

**ANALYSE DES ASSEMBLAGES : GÉOMÉTRIE ET ARCHITECTURE****MECHANICAL ASSEMBLY: ARCHITECTURE AND GEOMETRY ANALYSES****Lecturers:** Didier LACOUR, Bertrand HOUX

| Lecturers : 16.0 | TC : 0.0 | PW : 4.0 | Autonomy : 0.0 | Study : 8.0 | Project : 0.0 | Language : FR

**Objectives**

Present methods and tools for analyzing the geometric quality of assemblies.

Mastering the architecture and geometry of assemblies is a major industrial objective. The geometrical quality of the parts and the architecture of the assemblies can have direct repercussions on the assembly capacity of the product, but also on the services it must provide.

This course presents the modern methods of assembly simulation by integrating the geometrical defects of their components. It thus identifies the theoretical concepts on which these methods are based, in order to understand their fields of application and their limits.

**Keywords :** Assembly, architecture, geometric specifications, ISO GPS standards, tolerancing, metrology, influencing analysis, assembly simulation, statistics

**Programme**

Quantification of the specifications and analysis of their influences on the assembly (sensitivities) by torsors of small displacements.  
Statistical Approaches, Monte Carlo.  
Geometric Specification Methods, Geometrical Product Specification (GPS).  
Algorithms used in three-dimensional metrology (numerical methods of association).

**Learning outcomes**

- Knowledge of methods and tools for analyzing the geometric quality of assemblies. Write and interpret standardized geometric specifications. Analyze influences and contributions on a concrete model. Establish and implement a three-dimensional control strategy.

**Independent study**

**Objectifs :** This activity is not concerned with framed autonomy activities outside personal work.

**Méthodes :** This activity is not concerned with framed autonomy activities outside personal work.

**Core texts**

Anselmetti B. - Lavoisier, 2010., *TOLÉRANCEMENT – VOLUMES 1 À 4.*, Hermès, 2010  
Charpentier F. *MÉMENTO DE SPÉCIFICATION GÉOMÉTRIQUE DES PRODUITS – LES NORMES ISO-GPS.*, AFNOR, 2015  
Bourdet P. & Mathieu L. *TOLÉRANCEMENT ET MÉTROLOGIE DIMENSIONNELLE.*, Cetim, 1999

**Assessment**

Final mark = 60% Knowledge + 40% Know-how  
Knowledge mark = 100% final exam  
Know-how mark = 100% continuous assessment