

Minimization

→ not always the way to go.

1. Adder

4. Encoder

2. Multiplexer

5. Decoder

3. De-multiplexer

EEL201: Digital Electronic Circuits

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July-December 2009

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$$\text{Sum}_i = A_i \oplus B_i \oplus C_i$$

A_i, B_i, C_i

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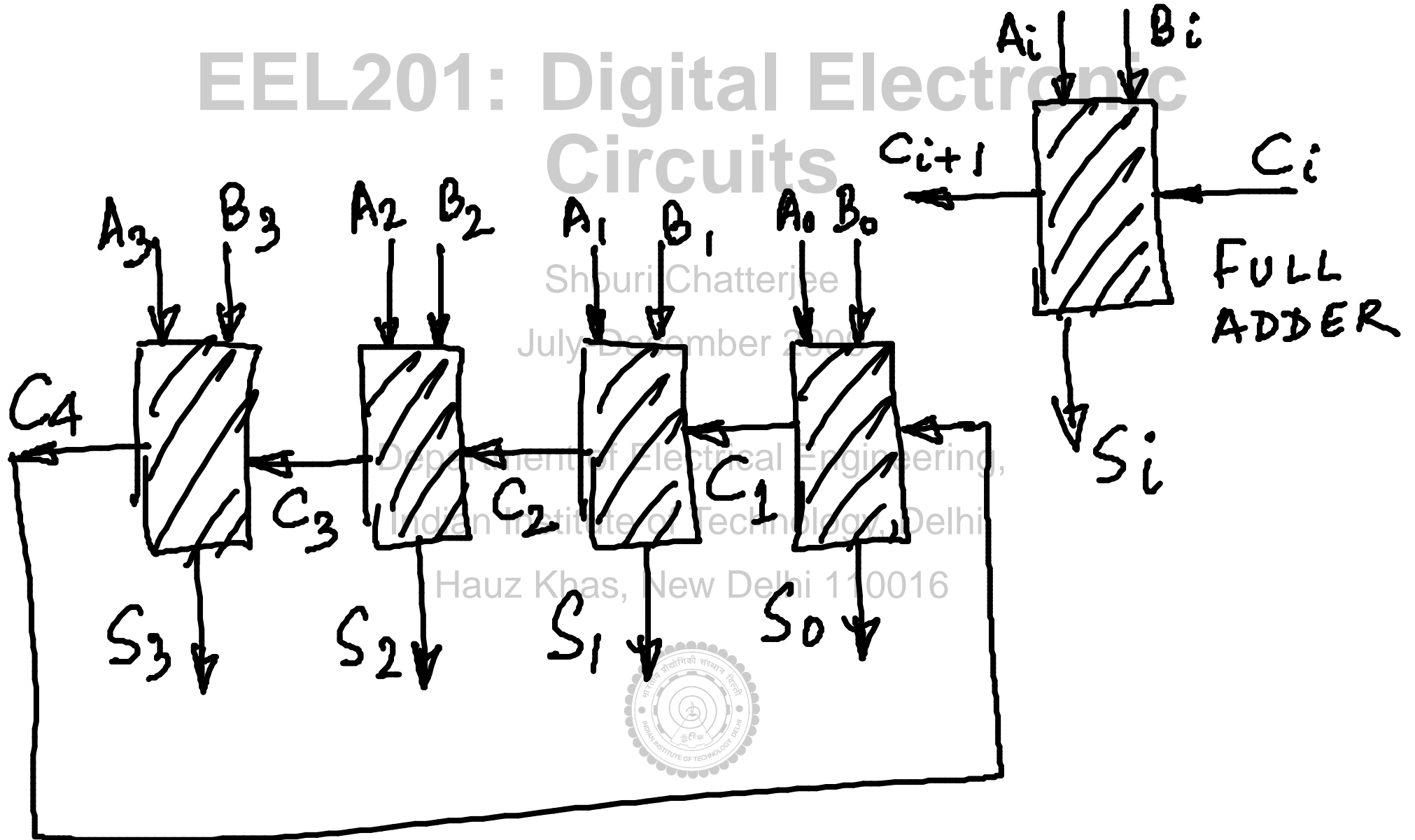
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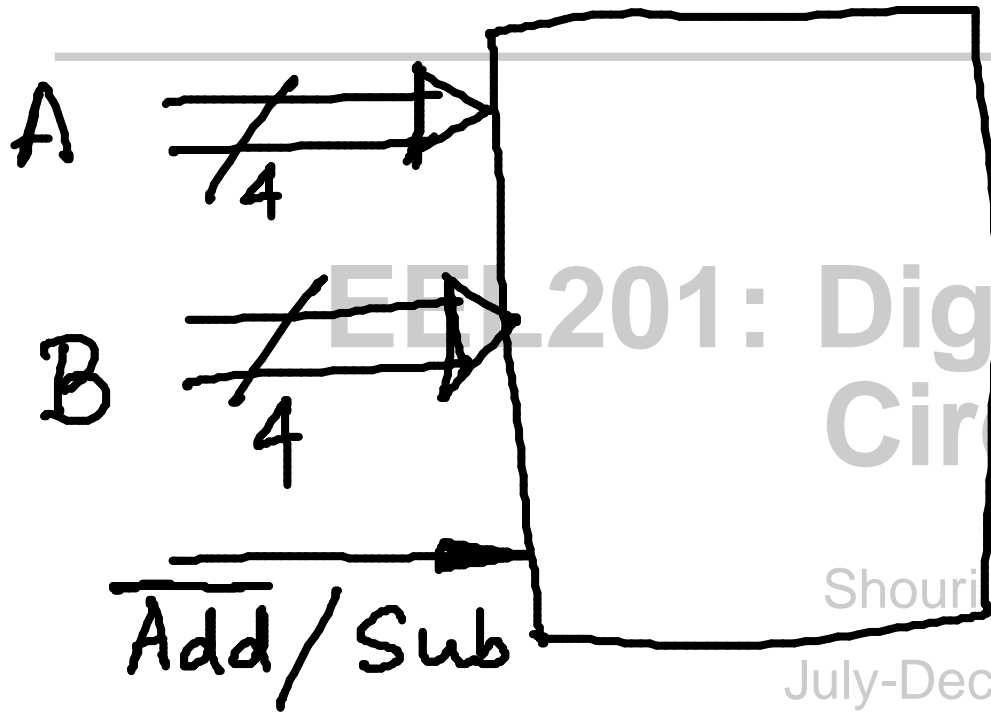
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If Add



