

(Not advanced topic yet)

Basics of A/D, D/A Conversion

EEL201: Digital Electronic Circuits



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July-December 2009

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✓ round

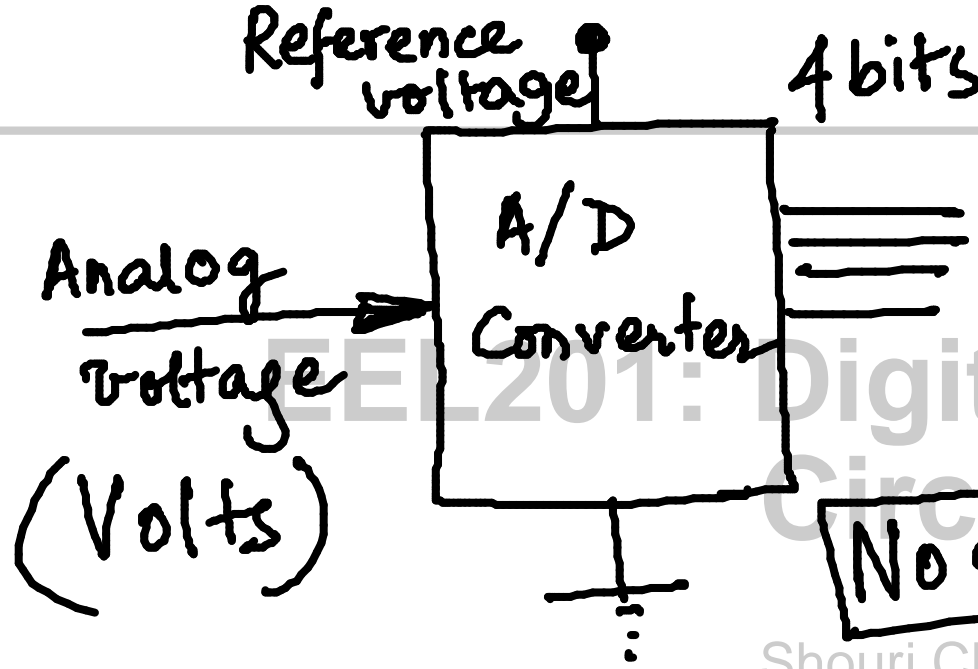
