

# EEL 6726 Advanced VLSI Design

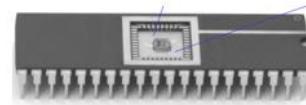
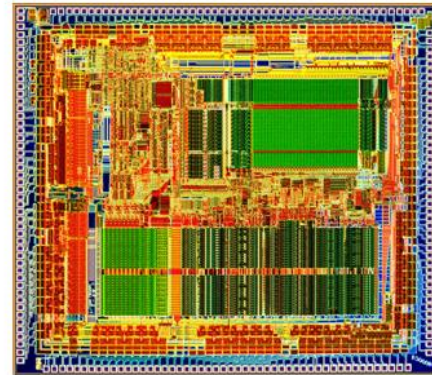
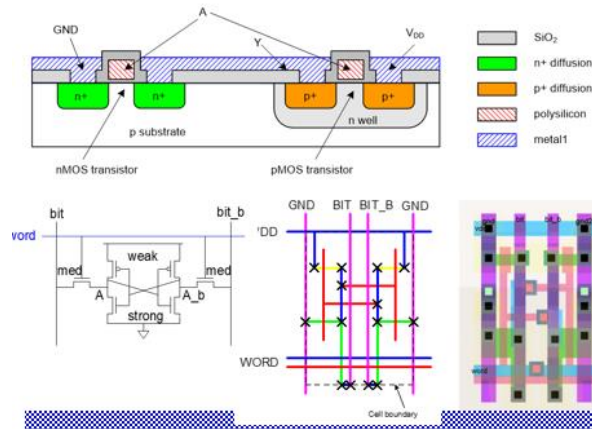
**Class Dates:** Jan 9, 2023- Apr 22, 2023

**Days & Times:** We 3:30PM - 6:15PM

**Room:** EC 1109

**Prerequisites (Preferred):**

EEL 6167- VLSI Design



**Course Overview:** This course covers advanced VLSI design in CMOS technology including fundamentals, structures, and design methodologies. Finally, different CAD tools will be introduced and practiced for integrated circuit design, simulation, and testing.

## Course Topics:

- Introduction to CMOS Circuit
- MOS Transistor
- CMOS Logic and Logic Gates
- CMOS Fabrication and layout
- Combinational MOS logic circuits
- Latches, Flip-Flops, and Synchronous System Design
- Design Methodology
- CAD Tools: Virtuoso – Circuit (transistor-level) schematic entry and layout, Spectre/SPICE – Circuit simulation tool, ModelSim/Vivado – HDL simulator
- Circuit Design, Simulation, and Testing

## Course Benefits:

- Provide comprehensive introduction to CMOS integrated circuit design
- Introduce students to industry standard CAD tools to design, simulate, and verify circuits
- Expose students to working with Cadence Virtuoso, an important EDA tool for IC design/analysis, and HDL simulator to design, simulate, implement and test in hardware
- Involve students in a team-oriented project to design, implement, and test circuits

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