Lesione 1 - Introduction

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Ideation, conceptual and CAD side of design.

The course aims to take theoretical and application-oriented competencies related to engineering design through the support of CAD tools

- Monday → theory lectures → 13:30 - 15:00
- Thursday → Practical Sessions → 9:30 - 12:30 (until April 28th)
- Also looking at product information and documentation

The course lasts until April 28th, to be able to focus on the prova finale.

Worm gear project is due for MDLA by 30th April.

- 1/8 → project
- 2/8 → multiple choice
- 5/8 → 3D modelling

→ double is <18

Outline

- Product Design Cycle
- Industrial Context
- Organizational Structure of a company

↳ PLM systems.

Design
↳ mental activity with a focus on introducing change in the real world.

We need to analyze the problem, this is where the design process start.

Product Design Cycle

↳ identification of need
↳ self initiative of the designer, or an organisation
↳ Conceptual Design (after definition of the requirements)
↳ material can change the design that we come up with
↳ Formulation of general concept
↳ Detailed Design (after Embodiment design)
↳ Definition of every single detail of the design.
↳ Preparation for production (our one)

Focus of Course

While we will be focusing on the two, we shouldn't forget about the others as they give context of our steps.
Outside factors (e.g politics and economics) can have an effect on the design and product development cycle, how we source materials and how we distribute.

Industrial Context

↳ Industry 4.0

- ↳ Cyber Physical systems, internet of things (IoT), networks and others.
- ↳ These are technologies that take advantage of new technologies to do actions which are not necessarily repetitive like in industry 3.0.

They require large amounts of data, normally acquired through sensors and utilised for different purposes.

Enabling Technologies

- ↳ Virtual Prototyping
- ↳ CAD/CAE systems.
- ↳ AR & VR
- ↳ Additive Manufacturing
- ↳ System integration.
  - ↳ PLM & advanced systems

The project passes different parts of the same company, how the parts pross though PLM (system life cycle management), and how they pass though affects and is affected by the structure of the company.

There are support systems for every part of a company.
They need to interoperate and be able to share data between
each other