PROJECT NUMBER: 2020-1-ES01-KA202-082578

Training path of a carpenter and bricklayer in Germany, Spain, Belgium, Italy and Slovenia

CARPENTER

GERMANY

OFFICIAL NAME AND DURATION

Carpenter: 5280 hours (220 working days per year with 8 hours per day) in 3 years in company, VET-school (880 hours) and VET-center (German "dual" system 1280 hours); the rest in the company (3120 hours)

ACCESS REQUIREMENTS

No access requirements due to freedom of contract

Legal minimum requirements based on Child Labor Law: §§ 5, 6, 7: minimum age to access regular work in companies is 15 years of age.

SUBJECTS

First year (VET school)
Setting up site
Develop and foundation of a building
Mason a single-leaf structure
Building a wooden construction
Building a reinforced concrete construction
Coating and facing placements of construction elements
Second year (VET school)
Hardening and adjusting of a gable roof
Building a supporting screen of boards
Feeding in a light partition wall
Integration of wooden beam ceilings
Building single-barrel straight stairs
Shifting isoclinal hipped roofs
Third year (VET school)
Shifting unequal hipped roofs
Integration of dormers and dormer windows
Fabricating roof trusses of halls
Building of coiled wooden stairs
Repairing of truss
Maintaining of Nearly Zero Energy Buildings

HOURS PER SUBJECT

Setting up site	20 hours
Develop and foundation of a building	60 hours
Mason a single-leaf structure	60 hours
Building a wooden construction	60 hours

Building a reinforced concrete construction	60 hours
Coating and facing placements of construction elements	60 hours
Hardening and adjusting of a gable roof	60 hours
Building a supporting screen of boards	60 hours
Feeding in a light partition wall	40 hours
Integration of wooden beam ceilings	40 hours
Building single-barrel straight stairs	40 hours
Shifting isoclinal hipped roofs	40 hours
Shifting unequal hipped roofs	60 hours
Integration of dormers and dormer windows	40 hours
Fabricating roof trusses of halls	40 hours
Building of coiled wooden stairs	60 hours
Repairing of truss	40 hours
Maintaining of Nearly Zero Energy Buildings	40 hours

TRAINING TIME

- VET CENTER:

First year: 17 weeks / 680 hours

Second year: 11 weeks / 440 hours

Third year: 4 weeks / 160 hours

- COMPANY:

3120 hours

OFFICIAL NAME AND DURATION

Carpentry and Custom Made Manufacture and Installation

2000 hours over the course of two years.

ACCESS REQUIREMENTS

Direct access:

- Secondary Education Certificate

- Basic Vocational Education Certificate

- High School Certificate

- University Entrance Exam

Another access:

- Access Exam for Intermediate Level Training Cycles.

SUBJECTS

FIRST YEAR
1: Definition of Solutions in Carpentry and Custom Made Furniture - Technical drawing applied to the representation of custom made carpentry and furniture solutions - Factors that are involved and influence the definition of customised manufacturing and installation solutions - Elaboration of constructive solutions for the manufacture and installation of furniture - Budget planning
2: Basic Machining Operations in Carpentry and Custom Made Furniture - Interpretation and sketching of drawings of simple carpentry and furniture parts and sets - Machining using hand tools - Machining with basic garage machines (universal and conventional) - Assembly of simple sets
3: Materials and Products in Wood Industry - Wood and processed derived by-products - Complementary materials - Characteristics of the wood, furniture and cork industries - Processes of transformation and manufacture of wood, furniture and cork derivatives. - Identification. Applications and basic characteristics of carpentry elements, furniture and cork products.

4: Safety in the Wood and Furniture Industries -Health and safety plans and standards - Risk factors and situations - Security means, equipment and techniques - Emergency situations
5: Formation and Labour Orientation - Safety at work - Legislation and labour relations - Orientation and socio-occupational integration
SECOND YEAR
6: Custom Made Manufacture of Carpentry and Furniture - Technical drawing applied to the construction of furniture and customised carpentry - Organisation of work in the carpentry and custom made furniture garage - Machining with conventional tools and/or garage tools - Assembly of furniture and custom made carpentry operations - Installation of fittings and accessories in final assembly - Quality control of machining and assembly in the garage - Maintenance of machines and garage tools - Safety in machining and installation in the garage
7: Installation and Finishing in Carpentry and Custom Made Furniture - Technical drawing applied to carpentry and furniture installation - Organisation of installation and manual finishing work - On-site carpentry and furniture installation work - Manual finishing in installation - Quality in carpentry and furniture installation

HOURS PER SUBJECT

FIRST YEAR	
1: Definition of Solutions in Carpentry and Custom Made Furniture	320 hours
2: Basic Machining Operations in Carpentry and Custom Made Furniture	350 hours
3: Materials and Products in Wood Industry	160 hours
4: Safety in the Wood and Furniture Industries	65 hours
5: Formation and Labour Orientation	65 hours
SECOND YEAR	

6: Custom Made Manufacture of Carpentry and Furniture	330 hours
7: Installation and Finishing in Carpentry and Custom Made Furniture	235 hours

TRAINING TIME

380 hours

OFFICIAL NAME AND DURATION

Carpenter Technician. 4983 hours over the course of four years.

