MICRO-709 **Power management**

Kayal Maher

Cursus	Sem.	Type
Microsystems and Microelectronics		Obl.

Language of teaching	English
Credits	2
Session	
Exam	Written & Oral
Workload	60h
Hours	**28**
Courses	28
Number of positions	

Frequency

Every year

Remark

August 27 to 31, 2018

Summary

The objective of this course is to discuss the state-of-the-art in low-power analog and digital system design, with special emphasis on transistor level measures to limit and to control the power dissipation of portable systems.

Content

1. DC-DC Converters, Topologies & Control Techniques
2. Converter Modeling and Feedback Loop Design
3. Microprocessor Power Supplies
4. Switched-Capacitor Power Supplies
5. CMOS Linear Regulators, Design and Case Studies
6. Bandgap References
7. Alternative Bandgaps and Applications
8. Battery Charging Techniques & Circuits for Notebook Computers & Cellular Phones
9. Transistor-Level Off-line DC-DC Controller Design
10. Circuit Techniques for Integrated Switching
11. Regulators

Note

* Organized by MEAD/EPFL
More informations & registration at:
http://mead.ch/MEADNEW/power-management/
Contact: education@mead.ch

Keywords

DC-DC Converters, Power Supplies, Bandgap References

Learning Prerequisites

Required courses

Basic electronic circuits

Resources

Ressources en bibliothèque

- Methodology for the Digital Calibration of Analog Circuits & Systems / Kayal
- Charge-Based MOS Transistor Modeling: The EKV Model for Low-Power and RF IC Design / Enz
- All-Digital Frequency Synthesizer in Deep-Submicron CMOS / Staszewski
- Understanding Delta-Sigma Data Converters / Pavan
- Analog-to-Digital Conversion / Pelgrom
- Analog Design Essentials / Sansen
- Structured Analog CMOS Design / Kayal
- Understanding delta-sigma data converters / Schreier
- RF analog impairments modeling for communication systems simulation : application to OFDM-based transceivers / Smaini