

# Advanced Master's Degree

## Industrial Design and Product Development



## Advanced Master's Degree Industrial Design and Product Development

- » Modality: online
- » Duration: 2 years
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/design/advanced-master-degree/advanced-master-degree-industrial-design-product-development](http://www.techtitute.com/us/design/advanced-master-degree/advanced-master-degree-industrial-design-product-development)

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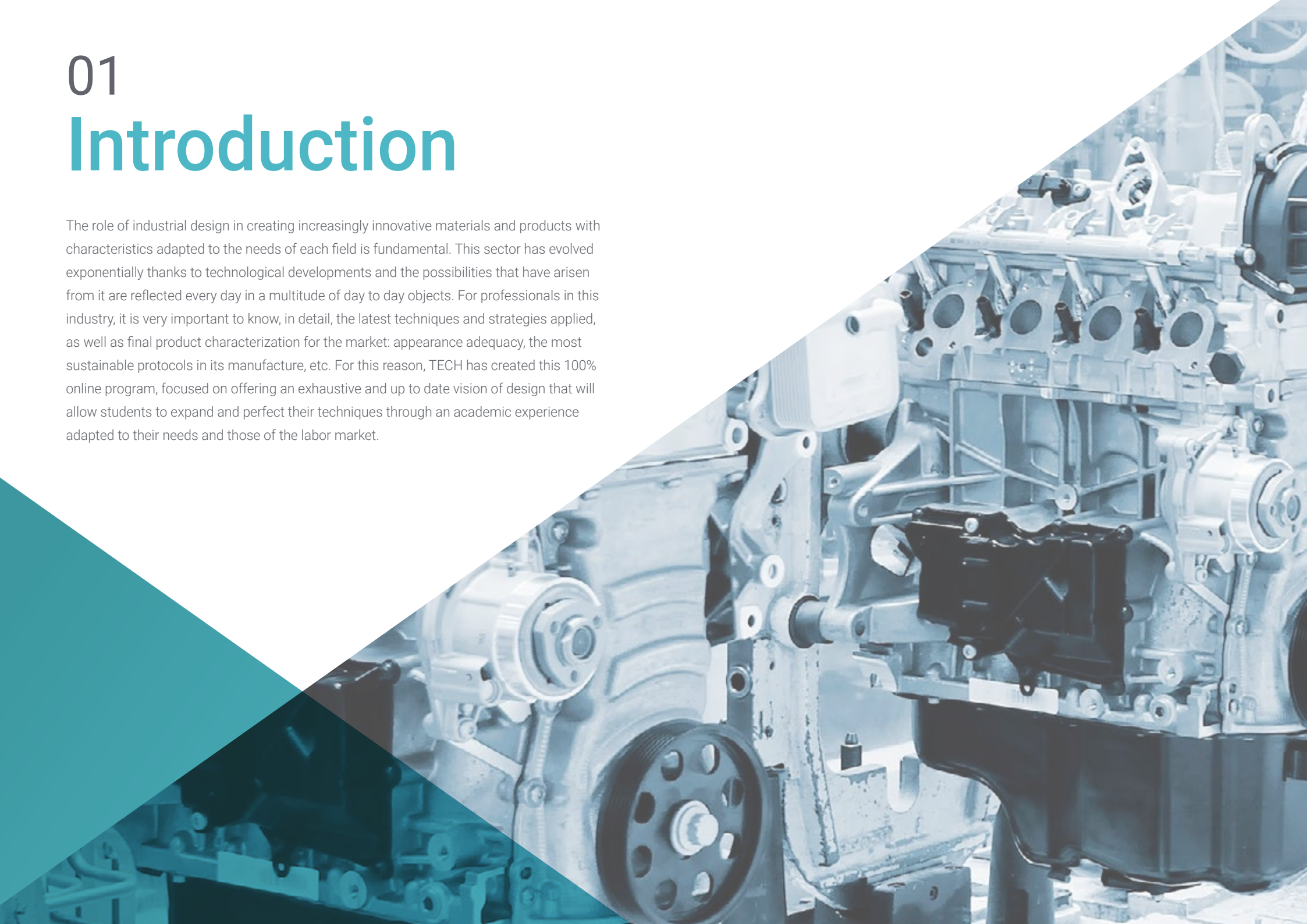
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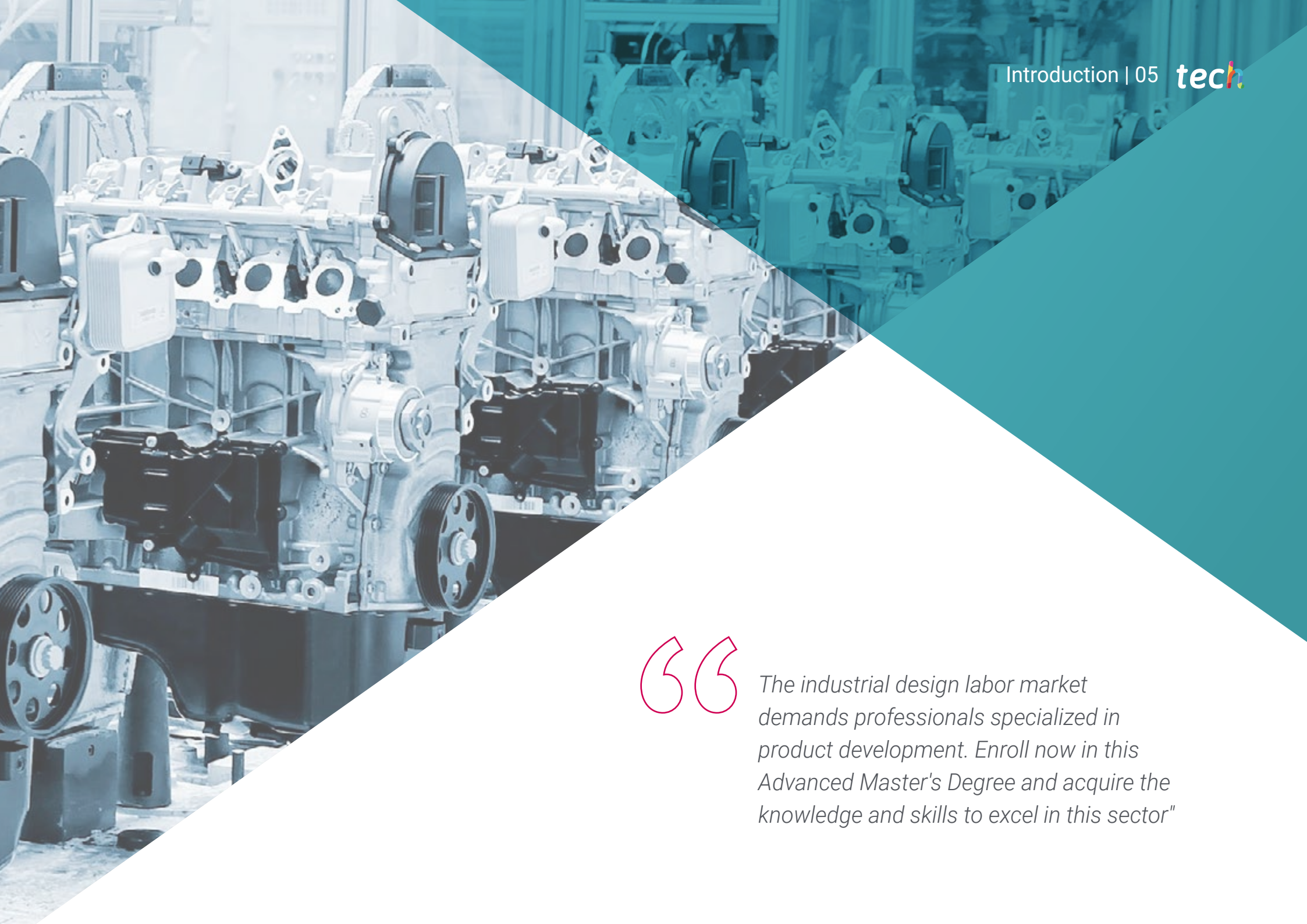
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# 01

# Introduction

The role of industrial design in creating increasingly innovative materials and products with characteristics adapted to the needs of each field is fundamental. This sector has evolved exponentially thanks to technological developments and the possibilities that have arisen from it are reflected every day in a multitude of day to day objects. For professionals in this industry, it is very important to know, in detail, the latest techniques and strategies applied, as well as final product characterization for the market: appearance adequacy, the most sustainable protocols in its manufacture, etc. For this reason, TECH has created this 100% online program, focused on offering an exhaustive and up to date vision of design that will allow students to expand and perfect their techniques through an academic experience adapted to their needs and those of the labor market.





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*The industrial design labor market demands professionals specialized in product development. Enroll now in this Advanced Master's Degree and acquire the knowledge and skills to excel in this sector"*

Industry and society are interconnected. Companies dedicated to product and material design and development work every day to obtain results that are increasingly adapted to the specifications and requirements demanded by the sector. That is why, after decades of research and technological advances, today it is possible to find lighter and lighter vehicles, highly ergonomic bicycles, household goods that serve as storage and decoration in equal parts, electronic equipment and household appliances that are increasingly functional, to name a few. Industrial design is present wherever you look.

Within this sector, planning and development tasks in product creation take on special relevance, allowing us not only to reduce costs and increase productivity in manufacturing, but also to adapt them to the specific needs of a specific public, making them more attractive for distribution and sale. For this reason, professionals working in this sector must master the latest and most effective tools and techniques that allow them to carry out an efficient and highly marketable design.

Thanks to this Advanced Master's Degree in Industrial Design and Product Development, students will be able to perfect their skills and expand their skills to carry out a production adapted to the latest developments in the profession, a feature that is currently in great demand in the labor market. It is a comprehensive program that delves into both the beginning of the design process, with exhaustive planning from the manufacturing point of view, to marketing strategies, as well as the use of the most appropriate tools and materials and their sustainable development.

A comprehensive and 100% online program designed by experts in the sector who have adapted the best theoretical and practical content to the methodology that characterizes TECH, making this course a unique and enriching academic experience. In addition, thanks to the hours of additional material in different formats that students will find in the Virtual Classroom, they will be able to delve deeper into each section of the syllabus they consider most relevant, thus offering customized learning for each individual's needs.

