Text: “...however...submicron MOS transistors depart significantly from square-law characteristics...”

Tasks for this week:

Read the textbook. Read quickly through Chapter 2 for an overview of how IC devices are fabricated

Study Material: Study pages 39-75. Pay particular attention to Appendix A.1.1

Think about equation 1.152 and be prepared to answer questions about each of the constants and variables.

Homework:

1. Starting with a blank whiteboard or back of an envelop in a coffee shop, sketch figure 1.35a and describe how a MOS transistor works. Include behavior at zero voltage, sub-threshold, and inversion, and weak inversion.

2. Explain why Cgs is dominant in CMOS analog circuits.

Using the Textbook

Chapter 1 of the text is a review of material from ECE321, but in considerably more depth and with significant detail in the fine print regarding gross approximations in our basic mathematical models and expressions. When designing in a new semiconductor process, or with different constraints on Vg vs Vt (for example), chapter 1 is critical review material. Memorization of every formula is unnecessary, but being able to quickly find the appropriate section, review the material, and then study it in depth is essential to the IC designer.

Midterm exam date:

In Class November 10. Closed book, no notes, no calculators. (CB, NN, NC)

Final exam content:

The standard Analog IC Design Interview Questions. (CB, NN, NC)