ACCESS REQUIREMENTS

Successfully completed primary school.

SUBJECTS

General education subjects
Professional modules
Practical training by working for an employer
Extracurricular activities
Open curriculum
Final exam (product or service and defense)

B - Professional modules

Label	Software unit	O/I	Number of hours	Number of credits
M1	Technical communication and computer use	required	102	5
M2	Wood and wood properties	required	110	6
M3	Processing technology with safety at work	required	136	7
M4	Construction of wood assemblies	required	80	4
M5	Materials in woodworking	required	110	6
M6	Mechanical treatment of wood	required	220	eleven
M7	Woodworking machines	required	134	7
M8	Furniture construction	required	210	10
M9	Technological processes in woodworking	required	90	4
M10	Production technique	required	90	4
M11	Company and work preparation	required	102	5
M12	Designing	required	220	eleven
M13	Economics of production processes	optional	60	3
M14	Furnishing interiors	optional	60	3
M15	Sawing and drying	optional	60	3
Total B			1724	86

HOURS PER SUBJECT

General education subjects	2143
Professional modules	1724
Practical training by working for an employer	152
Extracurricular activities	352
Open curriculum	612
Final exam (product or service and defense)	-

TRAINING TIME

504 hours- training in workshop.

ITALY

OFFICIAL NAME AND DURATION

Building carpenter

Duration not regulated at national level

ACCESS REQUIREMENTS

Direct access:

- Upper Secondary Certificate

- Basic Vocational Education Certificate

- High School Certificate

- University Entrance Exam

SUBJECTS

Profile description - EQF 3
The building carpenter's profile deals with the construction and assembly of structural works in reinforced concrete, made on site (ordinary structures) or in the factory (prefabricated elements), carried out on site.
The building carpenter has to be able to produce custom-made formwork, take care of the casting of the material, the dismantling of the structures, carry out the assembly of pre-formed structures in accordance with the technical documentation.

1. Competence
Carry out layouts and preliminary operations for the construction and installation of structural elements

Knowledge
• Characteristics of structural drawings and design documentation relating to layouts, sizing of structural elements in reinforced concrete, preformed elements (steel and / or wood) and their placing
• Elements of mathematics and geometry for the calculation of areas, surfaces, volumes, perpendiculars of the elements to be built (walls, pillars, floors, beams, stairs, etc.)
• Measuring and marking tools (e.g. ruler, laser, string, spirit level, plummet, square, etc.)
• Equipment for cutting and nailing timber, transport and assembly of wooden and / or metal formwork, support works for the construction of reinforced concrete structures and the assembly of preformed structures;
• Main regulatory references relating to safety with regard to the execution of tracing

Skills
• Read the drawings in order to understand the geometric development of the structural works to be carried out
• Identify materials and equipment on the basis of information received

• Check the compatibility of the materials and the planned interventions
• Trace the planimetric elements and position of the structures and the references necessary for the construction / installation of the formwork and preformed structures, taking care of the alignment and the exact position according to the project indications
• Carry out any provisional works (scaffolding, anchors, etc.), functional to the assembly operations of the formwork, execution of the castings and dismantling and assembly of preformed structures (steel and / or wood)
• Operate the execution of tracing in compliance with safety at work regulations

2. Competence
Perform formwork, casting and dismantling operations for the construction of reinforced concrete elements and works of structural carpentry

Knowledge
• Characteristics of architectural and executive drawings of structural carpentry and reinforced concrete structures (walls, floors, pillars, beams, stairs, etc.)
• Type, characteristics and areas of use of materials and components for the construction of formwork, in wood and / or with metal panels
• Organizational and assembly techniques of wooden and / or metal components for reinforced concrete slabs, walls, frames and load-bearing elements
• Type, characteristics, functionality and maintenance methods of tools, machinery and equipment for the realization of structural carpentry work
• Operational procedures for measuring, cutting and nailing timber, transport and assembly of formwork and support works for the construction of reinforced concrete structures
• Types and techniques for carrying out structural carpentry work: manufacture and installation of metal reinforcements, construction and assembly of wooden and iron formwork, casting and compaction of concrete through the use of any necessary provisional works
• Operational procedures for the dismantling of reinforced concrete works
• Main regulatory references relating to safety with regard to structural carpentry work

