

The Wood Consortium-School of Encinas Reales (CEMER) is the only institution on vocational training, investigation and innovation in the New Technologies applied to the Wood-Furniture Sector in Andalusia. It is a regional sectional centre created in 1993 and belongs to both the regional government of Andalusia (Junta de Andalucía) (90%) and the Town Council of Encinas Reales (Córdoba) (10%).

A new branch of the organization was set up in Villa del Río (Córdoba) in 2003, this branch is specialized in Furniture Upholstery New Production and Design Technologies.

In its Board of Directors, representatives of the Regional Administration, employers and trade unions are represented.

The Wood Consortium -School is a member of AENOR since 1994. It is the first time that this kind of organization is a member of the Board of Directors of a Wood Employers Association-UNEMAC- and other Representative Associations of Local Furniture Production Systems: Association for the Development and Technological Innovation of Lucena (Córdoba), Association of Wood Industry Employers of the region of Ecija, Association of Wood Industry Employers of Valverde del Camino, Employers Association of Barrameda, etc.

The Wood Consortium School has the following basic objectives:

- ❖ To contribute to the specialization and update of active wood industry workers fostering so the development of this sector.
- ❖ To experiment and create innovative working methods applied to the training of workers of the wood industry sector, specially those related to the manufacturing process quality control, new furniture design technologies, etc.

- ❖ To keep permanent exchanges with counterparts from different regions and countries.
- ❖ To contribute to the specialization and training of highly skilled workers to facilitate their incorporation to companies of this sector and to recover and keep the “know-how” of the furniture craftsman.

Specialized publications of the Wood Industry Sector regard CEMER as a prestigious organization to have attained in a very short time span to be among the top European Organizations of the same kind and consider the project of this organization as a model to be followed, highlighting the participation and collaboration of Wood Industry SME´s (small and medium enterprises).

The interrelation between employers and CEMER and its reliability are highly valued.

CEMER is one of the few vocational training centres that have implemented and maintains a Quality Management System fulfilling the requirements of the standard: **UNE-EN ISO 9001/2000** and the Environmental Management System: **UNE-EN ISO 14001/1996**.

It has been approved by AUTODESK, as an ATC organization, which enhances and corroborates the quality of training in Computerized Design. It is a pioneer in the application of new technologies at an international level.

CEMER has currently created the “**Andalusian Furniture Design Centre**” with the triple objective of creating a design culture, fostering design among the Wood Industry SME´s (small and medium enterprises) and training young designers that will take part of these enterprises in the future. We foster design as a key factor in innovation and differentiation, regarding training as the starting point.

## **TRAINING:**

CEMER provides training for two types of people-objective:

- Unemployed* (FPO/Vocational training)
- Employed* (Lifelong learning/ Continuing training)

There are several FPO/ Vocational training courses:

- o -*Specialist in Furniture Varnishing and Lacquering.*
- o -*Specialist in Industrial Furniture Manufacturing/Carpentry.*
- o -*Specialist in Industrial Furniture Manufacturing/Assembly.*
- o -*Specialist in New Furniture Production and Design Technologies.*
- o -*Specialist in New Upholstered Furniture Production and Design Technologies.*
- o -*Specialist in Foreign Trade and Management Strategies.*
- o -*Specialist in Furniture Design.*

After the training period, students have a work placement stage in national and/or foreign companies.

Regarding lifelong learning/ continuing training, CEMER develops an annual course list. Besides, we organize courses taking into account the demands of employers.

CEMER has been offering new fresh and up-to-date training to Vocational Trainers of The Educational Council and The Labour Council of the region of Andalusia.

Regarding training activities for workers (employers, specialists and unskilled workers) CEMER has offered training in the following areas:

- Management and Administration.*

*-New Technologies and New Furniture Finishing.*

Approximately 850 courses have been offered: 30% on CAD, 15% on Numerical Control Tools, 20% on internet, 20% on Management and Computing skills and 15% on Languages, Quality, etc where 5500 people have taken part.

150 conferences and 160 seminars on topics related to Wood Industry have been developed for secondary school students and other educational organizations, employers, etc.