This **Advanced Master's Degree in Industrial Design and Product Development** contains the most complete and up-to-date educational program on the market. The most important features include:

- » Practical cases presented by experts in Industrial Design
- » The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- » Practical exercises where self-assessment can be used to improve learning
- » Special emphasis on innovative methodologies in Industrial Design and Product Development
- » Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- » Content that is accessible from any fixed or portable device with an Internet connection



*Delving into sustainable design characterization and its tools, will allow you to work reducing the ecological footprint, but without losing the quality and effectiveness of the final product"*

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*This Advanced Master's Degree includes a specific module dedicated to technical representation systems, with which you will be able to perfect your skills using design tools"*

Its teaching staff includes professionals from the field of journalism, who bring to this program the experience of their work, as well as renowned specialists from reference societies and prestigious universities.

The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide an immersive experience designed to prepare for real-life situations.

This program is designed around Problem-Based Learning, whereby the student must try to solve the different professional practice situations that arise throughout the program. For this purpose, the professional will be assisted by an innovative interactive video system created by renowned and experienced experts.

*You will have access to case studies designed by design experts with which you will be able to work on your creativity and learn the best techniques to overcome the fear of blank paper.*

*A comprehensive program that delves into the trends of industrial design specializing in different sectors: interior, digital, product or fashion.*



# 02 Objectives

Given the current demand for industrial design professionals specialized in product development, TECH has designed this program with the aim of providing students with all the tools they need to broaden their skills in this sector and obtain specialized knowledge. In addition, for many companies the environmental factor is very important, so this program places special emphasis on eco-design so that students can use it as a distinctive asset in their work practice and in any personnel selection process.





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*This program will positively influence your professional career, allowing you to achieve your most ambitious career goals based on innovative and practical knowledge of Industrial Design”*



## General Objectives

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- » Know how to synthesize one's own interests, through observation and critical thinking, translating them into artistic creations
- » Learn to plan, develop and present artistic productions appropriately, using effective production strategies and with their own creative contributions
- » Acquire theoretical and practical methodological knowledge necessary for the realization of technical projects
- » Analyze and evaluate materials used in engineering based on their properties
- » Expand your knowledge of the innovation and technology transfer processes for the development of new products and processes and the establishment of a new state of the art
- » Understand the creative, analytical and study process for the realization of any work
- » Deepen market analysis techniques and apply them to communication and marketing processes in project development
- » Understand the basic concepts that are part of the communication policy of an organization: Its identity, its culture, how it communicates, its image, its brand, its reputation and social responsibility
- » Know the basics of design, as well as the references, styles and movements that have shaped it from its beginnings to the present day





## Specific Objectives

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### Module 1. Fundamentals of Design

- » Connect and correlate the different areas of design, fields of application and professional branches
- » Know the processes of ideation, creativity and experimentation and know how to apply them to projects
- » Integrate language and semantics in the ideation processes of a project, relating them to its objectives and use values

### Module 2. Fundamentals of Creativity

- » Know how to synthesize one's own interests, through observation and critical thinking, translating them into artistic creations
- » Losing the fear of artistic blockage and using techniques to combat it
- » Investigate in oneself, in one's own emotional space and in what is around, in such a way that an analysis of these elements is carried out in order to use them in favor of one's own creativity

### Module 3. Technical Representation Systems

- » Use knowledge of representation systems as a tool in the search for solutions to design problems
- » Develop conception and spatial vision, obtaining new tools that encourage the promotion and generation of ideas
- » Learn to represent objects in the dihedral, axonometric and conic systems as a means of conveying an idea for their realization

### Module 4. Materials

- » Know nanomaterial principles.
- » Understand, analyze and evaluate the processes of corrosion and degradation of materials
- » Evaluate and analyze the different techniques for non-destructive testing of materials

### Module 5. Design of Mechanical Elements

- » Master all aspects of Mechanical Engineering design
- » Develop patents, utility models and industrial designs
- » Evaluate the different failure theories for their application to each machine element
- » Design, analyze and evaluate machine components using state-of-the-art design tools
- » Evaluate the different alternatives for the design of machine elements

### Module 6. Design for Manufacturing

- » Identify the stages and production phases of a project.
- » Achieve a sufficient level of knowledge related to the specific objectives and techniques related to the production area
- » Analyze production from a strategic perspective

### **Module 7. Product Design and Development**

- » Establish all the actors to be taken into account in the design and development process of a new product for its correct performance in terms of quality, time, cost, resources, communications and risks
- » Carry out in depth analysis of the phases related to the development of the manufacturing process until the moment the product is available according to the initial requirements
- » Achieve a detailed understanding of the product validation process to ensure that it meets all expected quality requirements

### **Module 8. Materials for Design**

- » Work with the most suitable materials in each case, in the field of product design
- » Explain and describe the main families of materials: their manufacture, typologies, properties, etc.

### **Module 9. Industrial Production**

- » Know the basic physical principles and execution of the different manufacturing processes
- » Know the most common instruments used for longitudinal measurements in mechanical manufacturing, including constructive and metrological characteristics
- » Adapt to the methodology and definition of requirements according to the application for which the procedure is intended
- » Elaborate approximations of the abstract world of the project to the real world, by means of two-dimensional and virtual graphic presentation in three dimensions, using specific software

### **Module 10. Ethics and Business**

- » Acquire an integrated and global vision of the practice of design, understanding the social, ethical, professional responsibility of design and its role in society
- » Know and apply the terminology and methodology specific to the professional environment

### **Module 11. Digital Technology**

- » Master the vocabulary, methodologies and theoretical and practical content on Digital Imaging
- » Master the vocabulary, methodologies and theoretical and practical content on Vectorial Imaging

### **Module 12. Fundamentals of Marketing**

- » Understand the central role of communication in a historical time defined by the paradigms of the information and knowledge society
- » Knowledge of communication processes in all their social manifestations (interpersonal, group and media)
- » Analyze the different approaches and disciplinary and theoretical approaches to communication
- » Develop an understanding of vocabulary adapted to the basic language of marketing and communication
- » Knowledge of the characteristics of social media and their difference with mass media, as well as their implications and the changes they have generated in marketing and design management

### Module 13. Corporate Image

- » Understand which are the strategic areas that a graphic manager must manage in the communicative process of the graphic and visual identity of brands

### Module 14. Sustainable Design

- » Recognize the sustainability setting and environmental context
- » Know the main tools for environmental impact analysis
- » Recognize the importance of sustainability in design
- » Know the environmental regulations relevant to design
- » Be able to develop a sustainable product design strategy

### Module 15. Packaging Design

- » Promote in students the global vision of packaging and label design, understanding it as an activity in which many factors must be taken into account, from the product it accompanies to its physical and socioeconomic context
- » Train students, through practice, in the competence for the professional development of packaging and label design projects



*If your academic goals include acquiring the professional skills that will enable you to master mechanical engineering design, this program will give you the tools to achieve it"*

# 03 Skills

Nowadays, work demands and life in general make it difficult for students to access an academic program that will help them keep up to date with the latest developments in their sector. TECH is aware of this situation, so it has designed a program focused exclusively on improving and expanding professional skills as an industrial designer based on the most up to date and complete syllabus on the market. Thus, you will be able to learn about the latest advances in technical aspects, regulations, tools, materials, etc., which will allow you to face an innovative project with high expectations of future commercial success.



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*The syllabus of this Advanced Master's Degree focuses on the use of image retouching and manipulation software, so that you can perfect your skills during the course of the program"*



## General Skills

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- » Analyze available prototyping options for proper evaluation of the initial design
- » Develop skills and abilities to express oneself in the technical environment with precision, clarity and objectivity in graphic solutions
- » Understand 3-D The models and visualize figures or parts from any point of view
- » Directly deal with the representation of three-dimensional entities on the plane, improving the sense of perception
- » Learn in depth about the techniques, their phases and the tools related to the conceptual design that precedes the final product design, as well as the translation of the final customer's requirements into technical specifications that the product will have to comply with
- » Plan, develop and conveniently present artistic productions, using effective elaboration strategies and with own creative contributions
- » Master image retouching and manipulation software and develop the skills required for its use
- » Knowledge of the theoretical and practical tools and strategies that facilitate the management of corporate and institutional communication in all types of organizations
- » Know how to correctly select an information and communication organization method for the proper use of a brand
- » Research and identify the most significant elements of the company-client, as well as their needs for the creation of communication strategies and messages
- » Identify the stages and production phases of a project
- » Knowledge of the principles of nanomaterials
- » Obtain knowledge and mastery of the techniques, forms, processes and trends in packaging and label design and their industrial applications



*Delving into the intricacies of concurrent engineering and its tools will increase your chances for more efficient product design and development”*





