Level: Graduate students
Credits: 3

Instructor: Professor Sheau-Fang Lei
Office: 奇美樓 95603
Phone: 06-2757575 #62383
Email: leisf@mail.ncku.edu.tw

Course Description:
This course is aimed for the graduate level course on design of digital signal processing systems using advanced modern IC technologies. The lectures in this course focus on the design of efficient architectures, algorithms, and circuits for DSP applications. This course is intended to discuss DSP structures for modern IC and VLSI system design, the actual VLSI design of the circuits is not covered in the lectures.

Pre-requisite courses:
信號與系統、超大型積體電路電腦輔助設計概論

The topics will be covered in this course:

1. Introduction to Digital Signal Processing Systems.
2. Iteration Bound.
3. Pipelining and Parallel Processing.
4. Retimimg.
5. Unfolding and Folding.
7. Algorithmic Strength Reduction in Filters and Transforms.
8. Fixed-point analysis.
9. And more…

Textbooks and references:
“VLSI Synthesis of DSP Kernels: Algorithms and Architectural Transformations,”

Course evaluation:

Midterm Exams
Final Exam
Term Projects
Homework assignments and class attendances