Program outline

The objective of this minor in Engineering is to introduce students to concepts and knowledge concerning enterprise culture and industry system engineering. Such knowledge will facilitate their future professional career within the working world. Another objective is to equip students with the skills and qualifications necessary to follow on their studies with the International Master Program on ‘Enterprise Engineering’, also delivered at the University of Bordeaux.

Program structure

**Semester 1 / Module 1: Production System Management (PSM) - 6 ECTS / 60h**
Present basic concepts and techniques for planning and managing industrial systems of various types of organization.
› Typology of workshop (flowshop, jobshop, openshop) and production
› Workshop scheduling algorithms (Gantt, Johnson, heuristic and priority rules)
› Inventory management methods (economic quantity, order point method, etc.)

**Semester 2 / Module 2: Enterprise, Manufacturing and Service - 6 ECTS / 60h**
Provide an introduction on enterprise and industrial system, from manufacturing to service as well as evolution of market, manufacturing and organization.
› Enterprise, virtual enterprise, network enterprise
› Manufacturing vs. service and servitization
› Evolution of manufacturing technology and organization (assembly line, flexible cell, etc.)

**Semester 3 / Module 3: Product Design and Innovation (PDI) - (6 ECTS / 60h)**
Initiate the students the basic concepts and techniques on product design and innovations.
› Basic concepts and definitions on product design and innovation
› Functional analysis methods for product design
› Theory and methodologies for product innovations

**Semester 4 / Module 4: Enterprise System Modelling (ESM) - 6 ECTS / 60h**
Present discrete event concepts, introduce languages and methods to describe, analyze and design automatic industrial systems as well as enterprise modeling and simulation.
› Definition and concepts on discrete events
› Petri net model and Grafcet
› Enterprise modeling and simulation

**Semester 5 / Module 5: Project Management (PM) - (6 ECTS / 60h)**
Provide a set of methods and techniques to manage and control industrial projects.
› Concepts and definitions on project management
› Basic project planning techniques
› Methodologies for project management