

# Report on the Furniture and woodworking Industry: academic programmes<sup>1</sup>

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<sup>1</sup> Not including those held by IM-FUTURE partners.

## SWOT analysis

		<b>HELPFUL</b>	<b>HARMFUL</b>
<b>INTERNAL</b>	<b><i>STRENGTHS</i></b>	<p>❶ High possibilities to put into practice the acquired knowledge, skills and abilities, due to the availability of natural resources and raw materials and the considerable number of companies dedicated to the sector. These companies are looking for highly qualified people to incorporate their staff, so they can put into practice everything they have learned in their previous training.</p> <p>❷ The substantial number and variety of professions that derive from the wood and furniture sector, ranging from design to production and treatment.</p> <p>❸ Inclusion of subjects in the field of wood (as a specialization), in engineering and in arts careers. This implies greater communication, development and diversification of the students' knowledge, which they begin to see and become aware of the new possibilities and perspectives on their employability.</p>	<p><b><i>WEAKNESSES</i></b></p> <p>❶ Growing demand of electronic or conventional distance learning as a teaching method, by its flexibility and adaptation to the contemporary lifestyle, situations and learning speeds of all the students. This is destined to formative actions in which the number of hours is very extensive and the volume of contents and, therefore, the attainment of conceptual objectives is very important.</p> <p>However, in the furniture sector it predominates the achievement of procedural objectives, in which the student must know from a "practical" point of view a series of real tasks or procedures that would be difficult to achieve in not on-site education. This fact makes it difficult to adapt theoretical-practical contents to an exclusive online modality and, consequently, teachers must opt for face to face or blended learning.</p> <p>❷ Lack of unification of the training offer.</p> <p>❸ Need to adapt training programs to new technological procedures, but not forgetting the traditional tasks that involve opening new horizons in the craftwork and restoration.</p>

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*Intellectual Output 1 (IO1)*



<b>EXTERNAL</b>	<b>OPPORTUNITIES</b>	<b>THREATS</b>
	<p><b>1</b> To encourage and demonstrate with workshops the importance and value of furniture in society for introducing people into this field from early to young ages.</p> <p><b>2</b> To make alliances with non-European Union countries to expand this type of studies.</p> <p><b>3</b> To increasing productivity of natural resources by innovation.</p> <p><b>4</b> In relation to <u>vocational training</u>, <i>European Qualifications Framework (EQF)</i> is a reference initiative for the Member States, workers and citizens that will help to understand the qualifications of the different systems in the different countries of Europe. Its main objectives are twofold:</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Promote mobility of citizens between different countries; and</li> <li><input checked="" type="checkbox"/> Access to lifelong learning.</li> </ul> <div style="text-align: center;">  </div> <p><b>5</b> To program, plan and design new certificates of vocational training, adapted to the various levels of studies.</p> <p><b>6</b> To develop new open contents that are accessible to education institutions, enterprises and invidious.</p> <p><b>7</b> To create Higher Education joint programmes, such as Master Degrees, that perfect the participating institutions strengths.</p>	<p><b>1</b> Lack of publicizing, marketing and awareness of the importance of the sector compared to other studies in other areas of knowledge.</p> <p><b>2</b> Insufficient investment that makes the sector technologically backwardness.</p> <p><b>3</b> Atomization of programmes that entails repetition of contents and loss of information</p>

## Introduction

In this report, you may find information about every education programmes related to the furniture industry in European Union. Thus, attention has been focused on Higher Education programmes, master degrees, especially, but it has been covered the entire spectre. Due to the complexity of educational laws in each country, not completely regularized with the European Union standard, this has been the only differentiation possible to make, and even that, there may be some levels that do not fit in it. Not all their information could have been explained in this report, so it is possible to follow (in pdf version) the link in each degree **in this format**<sup>2</sup>.

It is redacted by University of Murcia members, but people of the rest of the partners has been collaborating in the first search of these programmes. Both the search and the report were divided by countries, so the investigation responsible of each country is noted at the beginning of its section with the number of programmes found in it. These sections are organized alphabetically, as it can be read in the **interactive summary**.

Not all the 28 countries of the European Union appear, because some of them have no programmes of our interest or they couldn't be find. By last, it can be observed that the first chapter is dedicated to programmes of the IM-FUTURE project partners, given their direct and very important contribution to the sector and its future.

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<sup>2</sup> Note that the links may not work due to changes in them servers. All were working at the date of this report was finished: May 2017.

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## Summary

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## Masters of IM-FUTURE project partners

### CETEM-Universidad de Murcia, Spain

CETEMs master's degree course, entitled **Master in design and Industrial Organization for the furniture Sector**, is organized by the consortium of CETEM, University of Murcia and other parties, such as business partners. Courses are taught face to face, lectures are held by experts of furniture sector, along with the university staff. Course consists of 190hrs basic (common) block followed with 40hrs extensions: 60 ECTS.

Common block is filled with the modules such as:

- Basic knowledge of the sector
- Business management (Two modules) - Organization of company, Legal and fiscal environment, Continuity of the family business, Organization and management of human resources, Prevention of occupational hazards, Sales force and buying groups. Marketing, advertising and promotion, Management of suppliers. Costs and sets. Financial analysis. Strategic management. Public speaking.
- Product and technology of the sector - Product description. Materials: Wood and plywood, plastics, adhesives, varnishes, foam, Textiles, steelwork, other. Manufacturing processes. Machinery. EQM systems. Introduction to management systems. Ambient intelligence.
- Management - Management by processes. ISO 9001:2008. Environmental management. Quality and environmental certifications for the furniture
- Technical innovation - Technological surveillance. Industrial property. Innovation and project management. Innovation. Social networks.

