

Theory and practice of production scheduling

**ECTS** : 3

**Volume horaire** : 15

**Description du contenu de l'enseignement :**

The objective is to understand the basics of production scheduling, identify scheduling problems and know and understand specific methods to solve them. We will pay particular attention to exact and approximate solution methods in deterministic and uncertain environments.

**Compétence à acquérir :**

- Classification of scheduling problems: tasks, resources, production lines, constraints, criteria, representation of a schedule ...
- Scheduling in deterministic environment: exact solution methods (priority rules, dynamic programming, integer programming), approximate methods with or without performance guarantee (list algorithms, local search algorithms)
- Scheduling in uncertain environment: Flexibility and robustness in scheduling, stability radius for the simple assembly line balancing problem.

**Mode de contrôle des connaissances :**

Un examen de deux heures

**Bibliographie, lectures recommandées :**

- P. Brucker, Scheduling algorithms, Springer, 2007  
([http://users.utu.fi/yurnik/scheduling\\_files/Scheduling\\_Peter\\_Brucker.pdf](http://users.utu.fi/yurnik/scheduling_files/Scheduling_Peter_Brucker.pdf))
- P. Esquirol et P. Lopez, L'ordonnancement, Economica, 1999
- Groupe GOTHa, Modèles et Algorithmes en Ordonnancement, Ellipses, 2004.
- M.L. Pinedo, Planning and Scheduling in Manufacturing and Services, Springer, 2005
- J-C. Billaut, A. Moukrim et E. Sanlaville. Flexibilité et robustesse en ordonnancement, Lavoisier, 2005

**Document susceptible de mise à jour - 02/04/2026**

**Université Paris Dauphine - PSL** - Place du Maréchal de Lattre de Tassigny - 75775 PARIS Cedex 16