## Specific Skills

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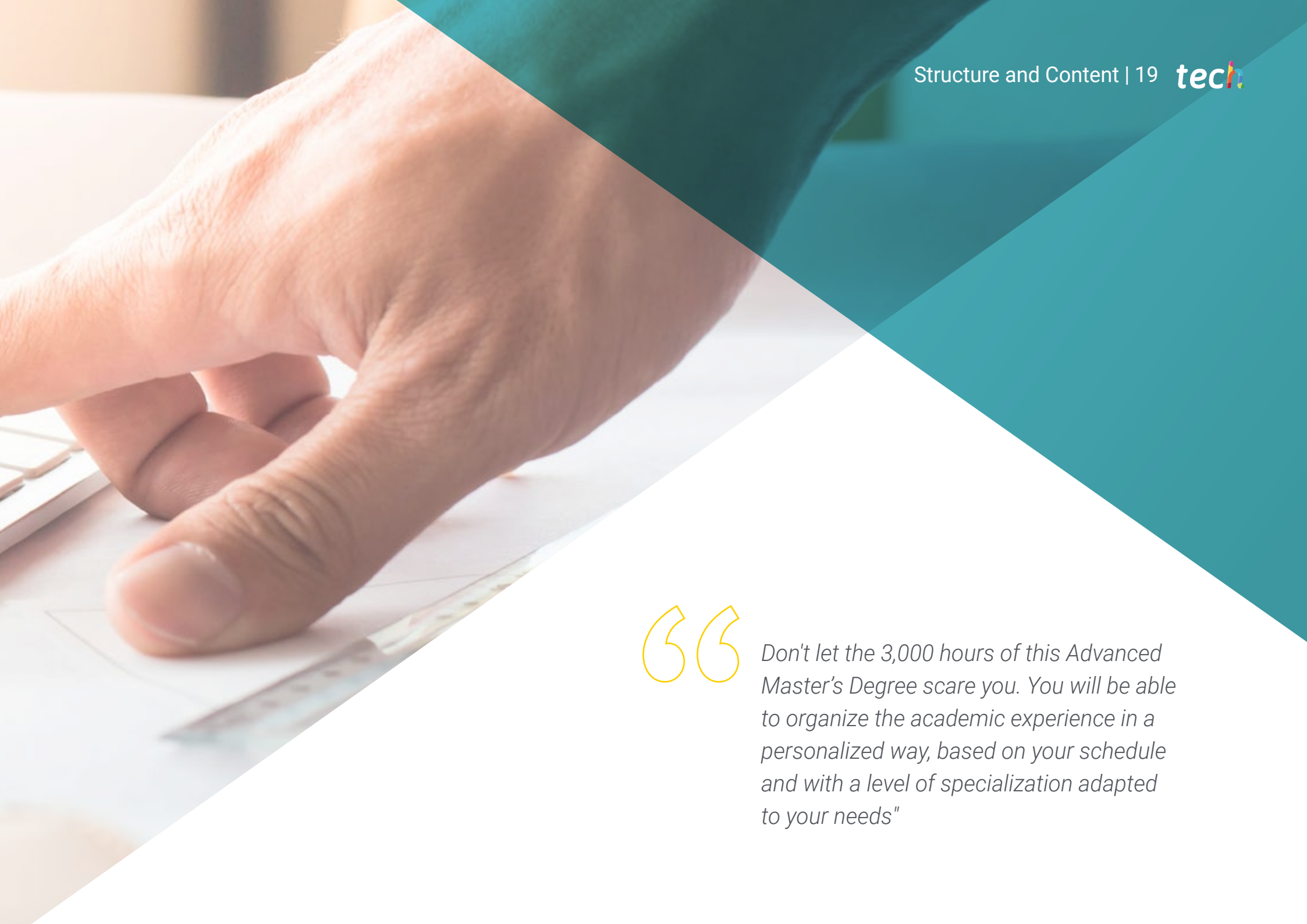
- » In depth breakdown of the design process of a new product from CAD design through failure analysis and drawing to agreement that the design will meet requirements
- » Use software tools associated with each of the phases of digital rapid prototyping and reverse engineering
- » Analyze and evaluate metallic materials, both ferrous and non-ferrous
- » Analyze and evaluate polymeric, ceramic and composite materials
- » Analyze and evaluate materials used in additive manufacturing
- » Know the ISO model of fits and tolerances, including the nomenclature and calculation of the different parameters
- » Know the constructive characteristics of the most common machine tools and the basic aspects of machining technology, including cutting theories and machining mechanics
- » Manage vector drawing software and develop the skills required for its use
- » Employ editorial design software and develop the skills to create final artwork of your own
- » Master the coordination strategies between the aspects of product creation, production, marketing and communication functions
- » Develop a regulated system of basic graphic standards based on visual identity/brand elements
- » Choose wisely, from a wide spectrum, when developing a design proposal for mass production
- » Decide on the most suitable materials for model making or prototyping

# 04

## Structure and Content

Students who access this 100% online Advanced Master's Degree will find in it an extensive source of information, which will help to expand their knowledge in industrial design and in the latest advances in product development in an exponential way. This program and our approach to its structure and content allow TECH to offer a multidisciplinary and exhaustive course, in which the teaching load has been considerably reduced without sacrificing academic quality. This is possible thanks to the use of the relearning methodology and the availability of a variety of additional material, including case studies, detailed videos and dynamic summaries of each unit.





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*Don't let the 3,000 hours of this Advanced Master's Degree scare you. You will be able to organize the academic experience in a personalized way, based on your schedule and with a level of specialization adapted to your needs"*

## Module 1. Fundamentals of Design

- 1.1. History of Design
  - 1.1.1. Industrial Revolution
  - 1.1.2. The Stages of Design
  - 1.1.3. Architecture
  - 1.1.4. The Chicago School
- 1.2. Styles and Movements of Design
  - 1.2.1. Decorative Design
  - 1.2.2. Modernist Movement
  - 1.2.3. Art Deco
  - 1.2.4. Industrial Design
  - 1.2.5. Bauhaus
  - 1.2.6. World War II
  - 1.2.7. Transavantgarde
  - 1.2.8. Contemporary Design
- 1.3. Designers and Trends
  - 1.3.1. Interior Designers
  - 1.3.2. Graphic Designers
  - 1.3.3. Industrial or Product Designers
  - 1.3.4. Fashion Designers
- 1.4. Project Design Methodology
  - 1.4.1. Bruno Munari
  - 1.4.2. Gui Bonsiepe
  - 1.4.3. J. Christopher Jones
  - 1.4.4. L. Bruce Archer
  - 1.4.5. Guillermo González Ruiz
  - 1.4.6. Jorge Frascara
  - 1.4.7. Bernd Löbach
  - 1.4.8. Joan Costa
  - 1.4.9. Norberto Chaves
- 1.5. The Language of Design
  - 1.5.1. Objects and the Subject
  - 1.5.2. Semiotics of Objects
  - 1.5.3. The Object Layout and its Connotation
  - 1.5.4. Globalization of Signs
  - 1.5.5. Proposal
- 1.6. Design and its Aesthetic-Formal Dimension
  - 1.6.1. Visual Elements
    - 1.6.1.1. The Shape
    - 1.6.1.2. The Measure
    - 1.6.1.3. Color
    - 1.6.1.4. Texture
  - 1.6.2. Relationship Elements
    - 1.6.2.1. Management
    - 1.6.2.2. Position
    - 1.6.2.3. Spatial
    - 1.6.2.4. Severity
  - 1.6.3. Practical Elements
    - 1.6.3.1. Representation
    - 1.6.3.2. Meaning
    - 1.6.3.3. Function
  - 1.6.4. Frame of Reference
- 1.7. Analytical Methods of Design
  - 1.7.1. Pragmatic Design
  - 1.7.2. Analog Design
  - 1.7.3. Iconic Design
  - 1.7.4. Canonical Design
  - 1.7.5. Main Authors and Their Methodology

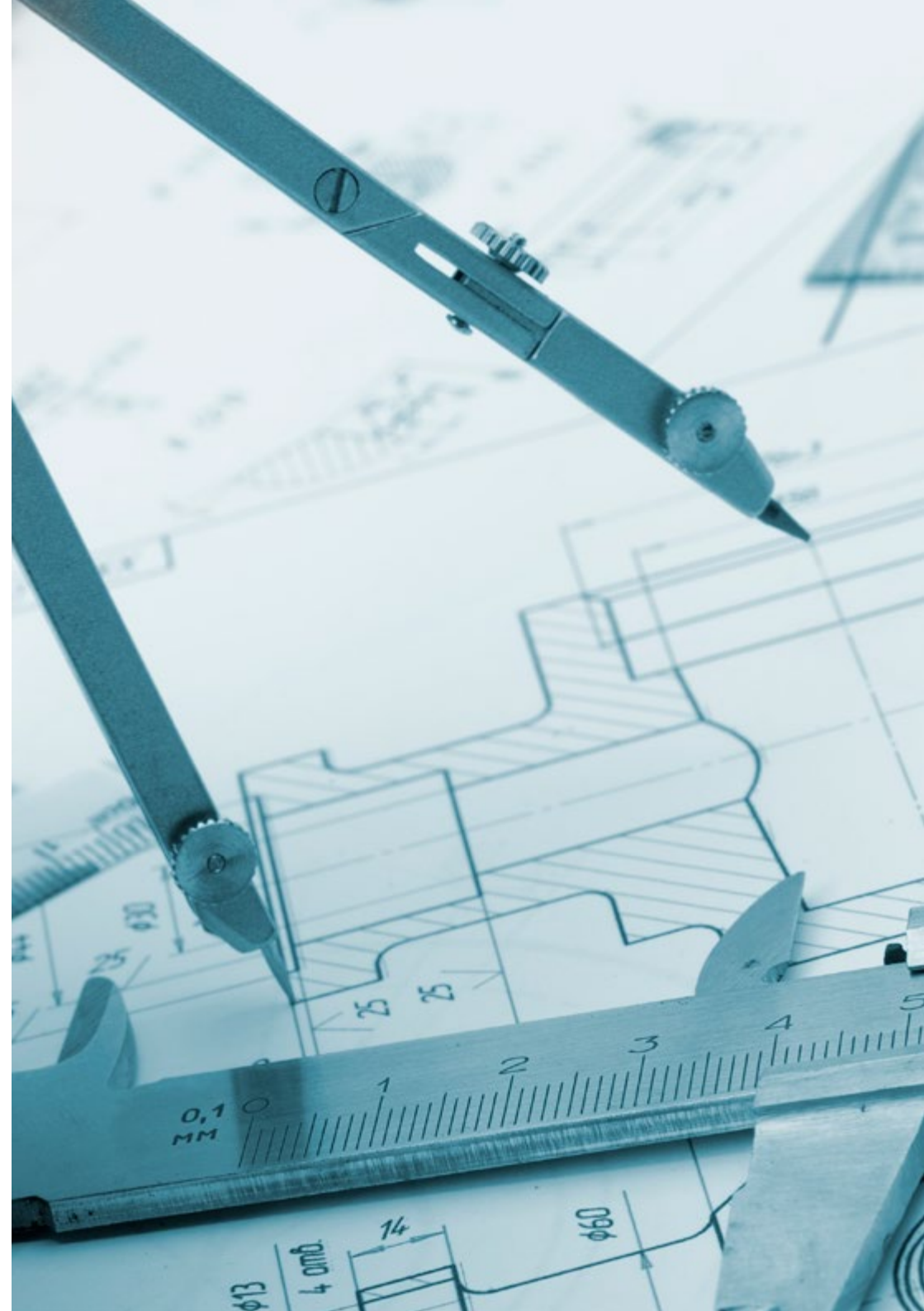


- 1.8. Design and Semantics
  - 1.8.1. Semantics
  - 1.8.2. Meaning
  - 1.8.3. Denotative Meaning and Connotative Meaning
  - 1.8.4. Lexis
  - 1.8.5. Lexical Field and Lexical Family
  - 1.8.6. Semantic Relationships
  - 1.8.7. Semantic Change
  - 1.8.8. Causes of Semantic Changes
- 1.9. Design and Pragmatics
  - 1.9.1. Practical Consequences, Abduction and Semiotics
  - 1.9.2. Mediation, Body and Emotions
  - 1.9.3. Learning, Experiencing and Closing
  - 1.9.4. Identity, Social Relations and Objects
- 1.10. Current Context of Design
  - 1.10.1. Current Problems of Design
  - 1.10.2. Current Themes of Design
  - 1.10.3. Contributions on Methodology

