

List of modules in each country

MODULE	SPAIN	LITHUANIAN	POLAND	ITALY
Installation and maintenance of water	1. Installation of water supply and sewage networks	Building pipe junctions	Technical basics of building	Safety
	2. Set up of water distribution and sewage networks	Installation of water supply and sewage networks and	Technology of assembly of water supply and sewerage	Applied Thermohydraulics networks
	3. Service readiness and operation of water supply and sewage networks	Installation of heating systems networks networks	Technology of assembly of central heating installation	Practical plumbing engineering networks
	4. Maintenance of water supply and sewage networks	Maintenance and repair work of water supply and sewage networks practice supply and	Technology of assembly of gas installations supply and	Thermohydraulic theory and techniques
	5. Period of traineeship in set up and maintenance of water	General constructions works	Technology of assembly of ventilation and air conditioning	Practical planning of systems for thermo vector fluids in ferrous metal plants
	6.			Practical production of grids for thermo-vector fluids in non-iron plants. Practical installation of thermal
	7.			7. Theory and techniques of thermic solar plants
	8.			8. Practical construction of solar thermal

Commonalities

P=Poland

I=Italy

S=Spain

L=Lithuanian

M= Module

Table that appears on each box the first letter of a country and a number of module.

If this box is green, has points in common with the module which compares

If this box is red, has not points in common with the module which compares

The color corresponds to the points in common that each module with other modules.

WATER		S	S	S	S	S	L	L	L	L	L	P	P	P	P	P	I	I	I	I	I	I	I
		M1	M2	M3	M4	M5	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5	M6	M7
S	M1	Green																					
S	M2	Green																					
S	M3	Green																					
S	M4	Green																					
S	M5	Green																					
L	M1	Green																					
L	M2	Green																					
L	M3	Green																					
L	M4	Green																					
L	M5	Green																					
P	M1	Green																					
P	M2	Green																					
P	M3	Green																					
P	M4	Green																					
P	M5	Green																					
I	M1	Green																					
I	M2	Green																					
I	M3	Green																					
I	M4	Green																					
I	M5	Green																					
I	M6	Green																					
I	M7	Green																					
I	M8	Green																					

Synthesis of the synergies on a Spanish base:

- FEVEC will provide all the training contents in **BLACK**
- FEVEC and rest of partner will provide the training contents in **RED** – according to the name specified at the end of the line

Module 1 ES : Installation of water supply and sewage networks

- ESM1 (points 1-3), planning, installation of water supply and sewage networks by means of existing or new projects.
- LTM1 (points 1-3) focuses on the pipe structuring as principal element.
- PLM1 (1-5). Undergoes basic preparation of workplace as well as selection of materials.
- ITM1 (1-7). Undergoes basic preparation with a special focus on security regarding safety and risks.
- As a general point one could say that ESM1 and LTM1 are more similar in content (installation and re-installation, ESM1.1 and ESM1.3), as well as PLM1 and ITM1 are at this stage (basic notions on construction, basic building materials; PLM1.1.3.4 and ITM1.1.2.3.6). All coincide on the use of documentation/project for the carrying out of works.

Environmental Skills:

- PM1.2 explicitly names “environment protection” but does not detail which measures to be taken at this stage.

Module 2 ES: Set up of water distribution and sewage networks

- ESM2 is composed by 3 didactic units: DU1 (safety), DU2 (sewage) and DU3 (water distribution networks). Both LTM2 and PLM2 are similar in contents but ITM2 is again more focused on documentation interpretation (in a more theory driven sense).
- ESM2 (1-4) undergoes basic preparations and contents elements such as drainpipes, water pipelines and control instruments. ITM2.8 makes a short reference to fittings which could be equivalent to pipe set up (equipment/tools).
- LTM2 (1-4) is not very specific in this point but introduces ventilation systems and fire water networks, which is not present in the other texts.
- PLM2 (1-11) is very detailed depending on the material used for pipes: PLM2.2 (steel), PLM2.3 (copper) and PLM2.4 (plastic). There is also mentioned a difference between hot and cold water supply. Also the inclusion of cast iron and ceramic pipes installation.

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

- ITM2 (1-10) basic notions on operations to be carried out (ITM2.3, equipment; ITM2.5, system layouts; ITM2.7, system repair). Interesting to consider ITM2.8 regarding skills for fitting and ITM2.10 drain system operation skills.
- **ESM2-DU1 is completely devoted to safety. [FEVEC]**
- **No further mention to safety measures.**

Environmental Skills:

- Not directly mentioned but it can be assumed that on a national norm basis minimum hygiene as well as environmental steps need to be taken into consideration (waste disposal, hazardous materials, etc.)

