

FALL SEMESTER

Composite Materials

CHIM-07

6 CFU

This course aims to provide the basic knowledge and understanding of the characteristics and design methodologies of composite materials.

A composite is a material that combines two or more constituent phases featuring different physical and chemical properties. The appropriate selection of the ingredient materials, their relative volume fractions, and their spatial distribution leads to a new material with unique mechanical and physicochemical properties.

Owing to their outstanding mechanical performance, design flexibility, and lightweight nature, composites are essential in a broad range of high-value industries with applications, for example, in construction, aerospace, automotive, medical and energy technologies.

Design Drawing Lab

ICAR/13

8 CFU

Recognising the cognitive value of drawing as a tool for observation, the course will encourage the student to begin and maintain a regular and independent practice of freehand drawing, by keeping a sketchbook as the foundation for building a visual memory. The student will discover and draw spaces and objects, annotating their qualities and characteristics and experiment with various sketching techniques and tools. Theoretical lectures will be followed by practical exercises to explore the elements of drawing, the processes of visual perception and the themes involving the interaction between man, objects and space. A special focus will be dedicated to the theory of colour.

Systems of representation: reading and constructing drawings.

Historical notions on the evolution of representation systems and techniques.

Introduction to technical drawing: tools, precision drawing.

Basic notions of scale, line, dimensioning, graphic standards (UNI).

Introduction to measuring techniques and tools.

Basic notions and practice of projective and descriptive geometry:

- Parallel projection: orthogonal and axonometric projections
- Central projection: perspective.

Themes for the analysis of objects – human-centred design.

Notions of methodology, based on the reading of "Da cosa nasce cosa" by Bruno Munari.

Anthropometrics and ergonomic; cognitive ergonomics and the "Norman doors".

Analysis of an object: the final project for the course will consist in measuring, documenting in technical drawings and analysing the typology, function and form of an object, in a project to be drafted entirely by hand.

During the course, a workshop to be held by a visiting professor will introduce rendering techniques by hand with markers, coloured pencils and other materials

Product Design Lab 2

ICAR/13

8 CFU

The Laboratory is moving to rethinking the relationships between individuals and communities and between man and nature. The comparison with environmental, spatial and social issues requires the designer to also think about his own role and responsibility in choices and commitment and therefore in environmental and civic awareness. It is considered useful to activate the planning and strategic process starting from the chestnut, essence, material and typical local food, present in abundance in the internal hilly areas of Emilia Romagna, Tuscany and the Marche, proposing it as a social material. The objective is to create chestnut products with which to activate new relationships also through playful and recreational activities, board games, outdoors, between generations. The designed products can activate new relationship dynamics between the inhabitants of the places (resident community, visiting community), the places (natural and anthropic environment) and the ecosystem (flora, fauna, earth, man) in a concept of interdisciplinary inter-species project. The products are developed by applying a methodology that delves into the study of the entire production chain, from the nature of the material to its transformation, to transport, sale and use of the product itself. Depending on the needs, the main material is accompanied by metal joint knots, local fabrics, for example in hemp or wool (and its derivatives) and other complementary materials. The product lines will be able to highlight the material and immaterial values of the places, reworking traditional production techniques and hybridizing them with contemporary techniques. The products will have the aim of enabling better relationships between people and the environment and increasing civic awareness towards others.

The objective of the laboratory is to deepen methodological, planning, technical and humanistic training compared to what was acquired in the first year. It is expected to develop all phases of the design process from the analysis of needs to the market analysis, to the development of the concept, the definitive and the executive with the creation of models and prototypes.

Design and Communication Management

SECS-P/08

6 CFU

The course is structured into two distinct theoretical modules but also integrated with a part of practical exercise/workshop. In the first Design Management module we start from the analysis of the scenario and the context to understand what the role of Design can and must be as a driver of innovation, though not only a clear organization of the processes, but also and above all with the affirmation of a shared culture. We touch on the themes of corporate organisation, the scenario, the mission, the resulting strategy, marketing, its levers, and particularly the concept of positioning, also with historical notes and practical examples. Finally, we go deeper to see how design can be integrated with other functions up to the modern definition of design

