

Innovation method



SCHOOL

Polytech Graduate School of
Engineering



CAMPUS

Belle-Beille



LEVEL

Engineering 3rd year



OPEN TO EXCHANGE STUDENTS

Yes



SEMESTER

Spring (S2)

- > **Degree course:** Quality, Innovation and Reliability Engineering
- > **Teaching unit:** Industrial design
- > **Course language:** English
- > **Duration (hours):** 40
- > **ECTS:** 1
- > **Teacher(s):** Cécile Gros-Rémy, Henri Samier, Pascal Crubleau, Laurent Saintis

> Assessment:

- Continuous assessment
- Final exam

> Teaching methods:

- | | | | |
|---|-------|-------|-------------------------------------|
| <input checked="" type="checkbox"/> Lecture course | 8 | hours | <input type="checkbox"/> Case study |
| <input checked="" type="checkbox"/> Tutorial course | 6.67 | hours | <input type="checkbox"/> Project |
| <input checked="" type="checkbox"/> Practical work | 25.33 | hours | |

COURSE DESCRIPTION

Lecture:

- 1. Innovation theories
- 2. Design Theories
- 3. Model of Design organisation
- 4. Model of Product Design Process
- 5. System Engineering
- 6. improvement of New product design Process
- 7. Product design and Need specification
- 8. External function analysis
- 9. Internal function analysis - 10. Ecodesign

Tutorial courses:

- 1. choice of the system under study, détermination of sub-systems and coucourrent - engineering organization,
- 2. analysis of need and information retrieval
- 3. functional review
- 4. Multivariate analysis of supply
- 5. Writing of Functional Specifications
- 6. Decomposition of subsystems in technical functions and positioning of innovations
- 7. Composition of Functional Block Diagrams and propose areas for improvement,
- 8. Build two QFD matrices (Need / Requirements and Specifications / Design - parameters) and evaluation of innovations
- 9. Tools for ecodesign

OBJECTIVES

Students will know how to use the advanced tools of product development, ie. deploy the functional specification, developing the ability to manage projects of disruptive innovation and technological innovation (C.IDI1)

PREREQUISITES

Mechatronics, Industrial design and CAD

SELECTIVE BIBLIOGRAPHY

- « Méthodes de conception de produits nouveaux », DUCHAMP, Edition Hermès
- « Conception de produits mécaniques : méthodes, modèles et outils », - TOLLENAERE, Edition hermès
- « Maîtriser l'innovation technologique : Méthodes et outils pour concevoir des produits nouveaux », Maurice Reyne, Edition Dunod