## Module 2. Fundamentals of Creativity

- 2.1. Creative Introduction
  - 2.1.1. Style in Art
  - 2.1.2. Educate Your Eyes
  - 2.1.3. Can Anyone Be Creative?
  - 2.1.4. Pictorial Languages
  - 2.1.5. What is Needed? Materials
- 2.2. Perception as the First Creative Act
  - 2.2.1. What Do You See? What Do You Hear? What Do You Feel?
  - 2.2.2. Perceive, Observe, Attentively Examine
  - 2.2.3. Portrait and Self-Portrait: Cristina Núñez
  - 2.2.4. Case Study: Photo-Dialogue Diving into Oneself

- 2.3. Facing the Blank Paper
  - 2.3.1. Drawing without Fear
  - 2.3.2. The Notebook as a Tool
  - 2.3.3. The Book of an Artist: What Is It?
  - 2.3.4. Referrals
- 2.4. Creating the Artist's Book I
  - 2.4.1. Analysis and Gaming: Pencils and Markers
  - 2.4.2. Tricks to Loosen the Hand
  - 2.4.3. First Lines
  - 2.4.4. The Nib
- 2.5. Creating the Artist's Book II
  - 2.5.1. The Spot
  - 2.5.2. Waxes. Experimentation
  - 2.5.3. Natural Pigments
- 2.6. Creating the Artist's Book III
  - 2.6.1. Collage and Photomontage
  - 2.6.2. Traditional Tools
  - 2.6.3. Online Tools: Pinterest
  - 2.6.4. Experimentation with Image Composition
- 2.7. Doing without Thinking
  - 2.7.1. What is Achieved by Doing without Thinking?
  - 2.7.2. Improvise: Henri Michaux
  - 2.7.3. Action Painting
- 2.8. Critics as Artists
  - 2.8.1. Constructive Criticism
  - 2.8.2. Manifesto on Creative Criticism
- 2.9. The Creative Block
  - 2.9.1. What Is a Blockage?
  - 2.9.2. Extend the Limits
  - 2.9.3. Case Study: Get Your Hands Dirty
- 2.10. Studying the Artist's Book
  - 2.10.1. Emotions and Their Management in the Creative Sphere
  - 2.10.2. Your Own World in a Notebook
  - 2.10.3. What Did I Feel? Self-Analysis
  - 2.10.4. Case Study: Self-Criticism



## Module 3. Technical Representation Systems

- 3.1. Introduction to Flat Geometry
  - 3.1.1. The Fundamental Material and Its Use
  - 3.1.2. Fundamental Tracings in the Plane
  - 3.1.3. Polygons. Metric Ratios
  - 3.1.4. Standardization, Lines, Writing and Formats
  - 3.1.5. Standardized Dimensioning
  - 3.1.6. Scales
  - 3.1.7. Technical Representation Systems
    - 3.1.7.1. Types of Projection
      - 3.1.7.1.1. Conical Projection
      - 3.1.7.1.2. Orthogonal Cylindrical Projection
      - 3.1.7.1.3. Oblique Cylindrical Projection
    - 3.1.7.2. Classes of Representation Systems
      - 3.1.7.2.1. Measuring Systems
      - 3.1.7.2.2. Perspective Systems
- 3.2. Fundamental Tracings in the Plane
  - 3.2.1. Fundamental Geometrical Elements
  - 3.2.2. Perpendicularity
  - 3.2.3. Parallelism
  - 3.2.4. Operations With Segments
  - 3.2.5. Angles
  - 3.2.6. Circumferences
  - 3.2.7. Geometric Places
- 3.3. Geometric Transformations
  - 3.3.1. Isometric
    - 3.3.1.1. Equality
    - 3.3.1.2. Translation
    - 3.3.1.3. Symmetry
    - 3.3.1.4. Turn
  - 3.3.2. Isomorphic
    - 3.3.2.1. Homothecary
    - 3.3.2.2. Similarities
  - 3.3.3. Anamorphic
    - 3.3.3.1. Equivalents
    - 3.3.3.2. Investments
  - 3.3.4. Projective
    - 3.3.4.1. Homology
    - 3.3.4.2. Affine Homology or Affinity
- 3.4. Polygons
  - 3.4.1. Polygon Lines
    - 3.4.1.1. Definition and Types
  - 3.4.2. Triangles
    - 3.4.2.1. Elements and Classification
    - 3.4.2.2. Construction of Triangles
    - 3.4.2.3. Notable Lines and Points
  - 3.4.3. Quadrilaterals
    - 3.4.3.1. Elements and Classification
    - 3.4.3.2. Parallelograms
  - 3.4.4. Regular Polygons
    - 3.4.4.1. Definition
    - 3.4.4.2. Construction
  - 3.4.5. Perimeters and Areas
    - 3.4.5.1. Definition: Measuring Areas
    - 3.4.5.2. Surface Units
  - 3.4.6. Polygon Areas
    - 3.4.6.1. Quadrilateral Areas
    - 3.4.6.2. Triangle Areas
    - 3.4.6.3. Regular Polygon Areas
    - 3.4.6.4. Irregular Areas
- 3.5. Tangents and Links. Technical and Conic Curves
  - 3.5.1. Tangents, Links and Polarity
    - 3.5.1.1. Tangents
      - 3.5.1.1.1. Tangent Theorems
      - 3.5.1.1.2. Drawings of Tangent Lines
      - 3.5.1.1.3. Straight and Curved Links
    - 3.5.1.2. Polarity at the Circumference
      - 3.5.1.2.1. Drawings of Tangent Lines

- 3.5.2. Technical Curves
  - 3.5.2.1. Ovals
  - 3.5.2.2. Ovoids
  - 3.5.2.3. Spirals
- 3.5.3. Conical Curves
  - 3.5.3.1. Ellipse
  - 3.5.3.2. Parabola
  - 3.5.3.3. Hyperbola
- 3.6. Dihedral System
  - 3.6.1. General Aspects
    - 3.6.1.1. Point and Line
    - 3.6.1.2. The Plane. Intersections
    - 3.6.1.3. Parallelism, Perpendicularity and Distances
    - 3.6.1.4. Plane Changes
    - 3.6.1.5. Turns
    - 3.6.1.6. Reductions
    - 3.6.1.7. Angles
  - 3.6.2. Curves and Surfaces
    - 3.6.2.1. Curves
    - 3.6.2.2. Surfaces
    - 3.6.2.3. Polyhedra
    - 3.6.2.4. Pyramids
    - 3.6.2.5. Pryzm
    - 3.6.2.6. Cone
    - 3.6.2.7. Cylinder
    - 3.6.2.8. Revolution Surfaces
    - 3.6.2.9. Intersection of Surfaces
  - 3.6.3. Shade
    - 3.6.3.1. General Aspects
- 3.7. System Boundary
  - 3.7.1. Point, Line and Plane
  - 3.7.2. Intersections and Reductions
    - 3.7.2.1. Reductions
    - 3.7.2.2. Applications
  - 3.7.3. Parallelism, Perpendicularity, Distance and Angles
    - 3.7.3.1. Perpendicularity
    - 3.7.3.2. Distances
    - 3.7.3.3. Angles
  - 3.7.4. Line, Surfaces and Terrains
    - 3.7.4.1. Terrains
  - 3.7.5. Applications
- 3.8. Axonometric System
  - 3.8.1. Orthogonal Axonometry: Point, Line and Plane
  - 3.8.2. Orthogonal Axonometry: Intersections, Reductions and Perpendicularity
    - 3.8.2.1. Reductions
    - 3.8.2.2. Perpendicularity
    - 3.8.2.3. Flat Shapes
  - 3.8.3. Orthogonal Axonometry: Body Perspective
    - 3.8.3.1. Representation of Bodies
  - 3.8.4. Oblique Axonometry: Abatisms, Perpendicularity
    - 3.8.4.1. Frontal Perspective
    - 3.8.4.2. Reduction and Perpendicularity
    - 3.8.4.3. Flat Figures
  - 3.8.5. Oblique Axonometry: Body Perspective
    - 3.8.5.1. Shade
- 3.9. Conical System
  - 3.9.1. Conical or Central Projection
    - 3.9.1.1. Intersections
    - 3.9.1.2. Parallelisms
    - 3.9.1.3. Reductions
    - 3.9.1.4. Perpendicularity
    - 3.9.1.5. Angles
  - 3.9.2. Lineal Perspective
    - 3.9.2.1. Auxiliary Constructions
  - 3.9.3. Lines and Surfaces Perspective
    - 3.9.3.1. Practical Perspective



- 3.9.4. Perspective Methods
  - 3.9.4.1. Tilted Frame
- 3.9.5. Prospective Restitutions
  - 3.9.5.1. Reflexes
  - 3.9.5.2. Shade
- 3.10. The Sketch
  - 3.10.1. Objectives of the Sketch
  - 3.10.2. The Proportion
  - 3.10.3. Sketch Process
  - 3.10.4. Point of View
  - 3.10.5. Labeling and Graphic Symbols
  - 3.10.6. Measurement

## Module 4. Materials

- 4.1. Material Properties
  - 4.1.1. Mechanical Properties
  - 4.1.2. Electrical Properties
  - 4.1.3. Optical Properties
  - 4.1.4. Magnetic Properties
- 4.2. Metallic Materials I. Ferrous
- 4.3. Metallic Materials II. Non-Ferrous
- 4.4. Polymeric Materials
  - 4.4.1. Thermoplastics
  - 4.4.2. Thermosetting Plastics
- 4.5. Ceramic Materials
- 4.6. Composite Materials
- 4.7. Biomaterials
- 4.8. Nanomaterials
- 4.9. Corrosion and Degradation of Materials
  - 4.9.1. Types of Corrosion
  - 4.9.2. Oxidation of Metals
  - 4.9.3. Corrosion Control

- 4.10. Non-Destructive Testing
  - 4.10.1. Visual Inspections and Endoscopies
  - 4.10.2. Ultrasound
  - 4.10.3. X-Rays
  - 4.10.4. Foucault's Currents (Eddy Currents)
  - 4.10.5. Magnetic Particles
  - 4.10.6. Penetrating Liquids
  - 4.10.7. Infrared Thermography