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Followed by the extensions:

- Technology - Organization and Industrial logistics. Improvement of productivity. Introduction to quality. Industrial Organization. The production function. Management of Stocks. Master production plan. Materials planning. Programming, launch and execution control. Methods and times. Industrial maintenance. Advanced production systems. Plant distribution. Flexsim. Financial system. Accounting and management programs. Production technology - CAD CAM systems. Machining practices. Logistics, storage and distribution. Prices policy. Logistics, warehousing and distribution. ERP systems. Remote control tools.
- Industrial Design - Management of the design process. Trends in the furniture Sector. Creativity. Conceptualization. Rhinoceros. Laboratory practice. Inventor. CAD CAM systems. Laboratory practice.

Courses are completed with some complementary works, visits to the companies and practices in companies.

Course is finalized by Master Thesis.

## UNICAM-COSMOB, Italy

Master degree, proposed by the UNICAM COSMOB prepares graduate to work in the three specific manufacturing sectors:

- Furniture (visual and interior design)
- Footwear (shoes and accessories design)
- Clothing (menswear, womenswear and knitwear)

Course consists of didactic activity, theoretical and practical actions in modules, and learning lab activities including realization of projects, workshops and seminars held by external teachers, company visits, participation in events and trade shows; with specifically technology and analysis of trends in mind.

- Common block subjects are focused on overall design, materials, trends, value estimation etc., as follows: English, Eco-sustainable materials, Web and multimedia design, Image and analysis of product value, Brand marketing and Web and multimedia design, The color: expression and function. Certification and regulations for products. Trend analysis. Cost analysis. Design and Culture, Ergonomics, Semiotics
- Specializing subjects for furniture are more focused on the product: design, product concept, smart material, IT: fab lab, Rendering and animation, design history, modern habitats

Total teaching hours provided, including lectures, alternative teaching hours + individual study is 1500hrs per year. It is necessary to remark, that the aim of the study is to develop/train not only professional in the furniture design, but professional able to move within several areas and capable of holding various roles such as designer, expert, promoter/consultant of innovative ideas.

## Buckinghamshire New University, England

Bucks NU MA Art and Design Practice program is designed to Provide an interdisciplinary context of study in which students will follow their preferred route to obtain a degree in the area of their choice at Master's level. Available training paths/degrees are: MA Furniture Design, MA Product Design, MA Textiles, MA Fine Art, MA Ceramics, MA Jewellery and Silversmithing, MA Printmaking, MA Graphics, MA Illustration, MA Spatial and Interior Design.

- Course is organized into modules, such as Personal Project 1, Material Creativity, Art and Design Research Methods, Personal Project 2, Thesis and Personal Project 3, giving in total 180 credits (90 ECTS). Course takes one year full time/two years part time
- Similar course provided, at BSc level, is similarly organized into modules such as: Design Communication, Materials & Processes, Design Projects 1, Getting Connected, Design Visualisation, Applied Production & Manufacture, Design Projects 2, Making Choices, Design Projects 3, Design for Manufacture, Major Project and New Model Dissertation giving in total 360 (180 ECTS) credits in 3 years (Full Time)

It is necessary to remark that art and design subjects are learned in a studio and workshop environment. It is typical to art&design schools/universities, and such method involves a lot more students own work and commitment. Also, significant difference from the other learning types are the fact that thesis does not finish course – it is predicted to prepare student for final, stage 3 personal project.

## WULS, Poland

In opposite, Warsaw university of Life Sciences does not offer MSc program for furniture sector. Studies dedicated to furniture are at BSc /engineer level only. However, those in need or willing to obtain further degree, can apply for MSc course in Wood Technology – Furniture Engineering, which in fact is an extension for both wood technology and furniture engineering graduates.

Furniture engineering BSc course is provided in both full time and weekend courses, both take 3.5 year (7 semesters). Program of the BSC course is quite extended, each semester earns 30 ECTS (7 semesters x 30 – 210 ECTS)

- BSc Topics/lectures on: Inorganic Chemistry, Physics, Mathematics, Materials Science, Wood Science (Anatomy), Styles in Furniture, Engineering Drawing, Biodeterioration of Wood Materials and other Materials, Organic Chemistry, Basis of Woodworking, Technical Metrology and Measuring Systems, Informatics Technology, Solid Wood Products and Sawmilling, Electrotechnics and Electronics, Ergonomics in The Furniture Industry, Physics of Natural Fibrous Materials, Mechanics, Mechanics of Structures, Technical Thermodynamics, Furniture Plastics and Fabrics, Automatics, Thermal and Plastic Processing of Wood, Adhesives and Gluing Techniques, Construction and Technology of Cabinet Furniture, Wood Cutting and Machining Tools, Environment Protection, Basics of Enterprise Economics, Basic Computer Aided Design, Professional practice, Project Management, Wood Machining, Wood Panel Technology, Construction and Technology of skeletal and upholstered Furniture, Finishing of Wood and Wood-based Materials, Development of the New Product, Exploitation of Machinery and Tools in Furniture Production, Furniture Decorating Techniques,

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Computerized process automation in production, Protection of wood materials in furniture, English Language.

Altogether, BSc course is around 2500 hours, **not including** students' own work, degree is completed after Engineer Thesis.

After completion of BSc degree, student may choose to continue studies on MSc course (BSc in wood technology or Furniture Engineering is needed). Course is provided both full time and weekend, totaling 3 semesters and 95 ECTS

- MSc Topics/lectures on: Economic and Investing on the Financial Market, Wood Waste Management, Exotic Wood Science, Wood Deterioration, Basic of Business Law, Statistic in Experiments, Drying Technology, Special Purpose Wood-Based Materials, Wooden Construction Engineering, Flexible Manufacturing, Furniture History and Elements of Furniture Construction, Marketing, Principles of Entrepreneurship, Preservation of Fungi in Buildings, Technics of Wood Finishing, Industrial Design of Furniture, Product management, Process Monitoring of Manufacturing Systems, Conservation and Restoration of Furniture, Logistics, Mechanization and Automation of Production Processes, CAD Systems in the Furniture Industry

Altogether, Msc course is around 1000 hours, **not including** students' own work, degree is completed after Master Thesis.