Skills
• Read the technical drawing in order to identify the construction system, shape, size and size of the structural carpentry work to be performed
• Apply techniques of cutting, bending, welding and laying of steel and iron reinforcements
• Choose the appropriate timber and / or metal panels (by size and type) for the construction of formwork for pillars, floors, plinths, walls, etc. and ribs for arches, curved figures, etc. according to the project indications
• Assemble the elements of the prefabricated formwork and create the necessary support structures following any assembly instructions using suitable tools / machines / equipment
• Assemble the pre-formed steel structural elements according to the project indications
• Understand and organize the methods and times of execution of the concrete casting and dismantling of the work
• Evaluate the quality of the cementitious conglomerate by means of simple site tests
• Adopt procedures for routine maintenance of machinery, tools and equipment necessary for carrying out structural carpentry work
• Operate the structural carpentry work in compliance with the workplace safety regulations

3. Competence
Carry out wood carpentry work

Knowledge
• Characteristics of architectural and executive drawings of wood carpentry work
• Techniques and procedures for the execution, installation, insertion and finishing of wooden and prefabricated items
• Characteristics of timbers and prefabricated panels for wooden carpentry
• Techniques and systems for the recovery of wooden building components
• Type, characteristics and behavior of materials for the realization of wood carpentry work
• How to use timber, prefabricated panels for carpentry and other materials
• Type, characteristics, functionality and maintenance methods of tools, machinery and equipment for the construction of wood carpentry
• Main regulatory references relating to safety regarding wood carpentry work

Skills
• Read the technical drawing in order to identify the construction system, shape, size and measure of the wooden carpentry to be performed
• Recognize materials (wood, prefabricated X-Lam panels or frame walls) and equipment for the construction of the building
• Apply techniques of construction and assembly of building components in wood (or similar materials) for roofs, walls, floors, false ceilings and elements of the attic
• Adopt practical procedures for checking the static and dynamic tightness of the built / assembled building components
• Apply simple systems of finishing, protection and recovery of wooden building components (resins for structural restoration, injections, etc.)
• Adopt procedures for quality control of woodworking and works carried out
• Operate the wood carpentry work in compliance with the safety regulations at work

4. Competence
Carry out consolidation and structural reinforcement interventions

Knowledge
• Type, characteristics and methods of use of building materials for structural consolidation and reinforcement (epoxy resins, expansive cements, hoops with metal elements, etc.)
• Typology, techniques and intervention tools for carrying out disassembly, reassembly, consolidation and reinforcement of the various structures
• Principles of the static reaction of materials and structures, main cases of deterioration, instability, failure and damage
• Characteristics of the design documentation relating to consolidation and structural reinforcement interventions
• Elements of legislation applied to building constructions: anti-seismic, hydrogeological risk, ...
• Main regulatory references relating to safety regarding the implementation of consolidation and structural reinforcement interventions

Skills
• Identify, in accordance with the indications received and the structural project, the state and characteristics of the building structure and the elements to be consolidated and / or reinforced
• Choose and use materials and elements for the construction works do be performed, according to the technical characteristics and the type of consolidation and reinforcement intervention
• Adopt techniques and procedures to carry out the consolidation and / or reinforcement of foundation structures (bulking in foundations, sub-foundations for excavation sections, transformation of direct foundations into deep foundations through micropiles, ...)
• Adopt techniques and procedures to create and install nailing, tie rods and structural reinforcements
• Carry out the operations of disassembly, reassembly and consolidation, reinforcement, mending of vertical and horizontal building structures (floors, stairs, balconies, etc.)
• Adopt procedures to check / accomplish continuity with existing masonry and structures;
• Adopt procedures to verify the structural quality of the intervention
• Operate the interventions of consolidation and structural reinforcement in compliance with the safety regulations at work

HOURS PER SUBJECT

Not applicable

TRAINING TIME

Not applicable

OFFICIAL NAME AND DURATION

Interior Carpenter – 3 years dual training with apprenticeship contract.

ACCESS REQUIREMENTS

Age

You must have reached the age of 15 and be no older than 23 (the apprenticeship contract must end within the calendar year in which you turn 26).

Background

Meet one of the following conditions:

- Have attended 2 years of the 1st level of ordinary or specialized secondary education

- Have successfully completed the 3rd year of regular or specialized secondary vocational education

- Have attended the 3rd year of differentiation and orientation in general or specialized education

- Have attended the 2nd phase in special education

- Have a document (written by the class council of the previous school) announcing that you can continue your training in dual system.

