Module 2 – Practice Solutions

Dr Peters

DRP1.

Total # of available appointments per day = 2 appointments/hr x 10 h = 20. Subtract 4 appointments for electronic medical record-keeping = 16 available appointments per day. Actual # of appointments booked per day = 0.75 x 16 = 12. No-shows = (1/6) x 12 = 2; therefore the actual # of patients seen per day = 10.

DRP2.

OEE = (18 min value-add time/patient x 10 patients/day x 230 days/yr) / (60 min/hr value-add time x 10 hr/day x 260 days/yr) = 41,400/156,000 = 0.27.

MySunshine Hotel

MH1.

						Capacity	=150*10	1500
				Rev generating rooms	----------			
		Revenue	----------	900		Load	=60*0.01	0.6
		59.13						
	EBIT			Yield	180			
	19.13							
		Cost	----------	Employees	=60*0.05*10	30		
		40		Material	=1*10	10		
ROIC								
0.064								
	Capital	----------	Build and Furnish	100				
	300		Land	200				

MH2.

0.0476

Assign Tasks to Workers

ATW1.

Worker	Task(s)	Activity Time (sec)	Capacity (units per hour)
1	1	30	120
2	2	25	144
3	3,4	75	48
4	5,6	45	80

The capacity of the current line is restricted by the capacity of the step with the longest activity time. Therefore, capacity = 1 / 75 sec = 48 units per hour.

ATW2.

Worker	Task(s)	Activity Time (sec)	Capacity (units per hour)
1	1,2	55	65.45
2	3	35	102.86
3	4	40	90
4	5,6	45	80

Therefore, capacity of the revised line = 1 / 55 sec = 65.45 units per hour.

ATW3.

No matter how you organize the tasks, maximum capacity of the line is 65.45 units per hour, i.e. at a cycle time of 55 seconds.

ATW4.

Demand = 50 units/hr = 5/360 units/sec
Takt time = 1/demand = 72 sec/unit

ATW5.

Target manpower = labor content/takt time = 175 sec/72 sec = 2.43 → round up to 3 workers