

IDENTIFICATION

Course code : ESI-SPI-CI-BE4-S7-UE4-EC1
ECTS : 2

DURATION

Lectures : 8
Tutorial classes : 12
Labs : 0
Total : 20

Project :
Personnal work :

ASSESSMENT

Minimum 2 continuous assessments

TEACHING MATERIALS

Course material (ppt)

LANGUAGE

English

CONTACT

Khalid Addi Instructor : Aline SCRIVA

Modifié le : 3 août 2026

UE : UE7-PROEN

COURSE : Logistics Systems

SCOPE OF THE COURSE

OBJECTIVES

The aim of this course is to equip learners with the necessary skills to model and optimize production units, covering key concepts such as Petri nets, linear algebra, competitiveness, inventory management, Lean manufacturing, and scheduling methods, while taking into account the specificities of island-based enterprises.

COMPETENCE AND SKILLS

Ability to consider company challenges from a production management perspective Ability to model production units in Petri net formalism as well as their integration into a supply chain. Manage internal manufacturing orders and customer/supplier orders (kanbans) within this formalism (introduction to ERP systems).

Provide engineering students with the necessary foundations for managing a production unit with a Lean manufacturing / Lean management approach.

PROGRAM

- Study of Petri nets, properties, invariants, and linear algebra. Modeling production units, significance of invariants for inventory and work-in-progress control.
- The company : regional, European, and global context.
- Competitiveness : productivity and innovation – Key performance indicators.
- Master Production Schedule (MPS), Production Planning (PP), Production Execution (PE), net requirements, gross requirements.
- Inventory and procurement management – specificities of island-based enterprises.
- Push and pull flows, MRP, Just-in-Time.
- Lean manufacturing, customer value-added, and Lean management.
- Lean tools (5S, 3M, 6 sigma, SMED, Kaizen, Kanban, Poka-Yoke, TSP, etc.).
- Some scheduling methods.

BIBLIOGRAPHY

REQUIREMENTS