SUBJECTS HOURS PER SUBJECT

General knowledge courses: French, Mathematics, Economy, Law.

Professional courses:

Year 1
○ Analysis, preparation and communication (48h)
○ Organization of the construction site (20h)
○ Wood preparation for basic assembly (12h)
○ Insulation, air and water tightness, construction knots, installation of exterior joinery (24h)
○ Hardware for exterior joinery and simple installation (4h)
○ Checking the support (and taking measurements on site) (12 hours)
○ Basic machining and assembly without profiling (28h)
○ Basic machining and assembly with profiling (32h)
○ EUAA1 - Making a frame with basic assembly without profiling (8h)
○ EUAA7.2 - Placement of external joinery elements (4h)
Year 2
○ Analysis, preparation and communication (16h)
○ Organization of the construction site (12h)
○ Basic machining and assembly with profiling (28h)

○ Interior Door Production (32h)
○ Hardware for interior joinery and simple installation (16h)
○ Installation of interior joinery (16h)
○ EUAA2 - Making a profile frame with basic assemblies (16h)
○ EUAA3 - Making an interior door (5h)
○ EUAA7.1 - Place interior joinery (3h)
Year 3
○ Organization of the construction site (12h)
○ Analysis, preparation and communication (12h)
○ Approach to numerically controlled machines (8h)
○ Parquetry (16h)
○ Paneling and counter partitions (4h)
○ False Ceilings/Walls/Wall Covering (20h)
○ Staircase with landing and realization of straight stairs (48h)
○ EUAA4 - Machining on a numerically controlled machine (2h)
○ EUAA5 - Making stairs (12h)
○ EUAA6 - Making interior facings (8h)

TRAINING TIME

Weekly organisation:

- Year 1: 2 days in training centre + 3 days in company
- Year 2: 1 day in training centre + 4 days in company
- Year 3: 1 day in training centre + 4 days in company

BRICKLAYER

GERMANY

OFFICIAL NAME AND DURATION

Mason: 5280 hours (220 working days per year with 8 hours per day) in 3 years in company, VET-school (880 hours) and VET-center (German "dual" system 1280 hours), the rest in the company (3120 hours)

ACCESS REQUIREMENTS

No access requirements due to freedom of contract

Legal minimum requirements based on Child Labor Law: §§ 5, 6, 7: minimum age to access regular work in companies is 15 years of age

SUBJECTS

First year (VET school)
Setting up site
Develop and foundation of a building
Mason a single-leaf structure
Building a wooden construction
Building a reinforced concrete construction
Coating and facing placements of construction elements
Second year (VET school)
Mason a single-leaf wall
Mason a double-leaf wall
Fabrication of solid ceilings
Finishing walls
Fabrication of walls along dry constructions
Fabrication of screed
Third year (VET school)
Building straight stairs
Overlapping of openings by arches
Building a wall with natural stones
Mason specific elements
Maintaining and renovate of elements

HOURS PER SUBJECT

Setting up site	20 hours
Develop and foundation of a building	60 hours
Mason a single-leaf structure	60 hours
Building a wooden construction	60 hours
Building a reinforced concrete construction	60 hours
Coating and facing placements of construction elements	60 hours

Mason a single-leaf wall	40 hours
Mason a double-leaf wall	80 hours
Fabrication of solid ceilings	80 hours
Finishing walls	40 hours
Fabrication of walls along dry constructions	20 hours
Fabrication of screed	20 hours
Building straight stairs	40 hours
Overlapping of openings by arches	40 hours
Building a wall with natural stones	40 hours
Mason specific elements	100 hours
Maintaining and renovate of elements	60 hours

TRAINING TIME

- VET CENTER:

First year: 17 weeks / 680 hours

Second year: 11 weeks / 440 hours

Third year: 4 weeks / 160 hours

- COMPANY:

3120 hours

OFFICIAL NAME AND DURATION

Construction technician

2000 hours over the course of two years.

ACCESS REQUIREMENTS

Direct access:

- Secondary Education Certificate

- Basic Vocational Education Certificate

- High School Certificate

- University Entrance Exam

Another access:

- Access Exam for Intermediate Level Training Cycles

SUBJECTS

FIRST YEAR
1: Construction
2: Interpretation of construction drawings
3: Manufactures
4: Coatings
5: Reinforced concrete
6: Welding, tiling and plating
7: Training and Labour Orientation
8: English
SECOND YEAR
9: Formwork
10: Organisation of construction works
11: Urbanisation works
12: Sheathings
13: Waterproofing and insulation
14: Business and Entrepreneurship

HOURS PER SUBJECT

FIRST YEAR	
1: Construction	132 hours
2: Interpretation of construction drawings	99 hours
3: Manufactures	198 hours
4: Coatings	99 hours
5: Reinforced concrete	105 hours

6: Welding, tiling and plating	189 hours
7: Formation and Labour Orientation	105 hours
8: English	33 hours
SECOND YEAR	
9: Formwork	330 hours
10: Organisation of construction works	99 hours
11: Urbanisation works	132 hours
12: Sheathings	132 hours
13: Waterproofing and insulation	66 hours
14: Business and Entrepreneurship	63 hours

TRAINING TIME

380 hours

OFFICIAL NAME AND DURATION

Bricklayer. 3712 hours in three years.