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**Comparison of the courses**  
**Basic comparison**

Following table presents focused comparison of educational offers:

<b>Topic</b>	<b>CETEM</b>	<b>Unicam/COSMOB</b>	<b>BUCKS</b>	<b>WULS</b>
Program title	Y	Y	Y	Y
School/Department	Y	Y	Y	Y
Study mode Full Time	Y	Y	Y	Y
Study mode Part Time	N/A	Y	Y	Y
Duration Full Time	N/A	1Year	1 Year	1.5 Year
Duration Part Time	N/A	N/A	2 Years	1.5 Year (weekends)
Course Hours	190 + 40 only teaching hours	1500 with own work	N/A	1000 - only teaching hours
ECTS	60	N/A	90	95
Entry prerequisites	BSc or higher	BSc or higher	BSc or higher	BSc in Furniture/Wood Technology
Units /Modules	Y	Y	Y	Y
Theory (Lectures)	Y	Y	Y	Y
Coursework / Workshops	Y	Y	Y	Y
Practices (industry)	Y	N/A	N/A	Y
Site visits	Y	Y	Y	Y
Visiting Professors	N/A	Y	Y	Y
Study Abroad	N/A	Y	N/A	Y
Master Thesis/Dissertation	Y	N	Y	Y

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**Content Comparison**

Following table presents short course content comparison

<b>Content</b>	<b>CETEM</b>	<b>Unicam/COSMOB</b>	<b>BUCKS</b>	<b>WULS</b>
Introduction to the Sector and basic information	Y	Y	Y	Y
Business management	Y	N/A	N/A	Y
Logistics, storage, distribution	Y	N	N	Y
Product quality management	Y	N	N	Y
Marketing/Branding	Y	Y	N/A	Y
Furniture History	N	Y	Y	Y
Technology – Wood		Y		Y
Technology – Other materials	N/A	Y	N/A	Y
Technology – Drying	N/A	N/A	N/A	Y
Technology - Machining	Y	N/A	N/A	Y
Technology - CAD/CAM	Y	Y	N/A	Y
Technology - Finishing	N/A	N/A	N/A	Y
Construction Engineering	N	N	N	Y
Maintenance, automation, process monitoring	Y	N	N	Y
Conservation and restoration	N	N	Y	Y
Preservation (bio)	N	N	N	Y
Product Design	Limited	Y	Y	Limited

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Ergonomics	N	Y	Y	Y
Art	N	Y	Y	N
Culture	N	Y	Y	N
Scientific planning (experiments, etc)	N	N	N/A	Y
Innovation	Y	Y	N	N
Overall impression of the graduate (authors opinion)	<b>Engineer for the Sector</b>	<b>Industrial Designer</b>	<b>Product Designer</b>	<b>Engineer for the Sector</b>

## Other European Union programmes related to furniture sector

### Austria



**Search responsible:** COSMOB.

**Number of programmes found:** 4.

A very good example of the exposed in the introduction happens in Austria, where no Higher Education programmes related to furniture have been found. Instead, there are four other design programmes that deserve our mention. Interior Design & 3D Design of the New Design University of St. Pölten, Industrial Design of the University of Applied Arts of Vienna, Space & Design Strategies of the University of Arts and Industrial Design of Linz and Design & Product Management of the University of Applied Science of Salzburg.

### Bulgaria



**Search responsible:** WULS.

**Number of programmes found:** 1.

On the opposite, there is a Higher Education program in Bulgaria. Is offered by the Faculty of Forestry Industry of the University of Forestry of Sofia and has two specialities: Technology of wood and furniture and Engineering Design (Interior and design of furniture). Is taught in Bulgarian during three semesters of full

attendance and its objective is to prepare engineer-technologists for production of furniture and woodworking, mainly in production of veneer and plywood manufacturing engineering and solid wood and wooden structures, production of board materials and furnishing residential and public buildings.

## Croatia



**Search responsible:** University of Murcia.

**Number of programmes found:** 4.

In Croatia, in the University of Zagreb (Faculty of Forestry), we found or retrieved different Higher Education programmes related to the next field of knowledge: wood technologies, processes or design. In a first stage, before specialisation in a theme within wood-furniture sector, we must start with the **Bachelor in Wood Technology**. This undergraduate study provides during three years (180 ECTS) a basic learning about wood processing and trade and distribution of wood products, competencies that are required by all types of enterprises. In particular, these are summarized in a certain way: Technical characteristics of wood, basic knowledge on the protection of wood, basic technical knowledge for monitoring and control of machines and transport equipment, training for controlling wood-technological process and the implementation of certain technological operations, participation in the procurement of materials and other equipment, supervision of product quality and quality of work, technical, operational knowledge to guide wood-technological processes.

This regular study is fully qualified to continue with studies at the same Faculty through **Graduate Programs in Wood Technology Processes or Design of Wood Products** (two years, 120 ECTS each one):

**Graduate Study in Design of Wood Products:** students are trained to perform a variety of functions, from product development, quality improvement, design and product construction, outfitting facilities, to presentations at trade shows and product sales.

**Graduate Study in Wood Technology Processes:** students are capable of the most complex tasks in all types of enterprises engaged in processing, making and selling of wood and consulting and designing companies of this labour sector (i.e. *wood industry enterprises*). They even can work as an associate in research institutions in the field of wood and wood technology, as a leader and collaborator in matters of trade and traffic wood products. Also, they work as a teacher in vocational secondary and similar schools and perform tasks and assignments in journalism and mass media related to the woodworking profession.

Finally, after graduation, students can course in the same Faculty the **MA Technology of Wood Materials - Wood Technology Processes** (two years, 120 ECTS). Thus, they become a specialist in the field of preparation of wood and wood production of materials suitable for general use, construction, furniture and special applications. The peculiarity of this study is to enable students to highly complex technological processes of preparation of the wood drying processes and thermal treatment of wood, wood preparation as raw materials for production of veneer sheets, technological properties and design processes of manufacture of wood material in accordance with modern requirements.

Regarding Croatia's other study programmes (not belonging to Higher Education), results haven't been retrieved in different searches.

