

Industrial Management Field		Design	Total of teaching hours : 92 hrs		
			Course	Supervised work	Lab work
GI I3.5	3 ECTS credits		24 hrs	12 hrs	12 hrs
			4 hrs evaluation - 24 hrs individual work 24 hrs + 12 hrs workshop project		

Objectives

- Learn the approach, tools and design processes for a product
- Apply this approach and implement these tools to the design of a product or a machine

(taxonomic level : application and analysis)

Prerequisites and links to other modules

- Knowing how to use of a 3D modeller, implementation plan and assembly (CF tools 11 and 12)
- Knowing the foundations of its design and technical communication (basic 3D design, dimensioning, drafting and assembly (CF tools 11 and 12)

Chapter 1 Project management	<u>Objectives</u> <ul style="list-style-type: none"> - Discover the principles of project management - Be introduced to using management type software "MS Project" <u>Course</u> <p>"The role of project manager"</p> <p>Supervised work for implementation on MS Project (carving up into tasks, positioning of milestones, resource assignments, organisation with a view to meeting deadlines, project budget, monitoring progress)</p>
Chapter 2 Value analysis	<u>Objectives</u> <ul style="list-style-type: none"> - Learn the NF standard and its area of application - Learn how to define the client's need using a valued Functional Specification. <u>Contents</u> <ul style="list-style-type: none"> - Approach in its entirety - Definition of the client, client's requirement - Definition of the product - Functional analysis, functional specification, Matrix development, Matrix costs /Value
Chapter 3 Product design	<u>Objectives</u> <ul style="list-style-type: none"> - Learn a product's life stages - Learn the approach of designing a product - Learn the constraints to switch from a virtual product to a real economically viable product <u>Contents</u> <ul style="list-style-type: none"> - Life cycle of a product - Drafting of a Specification (see AV) - The key stages of product development - Eco-design concepts - Industrial property - Industrial design - Relationship product / processes / materials - APTE analysis methods, carving up the project, design rules, CAO strategy. - Quantification and economic study - Monitoring plan and Certifications - Concepts of study contracts - Prototypes and risk analysis
Chapter 4 Technology and transmission of power	<u>Objectives</u> <ul style="list-style-type: none"> - Find out about the different technologies available - Be able to choose a solution for transmitting power wisely <u>Contents</u> <ul style="list-style-type: none"> - Catalogue actuators (hydraulic motors, screw jacks, ...) - Catalogue transmitters (gears, chains, straps, universal joints, etc.) - A guide to practical choices and rules for sizing jobs
Chapter 5 CAO / FAO	<u>Objectives</u> <ul style="list-style-type: none"> - Professional mastery of CAO (mastering the rules for good design CAO, application on Catia , pro-eng software...) - Be initiated in FAO (use of tools for the design-manufacture chain) <u>Contents</u> <ul style="list-style-type: none"> - Design methodology - Quickly master a new software (CATIA, Pro-Engineer, etc.) - Find out the basics about FAO (tracking, post processing...)
Chapter 6 Product design project (design/pre-industrialisation phase)	<u>Objectives</u> <ul style="list-style-type: none"> - Acquire, by practice, the approach for designing a product (product with a technical, machine or machine elements nature) - Apply, by developing technical functions, the knowledge and skills acquired in the fields concerned <u>Contents</u>

	<ul style="list-style-type: none">- Product definition and schedule- Establishment of the functional specifications- Analysis of the existing and technological exploration- Proposal, evaluation and selection of technological solutions (including costs)- Size of actuators and transmission elements, choosing the sensors.- Establish a final pre-study file (CDCF *, research and choice of solutions, schedule, technical notes) for the product design in 13.6. <p>The file integrates the cdcf, the search for solutions, the choice of the solution the technical file, the file of calculation notes.</p>
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Educational approaches and assessment methods

Constitution of a project team, tutoring, people resources, material resources, organizing time.
Evaluation grids are communicated at the start of the project. Tutors ensure the consistency of assessments between projects.
A dissertation is the subject of peer assessment between the members of the panel and the tutor.