

Sequential Design, by Frank ☺

Flip Flop Truth Table				
D	Q ⁿ	J	K	Q ⁿ⁺¹
0	0	0	0	Q ⁿ
1	1	0	1	0
		1	0	1
		1	1	!Q ⁿ

Transition Form				
Q ⁿ	Q ⁿ⁺¹	D	J	k
0	0	0	0	X
0	1	1	1	X
1	0	0	X	1
1	1	1	X	0

STATE	NOW		NEXT	
	Q ₁	Q ₀	Q ₁	Q ₀
A	0	0	0	1
B	0	1	1	0
C	1	0	1	1
D	1	1	0	0

Excitation Equations					
D ₁	D ₀	J ₁	K ₁	J ₀	K ₀
0	1	0	X	1	X
1	0	1	X	X	1
1	1	X	0	1	X
0	0	X	1	X	1

D ₁	Q ₀	
	0	1
Q ₁	1	0

$D_1 = Q_1 \oplus Q_0$

D ₀	Q ₀	
	1	0
Q ₁	1	0

$D_0 = !Q_0$

J ₁	Q ₀	
	0	1
Q ₁	X	X

$J_1 = Q_0$

K ₁	Q ₀	
	X	X
Q ₁	0	1

$K_1 = Q_0$

J ₀	Q ₀	
	1	X
Q ₁	1	X

$J_0 = 1$

K ₀	Q ₀	
	X	1
Q ₁	X	1

$K_0 = 1$