

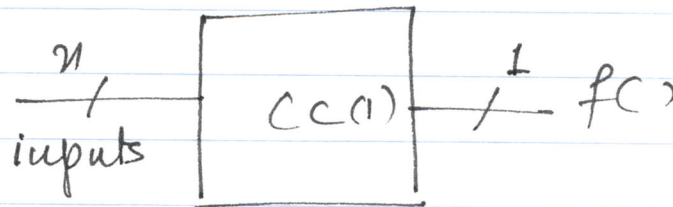
Feb 27, 2017

Spring 2017 (1)

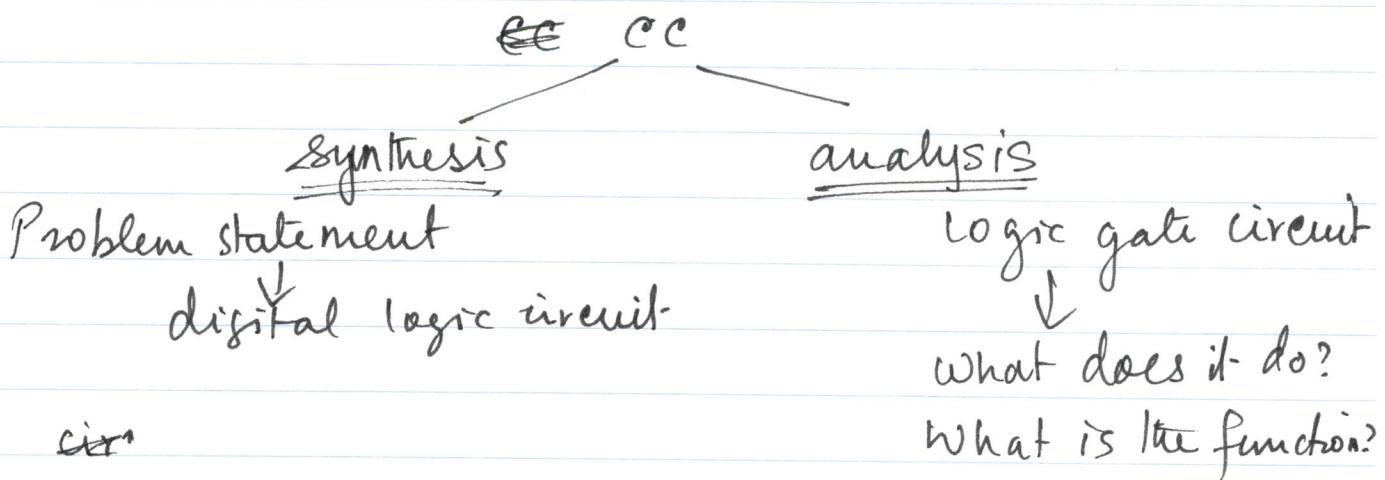
CSE241

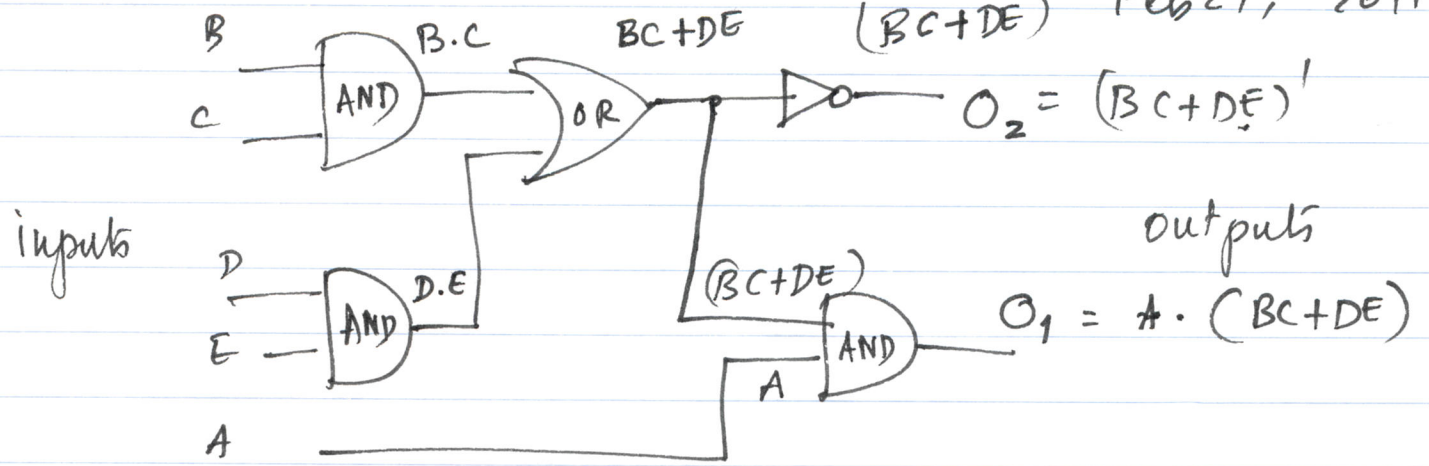
Combinational circuits : chapter 3 ~~→ ch~~
→ ch. 4

Midterm exam 3/13/2017 during lecture
We'll review



CC : combinational circuit
output is dependent only on the inputs for a given circuit





given this circuit, derive the expressions for O₁ and O₂.

Left to right, one gate at a time
write the expression (logic)

Best Practice: express the functions as sum of products standard form.

