



ERASMUS+ PROGRAMME

KA2 - Cooperation for Innovation and the Exchange of Good Practices

Strategic Partnerships for vocational education and training

ERASMUS+ PROGRAMME¹

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**PROJECT TITLE: Furniture and Language innovative integrated learning for
sector Attractiveness and Mobility Enhancement- FLAME**

O1 / A3. Definition and description of the Modules

Piotr Beer





Content:

1. About this document
2. Introduction
3. Modules from the Grouped Learning Outcomes
4. Areas of Knowledge, Skills, and Competences for each Module
5. Definition of Modules
 - 5.1. Standards, technical drawings, and technical regulations
 - 5.2. Materials and finishing surfaces
 - 5.3. Construction, mounting, and assembly techniques
 - 5.4. Machines and tools
 - 5.5. Automated production and software
 - 5.6. Management and quality control
6. Allocation of ECVET points to Modules

1. About this document

This document presents a preliminary framework to define and describe the Modules in furniture sector, though, future changes may be necessary. The project content is subject to constant further development and improvement. This document must therefore be considered to be developed while creating other Outputs.

2. Introduction

We have defined certain selected learning outcomes based on the Survey taken by individuals working in furniture companies and based on the important areas that the responders deemed missing. The responses to the survey illustrate that there are certain areas to be considered highly important and others less important. Based on the last graph in the O1 / A2 report, we have created a ranking of the areas ordered from highest to lowest score:

- 1) Different basic materials
- 2) Measuring methods and tools
- 3) Cutting and sharpening techniques
- 4) Woodworking and automated machines



- 5) Technical drawings
- 6) Technical regulations
- 7) Joining techniques
- 8) Basic maintenance
- 9) Furniture construction
- 10) Computerized equipment
- 11) Manual tools
- 12) Mounting and assembly techniques
- 13) Acceptance standards
- 14) Different types of auxiliary material and its properties and handling
- 15) Coating and techniques to apply
- 16) Construction of upholstery and mattresses

When developing the Modules and contents, we need to focus on these aspects, prioritizing those that are missing as well as other suggestions provided by some of the interviewees.

- Software for machine control and furniture construction – CAD/CAM systems,
- Knowledge about cost management, Project management and planning, and Technical knowledge on advanced maintenance and purchasing management.

Two areas were therefore added:

- 17) Planning and production management with quality control
- 18) Software for machine control and furniture construction – CAD/CAM systems.

3. Modules from Grouped Learning Outcomes

The learning outcomes are grouped into Modules. The most suitable criteria were chosen based on the same set of employment activities and whether they are related to the same product or production technique, as well as according to the stages in the production process and process of performing a service. The following generic titles for each Module and Institutions include:

1. Standards, technical drawings and technical regulations - FLA
2. Materials and finishing surfaces - MENDELU
3. Construction, mounting and assembly techniques - CENFIM
4. Machines and tools - WULS
5. Automated production and software - AMUEBLA
6. Management and quality control - OIGPM



4. Areas of Knowledge, Skills, and Competences for each Module

Learning outcomes are used to define Modules related to the same field of knowledge, skills, and competences. The Knowledge and Skills areas are therefore described for each Module. The Competences Area is valid for all Modules.

1. Standards, technical drawings, and technical regulations

KNOWLEDGE – should know

acceptance standards
technical regulations
technical drawings
measuring methods and tools

SKILLS – is able to

assist in the implementation of quality assurance methods
read technical drawings
read, understand, and fill in documentation
take measurements

2. Materials and finishing surfaces

KNOWLEDGE – should know

different basic materials
coatings and techniques to apply
different types of auxiliary material and its properties and handling

SKILLS – is able to

prepare work pieces before coating
deal with materials by hand
deal with materials using machines
know different types of auxiliary material and their properties and handling

3. Construction, mounting, and assembly techniques

KNOWLEDGE – should know

how to build furniture
joining techniques
mounting and assembly techniques
how to make upholstery

