



EGC221

Class Notes

2/15/2023



Baback Izadi

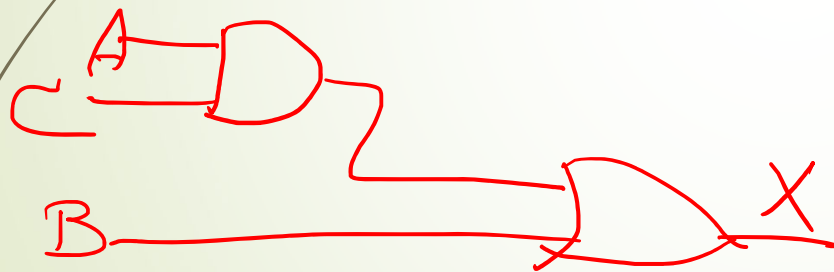
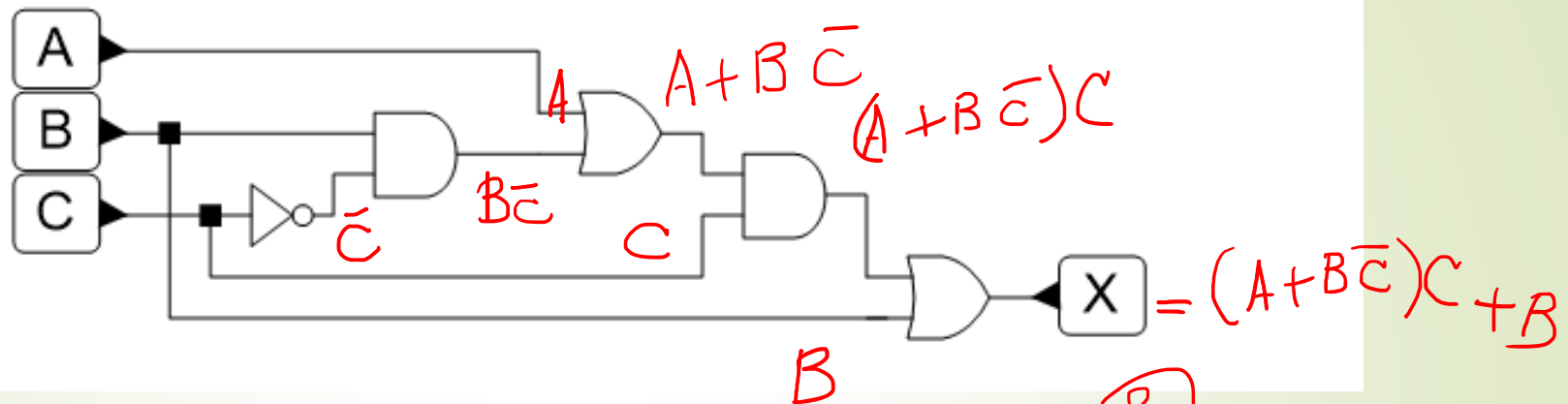
Division of Engineering Programs