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## Cyprus



**Search responsible:** University of Murcia.

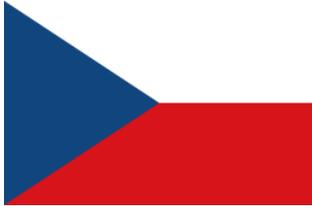
**Number of programmes found:** 1.

In Cyprus, even though a specific qualification hasn't been found, we refer to the next Higher Education program: **Bachelor in Interior Design** (four years, 240 ECTS), offered by School of Architecture, Fine and Applied Arts (Frederick University). This is shifted towards an Architectural orientation and it is also enriched with a broad Fine Art context. It includes two subjects related with furniture and product design and, between occupational profiles of the graduates, we find explicitly furniture/product designers.

No.	Code	Name	ECTS	Hours / week
23	<u>AIND305</u>	<i>FURNITURE DESIGN I</i>	7	3
24	<u>AIND306</u>	<i>FURNITURE DESIGN II</i>	7	3

Regarding Cyprus's other study programmes (not belongs to Higher Education), results haven't been retrieved in different searches.

## Czechia



**Search responsible:** WULS.

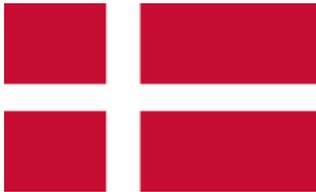
**Number of programmes found:** 3.

There are two masters and a continuous training program directly related to furniture in Czechia. The last one is hold by Prague Institute and is called Furniture Design. Regarding the Master Degrees, both are offered by the Mendel University in Brno and managed by the Faculty of Forestry and Wood Technology. Points in common are the entry requirements (Bachelor Degree), the amount of 120 ECTS, the two years length and the full-time attendance. On one hand, Furniture Design outputs are: knowledge of furniture making and design, ability to form and design furniture and eligibility for the management and recognition of creative collective thinking. Almost all its modules are focused on furniture, such as Studio furniture design, conservation of historic furniture, commercial tropical wood, contemporary furniture design, technical infrastructure of the Interior, or humanization microenvironment, among others.

On the other hand, Furniture Engineering, is oriented to furniture production. Its outputs are: knowledge of the technology, materials and techniques of production of furniture, ability of the management team of workers in the furniture industry, ability of making economic estimates in the furniture industry and eligibility for the decision making in the management of furniture companies. Its modules are also focused on furniture as in Furniture Design, but from the production point of view. Those are some examples: The special production technology, furniture store, organization and management of furniture production, applied mechanics, management accounting.

It seems that this two Master Degrees are oriented to educate different profiles of the furniture industry, so they should complement each other very well.

## Denmark



**Search responsible:** University of Murcia.

**Number of programmes found:** 4.

In Denmark, we found different Higher Education programmes about this sector, offered by: Aarhus University, Aalborg University, Royal Danish Academy of Fine Arts, and VIA University College.

Aarhus University plans the Master's degree in IT Product Development (two years, 120 ECTS) result of the collaboration between Department of Computer Science and Aarhus School of Architecture. It includes several subjects of computer-aided industrial design (in particular, physical design and product design).

Aalborg University organizes two Master's programmes: Industrial Design and Manufacturing Technology (two years, 120 ECTS each one). Both programmes are related to engineering, but they include basic learning in wood products: design, construction and development.

VIA University College offers the Bachelor of Materials Science and Product Design (3.5 years, 210 ECTS). This course can be defined as the first steps towards becoming a key employee in the textile and furniture business. The programme gives students broad knowledge of materials and processes, including modern processing technology. After graduating, they can be signed up for the next programme: Academy Profession (AP) Degree in Design, Technology and Business (specialisation: *Branding and Marketing Management*) (2 years, 120 ECTS). The aim of

this course is providing a broad knowledge of the variety of professions within the furniture, fashion and lifestyle sectors, but from the perspective of design activities mainly.

Architecture and Extreme Environments, realised by The Royal Danish Academy of Fine Arts (2 years, 120 ECTS) is taught in English. This Master programme pursues to explore the intersection between architecture, technology, culture and environment. Through a site-specific approach, we aim to respond to present and future global challenges through 'research by design' and direct 'on-site involvement' in the form of active expeditions to remote world locations where prototypes are put to the test.

## Estonia



**Search responsible:** University of Murcia.

**Number of programmes found:** 2.

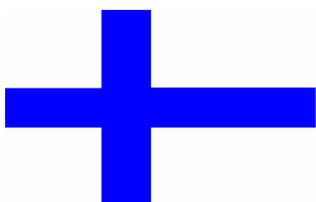
In Estonia, we discovered two Higher Education programmes offered by Tartu Art College and Tallinn University of Technology. In Tartu, it can be obtained a Diploma of Professional Higher Education, and in Tallinn, a Master of Science in Engineering.

Furniture Design and Restoration, performed at Tartu Art College (4 years, 240 ECTS) is taught in Estonian. This program gives a broad learning in furniture. In the second year, students can specialise in design or conservation/restoration. The design track is oriented to small and medium-size businesses, without excluding collaboration with important industries. Part of the formation is oriented to participate in cooperative projects.

The purpose is to educate specialists in conservation and research of heritage furniture. Students usually collaborate with museums and the National Heritage Board, and they work as designers, conservationists/restorers in public and private sector. Ultimately, many of them continue on postgraduate study.

Technology of Wood and Plastic, performed by Tallin University of Technology (2 years, 120 ECTS), prepares the students for a vocational and professional working in the international engineering industry as a designer/constructor, specialist, industrial engineer or middle manager. This program gives the practical experience necessary to work on furniture projects, material selection and technology development for plastic products manufacturing.

## Finland



**Search responsible:** University of Murcia.

**Number of programmes found:** 13.

In Finland, we found five Higher Education programmes offered by Novia University of Applied Sciences, Lahti University of Applied Sciences, South-Eastern Finland University of Applied Sciences and Aalto University; and eight No-Higher Education, performed by Teak Oy, Turku Vocational Institute, Koulutuskeskus Salpaus, Tampere Vocational College Tredu, Salon Seudun Ammattiopisto and Savonlinna University of Applied Sciences and Adult Education.