management. In the second part, the main aspects of Corporate Communication are examined, starting from the concept of corporate culture and above all the value of the Brand (Brand Equity). A clear analysis is made of the communication process and its purposes, after which the different techniques and tools of integrated communication are addressed: brand, corporate and visual identity, advertising, public relations, sponsorships, promotions up to the most modern ones such as web communication, social media and guerrilla marketing tools. All supported by historical notes and concrete cases. The course intends to analyse the aspects that are upstream, downstream and behind the pure creative act, proposing an integrative logic that overcomes the traditional divisions between business and culture, marketing and design, product and communication. The goal is to merge them in an interdisciplinary vision that must guide the entire process, from preliminary research and analysis of the idea to its implementation, introduction into the market and communication. The goal is to raise a new breed of hybrid designers, who will be able to deeply understand their role within a company and society.

Product Design Lab 3

ICAR/13

8 CFU

The first part of the Laboratory will be dedicated, through frontal lessons, to transmitting to students the tools and theoretical foundations to direct the skills acquired in previous years towards a spatial contextualization of their project. Topics concerning the construction and perception of internal space and the implications of the relationship between internal environments and objects and their interaction with man will be introduced. A part of the initial lessons will also be dedicated to environmental, technological and material issues from which interior design cannot ignore in terms of ideation and construction. The theme of the workshop will focus on the design of a minimal living space in which the transformative characteristics over time are mainly delegated to the display component of complex and multifunctional objects.

The course aims to deepen and experiment with design tools to tackle a discipline such as that of product design located in space with the necessary awareness and responsibility. The artifact does not exist in abstract isolation, but is placed in a context, promoting interactions between man and the artificial or natural environment. It can and must act as central in relation to cultural, economic, social and ecological scenarios in continuous and profound transformation.

Critica del contemporaneo

ICAR/13

6 CFU

Interaction Design

ICAR/13

6 CFU

Teaching is organized in lectures and classroom exercises. It provides for the creation of a final project, a synthesis of all the technical, theoretical and practical skills learned that will be materialized into a prototype. The development of the final project lays the foundation on the one hand on bibliographic sources, on the other hand on field research methodologies such as UX research, design thinking, lateral thinking, and co-design approaches, in a constant confrontation with the areas of interface design, user experience, information architecture, visual design and product interaction design.

The student acquires basic notions for the design of two- and three-dimensional interactive artifacts, delving into the relationship between humans and the technological object from both a theoretical and application perspective. Through lectures and practical exercises, the student will be able to learn the main mechanics of interaction, the related technologies, the UX research methods and the design of behaviors by experimenting contextually on interfaces, objects and spaces.

Theories of Interaction Design Studies

ICAR/13

3 CFU

Designing interfaces for mobile devices and their specificities related to information design, supporting behavioral change, will be the focus of the course's design exercise.

The course delves into theoretical and practical aspects of interaction design, starting from the design of two-dimensional interfaces to the development of systems enabling interaction between humans and urban spaces.

The design of interfaces for mobile devices in relation to the environment and built structures, along with the ability to use one's personal data and that shared by other users, constitute a new resource for designing services that emerge from user needs.

Human factors - Fundamentals of Human Factors

M-PSI/01

3 CFU

Human Factors definition

History of the discipline and application area

Elements of cognitive psychology: perception, memory, attention, decision making

Implication for design and guidelines

Task analysis

Usability analysis

Human Factors fundamentals

Key concepts of cognitive psychology: perception, memory, attention, decision making.
Human Factors methods and techniques for the design of products and services.

Human factors - Modulo applicativo

M-PSI/01

3 CFU

From automation factors to human factors: knowing machines to understand the peculiarities of the person;

- Applications and case studies related to automation in daily life;
- Interaction design in the automation of services and systems;
- Design research laboratory.
- Know the Human Factors research methodology for designing interactive products and services;
- Ability to apply Human Factors research methodology for designing interactive products and services;
- Ability to formulate the research plan with objectives, hypotheses, research activities, data analysis and theory formulation;
- Ability to transform the results of the research activity into knowledge for designing interactive products and services.

Workshop Experience Design

ICAR/13

2 CFU

Workshop Business & Entrepreneurship

ICAR/13

2 CFU

Workshop Service Design

ICAR/13

2 CFU