ACCESS REQUIREMENTS

Terms of enrollment

Completed primary education or completed lower vocational education or completed equivalent education according to previous regulations.

SUBJECTS

General education subjects (Languages, mathematics, art, science …)
Professional modules
Practical training by working for an employer
Extracurricular activities
Open curriculum
Final exam (product or service and defense)

- **Professional modules**

Construction

Basic Construction Technology

Professional Drawing

Masonry

Ceramic cladding

Wooden constructions

- **Open Curriculum**

Construction products

Construction Technology

Me and the world

Computing

Preparation and management of construction works

Energy and environment

HOURS PER SUBJECT

General education subjects (Languages, mathematics, art, science …)	1051

Professional modules (construction, masonry work, insulations, ceramic tiles …)	1048
Practical training by working for an employer	912
Extracurricular activities	160
Open curriculum	541
Final exam (product or service and defense)	8

TRAINING TIME

3712 hours in three years, 620 hour- practical training in workshop

ITALY

OFFICIAL NAME AND DURATION

Construction worker

Total duration may slightly differ from Region to Region (as certified VET training in Italy is regulated by Regions).

In Veneto Region (where SCVAP is), the official duration is 3,000 hours (distributed in 3 years) + 1 non mandatory year in dual system mode (500 hours in company + 500 hours at school regulated by apprentices contract)

ACCESS REQUIREMENTS

Direct access:

- Upper Secondary Certificate

- Basic Vocational Education Certificate

- High School Certificate

SUBJECTS

Profile description - EQF 3

The bricklayer deals with the construction and consolidation of different building elements, such as: foundation, containment and elevation structures, internal and external, horizontal and vertical partitions, horizontal and vertical closures, building components and assistance to technological systems.

He receives instructions and tasks from the client and / or from the technicians and coordinates with the other workers on site.

Knowledge

•Set up the logistical spaces and operational elements of the construction site
• Characteristics of the organization and operation of the construction site
• Characteristics of the site lay-out and construction techniques of provisional works
• Principles of construction technology
• Features and techniques of equipment maintenance and specifications for the use of construction site machinery
• Characteristics and methods of loading, unloading and storage of materials
• Techniques and procedures for the construction and disposal of the spaces and services of the site
• Main regulatory references relating to the management of construction site waste
• Main regulatory references relating to safety with regard to the preparation of building sites

Skills

• Apply assembly techniques of temporary works
• Recognize and identify the spatial and technical elements of the construction site
• Recognize and prepare the materials, machinery, tools and tools necessary for building work
• Use techniques for the disposal of site spaces and services
• Adopt procedures for the delimitation and preparation of their work area (cleaning, micro demolition, adaptations, tools, equipment, ...)
• Identify materials, tools, equipment, machinery for the different stages of processing / activities on the basis of the reference indications (diagrams, drawings, procedures, bills of materials, etc.)
• Use procedures for the creation of construction site spaces and services, loading and unloading areas, equipment storage, storage of materials, collection, differentiation and delivery of waste
• Operate the construction of the construction site in compliance with the safety regulations at work

Competence

Carry out tracking for the construction of masonry works

Knowledge

• Characteristics and symbolism of architectural, executive and plant designs relating to masonry works and assistance
• Stages of the building process for the construction of masonry works
• Elements of mathematics and geometry for the calculation of areas, surfaces, volumes, perpendiculars
• Tracing techniques of the elements to be created (walls, excavations, floors, heights, stairs, etc.)
• Measuring and marking tools (e.g. ruler, laser, string, spirit level, plummet, square, etc.)
• Tracing techniques of geometric and altimetric references and reference levels for the installation of false frames and installation of systems
• Main regulatory references relating to safety regarding the execution of tracing of masonry works

Skills

• Read and interpret the technical drawing and the design indications in order to understand the geometric development of the masonry works to be carried out, both external and internal
• Draw on the reference plane (ground, floors, walls, etc.) the layout, the positioning of openings, wall joints, the housing of systems
• Adopt procedures for positioning fixed points and determining alignments, preparing the materials for tracing on the basis of the indications received
• Prepare the materials for tracing (nails, pegs, boards, lines, etc.) on the basis of requests;
• Adopt verification methodologies for tracking control
• Carry out the tracing of masonry works in compliance with workplace safety regulations

