

General introduction

The choice of a mechanical manufacturing process depends on many factors, including the material, the shape of the part, the surface states, the precision, etc.

Mechanical manufacturing is a science involved in the development of a set of techniques for obtaining a part or object by processing raw material.

Obtaining the desired part sometimes requires the successive use of different manufacturing processes. These manufacturing processes are part of the mechanical construction.

Manufacturing techniques make it possible to convert raw materials into finished articles, divided into two main categories: conventional techniques, such as foundry or forging, which are well established and often more economical for complex or series parts, and advanced techniques, which include non-conventional machining (laser, electroerosion), 3D printing and automation, offering superior precision, flexibility and surface quality for increasingly sophisticated parts.

Current requirements require manufacturers to invest in advanced manufacturing techniques to improve productivity and ensure high quality in order to be able to detach themselves from traditional manufacturing processes, face challenges and moderate manufacturing processes to reduce costs.

The choice between these processes depends on the requirements of the part to be produced, such as the complexity of the shape, the material, the cost and the volume of production.

Objective

This module consists in completing the knowledge acquired (in license) by the student concerning the various conventional processes of obtaining the parts and opening to him a horizon on the advanced techniques necessary for the shaping of the particular parts.