SKILLS – is able to

produce furniture parts
select and mount fittings
combine parts of furniture to a complete furniture
combine different furniture to a system
sew covers
cut materials to size



4. *Machines and tools*

KNOWLEDGE – should know

cutting and sharpening techniques
manual tools
woodworking machines
basic maintenance

SKILLS – is able to

use and carry out basic tool and equipment
maintenance
apply fluid and solid coatings with manual tools
choose machines for technological tasks

5. *Automated production and software*

KNOWLEDGE – should know

automated machines
computerized equipment
software for machine control and
furniture construction –
CAD/CAM systems

SKILLS – is able to

use automated equipment
use the company's ICT systems
standard software
utilize workplace-specific software

6. *Management and quality control*

KNOWLEDGE – should know

planning and production
management with quality
control

SKILLS – is able to

cost calculation, project development,
product development, purchasing

Competences cannot be assigned to a given Knowledge or Skill. They are therefore specified separately and are important for all Modules.



COMPETENCE – is competent to

act appropriately within the production system (combine knowledge, skills, and professional conduct in everyday work)
understand the logistics process in the plant
control quality of one's own work
work in a cost- and time-efficient manner
use materials and/or machines within the whole process efficiently and effectively
judge work results
control work process
ensure accuracy and reliability

5. Definition of Modules

The Modules are defined in details based on their contents. The contents contain the main important elements related to knowledge and skills. We have established the procedures and assessment criteria for the learning outcomes to be achieved in each Module, as well as ESCO profiles and qualifications to which the Module can be related. The Module definitions contain references of the European Qualification Framework Level (EQF) and incorporate the Common European Framework of Reference for Languages (CEFRL).

5.1. Standards, technical drawings and technical regulations

The subject of this Module is intended for general information about the discussion of the main rules regarding standards and regulation. Standards and regulations concern international, national and industrial rules. Some companies set their own rules to guide their production. These rules help to enhance entrepreneurship through quality assurance and clear documentation.

Contents of Module are focused on subjects:

- EU standards
- National standards
- Rules to create enterprise standards
- Technical regulations
- Technical drawings
- Measuring methods and tools



The procedures and criteria to assess the target learning outcomes involve 12 questions (two questions from each subject).

The ESCO profiles and qualifications to which the Module can be related are:

ID ISCO-08	Occupational profile	Description	Link to ESCO
8172	Wood processing plant operators	Wood processing plant operators monitor, operate and control lumber mill equipment for sawing timber logs into rough lumber, cutting veneer, making plywood and particle board, and otherwise preparing wood for further use.	Link
1321s	Industrial production manager	Industrial production managers oversee the operations and the resources needed in industrial plants and manufacturing sites for a smooth running of the operations. They prepare the production schedule by combining the requirements of clients with the resources of the production plant. They organise the journey of incoming raw materials or semi-finished products in the plant until a final product is delivered by coordinating inventories, warehouses, distribution, and support activities.	Link
1324s	Supply Chain manager (Supply, distribution and related managers)	Supply chain managers plan, manage and coordinate all activities related to the sourcing and procurement of supplies needed to run manufacturing operations from the acquisition of raw materials to the distribution of finished products. The supplies can be raw materials or finished products, and it can be for internal or external use. Moreover, they plan and commission all the activities needed to be performed in manufacturing plants and adjust operations to changing levels of demand for a company's products.	Link



5.2. Materials and finishing surfaces

This Module describes the principal information about technologies intended to enhance and decorate furniture. Furniture parts may be made of solid wood or wood-based materials. The surfaces of both materials may not remain untreated and the manner to decorate them dictates that appropriate technology must be applied in each aspect.

Contents of Module are focused on subjects:

- Surface materials to be finished
- Finishing material
- Application techniques
- Machines and tools
- Types of auxiliary materials and their properties and handling

The procedures and criteria to assess the target learning outcomes involve 10 questions (two questions from each subject).

