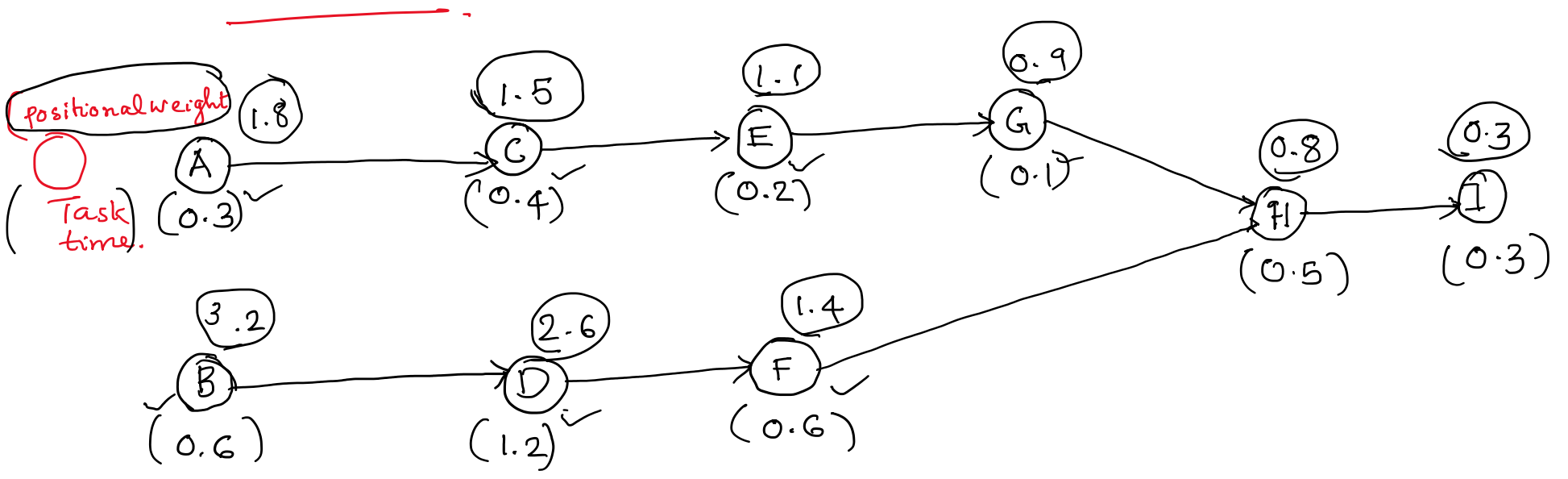
Assembly line

Wednesday, 3 April 2024 4:02 PM

raw the precedence diagram.



$$\text{Cycle time} = \frac{\text{Operating time / day}}{\text{Desired output / day}} = \frac{440}{275} = \underline{1.6 \text{ minutes.}}$$

Total task time = 4.2 minutes.

$$N_{Theo.} = N_{min} = \frac{4.2}{1.6} = \underline{\underline{2.625.}}$$

Workstation	Time remaining	Eligible.	Will Fit	Assign task (time)	Station Idle time
1	1.6	A, B	A, B	B (0.6)	
	1.0	A, D	A	A (0.3)	
	0.7	C, D	C	C (0.4)	
	0.3	D, E	E	E (0.2)	
	0.1	G, D	G	G (0.1)	
	0	—	—	—	0.
2	1.6	D	D	D (1.2)	
	0.4	F	—	—	0.4
3.	1.6	F	F	F (0.6)	
	1.0	H	H	H (0.5)	
	0.5	I	I	I (0.3)	0.2.
					0.6.

$N_{actual} = 3.$

$$\text{Balancing Efficiency} = \frac{\Sigma \text{ task time}}{N_{actual} \times \text{Cycle time}} = \frac{4.2}{3 \times 1.6} = \frac{4.2}{4.8} = \underline{\underline{0.875}} = \underline{87.5\%}.$$

$$\text{Balance delay} = 100 - 87.5 = \underline{12.5\%}.$$

$$= \frac{\text{Idle time}}{(N_{actual} \times \text{Cycle time})} = \frac{0.6}{4.8} = 0.125 = \underline{12.5\%}.$$