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□ **TABLE 2-6**

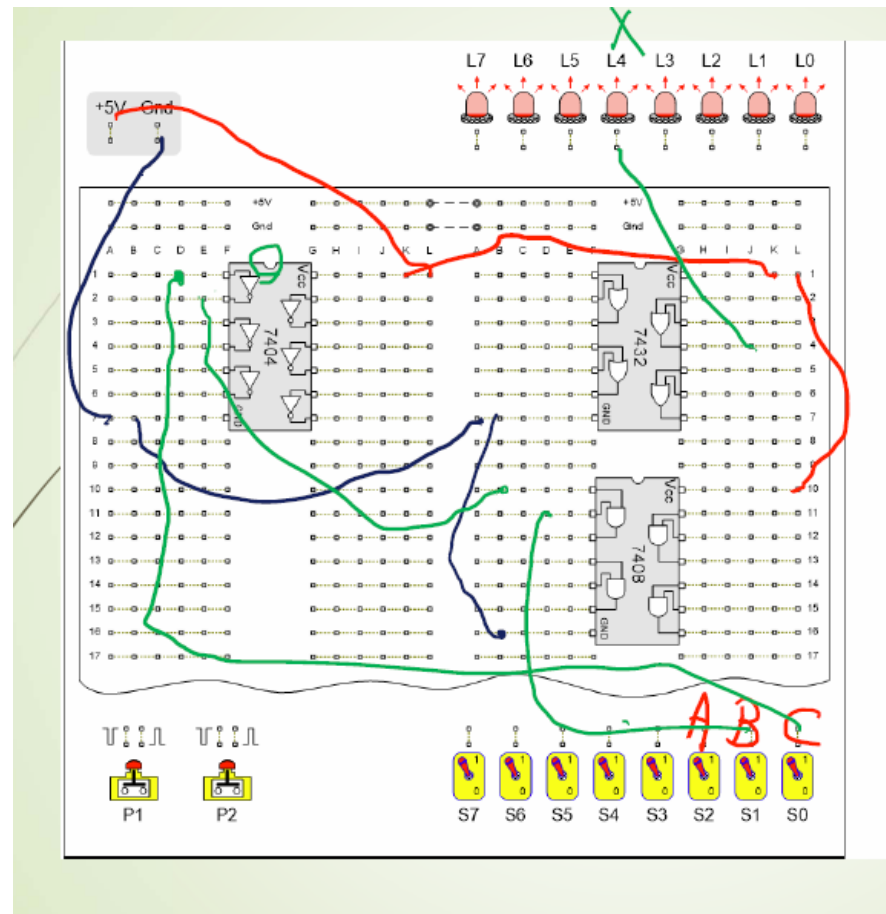
Basic Identities of Boolean Algebra

1. $X + 0 = X$	2. $X \cdot 1 = X$	
3. $X + 1 = 1$	4. $X \cdot 0 = 0$	
5. $X + X = X$	6. $X \cdot X = X$	
7. $X + \bar{X} = 1$	8. $X \cdot \bar{X} = 0$	
9. $\bar{\bar{X}} = X$		
10. $X + Y = Y + X$	11. $XY = YX$	Commutative
12. $X + (Y + Z) = (X + Y) + Z$	13. $X(YZ) = (XY)Z$	Associative
14. $X(Y + Z) = XY + XZ$	15. $X + YZ = (X + Y)(X + Z)$	Distributive
16. $\overline{X + Y} = \bar{X} \cdot \bar{Y}$	17. $\overline{X \cdot Y} = \bar{X} + \bar{Y}$	DeMorgan's



$$\begin{aligned}
 X &= AC + \overbrace{B\bar{C}C}^{=0} + B \\
 &= AC + \underbrace{0}_B + B = AC + B
 \end{aligned}$$

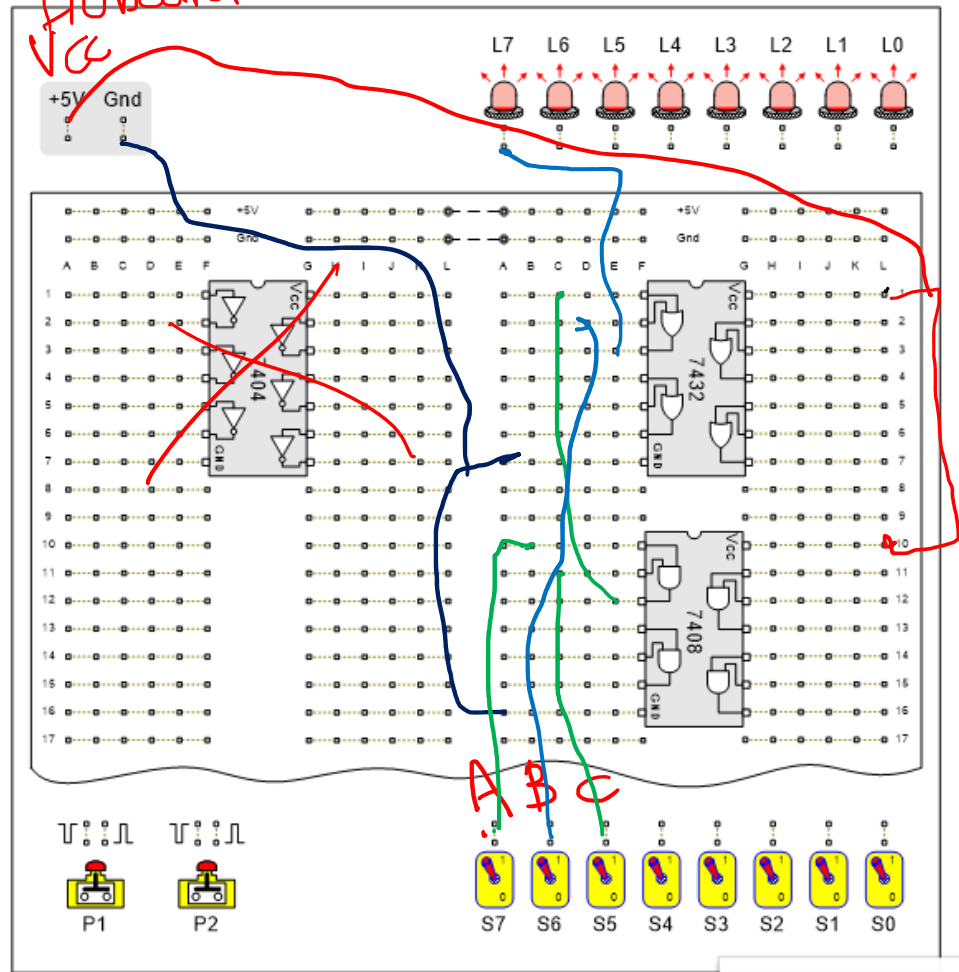
Handwritten annotations: 8, 14, 4, 0, 1, B.



