EEE 510 Advanced Analog Circuit Design

- Voltage reference circuit
  - Sub threshold MOSFET application
  - MOSFET configured as resistor
  - Switched capacitor concept
- Digital to Analog Converter
  - Hybrid Concept
  - Switchable current source
  - Biasing Circuitries
- Analog to Digital Converter
  - Residue Amplifier
  - Switched capacitor technique in ADC.

Lab/Assignment : LT Spice simulator.

References:

1. Analysis and Design of Analog Integrated Circuits, Gray, Hurst, Lewis & Meyer, Wiley, 5th edition.
2. AB-AZIZ, M. T. S., Marzuki, A., & A Aziz, Z. A. (2011). 12-BIT PSEUDO-DIFFERENTIAL CURRENT-SOURCE RESISTOR-STRING HYBRID DAC. *Journal of Circuits Systems and Computers JCSC*, *20*(4), 709-716.
3. Ali, Z., & Marzuki, A. (2010). Residual Folding Technique adopting switched capacitor residue amplifiers and folded cascode amplifier with novel pmos isolation for high speed pipelined ADC applications. *3rd AUNSEEDNet Regional Conference in Electrical and Electronics Engineering International Conference on System on Chip Design Challenges ICoSoC 2010* (pp. 14-17).
4. WWW.CMOSEDU.COM (LTspice and examples)
5. Borejko, T., & Pleskacz, W. A. (2008). *A Resistorless Voltage Reference Source for 90 nm CMOS Technology with Low Sensitivity to Process and Temperature Variations*. *2008 11th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems* (pp. 1-6). IEEE. Retrieved from http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=4538753
6. Li, J. (2010). Accurate operation of a CMOS integrated temperature sensor. *Microelectronics Journal*. Retrieved from http://linkinghub.elsevier.com/retrieve/pii/S0026269210001552
7. Ueno, K. (2010). Low-power temperature-to-frequency converter consisting of subthreshold CMOS circuits for integrated smart temperature sensors. *Sensors and Actuators A: Physical*. Retrieved from http://linkinghub.elsevier.com/retrieve/pii/S0924424710001354
8. Marzuki, A., Sauli, Z., & Shakaff, A. Y. M. (2008). A voltage reference circuit for current source of RFIC blocks. *Microelectronics International*, *25*(3), 26-32. EMERALD GROUP PUBLISHING LIMITED. doi:10.1108/13565360810889593