

CONTROL OF HYDRAULIC SYSTEMS

4 ECTS, 1st Semester, Optional

Professor in Charge: José Román Wilhelmi Ayza

Educational objectives: Development of skills for modelling, analysis and simulation of hydraulic systems and their control systems.

Contents:

1. Dynamic systems. Modelling. Simulation.
2. Introduction to Control Engineering.
3. Applications to hydraulic systems.
4. Control of hydroelectric power plants.

References:

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- Eker, I. Kara, T. "Operation and control of a water supply system", *ISA Transactions* 42, 2003, pp. 461–473
- Frailé Ardanuy, J.J. *MATLAB para ingenieros 2ª Edición*. Servicio de Publicaciones, 2004.
- Frailé Mora, J. J. *Introducción a la ingeniería de control*. Servicio de Publicaciones, 2001.
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- Schuermans, J. et al. Open-channel flow model approximation for controller design. *Appl. Math. Modelling*, 1995, Vol. 19 pp. 525-530.
- Souza, Jr. O. H. et al. "Study of hydraulic transients in hydropower plants through simulation of nonlinear model of penstock and hydro turbine model", *IEEE Transactions on Power Systems*, Vol. 14, No. 4, November, 1999, pp. 1269-1272.
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