UCL Université catholique de Louvain

LINMA1510

2010-2011

Linear Control

5.0 credits	30.0 h + 30.0 h	2q

Teacher(s) :	Bastin Georges ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	Derivation of mathematical models of linear dynamical systems (state equations and transfer functions). Design of regulators and closed-loop control systems in order to satisfy specifications of stability, robustness, steady-state accuracy and transient performance. PI and PID regulation. Computer aided design.
Aims :	Basic education in linear control systems. The objective is to learn how to design control systems from linear models through practical case-studies. *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Content :	1. Mathematical models 2. General principles of closed-loop control 3. Stability 4. Steady-state accuracy 5. Disturbance attenuation 6. Transient performance 7. Robustness 8. Regulation structures 9. Case studies: electrical machines, automotive systems, aeronautics, thermic and nuclear power plants, heat exchangers, industrial grinding and mixing processes, etc.
Other infos :	Methodology : problem based learning, laboratory experiments. Evaluation : exam based on exercises. Reference book : R.C. Dorf and R.S. Bishop, Modern control systems, Addison Wesley.
Cycle and year of study :	> Master [120] in Mathematical Engineering > Master [120] in Mechanical Engineering > Bachelor in Engineering > Bachelor in Computer Science > Bachelor in Mathematics > Master [120] in Electrical Engineering > Master [120] in Electro-mechanical Engineering > Master [120] in Biomedical Engineering
Faculty or entity in charge:	MAP