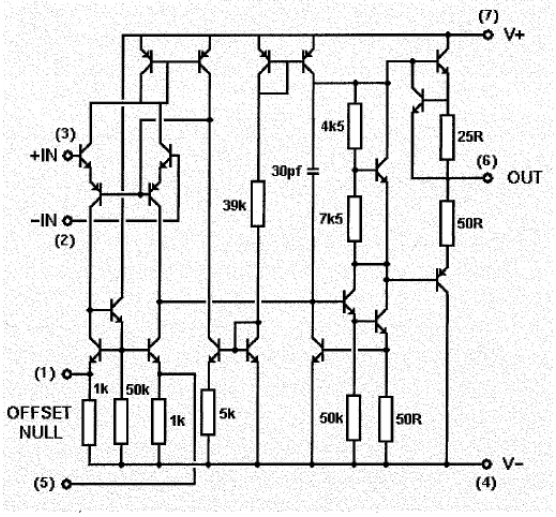
Analog Electronics & Integrated Circuits

Summer Semester 2016. 4 hours

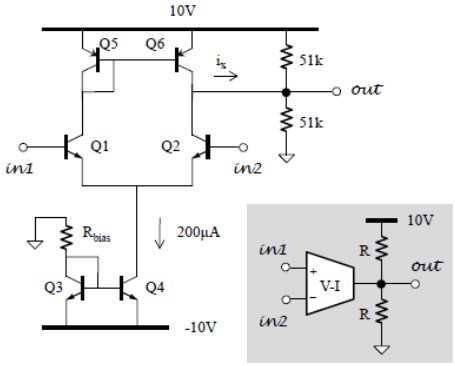
Room R1.005, Thursday 14:45, start: March 30, 2017

Instructor: Dan Malone, EE Faculty, Cal Poly San Luis Obispo, California, USA



This course focuses on the building blocks required to build state of the art operational amplifier integrated circuits. It first develops the models for transistors and uses those to evaluate the various building blocks. These include self-biased transistor amplifiers, current mirrors, push pull drivers, level shifters and buffers and related techniques needed to improve circuit capabilities. The course is a lecture and laboratory.

Open to upper-division electrical engineering majors with prior course work in basic circuit analysis techniques, basic diode, transistor, and FET circuits. Prior course work should have included RC circuits and basic passive filters. Laboratory instruction will include building, evaluating, and documenting the various circuits studied in the lecture and readings.



Course learning Objectives

- **Review basic transistor models**
- **Develop models for op-amp building blocks**
  - **Self- biased single transistor amplifier, current mirrors, active loads**
  - **Buffers to achieve low output impedance**
  - **Effects of internal capacitances on bandwidth**
- **Be able to:**
  - **Recognize various function on an op-amp schematic**
  - **Develop ability to design amplifier given desired requirements.**