

# CMOS Device Design



# Objectives

- Familiar with Device Layout and TCAD Simulation
- Learning Affecting Factors of Device Properties
- Performing Device Physics on Real Silicon
- Exploring Novel Devices and Elements
- Modeling Devices with Physics-Meaningful Factors
- Studying New Operations and Reliability Limitations



# Syllabuses

- Device Concept Proposal and TCAD Simulation
- Test Pattern and Device Preparation
- Wafer Fabrication (TSMC's MPW Shuttle)
- Device Characterization, Analysis and Modeling
- Study of New Operations and Reliability Limitation
- Summary Report



# Students' Backgrounds

- Device Physics, Solid State Electronics (Course)
- Semiconductor Memories (Course)
- Layout Experience (L-Edit or Cadens. etc)
- TCAD Tool Experience (Suprem4, Medici)