**PROJECTS:**

Here are some of the projects CEMER has developed in the last years:

-Young people and teachers mobility projects inside the European Leonardo da Vinci Project since 1995 until the present day:

- “WITHOUT FRONTIERS” (1998-1999) Students visits abroad
- “TRAINING IN TECHNOLOGY: AN EUROPEAN 21<sup>ST</sup> CENTUARY CHALLENGE” (1998-1999)
- “WORKWOOD” (2000-2001).
- “WORKWOOD II” (2003-2004)
- “WORKWOOD III” (2004-2006)
- “WORKWOOD IV” (2005-2007)
- “CONSORCIA2” (2005-2007) Training staff visits abroad.

- “New Technologies Applied to the Wood Sector” inside the European ADAPT. This project has been implanted from 1998 until 2000. We would like to highlight the following results of the project:

-Socioeconomic study of the Wood-Furniture sector in Andalusia. This is the first project with these features in Andalusia:

- Study of the training needs of the Wood-Furniture sector in Andalusia.
- Study of environmental impact of the Wood-Furniture sector in Andalusia.

These studies are nowadays textbooks in Vocational Training Schools of the Wood-Furniture Sector.

- “ NET 2000: Wood-Innovation” inside the SME’s Initiatives for Enterprise Development Programme. 1998 and 1999.

Pilot Project:“ Retraining of People from a Low Socio-Economic Level in Romania” financed by the European Social Fund inside the Leonardo da Vinci Programme. 2000-2001.

- “Access Technical Training on Line” ATTOL, financed by the Leonardo da Vinci Programme.

-Regional Network to develop Lifelong Learning Strategies” financed by the R3L initiative inside the Socrates programme. 2002-2004.

-Collaboration with the project for the “Certification of Professional Skills for the Furniture Sector in Spain”. 2003-2006.

In 2006, we have worked in 40 projects, 8 of which ended last year, 17 are still being implemented and 15 are waiting to be approved. These projects have been developed on a national, European and regional scope.

We could classify them into separate categories:

**Projects for the creation of networks:**

-FORELL

-VIVIR CON MADERA (Living with Wood) . The framework of this programme is inside the European Wood Strategy, Roadmap 2010, and its main objective is to promote the use of wood among final consumers: architects, engineers, designers, students and teachers, that is to say, among those who mainly take part in the decision of purchasing this material.

-POSILLIPO

All of them attempt at the creation, development and consolidation of a lifelong learning network among different European regions.

-EUROMEDYS

A pilot project for the Mediterranean with the objective of creating a structural and organizational network (training centres, service centres, research centres, etc) to get actively close to the potential exploitation of markets.

-MWEBLEARNING

MWEBLEARNING aims to collect, consolidate and disseminate good practices which aid to define a new approach by developing an Inter-Organisational Learning Community through Mediator Institutions as dinamisation elements. The high concentration of enterprises characterizing the participating regions offers an excellent chance for development in the global market, providing that these enterprises would be able to act together under a system approach aided by a Mediator Institution. ICT can facilitate an exchange of good practices and

the transference of results and techniques among the companies in the sector, allowing the development of innovating devices for identification, assessment and valorisation of formal and, mainly, not formal and informal internal learning processes, in order to allow the organization (in this case, all the participating enterprises) to recognise and put in value acquired learning.

### **Mobility Projects:**

#### **-YOUNG DESIGNERS AND PORTUGUESE SPECIALISTS**

CEMER has organized and coordinated the visit of 2 young designers from Antonio Mattioli School (Italy) and 2 Specialists from Cenfim School (Portugal).

#### **-TALENTED**

CEMER has organized cooperatively the visit of 2 young Italian designers from The Polytechnic University of Milano.

#### **-WORWOOD II**

A group of 15 students of the New Technologies and Industrial Manufacturing sections had a 3 month - training and work placement- stay in companies around the Toscana region (Italy)

#### **-WORWOOD III**

In 2005, 31 students (Varnishing, Foreign Trade, Industrial Manufacturing and New Technologies Applied to Furniture Upholstery sections) had their work placements in companies in Germany and Italy.

#### **-WORKWOOD IV**

In 2006, 40 students (Industrial Manufacturing and New Technologies Applied to Furniture and Carpentry Production and Furniture Upholstery sections) had their work placements in companies in Italy, Ireland and Belgium.

