



QEEE COURSES

DESIGN WITH OPAMP - LINEAR INTEGRATED CIRCUITS

COURSE CONTENT:

Lecture 1 (Opamp overview and oscillators)

- Operational amplifier ICs (741 and TL082): pin diagram and comparison
- Oscillators: basic principle of oscillations, Opamp based RC oscillators: Wien bridge, phase shift and the quadrature oscillators, LC and crystal oscillators

Lecture 2 (Data converters)

- Introduction to data conversion specifications and terminologies
- Digital-to-analog converters (DAC): R-2R, current steering, charge and voltage-scaling DAC
- Analog-to-digital converters (ADC): Flash, SAR and integrating type

Lecture 3 (Passive/active filter design)

- Passive filter understanding: first, second and higher order filter understanding using RLC
- Design of active filter: Sallen and Key filter, Integrator-based biquads
- Filter approximations: Butterwoth and Chebyshev response