Course	Name	: Adapative Control Systems
	Code	: EE184921
	Credits	: 3
	Semester	: -

Description of Course

This course discusses the concepts and applications of adaptive control systems: direct and indirect adaptive control, dynamic system parametric models, parameter estimation methods, non-recursive parameter estimates and recursive parameter estimates, model validation, model reference adaptive control (MRAC), adaptive system for self tuning regulator (STR) and fuzzy adaptive control system.

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

(KK05) Able to utilize analytical and engineering design tools based on appropriate information and computation technology to perform engineering activities in power systems, control systems, multimedia telecommunications, or electronics.

General Skill

(KU02) Able to demonstrate independent performance, quality, and measurable.

Attitude

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

Course Learning Outcomes

Knowledge

Mastering the concept of adaptive systems in control system issues.

Specific Skill

Able to formulate adaptive control issues and analyze and simulate adaptive control systems.

General Skill

Able to use Matlab / Simulink software to visualize adaptive control.

Attitude

Working together to be able to make the most of his/her potential.

Main Subjects

1. The concept of adaptive control
2. System parametric model, parameter estimation, model validation.
3. Model Reference Adaptive Control (MRAC)
4. Self-tuning Regulator (STR) adaptive system.
5. Stochastic adaptive control system
6. The concept of adaptive system stability
7. Fuzzy adaptive control system

Reference(s)

[1] Astrom, KJ and Wittenmark, B.: "Adaptive Control", Addison-Wesley, 1997
[2] Landau, ID,: "System Identification and Control Design", Prentice-Hall, 1990
[3] Tao, Gang, : " Adaptive Control, Design and Analysis", John Wiley & Sons, 2003
[4] Sastry, S. and Bodson,M: "Adaptive Control Stabliity, Convergence and Robustness", Prentice-Hall Advanced Reference Series, 1989

Prerequisite(s)

EE184404 Introduction to Control Systems