## Module 5. Design of Mechanical Elements

- 5.1. Theories of Failure
  - 5.1.1. Static Failure Theories
  - 5.1.2. Dynamic Failure Theories
  - 5.1.3. Fatigue
- 5.2. Tribology and Lubrication
  - 5.2.1. Friction
  - 5.2.2. Wear and Tear
  - 5.2.3. Lubricants
- 5.3. Propshaft Design
  - 5.3.1. Shafts and Axles
  - 5.3.2. Keyways and Splined Shafts
  - 5.3.3. Flywheels
- 5.4. Rigid Transmission Design
  - 5.4.1. Cams
  - 5.4.2. Spur Gears
  - 5.4.3. Bevel Gears
  - 5.4.4. Helical Gears
  - 5.4.5. Worm Screws
- 5.5. Flexible Transmission Design
  - 5.5.1. Chain Drives
  - 5.5.2. Belt Drives
- 5.6. Bearing Design
  - 5.6.1. Friction Bearings
  - 5.6.2. Roller Bearings

- 5.7. Design of Brakes, Clutches and Couplings
  - 5.7.1. Brakes
  - 5.7.2. Clutches
  - 5.7.3. Couplings
- 5.8. Mechanical Spring Design
- 5.9. Design of Non-Permanent Joints
  - 5.9.1. Bolted Joints
  - 5.9.2. Riveted Joints
- 5.10. Design of Permanent Connections
  - 5.10.1. Welded Joints
  - 5.10.2. Adhesive Joints

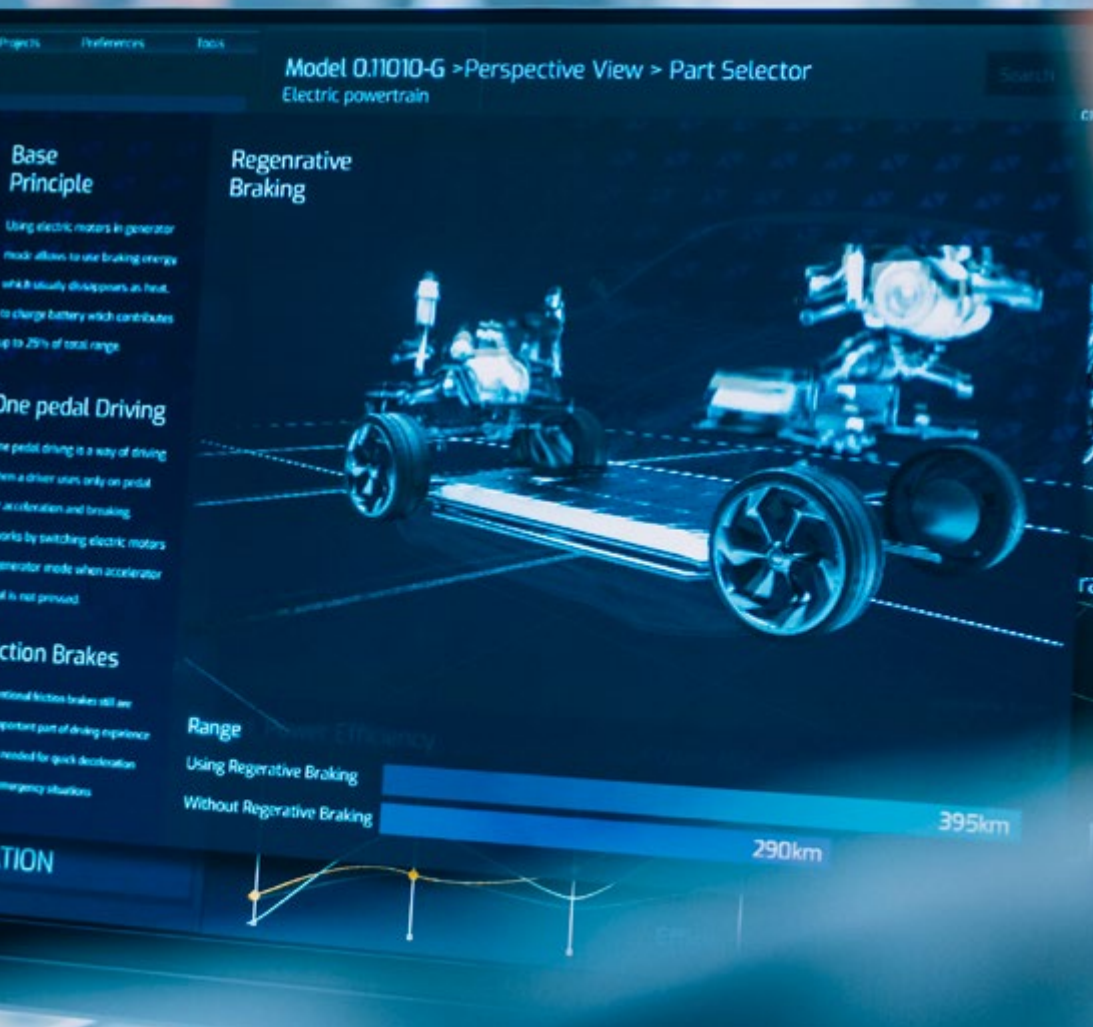
## Module 6. Design for Manufacturing

- 6.1. Design for Manufacture and Assembly
- 6.2. Forming by Molding
  - 6.2.1. Foundry
  - 6.2.2. Injection
- 6.3. Forming by Deformation
  - 6.3.1. Plastic Deformation
  - 6.3.2. Printed
  - 6.3.3. Forge
  - 6.3.4. Extrusion
- 6.4. Conformation due to Loss of Material
  - 6.4.1. Abrasion
  - 6.4.2. By Chip Removal
- 6.5. Heat Treatment
  - 6.5.1. Tempering
  - 6.5.2. Annealing
  - 6.5.3. Coating
  - 6.5.4. Standardization
  - 6.5.5. Thermochemical Treatments
- 6.6. Application of Paints and Coatings
  - 6.6.1. Electrochemical Treatments
  - 6.6.2. Electrolytic Treatments
  - 6.6.3. Paints, Lacquers and Varnishes

- 6.7. Forming of Polymers and Ceramic Materials
- 6.8. Manufacture of Composite Parts
- 6.9. Additive Manufacturing
  - 6.9.1. Power Bed Fusion
  - 6.9.2. Direct Energy Deposition
  - 6.9.3. Binder Jetting
  - 6.9.4. Bound Extrusion Power
- 6.10. Robust Engineering
  - 6.10.1. Taguchi Method
  - 6.10.2. Experiment Design
  - 6.10.3. Statistical Process Control

## Module 7. Product Design and Development

- 7.1. QFD (Quality Function Deployment) in Product Design and Development
  - 7.1.1. From the Voice of the Customer to Technical Requirements
  - 7.1.2. The House of Quality/Phases for its Development
  - 7.1.3. Advantages and Limitations
- 7.2. Design Thinking
  - 7.2.1. Design, Need, Technology and Strategy
  - 7.2.2. Stages of the Process
  - 7.2.3. Tools and Techniques Used
- 7.3. Concurrent Engineering
  - 7.3.1. Fundamentals of Concurrent Engineering
  - 7.3.2. Methodology of Concurrent Engineering
  - 7.3.3. Tools Used
- 7.4. Programming. Planning and Definition
  - 7.4.1. Requirements. Quality Management
  - 7.4.2. Development Phases. Time Management
  - 7.4.3. Materials, Feasibility, Processes. Cost Management
  - 7.4.4. Project Equipment Human Resource Management
  - 7.4.5. Information. Communications Management
  - 7.4.6. Risk Analysis Risk Management



- 7.5. Products. Their Design (CAD) and Development
  - 7.5.1. Information Management /PLM / Product Life Cycle
  - 7.5.2. Modes and Effects of Product Failure
  - 7.5.3. CAD Construction Review
  - 7.5.4. Product and Manufacturing Plans
  - 7.5.5. Design Verification
- 7.6. Prototypes. Their Development
  - 7.6.1. Rapid Prototyping
  - 7.6.2. Control Plan
  - 7.6.3. Experiment Design
  - 7.6.4. The Analysis of Measurement Systems
- 7.7. Productive Process. Design and Development
  - 7.7.1. Modes and Effects of Process Failure
  - 7.7.2. Design and Construction of Manufacturing Tools
  - 7.7.3. Design and Construction of Control Tools (Gauges)
  - 7.7.4. Adjustment Phase
  - 7.7.5. Production Start-Up
  - 7.7.6. Initial Evaluation of the Process
- 7.8. Product and Process: Its Validation
  - 7.8.1. Evaluation of Measurement Systems
  - 7.8.2. Validation Tests
  - 7.8.3. Statistical Process Control (SPC)
  - 7.8.4. Product Certification
- 7.9. Change Management Improvement and Corrective Actions
  - 7.9.1. Type of Change
  - 7.9.2. Variability Analysis, Improvement
  - 7.9.3. Lessons Learned and Practices Tested
  - 7.9.4. Process of Change
- 7.10. Innovation and Technology Transfer
  - 7.10.1. Intellectual Property
  - 7.10.2. Innovation
  - 7.10.3. Technological Transfer

## Module 8. Materials for Design

- 8.1. Material as Inspiration
  - 8.1.1. Search for Materials
  - 8.1.2. Classification
  - 8.1.3. The Material and its Context
- 8.2. Materials for design
  - 8.2.1. Common Uses
  - 8.2.2. Contraindications
  - 8.2.3. Combination of Materials
- 8.3. Art + Innovation
  - 8.3.1. Materials in Art
  - 8.3.2. New Materials
  - 8.3.3. Composite Materials
- 8.4. Physical
  - 8.4.1. Basic Concepts
  - 8.4.2. Composition of Materials
  - 8.4.3. Mechanical Testing
- 8.5. Technology
  - 8.5.1. Intelligent Materials
  - 8.5.2. Dynamic Materials
  - 8.5.3. The Future in Materials
- 8.6. Sustainability
  - 8.6.1. Procurement
  - 8.6.2. Use
  - 8.6.3. Final Management
- 8.7. Biomimicry
  - 8.7.1. Reflection
  - 8.7.2. Transparency
  - 8.7.3. Other Techniques
- 8.8. Innovation
  - 8.8.1. Success Stories
  - 8.8.2. Materials Research
  - 8.8.3. Sources of Research

- 8.9. Risk Prevention
  - 8.9.1. Safety Factor
  - 8.9.2. Fire
  - 8.9.3. Breakage
  - 8.9.4. Other Risks
- 8.10. Regulations
  - 8.10.1. Regulations According to Application
  - 8.10.2. Regulations by Sector
  - 8.10.3. Regulations According to Location