## **CONSORCIA2**

In February, 2005 CEMER asked the UE for a subvention through the European Da Vinci Programme, inside the subprogramme “Exchanges and Stays “ to give a group of 20 Vocational Trainers/ Training Managers the opportunity to have a 1 week stay in different European centre. CEMER was the promoter together with other Consortiums (Jewellery, Marble, Craftwork)

The project was developed in 2006.

### **-PRODUCTION AND MAINTENANCE FOR APPRENTICES PROD-MAIN.**

A group of 10 students from CENFIM (Portugal) had a 3 week stay at CEMER, in 2006.

### **Training Projects:**

#### **-ATTOL**

This project has brought about the development of new Technical Training Courses for three specialties (pneumatic, automations and electric habilitation) and their habilitation via internet.

#### **-INNOVATION THROUGH DESIGN: FOSTERING DESIGN IN THE FPO/Vocational Training.**

-Design Study in Andalusia.

-On line Design Tool.

It is an innovative action to open the organization to companies and training of students, being CEMER a promoter to consolidate the relationship between both of them (actually divorced) to guarantee positive results for both of them.

## **-DESIGN AT SCHOOL: TEACHING HOW TO DESIGN**

The ACTIVUS programme keeps the objective of offering a first opportunity to young people with a University Degree or a Vocational Training Medium or Advanced Certificate, as well as other degrees or certificates officially equivalent who lack practical experience enabling them to take a competitive part in the job market. Inside this framework, CEMER has a project to bring a Specialist to the Design Department.

### **Technological Development Projects:**

#### **SIFIDA-MUEBLES**

This projects tackles the design and development of an Integrated Design and Manufacturing System for Furniture Manufacturing SME's (small and medium enterprises). On the one hand, the integration of the decisions to be made at the design and manufacturing stages make it necessary for the product to take into account all the determining factors the manufacturing system of the company possesses. On the other, the design analysis according to possible manufacturing problems gives the designer the opportunity to correct them and evaluate the parameters of efficiency such as cost, quality and productivity.

**-ITTD** : "Innovación y Transferencia de Tecnología para el Desarrollo"  
(Developmental Innovation and Transference Technology)

Handed out in 2004 inside the Interreg IIIB Sudoe, it aims at the Exchange of experiences and good practices among different participants working in the innovation field. There will be Portuguese and French associates.

### **MEI “Mujeres Emprendedoras para la Industria” (Enterprising Women)**

The projects aims at fostering the creation of companies by women in a traditionally masculine domain (Jewellery and Furniture industry). The companies created by the programme will provide services to these two industries. It was approved in 2005 inside the financial aids programme EQUAL.

### **-SERNOVA**

At present, there is no methodology or tool to determine the technological solutions to be introduced in a Wood-Furniture company; hence the importance of adapting a methodology to diagnose technological needs of these companies and their later adoption of innovative measures.

10 Andalusian companies have participated in this project.

### **-CREATION OF A PRACTICAL TOOL TO FACILITATE THE ADOPTION OF QUALITY SYSTEMS IN THE FURNITURE INDUSTRY.**

The project roughly comprises a study about the management of the production of a pilot furniture company group, to develop a subsequent tool enabling them to adopt a Quality Management System; this tool will contribute to the later implantation of a Quality Management System according to the international legislation UNE- EN- ISO 9001:2000 in the companies integrating this pilot group.

### **MODERNIZATION, ANALYSIS AND IMPROVEMENT OF QUALITY COSTS IN FURNITURE COMPANIES.**

The aim is to present a device to improve the Furniture SME's (small and medium enterprises) management based on the theories of quality cost analysis and their practical training in techniques for the continual improvement of processes to support their competitiveness. This project has been handed out in collaboration with the Furniture Employers Association of Ecija and the Andalusian Technological Institute. 10 companies will take part in the project.

### **Projects to define competences:**

#### **-COMPETENCE MAP OF THE FURNITURE SECTOR IN ANDALUSIA.**

CEMER has carried out this first pilot experience for the development of a competence map defined as an option that offers many possibilities for experimentation, contextualization and innovation in the qualifications system.