$$F = A + B$$

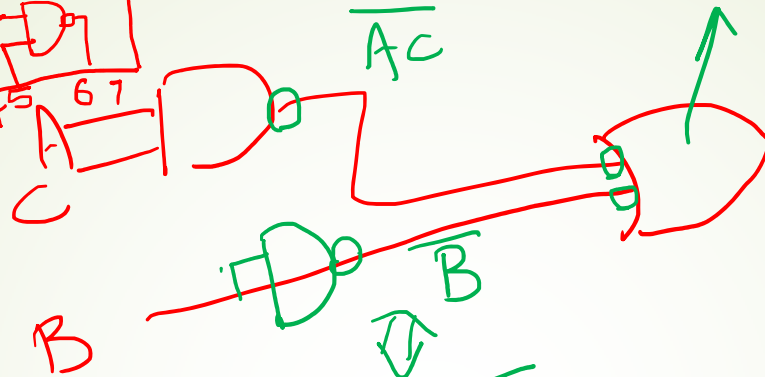
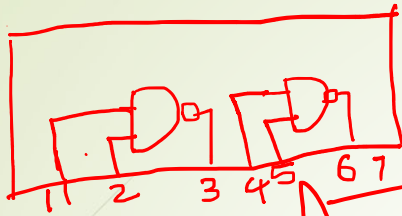
1

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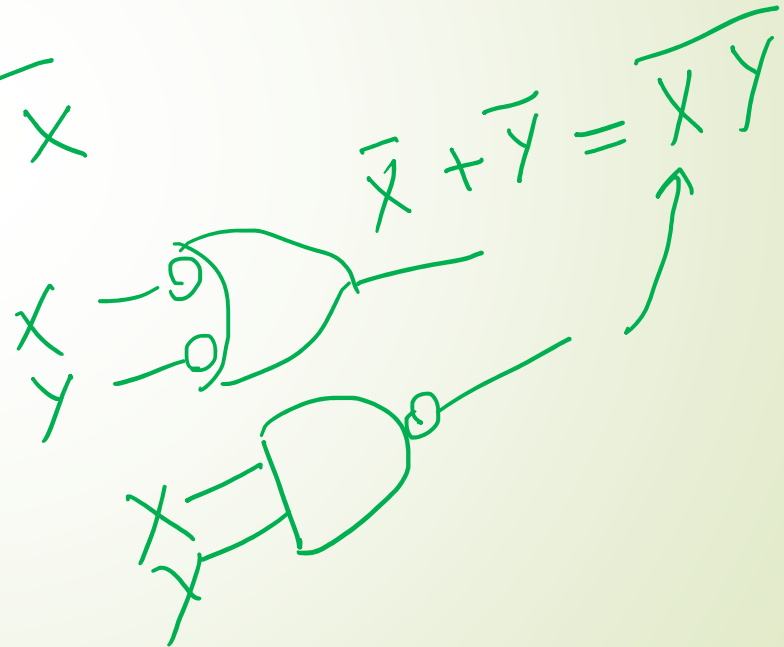
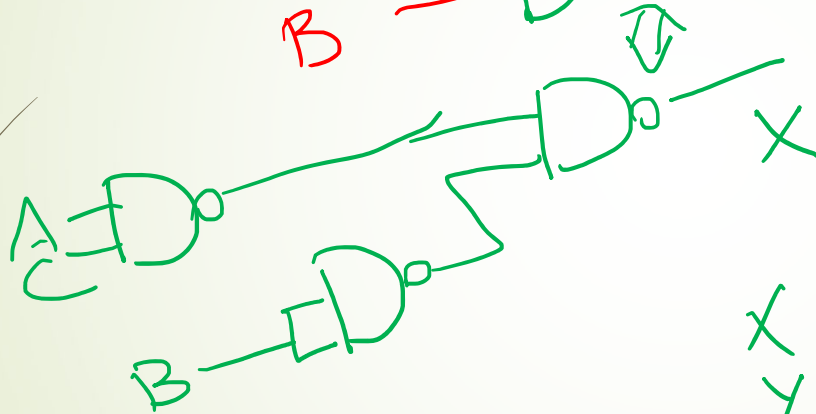


$$F = A + B$$





$$\overline{\overline{A}C} + \overline{\overline{B}} = AC + B$$



$$\overline{\overline{X} + \overline{Y}} = \overline{\overline{X}Y}$$