## Module 9. Industrial Production

- 9.1. Manufacturing Technology
  - 9.1.1. Introduction
  - 9.1.2. Evolution of Manufacturing
  - 9.1.3. Classification of the Manufacturing Processes
- 9.2. Solids Cutting
  - 9.2.1. Handling of Panels and Sheets
  - 9.2.2. Continuous Flow Manufacturing
- 9.3. Manufacture of Thin and Hollow Shapes
  - 9.3.1. Rotomolding
  - 9.3.2. Blowing
  - 9.3.3. Comparison
- 9.4. Manufacturing by Consolidation
  - 9.4.1. Complex Techniques
  - 9.4.2. Advanced Techniques
  - 9.4.3. Textures and Superficial Finishings
- 9.5. Quality Controls
  - 9.5.1. Metrology
  - 9.5.2. Adjustments
  - 9.5.3. Tolerances
- 9.6. Assembly and Packaging
  - 9.6.1. Constructive Systems
  - 9.6.2. Assembly Processes
  - 9.6.3. Design Considerations for Assembly

- 9.7. Post Fabrication Logistics
  - 9.7.1. Storage
  - 9.7.2. Expedition
  - 9.7.3. Waste
  - 9.7.4. Post-Sales Service
  - 9.7.5. Final Management
- 9.8. Introduction to Numerical Control
  - 9.8.1. Introduction to CAM Systems
  - 9.8.2. CAM Solution Architectures
  - 9.8.3. Functional Design of CAM Systems
  - 9.8.4. Automation of Manufacturing Processes and NC Scheduling
  - 9.8.5. CAD-CAM Integration Systems
- 9.9. Inverse Engineering
  - 9.9.1. Digitalization of Complex Geometries
  - 9.9.2. Geometry Processing
  - 9.9.3. Compatibility and Edition
- 9.10. Lean Manufacturing
  - 9.10.1. Lean Thinking
  - 9.10.2. Waste in the Company
  - 9.10.3. The 5 S'

## Module 10. Ethics and Business

- 10.1. Methodology
  - 10.1.1. Document Sources and Research Techniques
  - 10.1.2. Bibliographic Quotes and Research Ethics
  - 10.1.3. Methodological Strategies and Academic Writing
- 10.2. The Field of Morality: Ethics and Morals
  - 10.2.1. Ethics and Morals
  - 10.2.2. Ethical Material and Formal Ethics
  - 10.2.3. Rationality and Morality
  - 10.2.4. Virtue, Goodness and Justice
- 10.3. Applied Ethics
  - 10.3.1. Public Dimension of Applied Ethics
  - 10.3.2. Ethical Codes and Responsibilities
  - 10.3.3. Autonomy and Self-Regulation
- 10.4. Deontological Ethics Applied to Design
  - 10.4.1. Ethical Requirements and Principles of Design Practice
  - 10.4.2. Ethical Decision Making
  - 10.4.3. Relationships and Ethical Professional Skills
- 10.5. Corporate Social Responsibility
  - 10.5.1. Ethical Sense of the Company
  - 10.5.2. Code of Conduct
  - 10.5.3. Globalization and Multiculturalism
  - 10.5.4. Non-Discrimination
- 10.6. Introduction to Commercial Law
  - 10.6.1. Concept of Commercial Law
  - 10.6.2. Economic Activity and Commercial Law
  - 10.6.3. Significance of the Theory of the Sources of Business Law
- 10.7. The Company
  - 10.7.1. Economic Notion of the Business and the Entrepreneur
  - 10.7.2. Legal Regime of the Company
- 10.8. The Entrepreneur
  - 10.8.1. Concept and Characteristic Notes of the Entrepreneur
  - 10.8.2. Personalistic and Capitalistic Companies (Stock Corporations and Limited Liability Companies)
  - 10.8.3. Acquisition of Entrepreneur Status
  - 10.8.4. Corporate Responsibility
- 10.9. Competency Regulation
  - 10.9.1. Competition Law
  - 10.9.2. Illicit or Disloyal Competition
  - 10.9.3. Competitive Strategy
- 10.10. Intellectual and Industrial Property Rights
  - 10.10.1. Intellectual Property
  - 10.10.2. Industrial Property
  - 10.10.3. Modalities of Protection for Creations and Inventions

## Module 11. Digital Technology

- 11.1. Introduction to Digital Imaging
  - 11.1.1. ICT
  - 11.1.2. Description of Technologies
  - 11.1.3. Commands
- 11.2. Vector image. Working with Objects
  - 11.2.1. Selection Tools
  - 11.2.2. Grouping
  - 11.2.3. Align and Distribute
  - 11.2.4. Intelligent Guides
  - 11.2.5. Symbolism
  - 11.2.6. Transform
  - 11.2.7. Distortion
  - 11.2.8. Enclosures
  - 11.2.9. Tracehunter
  - 11.2.10. Compound Forms
  - 11.2.11. Compound Plots
  - 11.2.12. Cutting, Splitting and Separating
- 11.3. Vector image. Color
  - 11.3.1. Color Modes
  - 11.3.2. Dropper Tool
  - 11.3.3. Samples
  - 11.3.4. Gradients
  - 11.3.5. Motif Filling
  - 11.3.6. Appearance Panel
  - 11.3.7. Attributes
- 11.4. Vector image. Advanced Editing
  - 11.4.1. Gradient Mesh
  - 11.4.2. Transparency Panel
  - 11.4.3. Fusion Modes
  - 11.4.4. Interactive Tracing
  - 11.4.5. Clipping Masks
  - 11.4.6. Text
- 11.5. Image Bitmap: The Layers
  - 11.5.1. Creation
  - 11.5.2. Liaison
  - 11.5.3. Transformation
  - 11.5.4. Grouping
  - 11.5.5. Adjustment Layers
- 11.6. Image Bitmap. Selections, Masks and Channels
  - 11.6.1. Frame Selection Tool
  - 11.6.2. Lasso Selection Tool
  - 11.6.3. Magic Wand Tool
  - 11.6.4. Menu Selections: Color Range
  - 11.6.5. Channels
  - 11.6.6. Mask Retouching
  - 11.6.7. Clipping Masks
  - 11.6.8. Vector Masks
- 11.7. Image Bitmap. Blending Modes and Layer Styles
  - 11.7.1. Layer Styles
  - 11.7.2. Lens Opacity
  - 11.7.3. Layer Style Options
  - 11.7.4. Fusion Modes
  - 11.7.5. Examples of Fusion Modes
- 11.8. Editorial Project Types and Forms
  - 11.8.1. Editorial Project
  - 11.8.2. Editorial Project Typology
  - 11.8.3. Document Creation and Configuration
- 11.9. Compositional Elements of the Editorial Project
  - 11.9.1. Master Pages
  - 11.9.2. Reticulation
  - 11.9.3. Text Integration and Composition
  - 11.9.4. Image Integration
- 11.10. Layout, Export and Printing
  - 11.10.1. Design Layout
    - 11.10.1.1. Photo Selection and Editing
    - 11.10.1.2. Preliminary Check
    - 11.10.1.3. Packaging

- 11.10.2. Export
  - 11.10.2.1. Export for Digital Media
  - 11.10.2.2. Export for Physical Media
- 11.10.3. Print
  - 11.10.3.1. Traditional Printing
    - 11.10.3.1.1. Binding
  - 11.10.3.2. Digital Printing

## Module 12. Fundamentals of Marketing

- 12.1. Introduction to Marketing
  - 12.1.1. Concept of Marketing
    - 12.1.1.1. Definition of Marketing
    - 12.1.1.2. Evolution and Current Affairs of Marketing
  - 12.1.2. Different Approaches to Marketing
- 12.2. Marketing in the Company: Strategic and Operational The Marketing Plan
  - 12.2.1. Commercial Management
  - 12.2.2. Importance of Commercial Management
  - 12.2.3. Diversity of Forms of Management
  - 12.2.4. Strategic Marketing
  - 12.2.5. Commercial Strategy
  - 12.2.6. Scope of Application
  - 12.2.7. Commercial Planning
  - 12.2.8. The Marketing Plan
  - 12.2.9. Concept and Definitions
  - 12.2.10. Stages of the Marketing Plan
  - 12.2.11. Types of Marketing Plans
- 12.3. The Business Environment and the Organizational Marketplace
  - 12.3.1. The Environment
  - 12.3.2. Concepts and Limits of the Environment
  - 12.3.3. Macro-Environment
  - 12.3.4. Micro-Environment
  - 12.3.5. The Market
  - 12.3.6. Market Concepts and Limits
  - 12.3.7. Evolution of the Markets
  - 12.3.8. Types of Markets
  - 12.3.9. The Importance of Competence
- 12.4. Consumer Behavior
  - 12.4.1. The Importance of Behavior in Strategy
  - 12.4.2. Influencing Factors
  - 12.4.3. Benefits for the Company
  - 12.4.4. Consumer Benefits
  - 12.4.5. Approaches to Consumer Behavior
  - 12.4.6. Characteristics and Complexity
  - 12.4.7. Variables Involved
  - 12.4.8. Different Types of Approaches
- 12.5. Stages in the Consumer Buying Process
  - 12.5.1. Approach
  - 12.5.2. Approach According to Different Authors
  - 12.5.3. The Evolution of the Process in History
  - 12.5.4. Stages
  - 12.5.5. Recognition of the Problem
  - 12.5.6. Information Search
  - 12.5.7. Evaluation of Alternatives
  - 12.5.8. Decision to Purchase
  - 12.5.9. Post-Purchase
  - 12.5.10. Models in Decision Making
  - 12.5.11. Economic Model
  - 12.5.12. Psychological Model
  - 12.5.13. Mixed Behaviour Models
  - 12.5.14. Market Segmentation in the Strategy of Organizations
  - 12.5.15. Market Segmentation
  - 12.5.16. Concept
  - 12.5.17. Types of Segmentation
  - 12.5.18. The Influence of Segmentation in Strategies
  - 12.5.19. Importance of Segmentation in the Company
  - 12.5.20. Planning Strategies based on Segmentation

