

SEMINAR 1

Contents:

- Fundamentals
- Circuits with diodes

1. dc and ac signals, waveforms.
2. KCL, Ohm Law – for a simple circuit, one voltage source and two resistances.
3. KVL, Ohm Law, voltage divider, Millman theorem, superposition method – for a circuit with more than one voltage sources and more than two resistances.
4. Assume D - constant voltage drop model, $v_D=0.7V$:
 - a) How does the VTC $v_o(v_i)$ look like?
 - b) Plot $v_o(t)$ for $v_i=12\sin\omega t$ [V] ?
 - c) What is the range of possible values for R if the maximum forward diode current is $I_{Dmax}=50mA$ and v_i is $v_i=12\sin\omega t$ [V]?
 - d) Determine the VTC if a dc biasing voltage source $V_{BIAS}=5V$ is introduced in circuit in series with R?

