



## ELABORATION DE PIÈCES TECHNIQUES

### DEVELOPMENT OF TECHNICAL PRODUCTS

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| Lecturers : 4.0 | TC : 0.0 | PW : 4.0 | Autonomy : 0.0 | Study : 4.0 | Project : 20.0 | Language : FR

#### Objectives

This course aims to study the interactions between materials, shapes and processes in the design and industrialization of technical objects. Based on real cases studies, this teaching will address the following points:

- Knowledge of manufacturing processes for plastics and metallic materials,
- Choice of a material (functional criteria and implementation),
- Choice of a process (economic and technical criteria),
- Definition of a shape (functional criteria, process and material).

We will focus more particularly on processes involving:

**Keywords :** Shaping processes, Plastics, Injection, extrusion, thermoforming. Metallic materials, Plastic deformation, Stamping, Additive Manufacturing

#### Programme

- I. Injection of plastics
  - Design and sizing,
  - Definition and choice of tools,
  - Simulation, implementation and configuration of the injection process.
- II. Metal working process
  - Design of objects manufactured by stamping,
  - Definition and choice of tools,
  - Simulation, implementation and configuration of the stamping processes.

#### Learning outcomes

- Be able to choose a shaping process
- Understand the key points of plastic injection process and be able to design a part mechanical object with injected matter
- Be able to design a stamped metal mechanical object
- To be able to design a metallic mechanical object by additive manufacturing

#### Independent study

**Objectifs :** 5 sessions of 4 hours will be carried out by working on a project (including 1 session devoted to oral presentation of the project).

**Méthodes :** The teaching will be based on an adaptation of the problem-based learning method allowing a concrete enlightening of these processes from real case studies and scenarios.

#### Core texts

#### Assessment