

PMP EE 538: Design of Digital and Analog Electronic Circuits Winter 2018

This course covers the design of CMOS digital logic circuits, both combinational and sequential, from gate level to shift-register level. The course also covers the design of MOS analog circuits from simple amplifiers to differential and more complex amplifiers.

The course emphasizes design methods to enable students to design these circuits and verify designs with simulation tools, using simplistic device models sufficient for design understanding and circuit performance characterization.

Typical circuits to be designed in this course include a dynamic latch in figure 1, and a differential amplifier in figure 2.

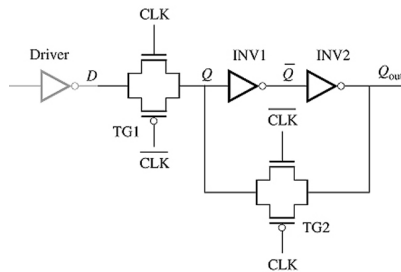


Figure 1. Dynamic D-latch design [Hodges, Jackson & Saleh, McGraw-Hill ISBN 0-07-228365-3].

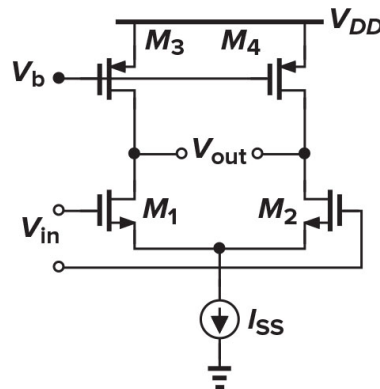


Figure 2. MOS differential amplifier design [Razavi, McGraw-Hill ISBN 0-07-252493-6].

Textbook: Custom e-book published by McGraw-Hill with chapters selected from both texts referenced above.

Evaluation of student performance:

Student performance is evaluated and course grade is assigned based on:

- Weekly homeworks (25%), including computer-based simulation homeworks.
- Participation (5%) in weekly Chat room and Discussion forum.
- Two projects (20% each): one in digital design and one in analog design.
- Final exam (proctored at the students' locations): 30%.

Instruction delivery: The course will be delivered strictly via distance-learning methods, using Canvas as a platform, without in-class meetings. This delivery method enables students to take the course without commuting to the University of Washington.