$$O_2 = (BC + DE)'$$

Apply DeMorgan's

$$= (BC)' \cdot (DE)' = (B' + C') \cdot (D' + E')$$

$$= B'D' + B'E' + C'D' + C'E'$$

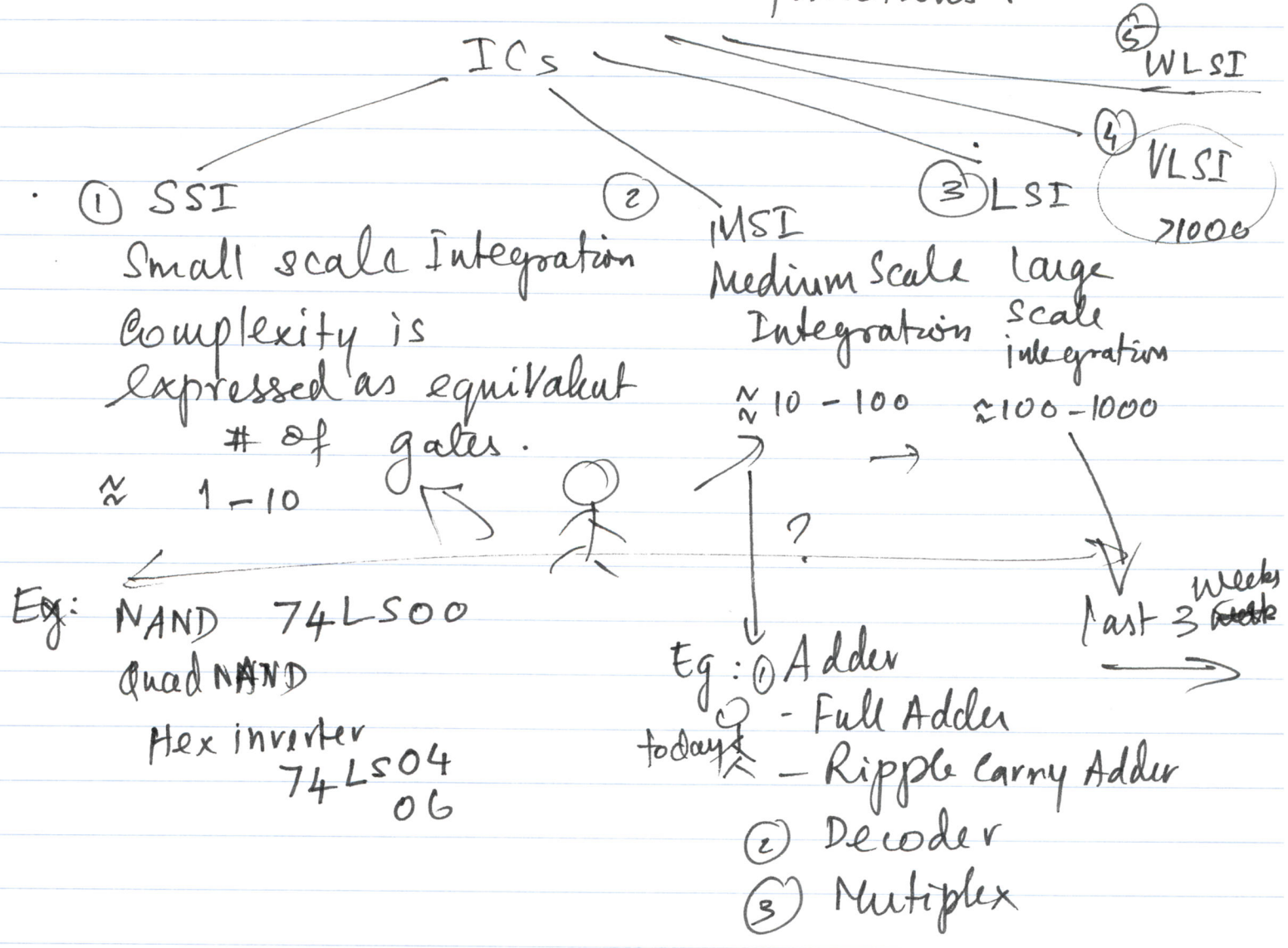
sum of products
Standard format

$$O_1: A \cdot (BC + DE) = ABC + ADE$$

Feb 27, 2017

I Integrated chips (IC)

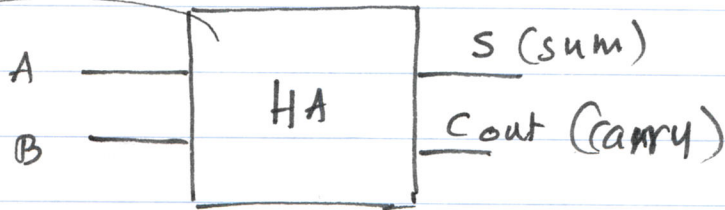
II common combinational (expressions) functions.



