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P#1

QNO 01 (Part a)

General Process charts

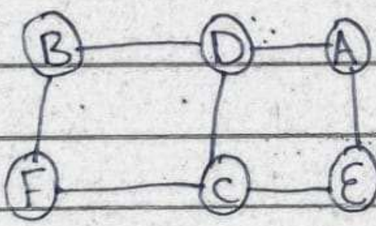
The current process the redesigned process and the expected improvements.
charaterizes
* The number of activities per Category
* The amount of time spent in each activity category.
* The percentage of the total processing time spents on each category.

Part (Ib) List disadvantages of Process Activity chart.
* Only Consider average activity term
* If the process includes several variants with different path (for example multiple path through the proces) each variant need its own activity.
* Cannot depict parralle! activity.

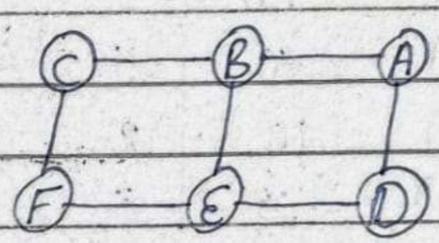
ID # 14252 Name : Khalid Malik :

QNO. 01 : Which design is the better one.

Current design



Proposed design



	A	B	C	D	E	F
A		20		20		80
B			10		75	
C				15		90
D					70	

Calculation for two Designs

Centers	Load	Current design Distance	Current design LD Score	Proposed design Distance	Proposed design LD Score
(A,B)	20	2	40	1	20
(A,D)	20	1	20	1	20
(A,F)	80	3	240	3	240
(B,C)	10	2	20	1	10
(B,E)	75	3	225	1	75
(C,D)	15	1	15	3	45
(C,E)	90	1	90	1	90
(D,F)	70	2	140	1	70
Total			790		570

So the Proposed design is better than Current design.

QNO 02.

The observation period for 3, 6, 5 and 2 job are 10, 20, 20 and 10.

3 – 10 min
6 – 20 min
5 – 20 min
2 – 10 min.

The average WIP = 3+6+5+2 / 4 = Jobs
16 / 4 = 4 Jobs

3X10 + 6X20 + 5X20 + 2X10 / Jobs.
30 + 120 + 100 + 20 / 10 + 20 + 20 + 10
270 / 60
4.5 Jobs.

QNO 2 Part b.

First we find Process time.

$= 12 + (0.1 * 18) + (0.9 * 30) + 17 + 1.5(12+25+7) + 10$

$= 12 + 1.8 + 27 + 17 + 66 + 10$

$= 133$

Calculate the average of CT for this process

$10 + (0.9 * 24) + (0.1 * 20) + 25 + 1.5(12+23+35) 15$

$= 10 + 21.6 + 2 + 25 + 105 + 15$

$= 178.6$ mnt.

CT Effciency $= 133.8 / 178.6$

$= 0.749$.

QNO3.

Activity	Processing Time (Min)	Resource Requirements	Number of Jobs
A	2	R_1	1
B	5	R_1	0.3
C	8	R_2	1
D	3	R_2	1.1
E	4	R_2	1.1
Inspection	4	—	1.1
F	2	R_1	1
G	4	R_3	1
H	2	R_3	1

Resource	(Min) Unit Load	Unit capacity Jobs/min	Available Resource	Pool capacity Jobs/min
R1	$2(1)+5(.3)+2(1)=5.5$	$1/5.5$	2	$2/5.5 = 0.363$
R2	$8(1)+(3+4)(1.1)=15.7$	$1/15.7$	2	$2/15.7 = 0.127$
R3	$4(1)+2(1)=6$	$1/6$	1	$1/6 = 0.166$

Unit Load = Processing Time x Number of Jobs

Pool capacity Job = Available Resource / Unit Load.

QNO.4.

The Theory of Constraints

Step 1. OPTIMIZE the Constrants
Before adding Capacity, we need to use the Capacity we already have. "Optimize" in this sense means "doing everthing possible to use the constraints to its fullest Capacity"

Step 2. IDENTIFY the constraints.
The tells us where to focus improvement efforts. Since we know that only an improvement at the Constraint makes a differesnce.

Step 3: SUBORDINATE the Non Constrants.
The job of non-constraints to subordinate their decisions to

the Constrainst needs. They should optimize for constraints (and thus System) performance, not their own individual performance, ~~the results of which we witnessed in~~

Step 4: ELEVATE the Constraints.
Only once we're completed the steps does it make sence to add more constraint capacity and thereby increase system performance. Because adding capacity it tremenduosly expensive in ~~th~~ time and money, we do it as a last resort, not a first resort.

Step 5: RETURN to step 1.
The inevitable result of the first four step, and the reason this is a "continuous" improvement method, is that the Constraint moves Somwhere else. the step insists that you start back at the begining, and don't let inertia become the Constraint