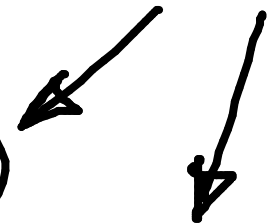
$$A + B + \overline{\text{Add Sub}}$$

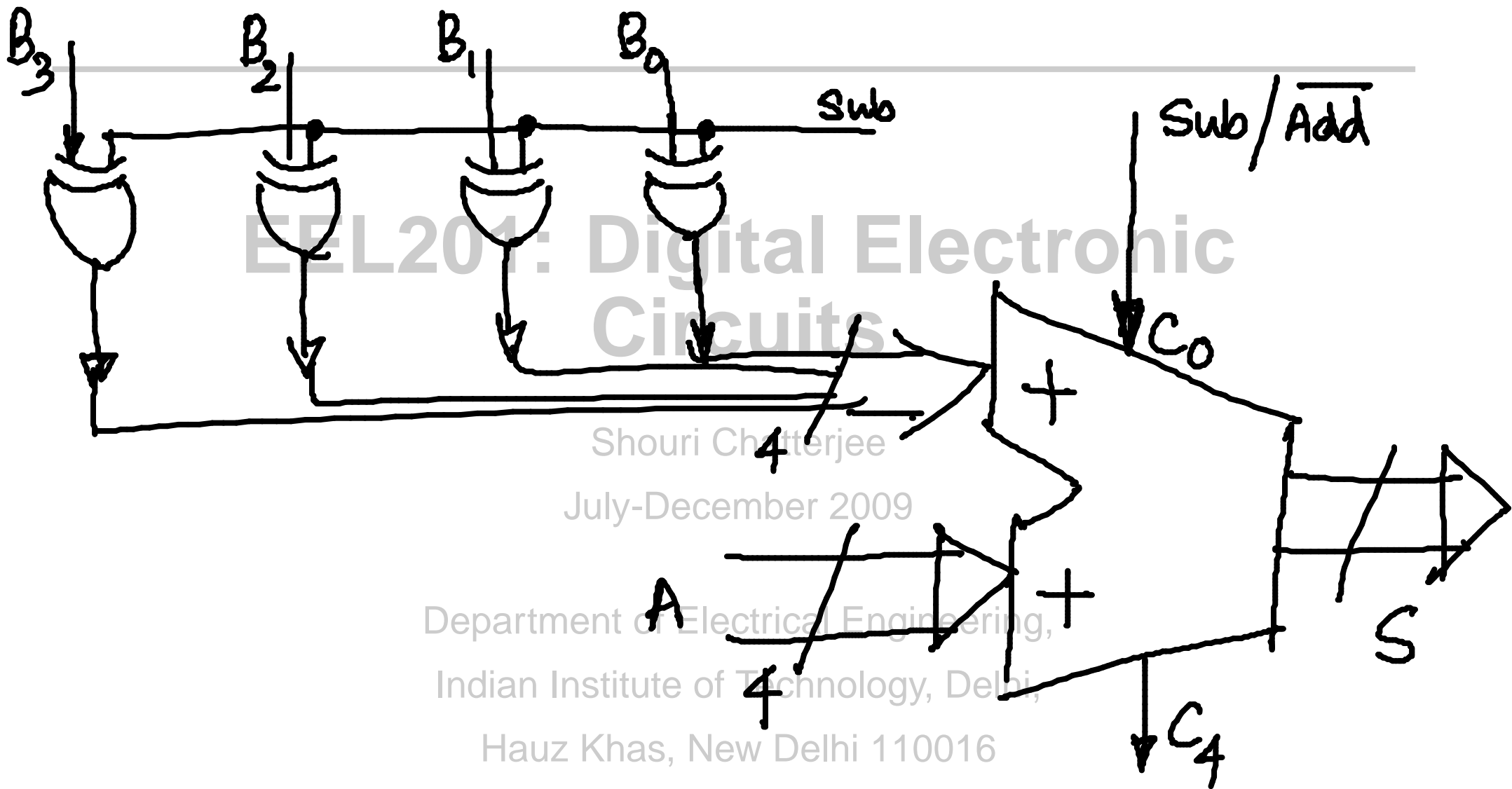
If Sub



$$A + \text{comp}(B) + \overline{\text{Add Sub}}$$

Carry





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Binary coded decimal (BCD)

0 → 0000
 1 → 0001
 ⋮
 9 → 1001

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Out of range

$$= \sum_{10, 11, 12, 13, 14, 15}$$

$$S_3(S_2 + S_1) + C_4$$

