

SE1950

Reverse Engineering and Rapid Prototyping Laboratory

Professor: Pascal Morenton

Language of instruction: French – **Number of hours:** 30 – **ECTS:** 2

Prerequisites: None

Period: S5 November to December IN15DXP, FEP5DXP
 S6 between February and June IN16DXP, SEP6DXP

Course Objectives

The course presents the reverse engineering and rapid prototyping tools and techniques, from the initial 3D digitization of the product till the rapid prototyping, through digital conception and simulation.

Using case studies, participants will think through the challenges of how to maintain the "digital chain", study specific techniques and evaluate methods based on the needs of a company.

Besides, participants will actually use tools and machines (including structured light and laser).

Course Contents

- ◇ Usage of conception tools in Computer Aided Design (CATIA V5, SPACECLAIM)
- ◇ Geometrical modeling
- ◇ 3D scanners and non-contact digitizing instruments
- ◇ Rapid prototyping
- ◇ Study of "digital chain"

Course Organization

Labwork: 27 hr, Exam: 3 hr

Teaching Material and Textbooks

Ecole Centrale Paris course book: "CATIA V5 training"

Evaluation

Oral presentation and realization of a scientific poster.

Evaluation criteria: quality of experimental work, oral defense, scientific poster, participation, and involvement.

The following factor shall be applied to determine the final grade: - Experimental work: coef 2 - Oral presentation: 1 coef - Written document coef 1 - Behavior: 1 coef.