

## Manufacturing Management

### Scheduling

#### IDENTIFICATION

CODE : GI-4-S1-EC-ORD  
ECTS : 2.0

#### HOURS

Lectures : 2.0 h  
Seminars : 6.0 h  
Laboratory : 16.0 h  
Project : 4.0 h  
Teacher-student  
contact : 28.0 h  
Personal work : 14.0 h  
Total : 42.0 h

#### ASSESSMENT METHOD

P/ORD1 3 ES [évaluation en situation]

#### TEACHING AIDS

Teaching assistance on a case study  
INCOPLAN software

#### TEACHING LANGUAGE

English

#### CONTACT

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#### AIMS

This course belongs to teaching unit Management of industrial operations [GI-4-S1-UE-POPI] and contributes to the following skills :

- A1 Analyze a system (real or virtual) or a problem [Level 1]
- A3 Implement an experimental approach [Level 2]
- A4 Design a system that meets a set of specifications [Level 2]
- A5 Process data [Level 2]
- C1 Observing, measuring, analyzing and interpreting an activity or a system from data [Level 3]
- C2 Modeling and designing an information, decision and production system, of goods and services [Level 3]
- C3 Evaluating, prototyping and simulating a system [Level 3]
- C4 Sizing the hardware and / or software of a system [Level 3]
- C5 Managing a production system and react to malfunctions [Level 3]
- C16 Identifying, analyzing and controlling the risks inherent to a project [Level 2]
- B2 work, learn, progress autonomously [Level 1]
- B3 interact with people and work in a team [Level 3]
- B4 demonstrate creativity, innovation, entrepreneurship [Level 1]

By allowing the engineering students to work and be evaluated on the following knowledge :

- [C3, C1, C4, C5]

To be able to :

- [A1, A3, C1, C2]
- [A5, B2, B3]
- [C3, C4, B3]
- [C5]

- Being able to use a scheduling software from technical data to generation of the scheduling solutions.
- Being aware of selection criteria for a scheduling software, advantages and disadvantages of such software.
- More specifically, knowledge of data, information and methods required for such a tool.

#### CONTENT

Study of the project consisting in the implementation of a scheduling software (INCOPLAN). From the data of a manufacturing company which decides to modify its scheduling system, we carry out the following steps:

- Study of technical data [operations, resources, processing times, routing (operation sequencing), production orders ...], and computation of estimated loads for personnel and equipment.
- Study of the effects of several sequencing heuristics in final solution as well as the effects of work periods.
- Analysis of working hours and harmonization of scheduling solutions.
- Consideration of the constraints [Overlapping, splitting, non-preemption, etc] and unexpected events [breakdown of a machine ...].
- Technical, financial and risk analysis and evaluation of the scheduling software.

#### BIBLIOGRAPHY

M. Pinedo ; Scheduling: Theory, Algorithms, and Systems, Prentice Hall, 2001

#### PRE-REQUISITE

Basic knowledge about production scheduling [technical data and scheduling method]

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