The no-Higher Education programmes are as follows. Upholsterer (Formational Qualification / Adult Education and Training), provided by Teak Oy (1 year) is taught in Finnish. The aim of the degree is both to be able to restore or to become an entrepreneur. Upholstery (Adult Education and Training), offered by Teak Oy [Adult Education School] (1,5 years), is also taught in Finnish. The

compulsory degree components of interior decoration in the interior design sector include interior work, interior decoration, painting and coating, furniture construction and interior decoration. **Wood Processing (Adult Education and Training)**, performed by Turku Vocational Institute (1,5 years approximately) is taught in Finnish. The aim is to prepare wood and other durable goods or semi-finished products and further products used in construction, as the **Wood Processing (VO)**, provided by Tampere Vocational College Tredu (2 years, 180 ECVET competence points). **Upholstery (VO)**<sup>3</sup>, performed by Koulutuskeskus Salpaus (2 years, 180 ECVET competence points). With this qualification, students may work as upholsterers or interior decorators for the furniture and other industries operating in the field, in small enterprises or as independent self-employed people and entrepreneurs. **Artisan, Crafts and Design (VO)**, offered by Salon Seudun Ammattiopisto (3 years, 120 credits). Its graduates may work as employees, independent entrepreneurs or self-employed people. **Surface Treatment Tech. (VO)**, provided by Savonlinna University of Applied Sciences and Adult Education (3 years, 180 ECVET competence points). Those who have completed the qualification may work as painters or floor layers in new or renovation construction or as surface treatment finishers within industry.

Regarding our main interesting programmes, the Higher Education ones, there are two bachelor degrees relatively close to our field: the **Bachelor of Culture and Arts, Designer** (4 years, 240 ECTS) and the **Bachelor of Culture and Arts** (4 years, 240 ECTS), of the Novia University of Applied Sciences and Lahti University of Applied Sciences, respectively. Both are focused to provide a comprehensive understanding of the design process and creative and innovative problem-solving processes. Close in contents is **Artenomi**, offered by South-Eastern Finland University of Applied Sciences (4 years, 240 ECTS), but with a strong content on restoration.

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<sup>3</sup> Vocational Qualification

For its part, Interior architecture and furniture design, realised by South-Eastern Finland University of Applied Sciences (4 years, 240 ECTS), taught in Finnish, is thought to form interior architects. Its description is extensive, comprising the interior of the living environment within the entire range of old buildings and new housing, modification and design of public spaces.

Last of the programmes of Finland is the Master of Arts Product and Spatial Design, performed at Aalto University (2 years, 120 ECTS). Is taught in English and pursues to educate on design processes, regulations in construction, material knowledge, abilities in 3D composition and understanding of the spatiality of people and products. Also, it gives practice in the broader operational environment of product development, business and culture.

## Italy



**Search responsible:** COSMOB.

**Number of programmes found:** 10.

In Italy, there have been found four “para-university courses”: Technician for research and development in the wood-furniture sector, of the Fondazione its per lo sviluppo del sistema casa nel made in Italy Rosario Messina; New technologies for the Made in Italy - Technician for process, communication and marketing in the wood-furniture sector, of ITS RED Veneto and COSMOB; and Industrial design techniques with eco-sustainable materials, new technologies and 3D printers, also hold by COSMOB.

Moreover, there have been found ten Higher Education programmes offered by Domus Academy, Nuova Accademia di Belle Arti Milano, Sapienza University of

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Rome, POLI.design, Scuola Politecnica Di Design, Istituto Europeo Di Design and Italian design academy (Florence). Most of them are private institutions.

**Interior and Living Design**, performed at Domus Academy (1 year, 60 ECTS) is taught in English. This Master encourages students to consider a wide range of design practices as they learn to shape the space of interiors. Principal learning outcomes are: exploring the contemporary design scene, analysing the marketplace, developing skills of graphic rendering and exploring the factors that determine the economic performance of a brand or company.

POLI.design and Consortium of Politecnico University of Milan hold **Interior Design** (1 year, 60 ECTS), taught in Italian. From its principal units, we have to highlight culture of living, consumption and distribution and materials and technology. It seems to be very similar in contents to **Interior Design for Luxury Living**, offered by Istituto Europeo Di Design in Rome (1 year, 60 ECTS), except is taught in English and it is available in Italy and Spain.

**Furniture Design - Design innovation**, performed by Italian Design Academy (1 year, 60 ECTS) is taught in Italian. This Master is dedicated to innovation in the field of furniture design. The student explores new possibilities of responses focused on innovation projects. The projects cover the living space, commercial space, product design related to furniture and everyday objects. The project is examined from concept to technological choices, the use of materials and the study of colours.

**Industrial Design Engineering and Innovation**, provided by POLI.design with Consortium of Politecnico University of Milan, is taught in Italian. This Specializing Master was created to forge capable designers who can manage the entire development of a new product from the initial concept to the manufacturing stage.

**Interior Design**, performed by Istituto Europeo Di Design (IED Milan) (1 year, 60 ECTS), is taught in English. This Master, offered in Italy and Spain, aims to provide students with the methodological framework, strategic skills and necessary

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## *Intellectual Output 1 (IO1)*

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field experience to respond to new trends and future scenarios of Italian and international design. At the end, student is able to deal with the project not only from the technical and formal perspective, but especially from the strategic point of view, focusing on the needs of the contemporary consumer and the evolutionary needs of the sector.

Interior Retail Design and Management, offered by POLI.design with Consortium of Politecnico University of Milan (1 year, 60 ECTS) is taught in Italian. The principal goal is to create the interdisciplinary abilities needed to work in a managerial capacity in the diverse realities that make up the value chain specialized in home furnishing and interior design/decorating.