✓ floor

✓ ceiling

floor towards 0

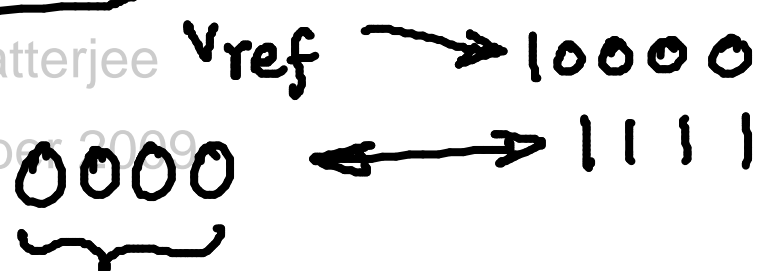
ceiling towards ∞





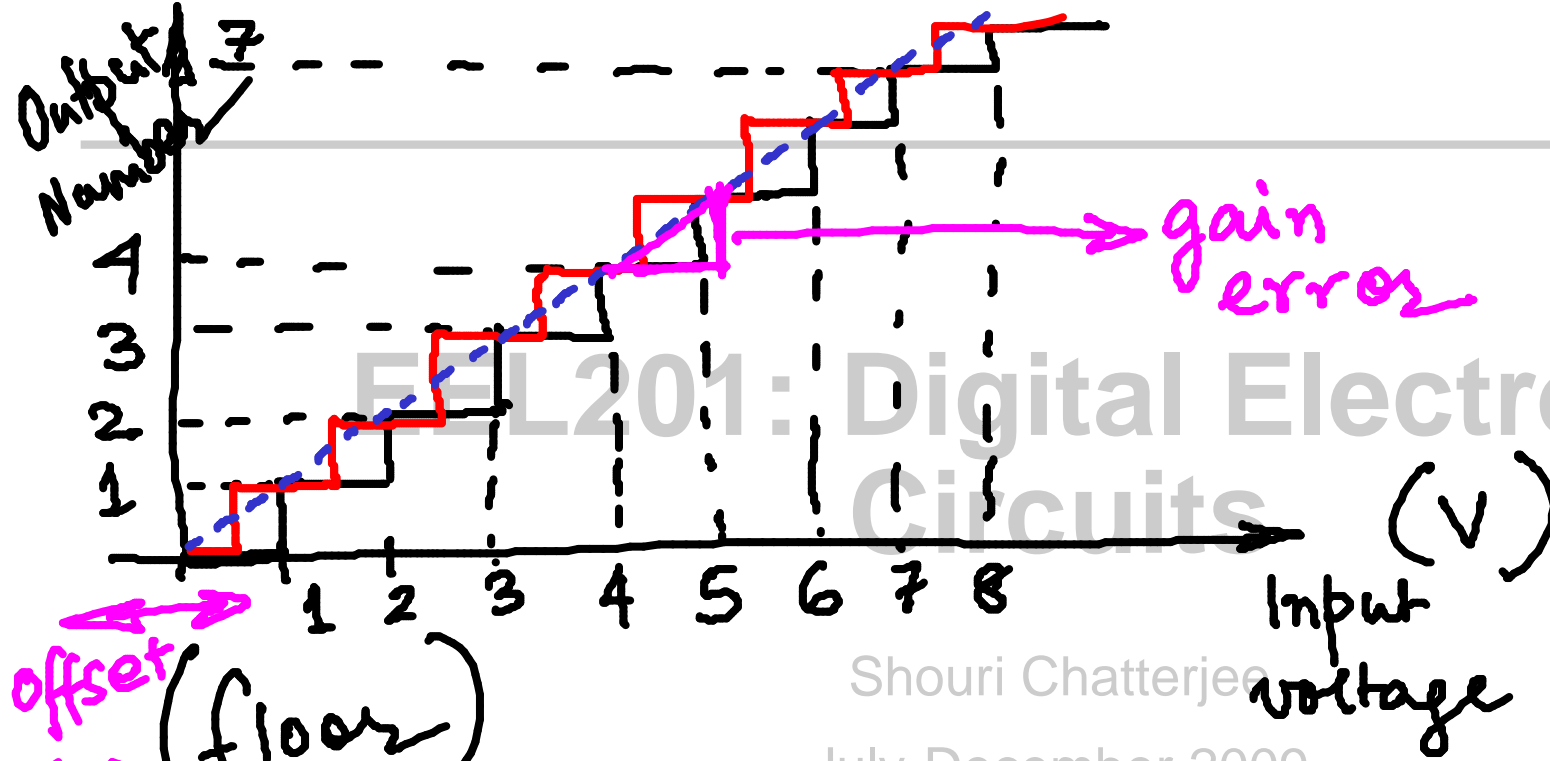
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Offset binary notation
negative number!





