



OO/UC3M/42- MANUFACTURING TECHNOLOGIES OF COMPONENTS FOR THE AERONAUTICAL INDUSTRY.

The team *Manufacturing Technologies* offers his experience in the research on manufacturing processes for applications in the aeronautical industry. Moreover, the team has developed works on light alloys machining, material damage related with manufacturing process and prediction of surface integrity parameters using numerical simulation. The developments are achieved in a multidisciplinary approach to a problem in the manufacturing of components for the aeronautical industry. Solutions are developed guaranteeing the safety of components. However it is not the unique objective in the aeronautical industry, and it is also focused on cost and productivity. The manufacturing process is developed from a global perspective which includes the mechanical behaviour of the material and technological aspects of the process.

Description and special features

The team "Manufacturing Technologies" is based on the work of engineers from different fields (aeronautical and mechanical mainly), with research activity in:

- Machining of low machinability alloys
- Surface integrity in machining of high responsibility components
- Forming
- Numerical modelling of machining processes
- Numerical modelling of forming processes
- Wear

The lab of the team is equipped with several experimental devices:

- CNC lathe
- Machining centre
- Measurement of forces during machining
- Extensometers
- Data acquisition systems
- Wear analysis systems

FEM Commercial codes are available (ABAQUS, DEFORM) for forming and machining simulations in high performance PCs.

Innovative aspects

Manufacturing industry is usually focused on cost and productivity. However this is not the unique objective in the aeronautical industry. Manufacturing process of high responsibility components should guarantee the safety of the component during its service life. On the other hand it is not possible to solve common problems in manufacturing industry with a multidisciplinary approach, taking into account technological aspects of the process, mechanical behaviour of the material and microstructure. Main goal of the team is solving problems in manufacturing industries with this global approach, giving competitive solutions with direct application in the industrial process.

Competitive advantages

The experience of the team could be interesting to solve problems during manufacturing of aeronautical components (forming new materials, damage, tool life, ...)

Technology Keywords



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Forming, machining; Forming; Tool machines; Machining

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