Product design

ECTS credits
2 credits

Presentation

Learning objectives

Design Notions:
Educating students on design sketching.

Digital Modeling:
Know the basic features of a Mechanical Design software
Characteristics of some common manufacturing processes
Know the vocabulary of the few manufacturing and transformation processes covered. Make students aware of the most common industrial manufacturing methods and means. Characteristics of the additive manufacturing process.
To train the students to the methods and means of additive manufacturing, case study and manufacturing.

Description of the programme

Design Sketch (4 sessions 2h)
- Learning method
- Represent volumes using perspective tools
- Work on the perspective of curved volumes
- Define object scales, materials and colors
- Draw the design of several products

Digital Modeling (8 sessions 2h)
- Create mechanical parts: prismatic and surface
- Control parts using layout constraints, parameterization and analysis
- Create mechanical parts for manufacturing processes: foundry, plastics, sheet metal
- Create and animate an assembly: static and dynamic
- Produce a simple detail drawing.

Characteristics of some manufacturing processes (3 sessions 2h)
Session 1: Foundry
Session 2: Plastics processing: Injection, extrusion, blowing, roto-molding.
Session 3: Sheet metal work, machining

Additive Manufacturing Process (6 session 2h)
Session 1 : Generalities of the A.F.
Session 2 : Polymer technology
Session 3: Metal technology
Session 4 : Hybrid technology link with classical technologies (machining, foundry...)
Session 5 and 6 : Case study and printing

Generic central skills and knowledge targeted in the discipline

Mastering complexity and systems
Central engineers master the complexity of the systems and problems they encounter
Ability to stimulate the imagination and invent solutions through design studies
Ability to concretize through 3D representation by integrating the notions of feasibility.
Ability to identify the interactions between elements (collisions, envelope of movement, geometric interference).

How knowledge is tested

Indoor exam on CAD software: 100% exam

Bibliography

Online documentation of CATIA software

Teaching team

- Christian Jalain
- Gael Volpi

Total des heures		**40h**
CM	Master class	26h
TD	Directed work	14h

Useful info

Name responsible for EU

Lead Instructor
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