

Appendix

1 Excerpt from a training regulation: Apprenticeship "Installations and building technology"*

§ 1. (1) The apprenticeship "Installations and building technology" has been set up as a modular apprenticeship.

(2) Apart from the basic module "Installations and building technology", which is compulsory for all apprentices, one of the following main module shall be trained:

1. Gas and sanitary technology (H1)
2. Heating technology (H2)
3. Ventilation technology (H3)

(3) Another main module or one of the following special modules can be selected, taking into account § 1 para. 4, with the aim of acquiring more in-depth know-how and specialist training:

1. Bathroom design (S1)
2. Ecoenergy technology (S2)
3. Control systems and feedback control technology (S3)
4. Technical building installations planning (S4)

(4) The following combinations of main and special module shall be possible:

Main modules	can be combined with						
	H1	H2	H3	S1	S2	S3	S4
H1		x	x	x	X	x	x
Duration		4 years					
H2	x		x		X	x	x
Duration	4 years		4 years		4 years	4 years	4 years
H3	x	x			X	x	x
Duration	4 years	4 years			4 years	4 years	4 years

(5) In the first two apprenticeship years, the basic module "Installations and building technology" must be taught. The training duration in the basic module and the selected main module is three years. If apprentices register for another main module or a special module, the apprenticeship period is four years. Training in the modular apprenticeship "Installations and building technology" lasts for a maximum of four years.

(6) The terms used in this Regulation include both the feminine and masculine genders. In the apprenticeship contract, apprenticeship certificate, indenture and the apprenticeship leave certificate, the apprenticeship occupation shall be designated in the form corresponding to the apprentice's gender ("Installations- und Gebäudetechniker" or "Installations- und Gebäudetechnikerin").

* 63rd Ordinance of the Federal Minister of Economics and Labour on vocational training in the apprenticeship trade "Installations and building technology" (Installations and building technology training regulation), issued on 19th February 2008.

(7) All main modules and special modules that are to be trained or have been completed shall be identified in the apprenticeship contract, apprenticeship certificate, indenture and the apprenticeship leave certificate by adding a relevant note next to the designation of the apprenticeship occupation.

The training regulation includes the activity description and occupational profile for all main and special modules. In the following, examples of the activity description and occupational profile of one main module and one special module each are given:

Activity description

§ 2. (1) Following vocational training in the training enterprise and at part-time vocational school, apprentices trained in the basic module "Installations and building technology" and in the main module "Gas and sanitary technology" are able to carry out the following activities:

1. installation of pipes and pipe joints from different materials including pipe protection and pipe insulation,
2. implementation of function tests, pressure and leak testing, and measurement of media and pressures,
3. assembly, mounting and testing of gas appliances, waste water installations, water supply installations, hot water installations and sanitary installations,
4. maintenance and servicing of gas appliances, waste water installations, water supply installations, hot water installations and sanitary installations,
5. searching and eliminating malfunctions and defects on gas appliances, waste water installations, water supply installations, hot water installations and sanitary installations,
6. provision of advisory services to customers on basic technical issues.

(4) Following vocational training in the training enterprise and at part-time vocational school, apprentices trained in the special module "Bathroom design" are able to carry out the following activities:

1. production of sketches for bathroom design and production of drawings by using computer-aided drawing programmes,
2. provision of advisory services to customers regarding the designing of bathrooms taking into account colours, proportions, contrasts and health-related aspects,
3. planning, cost calculation, implementation, documentation and settling of accounts regarding bathroom design projects.

Occupational profile

§ 3. (1) For the acquisition of the competences within the meaning of the activity description, the apprentice shall, by the end of the basic module, be trained in the following knowledge and skills:

Item	Basic module "Installations and building technology"
1.	The training company
1.1	Knowledge of the training company's and its partners' service portfolios
1.2	Knowledge of workflows at the training company and of the training company's organisation
1.3	Fundamental knowledge about the legal framework of corporate service provision and other legal regulations of relevance for the company
1.4	Knowledge about corporate risks as well as their reduction and prevention
1.5	Knowledge and application of the principles of corporate quality management
1.6	Functional application, maintenance and servicing of operating equipment and auxiliary materials
1.7	Behaviour according to occupation- and company-relevant safety, environmental protection and hygiene standards
2.	Apprenticeship training
2.1	Knowledge of the apprentice's and training company's obligations resulting from the apprenticeship contract (sections 9 and 10 of the Vocational Training Act)
2.2	Knowledge about the training content and training objective
2.3	Basic knowledge of labour-law related regulations that must be displayed
3.	Interdisciplinary training: In the teaching of relevant knowledge and skills, promotion of the following interdisciplinary competences and skills of the apprentice shall be considered:
3.1	Methodical skills, e.g.: development of solution strategies; independent procurement, selection and structuring of information; decision-making, etc.
3.2	Social skills, e.g.: work in teams; fair expression of criticism; factual submission of arguments; consideration and respect, etc.
3.3	Personal skills, e.g.: self-confidence; willingness to take part in CET measures; expression of needs and interests, etc.
3.4	Attitude towards work, e.g.: care, reliability, responsibility, punctuality, commitment, service- and customer-orientation, etc.
4.	Subject training
4.1	Knowledge of relevant technical regulations
4.2	Reading and production of simple pipe, assembly diagrams and dimension sketches
4.3	Reading of pipe and assembly plans
4.4	Knowledge of materials and auxiliary materials, their properties, applications, possibilities of handling
4.5	Basic skills in the processing of metals and plastics (such as: measuring, sawing, cutting, drilling and countersinking, cutting of threads, hammering, riveting, simple embossing, crimping)