- 12.6. Consumer and Industrial Market Segmentation Criteria
- 12.7. Segmentation Procedure
  - 12.7.1. Segment Delimitation
  - 12.7.2. Profile Identification
  - 12.7.3. Evaluation of the Procedure
- 12.8. Criteria for Segmentation
  - 12.8.1. Geographic Characteristics
  - 12.8.2. Social and Economic Characteristics
  - 12.8.3. Other Criteria
  - 12.8.4. Consumer Response to Segmentation
- 12.9. Supply-Demand Market Segmentation Assessment
  - 12.9.1. Supply Analysis
    - 12.9.1.1. Supply Classifications
    - 12.9.1.2. Determination of the Supply
    - 12.9.1.3. Factors Affecting Supply
  - 12.9.2. Demand Analysis
    - 12.9.2.1. Demand Classifications
    - 12.9.2.2. Market Areas
    - 12.9.2.3. Demand Estimation
  - 12.9.3. Segmentation Assessment
    - 12.9.3.1. Assessment Systems
    - 12.9.3.2. Methods of Monitoring
    - 12.9.3.3. Feedback
- 12.10. Marketing Mix
  - 12.10.1. Definition of Marketing Mix
    - 12.10.1.1. Concept and Definition
    - 12.10.1.2. History and Evolution
  - 12.10.2. Marketing Mix Elements
    - 12.10.2.1. Product
    - 12.10.2.2. Price
    - 12.10.2.3. Distribution
    - 12.10.2.4. Promotion

- 12.10.3. The New 4 Ps of Marketing
  - 12.10.3.1. Personalization
  - 12.10.3.2. Participation
  - 12.10.3.3. Peer to Peer
  - 12.10.3.4. Modeled Predictions
- 12.10.4. Current Management Strategies for the Product Portfolio Growth and Competitive Marketing Strategies
- 12.10.5. Portfolio Strategies
  - 12.10.5.1. The BCG Matrix
  - 12.10.5.2. The Ansoff Matrix
  - 12.10.5.3. The Competitive Position Matrix
- 12.10.6. Strategies
  - 12.10.6.1. Segmentation Strategy
  - 12.10.6.2. Positioning Strategy
  - 12.10.6.3. Loyalty Strategy
  - 12.10.6.4. Functional Strategy

## Module 13. Corporate Image

- 13.1. Identity
  - 13.1.1. Idea of Identity
  - 13.1.2. Why Is Identity Sought?
  - 13.1.3. Types of Identity
  - 13.1.4. Digital Identity
- 13.2. Corporate Identity
  - 13.2.1. Definition: Why Have a Corporate Identity?
  - 13.2.2. Factors Influencing Corporate Identity
  - 13.2.3. Corporate Identity Components
  - 13.2.4. Identity Communication
  - 13.2.5. Corporate Identity, Branding and Corporate Image
- 13.3. Corporate Image
  - 13.3.1. Characteristic of the Corporate Image
  - 13.3.2. What Is the Purpose of Corporate Image?
  - 13.3.3. Types of Corporate Image
  - 13.3.4. Examples



- 13.4. Basic Identifying Signs
  - 13.4.1. The Name or Naming
  - 13.4.2. Logos
  - 13.4.3. Monograms
  - 13.4.4. Imagotype
- 13.5. Identity Memorization Factors
  - 13.5.1. Originality
  - 13.5.2. The Symbolic Value
  - 13.5.3. Impressiveness
  - 13.5.4. Repetition
- 13.6. Methodology for the Branding Process
  - 13.6.1. Study of the Sector and Competition
  - 13.6.2. Briefing, Template
  - 13.6.3. Define Brand Strategy and Personality Values
  - 13.6.4. Target Audience
- 13.7. The Customer
  - 13.7.1. Infer What the Customer Is Like
  - 13.7.2. Types of Customers
  - 13.7.3. The Meeting Process
  - 13.7.4. The Importance of Knowing the Customer
  - 13.7.5. Establishing the Budget
- 13.8. Corporate Identity Manual
  - 13.8.1. Construction Standards and Application of the Brand
  - 13.8.2. Corporate Typography
  - 13.8.3. Corporate Colors
  - 13.8.4. Other Graphic Elements
  - 13.8.5. Examples of Corporate Manuals
- 13.9. Identity Redesign
  - 13.9.1. Reasons to Choose an Identity Redesign
  - 13.9.2. Managing a Change in Corporate Identity
  - 13.9.3. Good Practice Visual References
  - 13.9.4. Malpractice Visual References

- 13.10. Brand Identity Project
  - 13.10.1. Presentation and Explanation of the Project: Referrals
  - 13.10.2. Brainstorming Market Analysis
  - 13.10.3. Target Audience, Brand Value
  - 13.10.4. First Ideas and Sketches: Creative Techniques
  - 13.10.5. Establishment of the Project: Fonts and Colors
  - 13.10.6. Delivery and Correction of Projects

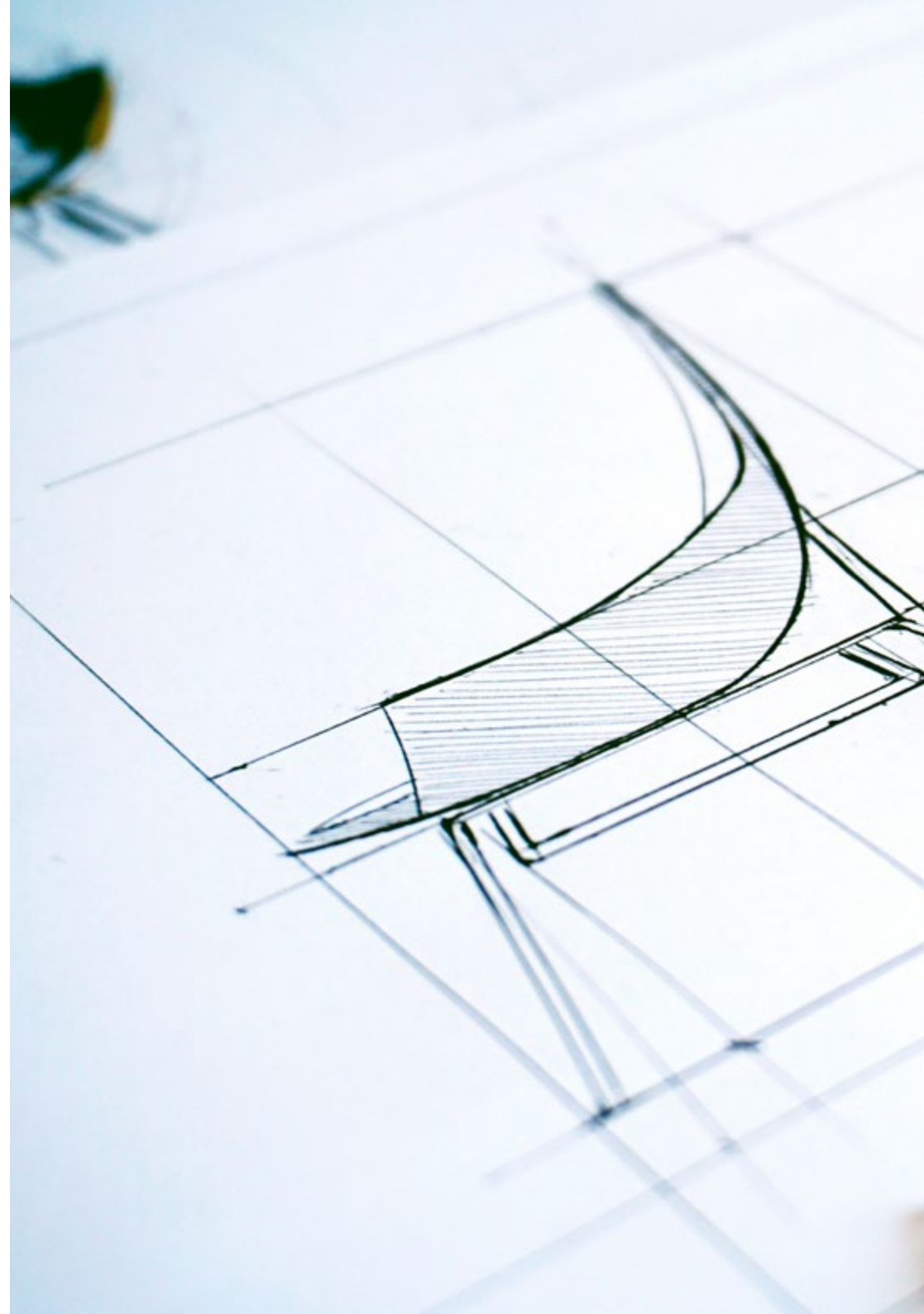
## Module 14. Sustainable Design

- 14.1. Environmental Status
  - 14.1.1. Environmental Context
  - 14.1.2. Environmental Perception
  - 14.1.3. Consumption and Consumerism
- 14.2. Sustainable Production
  - 14.2.1. Ecological Footprint
  - 14.2.2. Biocapacity
  - 14.2.3. Ecological Deficit
- 14.3. Sustainability and Innovation
  - 14.3.1. Production Processes
  - 14.3.2. Process Management
  - 14.3.3. Implementation of the Production
  - 14.3.4. Productivity Through Design
- 14.4. Introduction: Ecodesign
  - 14.4.1. Sustainable Development
  - 14.4.2. Industrial Ecology
  - 14.4.3. Eco-Efficiency
  - 14.4.4. Introduction to the Concept of Ecodesign
- 14.5. Ecodesign Methodologies
  - 14.5.1. Methodological Proposals for the Implementation of Ecodesign
  - 14.5.2. Project Preparation (Driving Forces, Legislation)
  - 14.5.3. Environmental Aspects

- 14.6. Life Cycle Assessment (LCA)
  - 14.6.1. Functional Unit
  - 14.6.2. Inventory
  - 14.6.3. Impact Ratio
  - 14.6.4. Generation of Conclusions and Strategy
- 14.7. Improvement Ideas (Ecodesign Strategies)
  - 14.7.1. Reduce Impact
  - 14.7.2. Increase Functional Unit
  - 14.7.3. Positive Impact
- 14.8. Circular Economy
  - 14.8.1. Definition
  - 14.8.2. Evolution
  - 14.8.3. Success Stories
- 14.9. Cradle to Cradle
  - 14.9.1. Definition
  - 14.9.2. Evolution
  - 14.9.3. Success Stories
- 14.10. Environmental Regulations
  - 14.10.1. Why Do We Need a Regulation?
  - 14.10.2. Who Makes the Regulations?
  - 14.10.4. Regulations in the Development Process

## Module 15. Packaging design

- 15.1. Introduction to Packaging
  - 15.1.1. Historical Perspective
  - 15.1.2. Functional Characteristics
  - 15.1.3. Description of System-Product and Life Cycle
- 15.2. Packaging Research
  - 15.2.1. Information Sources
  - 15.2.2. Field Work
  - 15.2.3. Comparisons and Strategies



- 15.3. Structural Packaging
  - 15.3.1. Analysis of Specific Needs
  - 15.3.2. Shape, Color, Smell, Volume and Textures
  - 15.3.3. Packaging Ergonomics
- 15.4. Packaging Marketing
  - 15.4.1. Relationship of the Pack with the Brand and the Product
  - 15.4.2. Application of Brand Image
  - 15.4.3. Examples
- 15.5. Packaging Communication
  - 15.5.1. Relationship of the Pack with the Product, the Customer and the User
  - 15.5.2. Design of Senses
  - 15.5.3. Experience Design
- 15.6. Materials and Production Processes
  - 15.6.1. Glass
  - 15.6.2. Paper and Cardboard
  - 15.6.3. Metal
  - 15.6.4. Plastic fluids
  - 15.6.5. Natural Materials Composites
- 15.7. Sustainability Applied to Packaging
  - 15.7.1. Ecodesign Strategies
  - 15.7.2. Life Cycle Analysis
  - 15.7.3. Packaging as Waste
- 15.8. Legislation
  - 15.8.1. Specific Regulations: Identification and
  - 15.8.2. Plastics Regulations
  - 15.8.3. Regulatory Trends
- 15.9. Innovation in Packaging
  - 15.9.1. Differentiation with Packaging
  - 15.9.2. Latest Trends
  - 15.9.3. Design for All
- 15.10. Packaging Projects
  - 15.10.1. Study Cases
  - 15.10.2. Packaging Strategy
  - 15.10.3. Practical Exercise

# 05 Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: **Relearning**.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the **New England Journal of Medicine** have considered it to be one of the most effective.