$V_{ref} = 16V$
4 bit A/D

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offset of 8V
for -ive

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✓ 1. Gain error

✓ 2. Offset error

3. Differential nonlinearity

4. Integral nonlinearity

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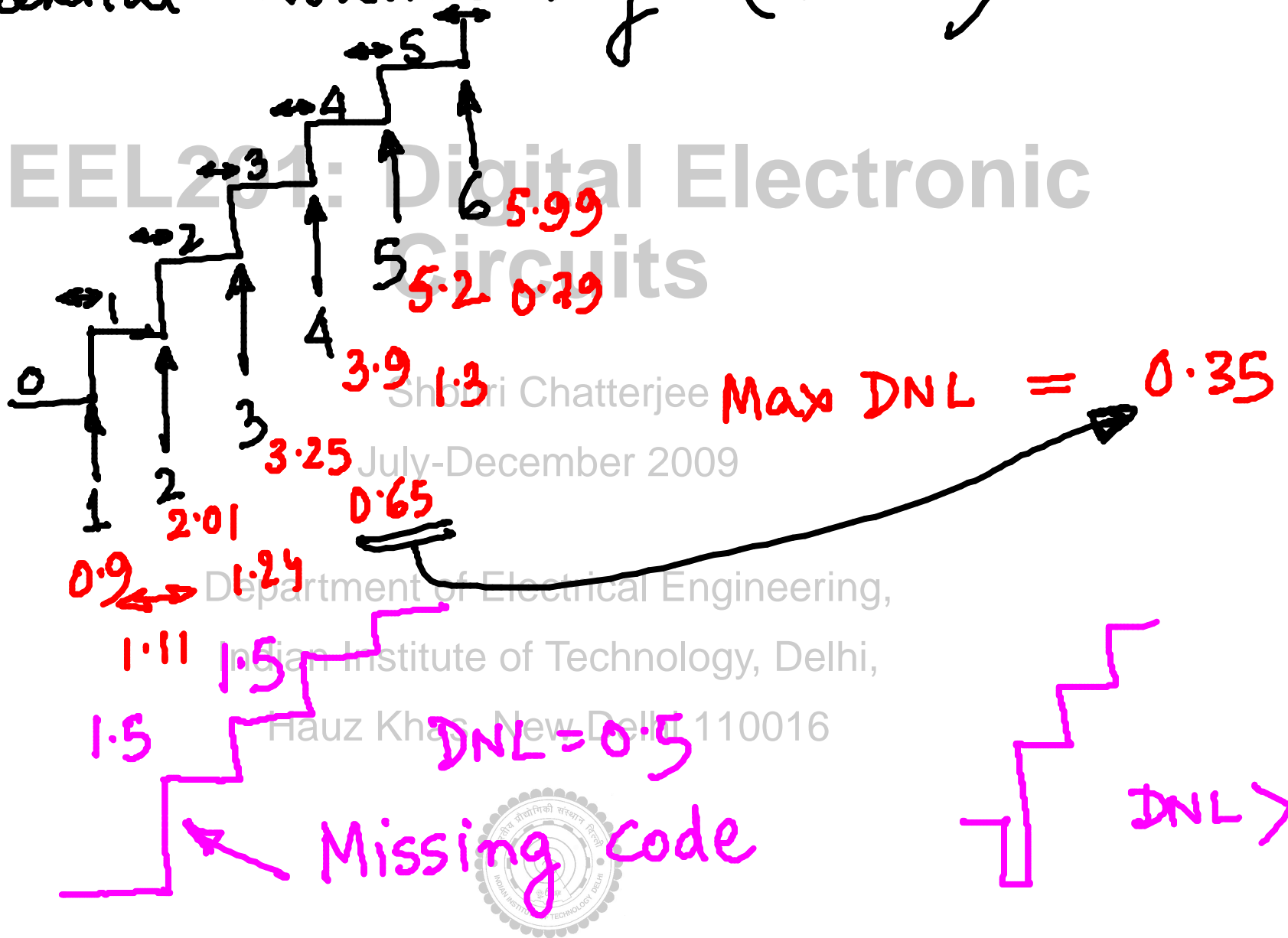
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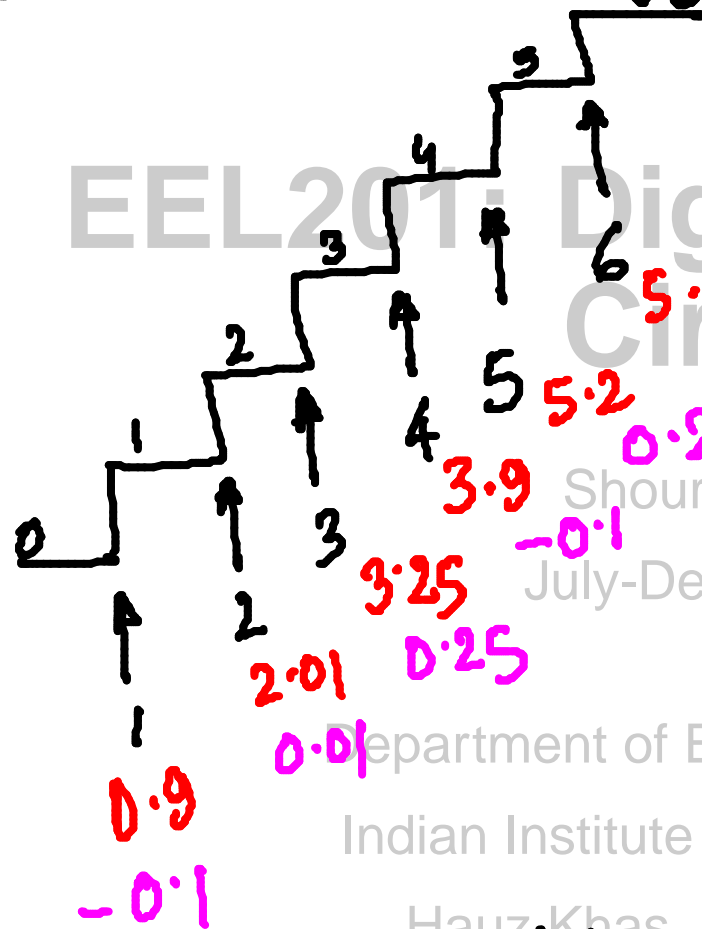


Differential Nonlinearity (DNL)

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Integral Nonlinearity (INL)



Max INL
= 0.25



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1.1 2.2 3.3 4.4 5.5 6.4 7.3

8.2 9.1 10.0