The ESCO profiles and qualifications to which the Module can be related are:

ID ISCO-08	Occupational profile	Description	Link to ESCO
7522	Cabinet-makers and related workers	Cabinet-makers and related workers make, decorate and repair wooden furniture, parts, fittings, patterns, models and other wooden products using woodworking machines, machine tools and specialized hand tools.	Link
7534	Upholsterers and related workers	Upholsterers and related workers install, repair and replace upholstery of furniture, fixtures, seats, panels, convertible and vinyl tops and other furnishings of automobiles, railway coaches, aircraft, ships and similar items with fabric, leather, rexine or other upholstery material. They also make and repair cushions, quilts and mattresses.	Link
1324s	Supply Chain manager (Supply, distribution and related managers)	Supply chain managers plan, manage and coordinate all activities related to the sourcing and procurement of supplies needed to run manufacturing operations from the acquisition of raw materials to the distribution of finished products. The supplies can be raw materials or finished products, and it can be for internal or external use.	Link



		Moreover, they plan and commission all the activities needed to be performed in manufacturing plants and adjust operations to changing levels of demand for a company's products.	
9329	Factory hands - Manufacturing labourers not elsewhere classified	Factory hands assist machine operators and product assemblers. They clean the machines and the working areas. Factory hands make sure supplies and materials are replenished.	Link
814	Foam rubber mixer	Foam rubber mixers tend the machine that mixes foam rubber particles with liquid latex. They weigh the right amount of ingredients and pour mixtures into moulds to make cushions and mattresses.	Link
7534	Mattress maker and related workers	Mattress makers form mattresses by creating pads and coverings. They tuft mattresses by hand and cut, spread and attach the padding and cover material over the innerspring assemblies.	Link

5.3. Construction, mounting, and assembly techniques

This Module concerns knowledge about furniture construction design. This concept must be linked with the form of furniture and the production capabilities of each company. The subject that describes furniture structure is connected to mounting and assembling techniques, as well as furniture accessories.

Contents of Module are focused on subjects:

- Types of furniture constructions and parts
- Part production technology
- Joinery materials
- Furniture accessories elements
- Mounting and assembly techniques

The procedures and criteria to assess the target learning outcomes involve 10 questions (two questions from each subject).



The ESCO profiles and qualifications to which the Module can be related are:

ID ISCO-08	Occupational profile	Description	Link to ESCO
7522	Cabinet-makers and related workers	Cabinet-makers and related workers make, decorate and repair wooden furniture, parts, fittings, patterns, models and other wooden products using woodworking machines, machine tools and specialized hand tools.	Link
7534	Upholsterers and related workers	Upholsterers and related workers install, repair and replace upholstery of furniture, fixtures, seats, panels, convertible and vinyl tops and other furnishings of automobiles, railway coaches, aircraft, ships and similar items with fabric, leather, rexine or other upholstery material. They also make and repair cushions, quilts and mattresses.	Link
8172	Wood processing plant operators	Wood processing plant operators monitor, operate and control lumber mill equipment for sawing timber logs into rough lumber, cutting veneer, making plywood and particle board, and otherwise preparing wood for further use.	Link
1321s	Industrial production manager	Industrial production managers oversee the operations and the resources needed in industrial plants and manufacturing sites for a smooth running of the operations. They prepare the production schedule by combining the requirements of clients with the resources of the production plant. They organise the journey of incoming raw materials or semi-finished products in the plant until a final product is delivered by coordinating inventories, warehouses, distribution, and support activities.	Link
8219s	Furniture assembler	Furniture assemblers place together all parts of furniture and auxiliary items such as furniture legs and cushions. They may also fit springs or special mechanisms. Furniture assemblers follow instructions or blueprints to	Link



		assemble the furniture, and use hand tools and power tools.	
9329	Factory hands - Manufacturing labourers not elsewhere classified	Factory hands assist machine operators and product assemblers. They clean the machines and the working areas. Factory hands make sure supplies and materials are replenished.	Link
8153	Sewing machine operators	Sewing machine operators tend specific sewing machines in the industrial production chain of wearing apparel. They perform operations such as joining, assembling, reinforcing, repairing, and altering of wearing apparel.	Link

5.4. Machines and tools

This Module explains aspects of the cutting process. It describes handheld machines and tools, as well as line production machines and tools. Information about basic maintenance completes the Module. The main properties of the materials to be cut, wood and wood-based panels that influence processing, are clarified at the beginning.