Interior Design, performed by Nuova Accademia di Belle Arti Milano (NABA) (2 years, 120 ECTS), is taught in English and Italian. This Master deeply explores the issues and the methodological processes related to the design of interior spaces, with the aim of developing professional profiles that are mature, aware, trustworthy and flexible, able to express themselves successfully in the global market of creative jobs.

Product Design, performed by Sapienza University of Rome (2 years, 120 ECTS), is taught in English. It is a studio-based programme for students who wish to hone their ability to innovate. The course encourages creative thinking and critical reflection as fundamental design tools for the development of new objects and ideas to improve people's lives

## Latvia



**Search responsible:** University of Murcia.

**Number of programmes found:** 2.

In Latvia, we found one Higher Education programmes offered by Latvia University of Agriculture and one No-Higher Education programme provided by Riga Technical University. Both institutions are public. The No-Higher Education programme is Woodcraft and Art Summer School, provided by Riga Technical University (10 days, 2,5 ECTS), taught in English.

The Higher Education program is MsC Wood materials and Technology, performed at Latvia University of Agriculture (2 years, 120 ECTS), and taught in English. This Master aims to educate highly qualified scientific, educational and management specialists, possessing an ability of make decisions creatively and independently in order to stimulate further growth of the forest sector of Latvia.

## Lithuania



**Search responsible:** University of Murcia.

**Number of programmes found:** 2.

In Lithuania, there are two Higher Education programmes offered by Vilnius College of Design/Matosinhos School of Art and Design and Vilnius Academy of Arts. However, it's necessary to clarify that, although both are in *bachelor's studies*, *Interior and Furniture Design* is a higher non-university study, and *Furniture design and restoration* is a university study.

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Interior and Furniture Design, performed at Vilnius College of Design (Vilnius) with Matosinhos School of Art (Porto) is taught in English and allows students of both institutions to graduate in 3 years (180 ECTS), with a joint degree in interior and furniture design, and at the end to obtain a *Joint Professional Bachelor Degree in Arts*. The main goal is to develop interior design professionals with practical skills to apply the acquired knowledge and skills to their personal creative, practical activities and capacities to provide a range of interior, etc.

Furniture design and restoration, performed by Vilnius Academy of Arts (4 years, 240 ECTS), has as purpose to train designers who are able to invent innovative design objects of things and the environment, to deal with creative process, to work in interdisciplinary teams, to participate actively in creative industries, etc. The goal is to educate broad-minded personalities with critical thinking and specialists with general higher education, who are able to creatively use acquired general and professional competences and practical skills which allow them to work in furniture design and restoration.

## Malta



**Search responsible:** BFM.

**Number of programmes found:** 2.

In Malta, we found two programmes of no-Higher Education offered by Malta College of Arts, Science and Technology. The first program is called Bachelor of Arts in Product Design and the last one, Advanced Diploma in Joinery, Furniture Design and Manufacturing.

The Bachelor of Arts in Product Design (3 years, 180 ECTS) introduces students in the creativity world and prepares them to respond to different cultural and social contexts through product design. Is taught in English. The participants learn

how to independently research, form concepts, develop ideas and materialize their designs into physical 3D prototypes, through industry linked projects.

The Advanced Diploma in Joinery, Furniture Design and Manufacturing<sup>4</sup> (2 years on apprenticeship), is a course which includes theoretical knowledge and extended practical training both off-the-job and on-the-job as part of an apprenticeship or workplace. Participants learn how to analyse and supply solutions to usual joinery and furniture products using solid wood and composites. The practical formation is carried out in workshops equipped to industry standards. Students are expected to participate both individually and in teams to generate solid wood and composite materials items. At the end, the students have the choice to progress to *Higher Diploma in Restoration of Wooden Artefacts*.

## Netherlands



**Search responsible:** CETEM.



**Number of programmes found:** 5.

There have been found five programmes of no Higher Education in the Netherlands. Two are hold in the Royal Academy of Art The Hague: Industrial Design and Interior Architecture and Furniture Design. The remaining three are managed by the Vocational College for Woodworking, Furniture and Interior Design: Furniture manufacturer, Furniture Upholsterer and Allround assembly worker timber industry.

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<sup>4</sup> This course and option were indicated as only ones in Malta after communication with the Malta Furniture Manufacturers Organisation.

## Poland



**Search responsible:** WULS.

**Number of programmes found:** 5.

In Poland, there are two Higher Education programmes offered by Warsaw University of Life Sciences and Poznan University of Life Sciences; and three No-Higher Education programmes provided by Krakowski portal szkoleń, GoWork and Akademia Artystyczna Kappa. These are: Furniture design, performed by Krakowski portal szkoleń; Furniture design, provided by GoWork; and Design of furniture and industrial design for the furniture industry, offered by Akademia Artystyczna Kappa.

About Higher Education programmes, the Master in Wood Technology, realized by Warsaw University of Life Sciences (1,5 years, 95 ECTS), is taught in Polish although it's advisable to have some basic English knowledge. Graduates have the knowledge from the sciences, technology, wood and wood products (including engineered wood-based materials), and the economics and organization in wood industry; have comprehensive engineering skills and are prepared to work on the design of technological processes of mechanical wood processing and wood-chemical processing of wood raw materials and the design and technology of furniture and wood products as well as the management of technological processes.

Furthermore, there is the MA Design of Furniture, offered by Poznan University of Life Sciences (1,5 years, 90 ECTS) is taught in Polish. It's focused on widely understood furniture industry with specially emphasized design and planning of furniture production. The graduates will be prepared for work as process engineers responsible for production of furniture (incl. garden furniture), furniture/joinery

construction engineers, and furniture designers. They can also deal with designing and organizing production processes, trade of furniture and wood products, logistics.