A photograph of a desk with a laptop, a blue marker, and a pen. The laptop is open, and the marker and pen are lying on the desk next to it. The background is a teal gradient.

“

*Discover Relearning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## Case Study to contextualize all content

Our program offers a revolutionary approach to developing skills and knowledge. Our goal is to strengthen skills in a changing, competitive, and highly demanding environment.

“

*At TECH, you will experience a learning methodology that is shaking the foundations of traditional universities around the world”*



*You will have access to a learning system based on repetition, with natural and progressive teaching throughout the entire syllabus.*



### A learning method that is different and innovative

This TECH program is an intensive educational program, created from scratch, which presents the most demanding challenges and decisions in this field, both nationally and internationally. This methodology promotes personal and professional growth, representing a significant step towards success. The case method, a technique that lays the foundation for this content, ensures that the most current economic, social and professional reality is taken into account.

“*Our program prepares you to face new challenges in uncertain environments and achieve success in your career”*

*The student will learn to solve complex situations in real business environments through collaborative activities and real cases.*

The case method is the most widely used learning system in the best faculties in the world. The case method was developed in 1912 so that law students would not only learn the law based on theoretical content. It consisted of presenting students with real-life, complex situations for them to make informed decisions and value judgments on how to resolve them. In 1924, Harvard adopted it as a standard teaching method.

What should a professional do in a given situation? This is the question we face in the case method, an action-oriented learning method. Throughout the program, the studies will be presented with multiple real cases. They will have to combine all their knowledge and research, and argue and defend their ideas and decisions.

## Relearning Methodology

TECH effectively combines the Case Study methodology with a 100% online learning system based on repetition, which combines 8 different teaching elements in each lesson.

We enhance the Case Study with the best 100% online teaching method: Relearning.

*In 2019, we obtained the best learning results of all online universities in the world.*

At TECH you will learn using a cutting-edge methodology designed to train the executives of the future. This method, at the forefront of international teaching, is called Relearning.

Our university is the only one in the world authorized to employ this successful method. In 2019, we managed to improve our students' overall satisfaction levels (teaching quality, quality of materials, course structure, objectives...) based on the best online university indicators.





In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

With this methodology we have trained more than 650,000 university graduates with unprecedented success in fields as diverse as biochemistry, genetics, surgery, international law, management skills, sports science, philosophy, law, engineering, journalism, history, markets, and financial instruments. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

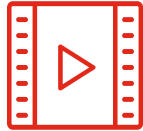
*Relearning will allow you to learn with less effort and better performance, involving you more in your training, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation for success.*

From the latest scientific evidence in the field of neuroscience, not only do we know how to organize information, ideas, images and memories, but we know that the place and context where we have learned something is fundamental for us to be able to remember it and store it in the hippocampus, to retain it in our long-term memory.

In this way, and in what is called neurocognitive context-dependent e-learning, the different elements in our program are connected to the context where the individual carries out their professional activity.



This program offers the best educational material, prepared with professionals in mind:



#### Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



#### Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.



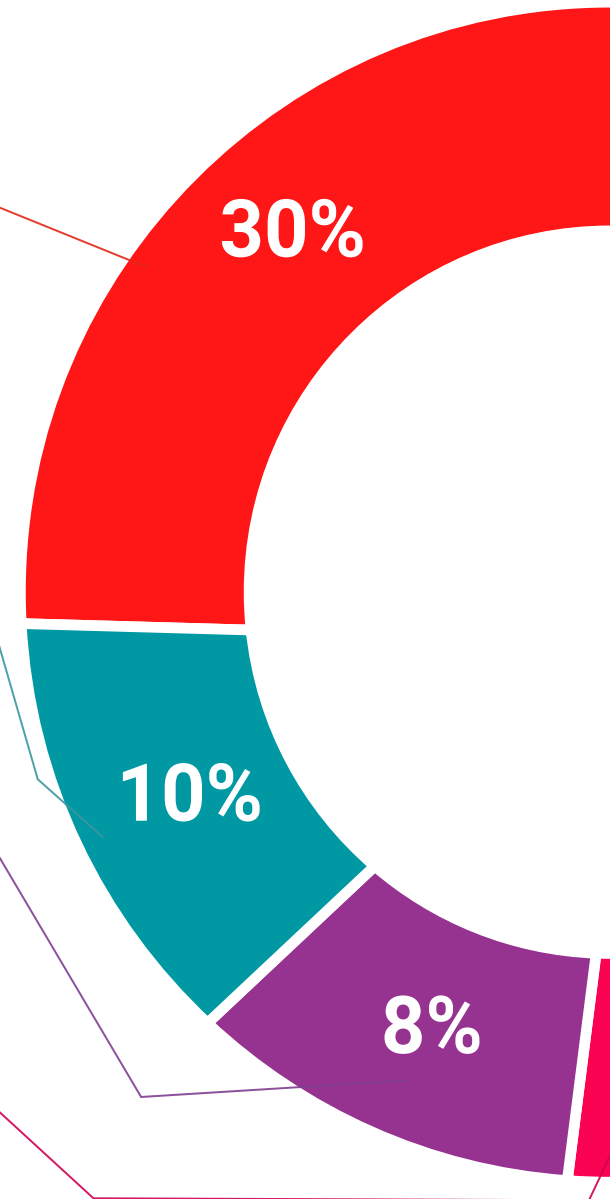
#### Practising Skills and Abilities

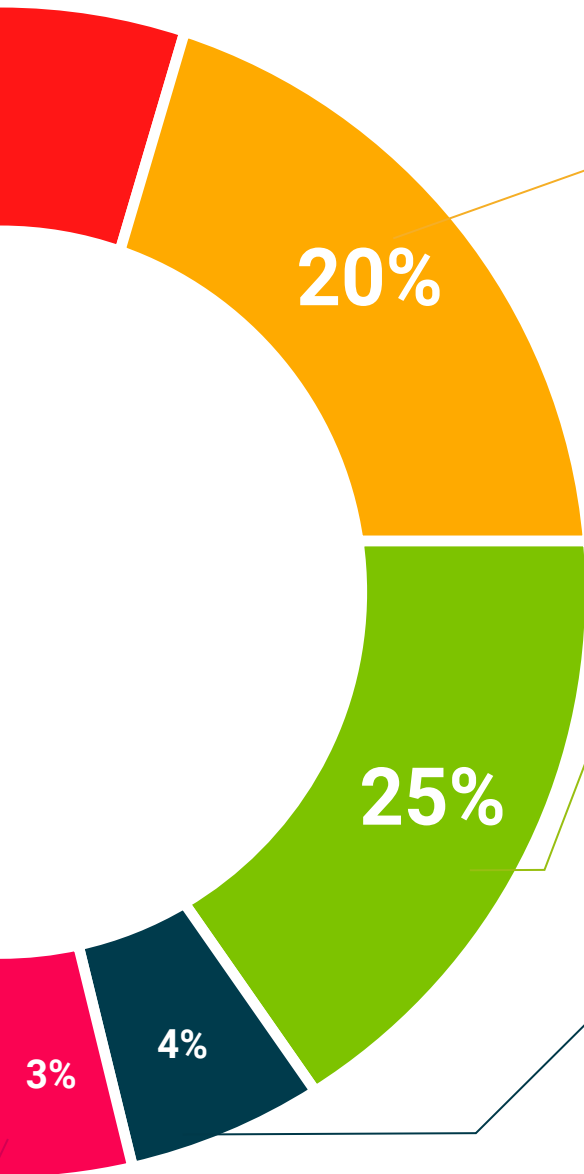
They will carry out activities to develop specific skills and abilities in each subject area. Exercises and activities to acquire and develop the skills and abilities that a specialist needs to develop in the context of the globalization that we are experiencing.



#### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





#### Case Studies

Students will complete a selection of the best case studies chosen specifically for this program. Cases that are presented, analyzed, and supervised by the best specialists in the world.



#### Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive educational system for presenting multimedia content was awarded by Microsoft as a "European Success Story".



#### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises, so that they can see how they are achieving their goals.



# 07 Certificate

This Advanced Master's Degree in Industrial Design and Product Development guarantees students, in addition to the most rigorous and up to date education, access to an Advanced Master's Degree issued by TECH Technological University.



“

*Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”*

This **Advanced Master's Degree in Industrial Design and Product Development** contains the most complete and up-to-date program on the market.

After the student has passed the assessments, they will receive their corresponding **Advanced Master's Degree** diploma issued by **TECH Technological University** via tracked delivery\*.

The certificate issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations, and professional career evaluation committees

**Title: Advanced Master's Degree in Industrial Design and Product Development**  
**Official N° of hours: 3,000 h.**



\*Apostille Convention. In the event that the student wishes to have their paper diploma issued with an apostille, TECH EDUCATION will make the necessary arrangements to obtain it, at an additional cost.

future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
online development language  
classroom



## Advanced Master's Degree

Industrial Design and Product Development

- » Modality: online
- » Duration: 2 years
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

# Advanced Master's Degree Industrial Design and Product Development