The Module's contents are focused on the following subjects:

- Materials intended to be processed in furniture production
- Handheld machines
- Tools for Hand machines
- Line production machines
- Line production tools
- Basic maintenance of machines and tools

The procedures and criteria to assess the target learning outcomes involve 12 questions (two questions from each subject).

The ESCO profiles and qualifications to which the Module can be related are:

ID ISCO-08	Occupational profile	Description	Link to ESCO
7522	Cabinet-makers and related workers	Cabinet-makers and related workers make, decorate and repair wooden furniture, parts, fittings, patterns, models and other wooden products using woodworking machines,	Link



		machine tools and specialized hand tools.	
7523	Woodworking-machine tool setters and operators	Woodworking machine tool setters and operators set-up, operate and monitor automatic or semi-automatic woodworking machines such as precision sawing, shaping, planing, boring, turning and woodcarving machines to fabricate or repair wooden parts for furniture, fixtures and other wooden products.	Link
7534	Upholsterers and related workers	Upholsterers and related workers install, repair and replace upholstery of furniture, fixtures, seats, panels, convertible and vinyl tops and other furnishings of automobiles, railway coaches, aircraft, ships and similar items with fabric, leather, rexine or other upholstery material. They also make and repair cushions, quilts and mattresses.	Link
8172	Wood processing plant operators	Wood processing plant operators monitor, operate and control lumber mill equipment for sawing timber logs into rough lumber, cutting veneer, making plywood and particle board, and otherwise preparing wood for further use.	Link
2141s	Maintenance & repair engineer (machinery maintenance and repair workers)	Maintenance and repair engineers focus on the optimization of equipment, procedures, machineries and infrastructure. They ensure their maximum availability at minimum costs.	Link
9329	Factory hands - Manufacturing labourers not elsewhere classified	Factory hands assist machine operators and product assemblers. They clean the machines and the working areas. Factory hands make sure supplies and materials are replenished.	Link

5.5. Automated production and software

This Module describes the Information Technology (IT) based production management. It describes the main systems which are important in furniture production including CAD



– Computer Aided Design, CAM – Computer Aided Manufacturing, and CAE – Computer Aided Engineering.

Contents of Module are focused on subjects:

- Information about IT/ICT technology
- Hardware
- Software
- Automated processes
- Robotics

The procedures and criteria to assess the target learning outcomes involve 10 questions (two questions from each subject).

The ESCO profiles and qualifications to which the Module can be related are:

ID ISCO-08	Occupational profile	Description	Link to ESCO
7523	Woodworking-machine tool setters and operators	Woodworking machine tool setters and operators set-up, operate and monitor automatic or semi-automatic woodworking machines such as precision sawing, shaping, planing, boring, turning and woodcarving machines to fabricate or repair wooden parts for furniture, fixtures and other wooden products.	Link
8172	Wood processing plant operators	Wood processing plant operators monitor, operate and control lumber mill equipment for sawing timber logs into rough lumber, cutting veneer, making plywood and particle board, and otherwise preparing wood for further use.	Link
1321s	Industrial production manager	Industrial production managers oversee the operations and the resources needed in industrial plants and manufacturing sites for a smooth running of the operations. They prepare the production schedule by combining the requirements of clients with the resources of the production plant. They organise the journey of incoming raw materials or semi-finished products in the plant until a final product is delivered by	Link



		coordinating inventories, warehouses, distribution, and support activities.	
9329	Factory hands - Manufacturing labourers not elsewhere classified	Factory hands assist machine operators and product assemblers. They clean the machines and the working areas. Factory hands make sure supplies and materials are replenished.	Link

5.6. Management and quality control

This Module describes the intricacies related to general business management. Planning and management are the foundations of a company's productivity. It describes the main systems which are important in furniture production including PDM – Project Data Management, CRM – Customer Relationship Management, MRP – Material Requirements Planning, ERP – Enterprise Resource Planning, AP – Aggregate Planning, MPS – Master Production Schedule and CRP – Capacity Resource Planning.