Competence Carrying out masonry works and related processes

Knowledge

• Types, characteristics and areas of use of mortar and concrete in the construction of masonry works
• Procedures and techniques for the preparation (mixing, conglomeration, mixing) of mortars and concretes
• Type, characteristics and functionality of the tools, machinery and equipment used in the construction of masonry works
• Principles of the static behavior of materials and structures
• Types of masonry and phases for their construction (load-bearing, non-load-bearing, rough, exposed, stone and rough stone, dry, for the construction of vaults and arches)
• Construction executive techniques for carrying out load-bearing and non-load-bearing masonry works
• Masonry assistance procedures for the installation of systems and windows
• Main regulatory references relating to safety with regard to the construction of masonry and other related processes

Skills

• Read the drawing and the technical project in order to identify the shape, dimensions and measurements of the element to be built
• Prepare the mixtures for the realization of the different types of mortar and concrete, according to the work to be carried out
• Select and use materials and elements (mortars, bricks, blocks, stones, ...) for the realization of the works according to the technical characteristics and the type of processing to be carried out
• Adopt suitable construction techniques based on the design guidelines and in compliance with the rules of art for the construction of structural horizontals (floors and roofs) and masonry of various types (load-bearing walls, partition walls, infill walls, decorative walls)
• Carry out the traces and operations of locking, tamponade, fixation, etc. for the installation of false frame systems and doors and windows
• Create wall compartments (arches, platbands, architraves, etc.) and other structural and decorative masonry works
• Adopt procedures for checking the geometric and structural quality of the work
• Carry out the realization of the masonry works and other related processes in compliance with the workplace safety regulations

Competence
Carry out interventions of consolidation of masonry works

Knowledge
• Characteristics and methods of use of building materials for the consolidation of masonry works
• Type, characteristics and functionality of tools, machinery and equipment for use in related consolidation processes
• Principles of the static behavior of materials and structures, main cases of decay, instability, failure, damage
• Types and techniques of intervention for the realization of recoveries and consolidations: reconstruction techniques, reinforced restyling of the joints, carbon fibers, structural plasters, diatoms, construction of buttresses
• Elements of legislation applied to building constructions: anti-seismic, hydrogeological risk, ...
• Main regulatory references relating to safety as regards the consolidation of masonry works

Skills
• Interpret the design and the structural project in order to identify the characteristics of the intervention to be carried out
• Choose and use materials and elements for the construction of the works according to the technical characteristics and the type of consolidation intervention to be performed
• Adopt maintenance, recovery and consolidation techniques for structures and consolidation - for strengthening on the basis of design indications
• Adopt procedures to check / respect continuity with existing masonry
• Adopt procedures to verify the structural quality of the intervention
• Carry out the consolidation and reinforcement interventions of the masonry works and structures in compliance with the workplace safety regulations

HOURS PER SUBJECT

Not applicable

TRAINING TIME

500 hours in company

BELGIUM

OFFICIAL NAME AND DURATION

Bricklayer: 3 years dual training with apprenticeship contract

ACCESS REQUIREMENTS

Age

You must have reached the age of 15 and be no older than 23 (the apprenticeship contract must end within the calendar year in which you turn 26).

Background

Meet one of the following conditions:

- Have attended 2 years of the 1st level of ordinary or specialized secondary education

- Have successfully completed the 3rd year of regular or specialized secondary vocational education

- Have attended the 3rd year of differentiation and orientation in general or specialized education

- Have attended the 2nd phase in special education

- Have a document (written by the class council of the previous school) announcing that you can continue your training in dual system.

SUBJECTS AND HOURS PER SUBJECT

General knowledge courses: French, Mathematics, Economy, Law.

Professional courses:

Year 1
• Analysis, preparation and communication (48h)
• Block bricklaying (Theory) (26h)
• Block bricklaying (Practical) (42h)
• Layout / Earthwork / Foundations (Theory) (16h)
• Layout / Earthwork / Foundations (Practical) (16h)
• Organization of the site (20h)
• Control of the support (12h)
• EUAA6 - Carry out brickwork / lay floor elements on brickwork (12h)
Year 2
• Formwork - Reinforcement - Concreting (Theory) (20h)
• Formwork - Reinforcement - Concreting (Practical) (16h)
• Insulation and air and water tightness (24h)
• Layout - Earthworks - Foundations (Theory) (8h)
• Layout - Earthworks - Foundations (Practical) (8h)
• Sewerage and drainage (Theory) (16h)
• Sewerage and drainage (Practical) (16h)