Module 3: Service readiness and operation of water supply and sewage networks

- ESM3 continues with general operations regarding sewage and distribution networks. Preparation of works and gathering of materials, later installation, tests for performance and maintenance and repairs. On a general basis, main differences are found regarding scope in heating devices and systems that are allocated in LTM3 and PLM3. ITM3 has a mention specially on bathroom fittings in ITM3.2.
- ESM3 (1-4). Previous operations as well as setting up.
- LTM3 (1-3). Installation of low power boilers (house heating (LTM3.2) and heat pumps (LTM3.3).
- PLM3 (1-7). Assembly of steel (PLM3.2), copper (PLM3.3) and plastic (PLM3.4) pipes installations. Heating installations and heat exchangers mentioned.
- ITM3 (1-10). Preparation of workplace, previous considerations (intake and drain systems, LTM3.1), regulations (ITM3.5).
- **ESM3 names explicitly (carrying out conform to safety plan, emergency measures, follow enforced norms) [FEVEC]**
- **ITM3.5 asks to follow enforceable norms. [Formedil]**

Environmental Skills:

- ESM3 notes: Surplus materials, Cleaning and disinfection, and handling and recycling of waste material. Also mentions to take into consideration: energy gathering periods, reduce negative impact on final users with best value in safety, time and cost; and also environmental prevention and protection.

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Module 4: Maintenance of water supply and sewage networks

- ESM4 is made out of 3 didactic units: first dealing with safety, second with preventive maintenance and third with repairs.
- The conceptual basis of M4 is common in all 4 itineraries, ITM4 includes heating in this section, and PLM4 includes gas installation assembly and installation.
- ESM4 (1-5). General perspective in installation and maintenance of water supply and sewage networks. ESM4.3 includes remarks on protocol of management and technical specifications.
- LTM4 (1-3). Almost parallel with the ESM4 contents.
- PLM4 (1-5). Very short text that makes again difference in the handling and installation of steel (PLM4.2) and copper (PLM4.3). PLM4.4 ad 4.5 deal with gas installation and devices.
- ITM (1-11). Basic introduction on preparation, handling and installation. ITM4.4 and 4.5 related to heating.
- ESM4.2 repeats as in ESM3 specific instruction on emergency measures, norms related to safety. [FEVEC]
- LTM4.2 also states (according to quality and safety regulations). [Vilnius]
- ITM4.11 (comply with the enforced norms regarding quality and safety). [Formedil]
- **Environmental Skills:**
- ESM4: surplus materials, cleaning and disinfection, recycling of waste materials, energy gathering periods, avoid possible interferences, water-tight integrity, control over minimum overnight water supply level, use of radio detection equipment. Also mentions enforceable environmental norms.
- LTM4: cleaning and disinfection and handling of waste materials. Also PLM4 shares this request. ITM4 does not make any clear point at this module.

Module 5 ES: Period of traineeship in set up and maintenance of water

- ESM5 is not detailed. This module is sharing more contents therefore between LTM5, PLM5 and ITM5.
- LTM5 (1-3). Water supply and sewage networks. LTM5.1 (preparation of tools, materials), LTM5.2 (performance). Interesting LTM5.3 (development of entrepreneurship skills).

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

- PLM5 (1-4). Assembly of steel (PLM5.2), copper (PLM5.3) pipe installations. PLM5.4 deals explicitly with ventilation and air conditioning.
- ITM5 (1-6). Preparation and assembly of installations. Special focus on grids (networks as a whole, maybe combined?). ITM5.6 (thermo-vector fluids).
- **No direct mention to health or safety procedures.**

Environmental Skills:

- Not specific just counting on safety measures for risk prevention, labor health and environmental protection.

Module 6-8 ES: Not existing

- Only ITM 6-8 does exist.
- ITM6 (1-10): Practical production of grids for thermo-vector fluids in non-iron plants, and practical installation of thermal equipment. ITM6.4 (convection heaters), ITM6.5 (gas boilers), ITM6.6 (non-ferrous thermal distribution grids), ITM6.8 (isolation), ITM6.9 (thermo convectors).
- ITM7 (1-7): Theory and techniques of thermal solar plants.
- ITM8: 8 (1-?). Practical construction of solar thermal. ITM8.1? Acquire special skills for installing, testing and maintaining solar thermal plant for hydro sanitary and heating. ITM8.? Connection of solar collectors.
- **In regards to solar panels installations we find synergies between ITM7 and ESM4. Solar thermal is mentioned only in ITM8.**

Environmental Skills:

- ITM7.1 Knowledge of average solar radiation.
- ITM7.7 Know specific regulations and financing opportunities

OTHER REMARKS ON COMMONALITIES FROM A GENERAL PERSPECTIVE:

-As a main point, the Spanish system on water networks is rather general, with no specification on heat, pumps or ventilation elements, also not gas, for the Spanish case a deeper study would be necessary since all the rest of countries specify it in their contents.

This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Examples:

-Poland, M3, heating+radiators+exchangers, installation and maintenance; M4, gas assembly; M5, ventilation

-Spain, since M5 is not available it does not coincide in any case with the rest of the option, thus the 2 long red lines.

In the Italian case, the word grid is preferred instead of network but both have the same sense. However, grid is interesting because of the future added value of this word but it should be discussed which one is more suitable and thus to be more coherent.

SUGGESTED GENERAL SPECIFICITIES TO BE INCLUDED ON GENERAL LEVEL IN ALLWATER INSTALLATION TOOLKITS WITH REMARKS ON GREEN SKILLS:

- Estimate the use of materials (embodied energy) and with an LCA perspective.
- Waste management (also in relation with resource efficiency and CO2 emissions reduction).
- Knowledge about efficient lighting in private housing and public buildings (LED, ICT based measuring and control)
- Knowledge about Eco-Labels for products (Switchboard related to HVAC, etc) also in relation with new construction methodologies.