4.6	Application of joining techniques for different materials, such as welding, soldering, pin and socket connections, bolted connections and adhesive joints, taking into account the risks and by applying accident prevention measures
4.7	Cold bending and cold straightening as well as hot bending and hot straightening of pipes
4.8	Installation of pipes and pipe joints, branchings and fittings by using relevant materials
4.9	Knowledge of protective measures against inner and outer destruction of pipes and equipment
4.10	Knowledge of sound protection and insulation of cold and hot water systems and drainage systems
4.11	Installation of pipe protection and pipe insulations as well as their testing
4.12	Knowledge about the elongation of pipelines and measures required when laying pipes
4.13	Implementation of leak tests and pressure tests
4.14	Implementation of function tests and measurement of media and pressures
4.15	Knowledge about the structure and mode of action of fittings
4.16	Knowledge about the properties and use of different fuel gases
4.17	Knowledge about the functions and installation options of devices used in energy and building technology
4.18	Knowledge and application of the major measurement, testing, security and regulating systems
4.19	Knowledge about the prefabrication of pipelines
4.20	Basic knowledge about electrical engineering, electronic engineering and electrical measurement technology
4.21	Knowledge about the dangers of electricity
4.22	Composition of technical reports
4.23	Fundamental knowledge about alternative forms of energy
4.24	Knowledge about initial medical treatment (first aid) in company-specific occupational accidents
4.25	Fundamental knowledge about the sector-specific IT and knowledge and application of company-specific EDP (hardware and software)
4.26	Knowledge and application of English technical terms and expressions

(2) For the acquisition of the competences within the meaning of the activity description, the apprentice shall, by the end of the chosen main module, be trained in the following knowledge and skills:

Item	Main module “Gas and sanitary technology”
1.	Talks with superiors, colleagues, customers and suppliers, taking into account subject-specific expressions and terms
2.	Application of joining techniques such as autogenous welding in a restricted position (pursuant to OENORM M 7807), arc welding and plastics welding
3.	Application of separation techniques
4.	Knowledge of hydraulics
5.	Knowledge of the dimensioning of water and gas pipes for supply and disposal
6.	Knowledge of fluid mechanics and pipe network calculation
7.	Knowledge of installations for water extraction and methods of water treatment
8.	Installation of devices for water treatment
9.	Knowledge of house water supply installations and installations to prepare and distribute of hot water
10.	Fundamental knowledge of solar and heating pump systems to prepare hot water
11.	Installation of pipelines for supplying water and gas as well as the disposal of waste water and waste gas, including the assembly of relevant shut-off devices and extraction installations according to relevant specialist standards
12.	Knowledge of the functions and installation options of gas, water and hot water appliances
13.	Installation, fitting, connection and operation of water supply installations, hot water and sanitary installations, waste water installations and gas appliances
14.	Servicing and maintenance of water supply installations, hot water and sanitary installations, waste water installations and gas appliances; detection, assessment and repair of faults and defects
15.	Knowledge and application of subject-specific measurement and safety installations
16.	Knowledge of occupation-specific hygiene regulations
17.	Knowledge of the preparation and composition of testing and project documentation
18.	Knowledge of chimneys and flue gas systems as well as their installation

(3) For the acquisition of the competences within the meaning of the activity description, the apprentice shall, by the end of the chosen special module, be trained in the following knowledge and skills:

Item	Special module "Bathroom Design"
1.	Customer-oriented behaviour and customer-oriented communication (e.g. ability to hold sales and consulting talks also on the telephone, complaint management)
2.	Production of simple and perspective sketches
3.	Knowledge of occupation-specific EDP and application of company-specific EDP and various information technologies (e.g. Internet, databases)
4.	Computer-assisted production of drafts and views by using drawing software
5.	Knowledge of chromatics and provision of colour consultancy
6.	Consideration of the impact of proportions and contrasts in bathroom design
7.	Consideration of health aspects in bathroom design
8.	Planning and designing of bathrooms, taking into account requirement profiles oriented towards target groups (such as wellness, feng shui, etc.)
9.	Fundamental knowledge of project management and project execution as well as building site coordination
10.	Project costing (such as working hours, material)
11.	Preparation of accounting documents (job record, measure-up)
12.	Preparation of testing and project documentation