used to estimate and predict the states of the systems based on the identified models. The system models are limited to ARMA, ARMAX and ARIMA which are then used for estimation and prediction of states using Wiener filter and Kalman filter.

Learning Outcomes

Knowledge

(P02) Mastering the concepts and principles of engineering, and implementing them in the form of procedures for analysis and design in power systems, control systems, multimedia telecommunications, or electronics.

Specific Skill

(KK02) Able to describe the completion of engineering problems in power systems, control systems, multimedia telecommunications, or electronics.

(KK03) Able to describe system design for problem solving in power systems, control systems, multimedia telecommunications, or electronics by concerning technical standards, performace aspect, reliability, ease of application, and assurance of sustainability.

General Skill

(KU12) Able to implement information and communication technology (ICT) in the context of implementation of his/her work.

Attitude

(S11) Trying his/her best to achieve perfect results.

Course Learning Outcomes

Knowledge

Mastering the concept of modeling estimation using measurement data and the concept of state estimation for linear system.

Specific Skill

Capable of modeling dynamic system based on measurement data and using the model to make estimation of system state.

General Skill

Able to realize the process of identifying and estimating the state into the form of computer code.

Attitude

Main Subjects

1. System identification
2. Discrete-time Wiener filter
3. Discrete-time Kalman filter
4. Winener dan Kalman filters applications

Reference(s)

[1] Alkaff, A. Diktat Kuliah Teknik Penyaringan Optimal
[2] Candi, J.A., Model Based Signal Processing, Wiley-IEEE, 2006
[3] Brown, R.G. dan Y.C. Hwang, Introduction to Random Signals and Applied Kalman Filtering, 4th ed, Wiley, 2012
[4] Shanmugan, K.S. dan A. M. Breiphol, Random Signals: Estimation, Detection, and Data Analysis, Wiley, 1988
[5] Alkaff, A., Diktat Kuliah Proses Stokastik (atau yang baru)

Prerequisite(s)

EE184305 Signals and Systems