

Week	Topics	Lab
1	Continuation of Fourier series and Fourier transform techniques for circuit analysis active filters, audio circuit examples	No lab week 1
2	Elements of two-port network theory Z/Y/h-parameters, black-box description of amplifiers, small-signal modeling of transistors and diodes via "linearization"	Lab 1a: Audio amp & resonators (use audio speaker as example)
3	Transistor amplifiers: basic gain stages, bias point selection, mid-band calculations, input/output impedance considerations.	Lab 1b: Microphone circuit
4	More transistor amplifier stuff, parasitic capacitances high-frequency models, Miller theorem, LF & HF response of CS/CE stage	Lab 2: MOSFET Amplifier design
5	More Frequency response of single-stage amplifiers, Short-Circuit Time Constant method and Open-Circuit Time Constant method, Bode plots, cascading stages	Lab 3: BJT Amplifiers, frequency response
6	** Mid-term ** Active load, Current Mirrors, Transistor pairings, cascode, DC-coupled amplifiers, diff-pair, basic output stages	No lab during mid-term week
7	Elements of op-amp design, non-idealities, closer look at feedback and stability, compensation	Lab 4: IR PWM Transmitter
8	Instrumentation amplifiers, sensors, noise concepts	Lab 5a: IR Receiver/Demodulator
9	Basic communications concepts, modulation, information and bandwidth	Lab 5b: IR Audio Link
10	Analog-digital and Digital-Analog conversion, sampling concepts	(make-up lab only)