## Portugal



**Search responsible:** CETEM.

**Number of programmes found:** 13.

There have been found 12 courses of various levels of non-Higher Education. Three are planned for young adult's education and are equivalent to 12th grade and level IV of professional qualification. These are taught on the Centro de Formação Profissional das Indústrias da Madeira e Mobiliário, which also holds eight different continuous training courses. Last one, give at Serviço de Formação Profissional de Castelo Branco, is also a continuous training course. This 13 programmes are, each one, focused in very specific and technic knowledge areas, such as operation in machines, technical drawing, finishing techniques, environmental management or applied legislation. Complete list is: Technician of Management of the Production in Wood and Furniture, Technician of Programming and Operation in Machines of Transformation of the Wood, Technical Drawing - constructions in Wood, CNC milling and multi-cutting operations for Wood, Technology and New Materials - Woods and Derivatives, Finishing Techniques - Wood and Furniture, 5S's - Productivity and Quality Instruments, Environmental management - wood and furniture industry, Legislation applied to the wood and furniture industry and Wood finishing and furniture technician.

Regarding High Education programmes, it has been identified only one Master Degree, "Product Design Engineering" of the Polytechnic Institute of Leiria. This

120 ECTS and two years master has no modules directly related to furniture, but has been included due to its focus on product design and development.

## Ireland



**Search responsible:** BFM.

**Number of programmes found:** 6.

There are four bachelor programmes related to furniture in Ireland. Three of them are Bachelor of Sciences and the other one, of Arts. Apart of these programmes, two of Higher Education have been found.

The first of them is the Master of Arts Product Design of the Dublin School of Creative Arts, of 90 ECTS. Furniture Design is one of its fields, among others such as Interior or Industrial Design. Is taught in English and its study mode is full-time, for which is needed a Bachelor Degree (Honours 2.1 or above).

The second one is a Master of Fine Artes developed by the National College of Art and Design: Product Design. Given its same name, is not strange to observe certain similitudes, but it is more focused on practice-based modules. Is also taught in English, in two years, although we do not have information about the number of credits.

## Romania



**Search responsible:** BFM.

**Number of programmes found:** 6.

Although we could talk about six programmes of our interest in Romania, actually only one of them it is interesting for us. Four are Bachelor degrees, of which one is of furniture, two of wood processing and the last one, of design.

Moreover, one of the masters is related to furniture in an indirect way, so though we mention it, is not of our full interest. We are referring here to the MA “Design” of the Bucharest National University of Arts.

Finally, we must emphasize on Eco-Design of Furniture and Restoration master, of Transilvania Brasov University. It takes two years and 120 ECTS, is full-time attendance and taught in Romanian. It has 19 different modules that cover from History of the furniture and the woodworking to scientific methods of restoration or modelling. It seems to be very complete on matters relating to the product, but we have not identified anything about its commercialization or company work.

## Slovakia



**Search responsible:** WULS.

**Number of programmes found:** 2.

In Slovakia, we found two Higher Education programmes offered by Technical University in Zvolen. First of them is **Creation and design of furniture** (2 years in full-time, 120 ECTS / 3 years in part-time, 180 ECTS) , taught in Slovak. A graduate of engineering studies in the field design can control complex technological processes of wood processing and furniture production with regard to the efficient utilization and valorization of wood raw material. It ensures innovation in the process of creating new functional and safe products, especially furniture and interior elements.

The second one is **Furniture and Interior Design** (2 years, 120 ECTS), taught in Slovak. The graduate has the theoretical and practical knowledge based on design studies and develops the ability to apply them in a self-study or further study. The student integrates creative abilities with theoretical and practical knowledge from the area of furniture and interior design. Through its work, it contributes to a better satisfaction of the utilitarian and aesthetic needs of man and to the humanization of the environment.

## Slovenia



**Search responsible:** CETEM.

**Number of programmes found:** 7.

In Slovenia, there are two Higher Education programmes offered by University of Ljubljana and University of Maribor, and five No-Higher Education, performed by Higher Vocational College Wood Technology School Maribor, and Biotechnical Faculty in University of Ljubljana.

The No-Higher Education programmes are Wood processing, provided by Higher Vocational College Wood Technology School Maribor; Design of materials, realized by Higher Vocational College Wood Technology School Maribor; Technologies of wood and fibre composites, performed by Biotechnical Faculty in University of Ljubljana; Wood Engineering, offered by Biotechnical Faculty in University of Ljubljana; and Wood Science, imparted by Biotechnical Faculty in University of Ljubljana.

Regarding the Master Degrees, Product Design is offered by University of Maribor (2 years, 120 ECTS) and is taught in Slovenian. Master's study program Product Design is a study program from the field of industrial design, based on the "from inside out" method, which on one side integrates the scientific methods from mechanical engineering into a product on different stages of the design process with simultaneous awareness of responsibility for cultural and social development.

Besides, Wood Science Timber Engineering is performed at University of Ljubljana (2 years, 120 ECTS). It's required to have Slovenian and English knowledge. The study program is designed with the aim of educating experts capable of solving the most demanding research, developmental, technological, organizational and leadership tasks and challenges in the field of wood science and

technology and related fields and, in accordance with contemporary challenges, to ensure the all-round development of the profession, which, in addition to preserving and exploiting the rich tradition, needs the capacity to adapt to new technological and economic guidelines. Masters are educated in overall and in-depth understanding, critical judgment and the use of theoretical knowledge in practice

## Spain



**Search responsible:** CETEM.

**Number of programmes found:** 18.

Programmes found in Spain may differ from other countries in some aspects. First, there are no “Master of Arts” or “Master of Science” differentiation, official postgraduate programmes are “Master”, encompassing both. Secondly, there are significantly more no-Higher Education programmes than Higher Education ones. This may be because of woodworking tradition on the country, traditionally more oriented to practical learning than academic courses.

Knowing that, there are 15 no-Higher Education programmes, two masters and one postgraduate. Of the firsts, 11 are directly related to furniture, with four of them focused on carpentry and other four on design. Only two institutions hoard all the courses, AIDIMME (8 of them) and project partner CETEM (7).

On the other hand, the two masters share many characteristics between them. Both take one course and 60 ECTS, are taught in Spanish by attendance regime and full-time study mode. Also, entry requirements are similar, it is needed a graduate in design, architecture, engineering or plastic arts.