Contents of Module are focused on subjects:

- Demand management and forecasting
- Scheduling techniques and control
- Principles of TQM - Total Quality Management
- Statistical techniques
- Continuous improvement

The procedures and criteria to assess the target learning outcomes involve 10 questions (two questions from each subject).

The ESCO profiles and qualifications to which the Module can be related are:

ID ISCO-08	Occupational profile	Description	Link to ESCO
8172	Wood processing plant operators	Wood processing plant operators monitor, operate and control lumber mill equipment for sawing timber logs into rough lumber, cutting veneer, making plywood and particle board, and otherwise preparing wood for further use.	Link



1321s	Industrial production manager	Industrial production managers oversee the operations and the resources needed in industrial plants and manufacturing sites for a smooth running of the operations. They prepare the production schedule by combining the requirements of clients with the resources of the production plant. They organise the journey of incoming raw materials or semi-finished products in the plant until a final product is delivered by coordinating inventories, warehouses, distribution, and support activities.	Link
1324s	Supply Chain manager (Supply, distribution and related managers)	Supply chain managers plan, manage and coordinate all activities related to the sourcing and procurement of supplies needed to run manufacturing operations from the acquisition of raw materials to the distribution of finished products. The supplies can be raw materials or finished products, and it can be for internal or external use. Moreover, they plan and commission all the activities needed to be performed in manufacturing plants and adjust operations to changing levels of demand for a company's products.	Link

6. Allocation of ECVET point to Modules

ECVET points (<http://www.ecvet-secretariat.eu/en/content/what-are-ecvet-points> - accessed 23 September 2019) are a numerical representation of the overall weight of the learning outcomes in a qualification and of the relative weight of the Modules in relation to the qualification.

Together with the Modules, the descriptions of learning outcomes, and the information about the level of qualifications, ECVET points can make it easier to understand a qualification. The number of ECVET points allocated to a qualification, together with other specifications, can indicate for that the scope of the qualification is too narrow or too broad, for example.

The number of ECVET points allocated to a Module provides the learner with information concerning the relative weight of what s/he has accumulated already. It also provides the learner with information concerning what remains to be achieved.



The use of ECVET points in the FLAME project

The FLAME project is developing a CLIL (Content and Language Integrated Learning) VET curriculum and course (in offline and interactive online versions) for both I-VET and C-VET. This training will combine knowledge about basic furniture sector and language learning (including furniture-sector specific terms). It can be integrated as an introductory part of certain pre-existing furniture-sector related VET qualifications.

The FLAME project targets groups of individuals with no practical experience and no knowledge of foreign languages in the furniture sector and people with experience in the furniture sector who need to improve their foreign language competences in order to enhance their job mobility. ECVET points should cover a rather large range of subjects and levels of experience.

The ECVET points will be related to the qualifications of each Module taking the importance of the qualifications into account.

The expected workload for each Module involves 5 hours of study and approximately 4 pages per hour, which is approximately equal to 20/24 pages in total per Module.

Regarding ECVET points, given that each Module is projected to involve 5 hours of study and 1 course hour is equivalent to 0.04, then each Module should provide 0.2 points.

Module name	ECVET points
Standards, technical drawings and technical regulations	0.2
Materials and finishing surfaces	0.24
Construction, mounting and assembly techniques	0.2
Machines and tools	0.24
Automated production and software	0.2
Management and quality control	0.2
TOTAL:	1.28

According to the EQF level, this is equivalent to Level 3.