Course Description: This course will cover hardware, architecture, software, and networking aspects of energy efficiency. Students will review the recent literature on energy-aware computing and work on an energy-aware software project.

Prerequisites: Students should be familiar with computer architecture, basic networking, and low-level programming. MC404 (or an equivalent course) is strongly recommended. MC504, and MC602/MO632 are recommended but not required.

Program: • Measurement, sensing, and modeling of energy consumption • Process, Voltage, and Temperature (PVT) variations • Hardware-level techniques • Dynamic power management • Energy proportionality • Duty cycling • Energy and Power-Aware Scheduling • Energy bugs • Low-Power networking • Battery modeling and management

Office Hours: Wednesdays 8am. The session will be closed after 30 minutes if there are no participants. Additional office hours may be scheduled, upon demand and in advance, on Mondays 8am.

Meeting URL: https://meet.google.com/lookup/gqd4n4jkzu


E-mail: wanner@unicamp.br

Methods and Format: The course will feature required reading of recent papers in the energy efficient literature every week. Slide presentations for each topic in the program will be made available for self-directed study. Orientation for project preparation will be offered every week during office hours.

Course components:
Literature review: \( (L) \) Students will write a one-page summary and review of selected papers.

Take-home exams: \( (E) \) including theoretical, analytical, and practical (implementation) problems.

Project \( (P) \): practical implementation project, including implementation, evaluation, presentation and paper describing the results.

Grading: Final grade \( F \) will be given by:

\[
F = L \times 0.3 + E \times 0.3 + P \times 0.4
\]

where \( L \) is the arithmetic mean of the grades for the literature review assignments, \( E \) is the arithmetic mean of the grades for the take home exams, \( P \) is the grade for the project. MO632 students will be awarded letter grades according to the following criteria: A: \( F \geq 8.5 \), B: \( 8.5 > F \geq 7.0 \), C: \( 7.0 > F \geq 5.0 \), D: \( 5.0 > F \). No makeup or supplementary exams will be offered.

Bibliography:
• Recent papers from the energy-aware computing literature.

Academic integrity: Any attempts at plagiarism and receiving or giving aid on assignments will result in a final grade of zero in the course.