Instructor: Dr. Alex Doboli, Professor
Office: Light Engineering, room 241
Email: Alex.Doboli@stonybrook.edu

Course Description

The course discusses modern techniques used in computer-aided design of analog and mixed-signal circuits and systems, including CAD for layout design, circuit sizing, topology generation and modeling. The lectures present research papers that have been published recently published in the most relevant CAD journals. Three projects are part of the required course work. Students are also expected to actively participate to the discussions in class.

Bulletin description

The course presents techniques for analyzing linear and nonlinear dynamic electronic circuits using the computer. Some of the topics include network graph theory, generalized tableau and hybrid analysis, companion modeling. Newton’s method in n-dimensions, numerical integration, sensitivity analysis and optimization.

Prerequisite: BS in Electrical Engineering

No. credits: 3 credits
Grading: ABCF

Textbook: There is no textbook. Research papers will be discussed.

Grading: Three projects (each 30% of the grade) + 10% for participation to class discussions. The projects will involve software development in a high level programming language (C, C++, Java, Python, Matlab) and project report writing.
List of papers
(the list might change)

Layout Design


Transistor Sizing

Topology Synthesis


Modeling