• Site organisation (12h)
• EUAA1 - Installing dewatering and peripheral drainage systems (4h)
• EUAA2 - Formwork, reinforcement and concreting of simple elements (8h)
• EUAA5 - Laying out a structure - making the foundation - carrying out masonry (6h)
Year 3
• Analysis, preparation and communication (12h)
• Glued masonry (Theory) (8h)
• Glued masonry (Practical) (8h)
• Facing masonry with mortar (Theory) (24h)
• Facing masonry with mortar (Practical) (32h)
• Organisation of the building site (12h)
• Insulation and waterproofing and constructive knots (Theory) (8h)
• Insulation and waterproofing and constructive knots (Practical) (16h)
• EUAA3 - Placement of thermal insulation on an existing wall (4h)
• EUAA4 - Carry out glued masonry (8h)
• EUAA7 - Carrying out mortar facing masonry (12h)

TRAINING TIME

Weekly organization:

- Year 1: 2 days in training center + 3 days in company
- Year 2: 1 day in training center + 4 days in company

Year 3: 1 day in training center + 4 days in company

2. SIMILARITIES AND DIFFERENCES BETWEEN COUNTRIES REGARDING THE VOCATIONAL TRAINING:

CARPENTER

VOCATIONAL TRAINING SELECTED BY COUNTRY IN ORDER TO COMPARE THEM

Germany: Carpenter. EQF 3 while people are in apprenticeship and once, they successfully finished EQF 4.

Spain: Carpentry and Furniture Custom Made Manufacture and Installation, EQF 4.

Slovenia: Carpenter Technician, EQF 4.

Italy: Building Carpenter, EQF 3.

Belgium: Interior Carpenter, EQF 3. One finished this apprenticeship stage you can access to Carpenter Entrepreneur, EQF 5.

DURATION

Germany: 5280 hours in total. Divided into 3 years.

Spain: 2000 hours in total. Divided into 2 years. Regulated at national level.

Slovenia: 4983 hours in total. Divided into 4 years.

Italy: Duration not regulated at national level. In Italy, VET official training is regulated by regions. This means that the same qualification may have different features from one Region to another, mainly in terms of duration and description of professional profile.

Belgium: 3 years in the case of Wallonia (the French-speaking region of Belgium), because VET trainings in Belgium are organized by regions and not at national federal level.

TRAINING TIME

Germany: 1280 hours in VET CENTER (680 hours the first year, 440 the second and 160 the third) + 3120 hours in company

Spain: 380 hours. All of them the second year.

Slovenia: 504 hours (152 as practical training by working for an employer and 352 as extracurricular activities)

Italy: Not applicable

Belgium: Weekly organization:

- Year 1: 2 days in training center + 3 days in company
- Year 2: 1 day in training center + 4 days in company
- Year 3: 1 day in training center + 4 days in company

ACCESS REQUIREMENTS

Germany: Freedom of contract. More than 15 years.

Spain: A certificate is needed (Secondary education, Vocational education, High School, University Entrance exam or Access exam for Intermediate Level Training Cycles).

Slovenia: Successfully completed primary school.

Italy: A certificate is needed (Upper secondary education, Basic vocational education, High School, University Entrance exam).

Belgium: Between 15 and 23 or have completed certain courses of study

SUBJECTS

Germany: 6 subjects per year. Each subject has a duration of 20, 40 or 60 hours.

Spain: 5 modules the first year and 2 in the second one. Each module has a duration between 65 and 330 hours.

Slovenia: the educational plan is divided in several parts: general education subjects, professional modules, practical training, extracurricular activities, open curriculum, and a final exam. Naturally, most of the hours are spent on general education subjects (2143) and professional modules (1724).

Italy: the curricula is not divided into modules or subjects; the profile is expressed in terms of LOs (learning outcomes). In this case there are 4 of them, and they develop a range of knowledge and skills that would be the equivalent of subjects/modules in other countries.

Belgium: There are general knowledge subjects: French, mathematics, economy, and law and then some specific subjects. The duration of each subject varies between 4 and 48 hours. Some subjects appear in every year.

CONTENT

Germany: Generally defined, all subjects are very practical and varied. They are mainly based on wooden constructions and there is a focus on reinforced concrete construction. Emphasis is placed on the creation of roofs and stairs, among others.

Spain: In Spain there are more general modules, not so specific. It should be noted that in the first module, technical drawing and budget planning are taught, to prepare for working life. The rest of the modules are quite generic on materials and operations in the wood industry, and a whole module is dedicated to safety in this industry. A part of the curriculum is focused on legislation and work integration.

