

Operations Improvement for Medical Device Manufacturing

Q	Topic	Processes	Variable	From	To	Alternative	
1	Cost	1 step	Material	\$1.25	\$1.00		
2	Cost	1 step	Machine speed	2	4		
3	Cost	1 step	C/O time	0.5	0.3		
4	Cost	1 step	Manning or labor rate	3	2	\$15.00	\$8.67
5	Cost	1 step	Fixed Batch Waste	300	100	15%	7.3%
6	Cost	1 step	Facility	\$280,000	\$255,000		
7	Inventory	1 step	RM min stock	14	5		
8	Inventory	1 step	FG stock	7	1		
9	Cost & Inventory	1 step	Material (as #1)	\$1.25	\$1.00		
10	Cost & Inventory	1 step	NVA hrs	1	0.5		
11	Cost & Inventory	1 step	Batch size	2500	5000		
12	Cost, Inv, RT, LT	1 step	Intermed hold time	0	7		
13	Cost, Inv, RT, LT	1 step	Machine speed	2	4		
14	Cost, Inv, RT, LT	1 step	Batch size	2500	1500		
15	Capacity	1 step	Hrs not available	0	4		
16	Capacity	1 step	Longer hours	8	16		
17	Capacity	1 step	Longer hours and fewer lines	8	16	2	1
18	All measures	1 step	Batch size	2500	1500		
19	All measures	1 step	Batch size & speed	2500	1500	2	3
20	All measures	1 step	Varieties	1	2		
21	All measures	2 step	Batches/year	50	100		
22	All measures	2 step	NVA hrs	1	0.5	x2	
23	All measures	2 step	Intermed hold time	1	0		
24	All measures	2 step	Intermed stock point	As task 1	200 bx/y	task 2	
25	All measures	2 step	#24 + slower with fewer people	3 men	2	4 items/min	3
26	All measures	Specialist Reagents	Batches x 1.2, Tech support C/O x 0.5	35.2	17.6		
27	All measures	Specialist Reagents	Bottling manning = 3, Customer support spell = 10 hrs				
28	All measures	Reagent Kit Factory	Fixed Batch Waste 800 to 100, Batch size 4500 to 3200				
29	All measures	Reagent Kit Factory	Generic bottle Qty per sale 2 to 1				
30	All measures	Point of Use Diagnostic	Packaging RM 60 to 10 days, QC hold time 5 to 2 days				
31	All measures	Point of Use Diagnostic	Coating speed 0.3 to 0.5, QC C/O 4 to 3 hours				
32	All measures	Pharmaceutical Syringes	Run waste 65% to 25%, Batch size 200 to 100				
33	All measures	Pharmaceutical Syringes	Batch size 200 to 300, FG hold 10 to 3 days				
34	All measures	Blood Testing Kit	Truckload full to half full, Batches 572 to 286				
35	All measures	Blood Testing Kit	1 less variety				

Question	Video Commentaries
1-5	https://youtu.be/MSK1PVtxVC8
7-11	https://youtu.be/LmbhwJO1pRk
12-14	https://youtu.be/8wmOQMmLeac
15-17	https://youtu.be/DNP9xNh9eJ8
18-20	https://youtu.be/fmsKlgLn3Gs
21-25	https://youtu.be/1dMhkGW2MTw
26,27	https://youtu.be/VVoBhAT9qpA
28,29	https://youtu.be/p3vzKW_A8GQ
30,31	https://youtu.be/DEax5svch4s
32,33	https://youtu.be/0enjEFL_j0U
Chapter 8	https://youtu.be/isEy1EJv_QY