half-adder (HA)

→ full adder

Feb 22, 2017
MSI



Truth Table (HA)

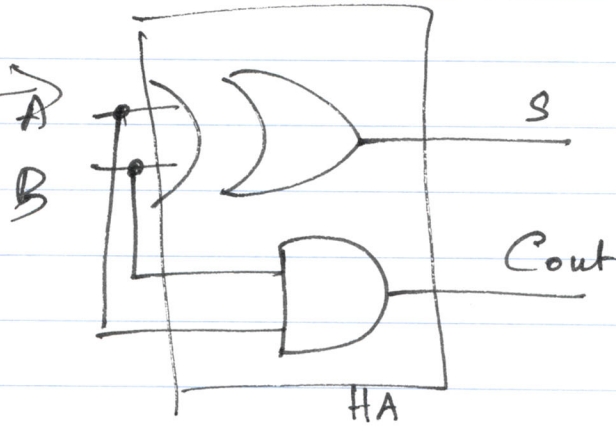
	A	B	S	Cout
m_0	0	0	0	0
m_1	0	1	1	0
m_2	1	0	1	0
m_3	1	1	0	1

$$S = \sum (m_1, m_2) \\ = \sum (1, 2)$$

$$Cout = \sum (m_3)$$

$$S = A'B + AB' \quad ?$$

$$C = AB$$



2 HA make a full adder (FA)

FA (A, B, C_{in})