#### **ERA**

-Training has to be present along the whole working life because technological innovations are rapidly introduced and workers need to become quickly updated to face the job market evolution and demands. The professional categories studied in the project include: electricity-electronics, beauty services, community services, tourism, marketing and commerce, services to production processes...

### **Projects related to New Technologies:**

#### **3D DIGITALIZATION SYSTEMS**

This is an innovative system for the digitalization of complicated furniture pieces thanks to which difficult surfaces can be handled to subsequently edit them on

the computer with the objective of their final mechanization in a numerical control machine.

## **SIEMENS VIDEOCONFERENCE SYSTEM**

This projects aims at connecting two nodes via videoconference: CEMER in Encinas Reales and CEMER in Villa del Río.

## **IBM XSERIES TELECOMMUNICATIONS SERVER**

A server has been installed, taking into account the growing needs of resources of the different departments of CEMER and Safe Mail application with firewall and antivirus that gets updated every 60 minutes.

## **PRODUCTION MANAGEMENT SYSTEM**

Installation of a Production Management System which will work in our facilities and will manage the productivity of the workshops.

## **INTERACTIVE ON SITE TRAINING SYSTEM**

Consisting on the incorporation of a very original and innovative system worldwide to give classes on site. With this system, the teacher has a total control of the activities of students in the classroom no matter whether he/she is present or absent.

## **ON LINE LEARNING PLATFORM**

We attempt to make distance learning accessible to every Furniture Industry worker in Andalusia.

## **Projects on security and sanitation of the work environment.**

**-RISK MANAGEMENT AND ENVIRONMENTAL MANAGEMENT:  
COMPATIBLE CONCEPTS WITH THE USE OF CHEMICALS FOR THE  
FURNITURE INDUSTRY.**

This last project was developed in 2004 and among its results we could highlight the publication of a guide on good practices to reduce the risk in the handling of chemicals.

The integration of this guide inside the training programmes has resulted in CEMER being preselected for the European Awards in the field of security and risk management on work environments.

**Projects for the spreading of important information of the furniture sector:**

**-RESEARCH ON THE UPHOLSTERED FURNITURE IN ANDALUSIA.**

**-DESIGN RESEARCH IN ANDALUSIA.**

**-ENVIRONMENTAL IMPACT OF THE FURNITURE INDUSTRY IN  
ANDALUSIA.**

**-HISTORY OF FURNITURE IN CD-ROM**

**-TRAINING MATERIAL ON LACQUERING AND SPECIAL EFFECTS.**

**-TRAINING MATERIAL ON VARNISHING AND FURNITURE FINISHING.**

**-RESEARCH AND INVESTIGATIONS ON TRAINING RELATED TO THE  
FURNITURE SECTOR.**

**-WOOD TYPES, COMPILATION OF MORE THAN 700 SPECIES OF WOOD FROM ALL OVER THE WORLD (CD-ROM)**

**-CDs WITH CONTENTS OF SEMINARS, CONFERENCES, etc.**

**-Participation in the book “Training Organizations Planning and Management”**

**-Support to the University of Vigo in the creation of an Advanced Course on Specialization in the Wood Industry.**

**-Strategic Plan of the Wood Industry in Córdoba, in collaboration with the University of Cordoba. (Economic Studies Faculty)**

**-Four research reports on “New job opportunities and their profiles from a gender based perspective” in the rural tourism, wood, and textile sectors.**

**-Emerging Countries.**

**-CAD solutions guide for the Furniture Sector.**

**-Technological bulletin Wood-Furniture in Andalusia.**

**-On line newspaper “ The Andalusian Furniture”**

### **Collaborations:**

**-Collaboration with the University of Malaga.**

**-Collaboration with the University of Granada.**

-Collaboration with the Politechnic University of Bucarest (Romania) –regarding research on new technologies applied to the Furniture Sector.

-“Training in Technology: a 21<sup>st</sup> Century European Challenge” project financed by European Social Fund and in collaboration with the University of Brno (Czech Republic)

Collaboration in different research with the University of Seville (Faculty of Politics)

-Networks and Socio-Institutional Innovation in Local Production Systems

-Organizational and Technological Changes in the Local Production Systems in Spain: Comparative Analysis of Innovative Processes at a Regional Level.