One is more focused exclusively on furniture, meanwhile the other one covers product design. The first one, **Master in Furniture Design** is a common programme between Pompeu Fabra University and ELISAVA Barcelona School of Design and Engineering. Its strength points are design, materials and making processes, albeit it has not modules of business or company internship, which could be identified at weak spots.

The Istituto Europeo di Design Madrid offers the **Postgraduate Course in Furniture Design** and the **Intensive master of Product Design**. As it is said above, is less focused on furniture than the master of the Pompeu Fabra, although furniture is understood as product and developed like that.

## Sweden



**Search responsible:** University of Murcia.

**Number of programmes found:** 3.

In Sweden, 3 programmes related to furniture industry have been identified. The first, taught in University of Gothenburg by the Academy of Design and Crafts (HDK), is the BFA **Programme in Wood Oriented Furniture Design**. Entry requirements are very subjective, based on work samples and a personal interview, which grant access to a 3 years full-time attendance and 180 ECTS program. Is the only one of the three programs of Sweden offered in Swedish, although is mainly taught in English. It is structured on three modules (one each year): technology, materials and design; socio-cultural context; and exchange programme.

The second programme is the MA **Spatial Design** of the Konstfack University College of Arts, Crafts and Design. This 2 years and 120 ECTS programme train on both Interior Architecture and Furniture Design and grants access to doctoral level.

Is taught in English, so it is need to prove a proficiency in that language equivalent to Swedish upper secondary school course.

The third programme is also from Konstfack University College of Arts, Crafts and Design: **Individual Study Plan in Design**. Although is considered at Master Degree level it is not regulated like that. Instead, is an opportunity for the students to develop on product, service or furniture design. It also grants access to doctoral level and it is in English.

## United Kingdom



**Search responsible:** BFM.

**Number of programmes found:** 29.

United Kingdom is the areas were most programmes have been found. Maybe it is because two of the partners of IM-FUTURE are British and we have more accessible information, but we cannot forget its great tradition on furniture and wood processes. 29 programmes have been identified, 25 of which are of Higher Education. From the remaining four, three are Bachelor degrees and one last, a mix of foundation and work related degrees. These non-Higher Education programmes are focused on design.

Turning back to our main objective, we must specify some details of these Higher Education programmes, as their geographical distribution: 17 on England, six on Scotland and two on Wales. 15 are Masters of Arts, usually named or related to “Product Design”, of which six are specifically focused on furniture design. The same denomination appears on some of the eight Masters of Science taught. We find also three Masters of Fine Arts, four Post Graduate Certificates and four Post

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Graduate Diplomas. These last two kind of postgraduates are both related to Masters of Science, also.

The variety of titles exposed entails variety of studies duration and credits. From 60 to 240 credits, although many are of 180 credits, from 1 year to 4. Even that most are 1 year, it depends if its full or part-time and the modules of the program. In this sense, we only can assure that there are too much differences for similar field programmes. That is understandable if there were diverse regulations affecting, such as it happens with furniture studies across the European Union (even that it is supposed to be a joint effort on regularization), but it could be a problem for students to choose a program, or for companies to select a graduated. This is more obvious if we take our time ascertaining the exit profiles for each program, particularly relevant to the last mentioned. Thus, product design, taking attention to materials or new technologies, is present in most of them, but a few offer formation on business, on mechanical or electronic engineering, socio-cultural issues, entrepreneurial skills, digital prototyping, etc.

On the opposite, entry requirements are very similar between them and well structured, oscillating between a 2.1 and a 2.2 or above Bachelor's Honours Degree and, of course, a good English level – IELTS 6.0 or superior.

Regarding the institutions, only Nottingham Trent University and Aston University have more than one program, specifically, two. The rest have one each. Complete list of institutions (in alphabetical order) and programmes (linked) is as follows<sup>5</sup>:

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<sup>5</sup> Due to the elevate number of programmes existing in the UK, we have decided to extract the information and post the list of everone. More information is available in the folders of the Project and following the links.

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- Aston University: MSC Product Design Enterprise, MSC Product Design Innovation.
- Birmingham City University: MA Product and Furniture Design.
- Bournemouth University: MSC Product Design.
- Brunel University London: MSC Integrated Product Design.
- Buckinghamshire New University: MA Art & Design Practice (Furniture Design).
- Cardiff Metropolitan University: MSC/PgC/PgD Product Design.
- De Montfort University: MA Product Design.
- Edinburgh College of Art: MA Product Design.
- Edinburgh Napier University: MA/MD Product Design Prototyping.
- Glasgow School of Art: MSC Product Design Engineering.
- Kingston University: MA Product and Furniture Design.
- Manchester School of Art: MA/MFA Design: (Furniture).
- Nottingham Trent University: MA Furniture and Product Design, MA Product Design.
- Royal College of Art: MA Product and Furniture Design.
- Sheffield Hallam University: MA/MFA Design (Product).
- University for the Creative Arts: MA Product Design.
- University of Central Lancashire: MA/PgC/PgD Product Design.
- University of Dundee: MSC Product Design.
- University of Glasgow: MSC Product Design Engineering.
- University of Hertfordshire: MA/PgC/PgD Product Design.
- University of Strathclyde: MSC/PgC/PgD Product Design.
- University of Wales Trinity Saint David: MA Product Design.

## Conclusion

By way of a brief conclusion, it is needed to explain that, given the considerable number of companies looking for highly qualified people to incorporate to their staff, there are high possibilities to put into practice the acquired knowledge of these programmes. But those possibilities would be considerably more if the European education system were normalized in its countries. This lack of standardization is also sensible in terms of contents and objectives of the programmes analysed, so its regularization is an undeniable necessity.

An example of this are the two groups in which we can divide the programmes of IM-FUTURE partners: Design and Engineering, Production and Distribution. Both are represented by a pair of countries, so a joint Degree would cover almost all the enterprises needs in the sector.

As the last point, we want to emphasize that there is still space for innovation based on modular training, free rights content or non-face-to-face education, because it can be offered anywhere through digital technologies. This would be a way to make distances of Europe smaller, in every way.