

UNIDEMI – Research Unit in Mechanical and Industrial Engineering

## Engineering Design

Research Team: Product and Process Engineering (PPE)



R&D Unit in Mechanical and Industrial Engineering

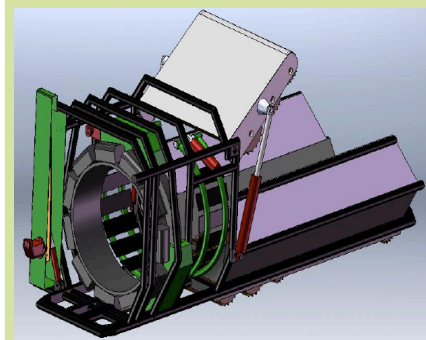
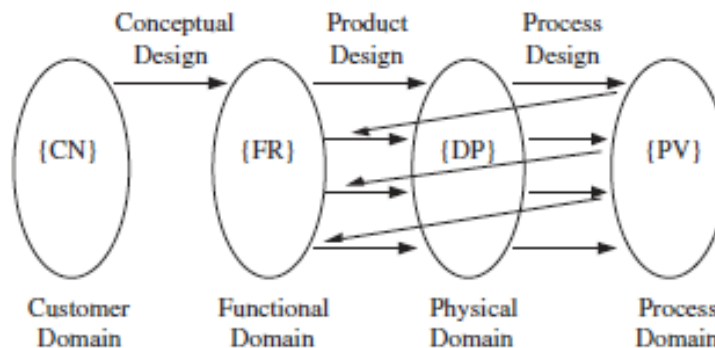


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## Objectives

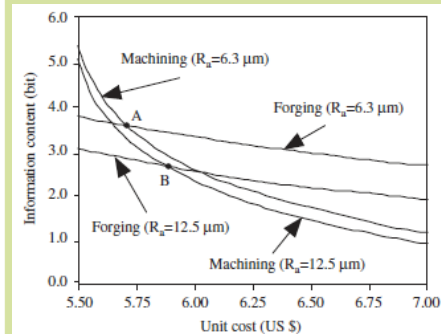
Integration of product and process development in a concurrent engineering environment



**The methodology allows:**  
selecting the minimum compaction level of forest residues, essential to the design of compaction machines;

## Methodology

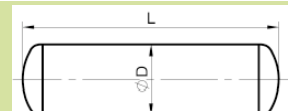
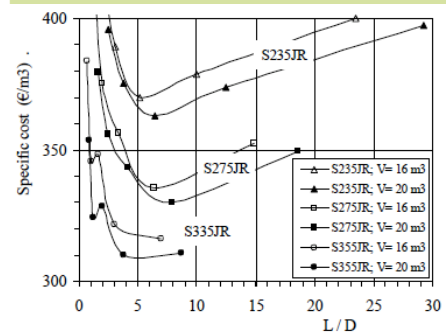
- Application of Axiomatic Design (AD):  
**The Independence Axiom** - Maintain the independence of functional requirements;  
**The Information Axiom** – Minimize the information content of the design.
- Performance and cost integration in the early stages of engineering design.
- Application of Geometric Dimensioning and Tolerancing (GD&T) in the design of mechanical systems.



selecting the most appropriate technology at a high decision level, as required for the subsequent detail design of mechanical components;

## Expected Results

- ✓ Development of new tools for decision-making in the early stages of the engineering design process.
- ✓ Dissemination of Axiomatic Design in the industry.
- ✓ Promotion of GD&T in the following industrial clusters: automotive, aerospace, and tooling.



finding the relationships between cost and aspect ratio in designing pressure vessels.