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Tower Building



Curriculum Development
of Master's Degree Program in
Industrial Engineering for Thailand Sustainable Smart Industry

- **Description:** design and construction of a cardboard tower to support a brick (~ 1.5 kg)

€€€

- 7x12 cm cards: red, green, pink, blue and orange
- Clips

Time

- 10' brainstorming / planning
- 5' support / material purchase
- 3 sprints 2 'planning + 10' execution + 2 'review
- 10 'test

5 Teams

client

provider

Teams must be prepared for **unforeseen events**, which may require adjustments to the design and construction of the tower

- Customer Restrictions:
 - The tower must be approximately between 24 cm and 36 cm and only the available material (cards and clips) can be used
 - The tower must support the weight of a brick (~ 1.5 kg) for 20 seconds
 - Cards cannot be manipulated to form circular structures. Only folds can be made
 - Each tower must have at least one card of each color
 - The team that designs the tower that meets the conditions proposed by the customer and that spends less resources wins (€)
 - Project activity cost
 - Tower cost. To calculate this cost, the supplier's costs must be multiplied by 3

- Supplier Restrictions

- All material has a cost that must be accounted for by each team:
 - Blue and orange cards: 1000 € (superior quality and availability)
 - Pink, red and green cards: 500 €
 - Clips: 200 € unit
 - Fold: 100 € unit
- Each team can only interact with the supplier four times (request or return material)
- But, on the 3rd and 4th visit the cost of the material increases 50%
- Material returns can be made at any time - 50% off the initial price

Time

10' brainstorming / planning

5' supplier / material purchase

3 sprints 1' planning + 8' execution + 1' review

10' test

- **Green Card**

The company that makes these cards went bankrupt!

The product was considered dangerous and, as such, **no green card** should be used in the final structure and cannot be returned to the supplier.



- **Red Card**

This product reveals problems that jeopardize the integrity of the structure.

It is not possible to use **more than two folds** on these cards.



- **Pink Card**

This product revealed chemical corrosion problems.

They cannot be used at **the base of the structure**, that is, they cannot be in contact with the floor.



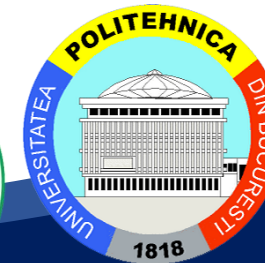
- Result: was the objective long?
 - If yes: what contributed?
 - If not: what conditioned it?
- Process: how do you evaluate team work?
 - Roles of each element
 - Solution of the problem
 - Internal organization
 - ...
- If they were the customer, which team did they hire and why?

MSE 4.0

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Thank You



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