Slovenia: There are 15 modules. The organisation is quite similar to that of Spain, and most of the modules focus on wood, its use and properties. It is worth noting that attention is paid to the field of technology. In comparison with other countries, there is also a module dedicated to the preparation of economics of production processes and another one to design.

Italy: The four competences are the following: Layouts and preliminary operations for the construction; perform formwork, casting, and dismantling operations for the construction of reinforced concrete elements; carry out wood carpentry work and carry out consolidation and structural reinforcement interventions. It is emphasised that knowledge is acquired in structural

drawings and design documentation, mathematics and geometry, and legislation applied to building constructions. In addition, not only is attention paid to wood, but also to reinforced concrete and metal. Safety also plays a key factor.

Belgium: There are two subjects which appear every year: analysis, preparation and communication; and organization of the construction site. The remaining subjects are quite specific, focused on a particular area. It is worth noting that there is a subject called hardware for exterior joinery.

BRICKLAYER

VOCATIONAL TRAINING SELECTED BY COUNTRY IN ORDER TO COMPARE THEM

Germany: Mason, EQF 4

Spain: Construction technician, EQF 4

Slovenia: Bricklayer, EQF 4

Italy: Construction worker, EQF 3

Belgium: Bricklayer, EQF 3. One finished this apprenticeship stage you can access to Bricklayer and Concrete Entrepreneur (EQF 5)

DURATION

Germany: 5280 hours in total. Divided into 3 years.

Spain: 2000 hours in total. Divided into 2 years.

Slovenia: 4983 hours in total. Divided into 4 years.

Italy: Duration not regulated at national level. In Italy, VET official training is regulated by Regions. In Veneto, 3000 hours. Divided in 3 years (+1 non mandatory year: 500 hours in company + 500 hours at school regulated by apprentice's contract).

Belgium: 3 years

TRAINING TIME

Germany: 1280 hours in total in VET CENTER. (680 hours the first year, 440 the second and 160 the third) + 3120 hours in COMPANY

Spain: 380 hours. All of them the second year.

Slovenia: 1072 hours (912 as practical training by working for an employer and 160 as extracurricular activities)

Italy: 500 hours

Belgium: Weekly organization:

- Year 1: 2 days in training center + 3 days in company
- Year 2: 1 day in training center + 4 days in company
- Year 3: 1 day in training center + 4 days in company

ACCESS REQUIREMENTS

Germany: Freedom of contract. More than 15 years.

Spain: A certificate is needed (Secondary education, Vocational education, High School, University Entrance exam or Access exam for Intermediate Level Training Cycles).

Slovenia: Successfully completed primary education, lower vocational education, or equivalents.

Italy: A certificate is needed (Upper secondary certificate, Basic vocational education certificate, High School certificate).

Belgium: Between 15 and 23 or have completed certain courses of study.

SUBJECTS

Germany: 6 subjects per year. Each subject has a duration between 20 and 100 hours.

Spain: 8 modules the first year and 6 in the second one. Each module has a duration between 33 and 198 hours.

Slovenia: the educational plan is divided in several parts: general education subjects, professional modules, practical training, extracurricular activities, open curriculum, and a final exam. Naturally, most of the hours are spent on general education subjects (1051) and professional modules (1048).

Italy: the curriculum is not divided into modules or subjects; the profile is expressed in terms of LOs (learning outcomes). In this case there are 4 of them, and they develop a range of knowledge and skills that would be the equivalent of subjects/modules in other countries.

Belgium: There are general knowledge subjects: French, mathematics, economy, and law and then some specific subjects. The duration of each subject varies between 4 and 48 hours. There are some subjects which are divided into theory and practical part.

CONTENT

Germany: The subjects of the first year are the same as in carpentry. In general, all subjects are very practical and varied. They are mainly based on construction of walls, arches, stairs and ceilings.

Spain: It is remarkable that there is an entire module dedicated to English. In addition to basic construction concepts, it teaches how to interpret plans and how to organise construction sites. It is also curious to note that there is a module that focuses just on Welding, tiling and plating.

Slovenia: It should be noted that English is also taught, as in Spain. There is also a whole module devoted exclusively to wood, and professional drawing and technology are also very important.

Italy: Some competences are the followings: Carry out tracking for the constriction of masonry works, carrying out masonry work and related processes and carry out interventions of consolidation of masonry works.

Special attention is paid to the production and interpretation of plans and the emphasis of the knowledge is based on the materials, tools, machinery, and structures of this industry.

Belgium: There are two subjects which appear several years: analysis, preparation, and communication; and organization of the building site. The remaining subjects are quite specific, focused on a particular area which is crucial to develop this job.

- ⇨ Conclusion:
  - Big differences between the countries
  - Regarding this point there is *no possibility of mobility* actions for Carpenters and Bricklayers