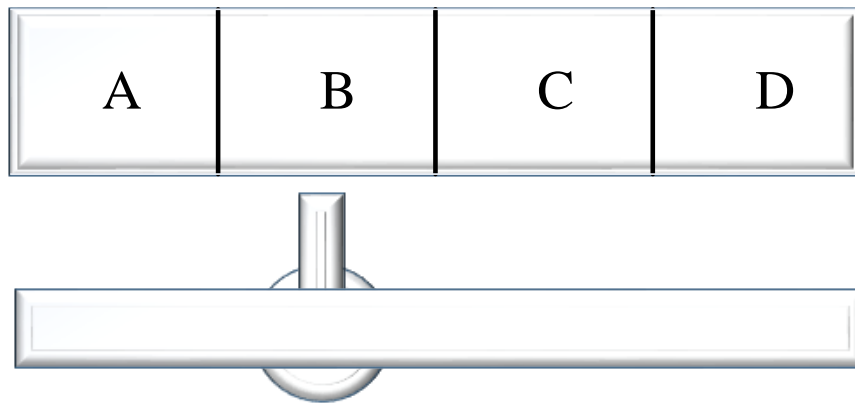


INDU 421: Facilities Design and Material Handling Systems

Assignment 6

- 1- Four equal-sized machines are served by an automated guided vehicle (AGV) on a linear bidirectional track, as shown in the figure below. Each machine block is 30' × 30'. The product routine information and required production rate are given in the table below. Determine a layout arrangement based on the pairwise exchange method. Assume that the pickup/delivery stations are located at the midpoint of the machine edge along the AGV track.



Product	Processing Sequences	Weekly Production
1	B D C A C	300 units
2	B D A C	700 units
3	D B D C A C	900 units
4	A B C A	200 units

- 2- The ABC Cooling and Heating Company manufactures several different types of air conditioners. Five departments are involved in the processing required for the products. A summary of the processing sequences required for the five major products and the weekly production volumes for the products are shown in the tables below along with the department area. Based on the graph-based construction method, develop a block layout.

Product	Process Sequence	Weekly Production
1	ABC	150
2	ABED	200
3	ACE	50
4	ACBE	200
5	ADE	250

Department	Area (ft ²)
A	1500
B	1500
C	1000
D	2000
E	2000

- 3- Explain the steps CRAFT would take with the following problem and determine the final layout. Only two-way exchanges are to be considered.

From-To Chart

From	To	A	B	C	D	E
A		-	3	2	1	
B			-	1	3	
C		1		-	4	
D					-	
E						-

Initial Layout

A	A	A	B	B	B
A	A	A	C	C	C
A	A	A	C	C	C
D	D	D	E	E	E
D	D	D	E	E	E