-Methodology and Indicators for the Diagnosis and Analysis of the Local Production Systems and Innovative Means in Andalusia.

-Collaboration with the Technological Centre of Wood and Furniture of the Region of Murcia (CETEM)

-University of Paris XII Val de Marne.

-Carl Malmsten College- University of Linköping (Sweden)

-Public Welfare Centre of Brussels CPAS

-Budapest College of Management in Hungary.

-Around 770 Andalusian companies have regular contact with CEMER and the organization keeps collaborating with all the furniture local production systems in Andalusia (Lucena, Villa del Río, Mancha Real, Pilas, Valverde del Camino,

Sanlúcar de Barrameda, Écija,...) and with the local and provincial associations belonging to the furniture sector of our region.

One of the most emblematic work by CEMER has been the elaboration of a project for “The Creation of a Technological Innovation Centre for the Furniture Industry in Andalusia” located in Lucena (Córdoba) and the creation of an Andalusian Furniture Industry Network.

CEMER has also contributed to the CIT which pursues the objective of compromising and fostering the industrial spots or industrial districts related to the furniture industry.

### **ASSOCIATIONS TO WHICH CEMER BELONGS:**

Association:” **Andalucía Innovación**”

**The Andalusian Innovation Network**, promoted by the Technological Development and Incentives General Management (DGDTi) administered by the Andalusian Technological Institute (IAT) has two main objectives:

- To look for shared interests by the members of the network.
- To act as a referent and stimulus for innovation for other companies.

### **TECNOCIENCIA**

This website has been created by the Ministry of Education and Science, through the Spanish Foundation for Science and Technology to give companies, research organizations and society access to the world of science and technology.

### **SPANISH ASSOCIATION FOR QUALITY**

## **PERCENTAGE OF STUDENTS WHO GET A JOB AT THE END OF THEIR COURSES AT CEMER.**

In 2006, students from the following courses finished their training:

-Specialist in New Technologies applied to Furniture Manufacturing and Design, where 90% of the students got a job and the rest is going further in their training.

-Specialist in Foreign Trade and Administration Strategies, where 89% of students got a job after their training.

The average percentage of students who got a job at the end of their courses in the last 5 years is 92%.

CEMER has a **Research Results Transference Bureau (OTRI- Oficina de Transferencia de Resultados de Investigación)**

It started in November 2002.

Many growing companies looking for innovation come to us for help. Companies regularly come to our centre and to the OTRI bureau for advice.

CEMER has several departments (New technologies applied to Design, New Technologies applied to Furniture Production, Quality Control, Business Administration, ...) and they are interconnected via this bureau. So, all CEMER departments are in contact with the OTRI bureau, sending all the work and projects.

The main objective of the OTRI-CEMER bureau is to foster competitiveness of the Andalusian furniture companies through actions contributing to a more efficient technological transparency of research result transference.

Among the main activities OTRI carries out are:

-To promote activities I+D in cooperation with companies inside the regional, national, European and international programmes.

-To foster the creation of patents and industrial property.

-To provide information services and other services and support tools to facilitate the interaction between research results and companies.

There is a section inside the on line newspaper for the OTRI-CEMER bureau where weekly interesting news for the furniture sector are published.

A bi-monthly technological bulletin is published and sent to 300 companies with topics such as research subjects, technological development and processes innovation, interesting products and/or markets. The contents of the bulletin are:

-Market information to contribute to a better organization of our companies.

-Information about I+D projects by CEMER, as well as all those projects by other public or private research centres that may be interesting to companies

-Information about regional, national and European subsidies to companies.

-Technological European and Spanish possibilities to cover technological needs of companies.

-Information about seminars, publications, conferences, courses, etc.

-Quality and Design tools.

With this publication we aim at arousing the companies interest and implication, making them reflect upon the importance of I+D and making them trust the importance of innovation always fostering it and integrating a scientific and



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technological policy of data transference to guarantee knowledge and the modernization of our companies increasing their productivity.

-To increase cooperation with Universities to boost those aspects of interest to companies.