

1. TITLE OF THE CERTIFICATE (DE)⁽¹⁾

**Lehrabschlussprüfungszeugnis Oberflächentechnik –
Schwerpunkt Dünnschicht- und Plasmatechnik**

⁽¹⁾ in original language

2. TRANSLATED TITLE OF THE CERTIFICATE (EN)⁽²⁾

**Certificate of Apprenticeship ‘Surface Engineering Specialising in
Thin Layer and Plasma Engineering’ (f/m)**

⁽²⁾ This translation has no legal status.

3. PROFILE OF SKILLS AND COMPETENCES**Specialist areas of competence:****Competence area coating processes (all focuses):**

The professional for surface engineering carries out a wide range of activities for the surface treatment and coating of materials such as metals, plastics, wood/MDF and composites. He/she has extensive knowledge of the properties, areas of application and performance of various surface engineering methods, in particular mechanical surface engineering, electroplating, powder coating, enamelling, hot-dip galvanising and thin layer and plasma engineering.

During the incoming goods inspection, the professional assesses the received workpieces, associated order documents and technical drawings. Any deviations or incorrect information shall be identified, documented and communicated by the professional.

The professional for surface engineering selects suitable methods for surface coating depending on the subsequent requirements such as weather, standard, load and customer specifications and prepares the associated materials, tools, machines and equipment. He/she carries out the necessary preparatory steps for coating workpieces, such as chemical and mechanical surface pre-treatment, in accordance with the subsequent coating method and the respective substrate material. In doing so, he/she handles toxic and hazardous substances in compliance with legal and company safety regulations.

When defects or complaints occur, the professional reworks finished products, decoats them and recoats them.

He/she prepares finished workpieces for transport, packs them according to customer requirements, picks them according to the order and loads them efficiently and safely into different means of transport. For quality assurance and product traceability, he/she documents all necessary information, such as procedures, tests and test intervals, in a comprehensible manner according to the company's specifications. In addition, the professional carries out standardised sampling for different test methods as well as specified physico-chemical analyses.

Based on his/her specialist knowledge, the professional for surface engineering informs customers about the surface coating methods offered and goes into detail about the surface properties to be achieved, such as adhesion and corrosion resistance. When carrying out work, he/she takes into account relevant legal provisions and technical guidelines, especially for the management, storage and handling of toxic and hazardous substances.

Special-focused professional competence area thin layer and plasma engineering:

The professional for surface engineering specialising in thin layer and plasma engineering coats workpieces to achieve desired surface properties and suggests suitable processes for this purpose. Based on his/her in-depth knowledge of thin layer and plasma engineering, he/she recognises whether workpieces are designed and manufactured to be suitable for vacuum. If necessary, for example if no compensating pressure holes are provided, he/she reports the detected problems. As part of the production process, he/she mechanically and chemically pre-treats workpieces and prepares them for coating. The professional for surface engineering specialising in thin layer and plasma engineering identifies residues of processing and preservation media or surface defects that influence the suitability for coating. He/she coats workpieces by means of thin layer or plasma engineering, such as by chemical or physical vapour deposition, ensuring uniform coating while taking into account the fixture and the workpiece geometry. If necessary, the professional shall apply the principles of particle-free work in his/her activities.

The professional selects machines or systems for thin layer and plasma engineering, taking into account logistical requirements, ensures that they are ready for operation and sets them up. To do this, he/she equips devices and adapts them to the requirements of the workpiece if necessary. The professional for surface engineering specialising in thin layer and plasma engineering specifies different parameters such as substrate temperatures and

operates the machines or systems safely and properly. He/she ensures the quality of the coating, monitors the coating process and eliminates any faults such as pressure decrease or contamination. He/she also carries out anticipatory maintenance work on the machines and equipment he/she uses.

The professional for surface engineering specialising in thin layer and plasma engineering selects suitable procedures for testing surfaces to be coated. He/she carries out non-destructive and destructive testing procedures, such as visual inspections, coating thickness measurements and micro-hardness tests, and uses microscopic procedures to evaluate the coating morphology as well as the coating appearance of surfaces. The professional documents the results in a professional manner. He/she also assesses surfaces coated with thin layer and plasma engineering, identifies defects, draws conclusions about their origin and supports the optimisation of the manufacturing process.

Interdisciplinary areas of competence:

1. Working in an operational and professional environment
2. Quality oriented, safe and sustainable work
3. Digital work

4. RANGE OF OCCUPATIONS ACCESSIBLE TO THE HOLDER OF THE CERTIFICATE ⁽³⁾

Range of occupations:

Employment in workshops and production halls of different commercial and industrial enterprises for coating objects and workpieces of different types (e.g. displays, televisions, solar cells) with ultra-thin layers for the purpose of hardening, smoothing or roughening. Various chemical or physical methods such as physical or chemical vapour deposition are used for this purpose.

⁽³⁾ if applicable

(*) Explanatory note

This document has been developed with a view to providing additional information on individual certificates; it has no legal effect in its own right. These explanatory notes refer to the Decision (EU) no. 2018/646 of the European parliament and the Council of 2 May 2018 on a common framework for the provision of better services for skills and qualifications (Europass).

More information on Europass is available at: <http://europass.cedefop.europa.eu> or www.europass.at

5. OFFICIAL BASIS OF THE CERTIFICATE

<p>Name and status of the body awarding the certificate</p> <p>Lehrlingsstelle der Wirtschaftskammer</p> <p>(Apprenticeship Office of the Economic Chamber; for the address, see certificate)</p>	<p>Name and status of the national/regional authority providing accreditation/recognition of the certificate</p> <p>Bundesministerium für Arbeit und Wirtschaft</p> <p>(Federal Ministry for Labour and Economy)</p>
<p>Level of the certificate (national or international)</p> <p>NQF/EQF 4 ISCED 35</p>	<p>Grading scale / Pass requirements</p> <p>Overall performance: Pass with Distinction Good Pass Pass Fail</p>
<p>Access to next level of education/training</p> <p>Access to the <i>Berufsreifeprüfung</i> (i.e. certificate providing university access for skilled workers) or a vocational college for people under employment.</p> <p>Access to relevant courses at a <i>Fachhochschule</i> (i.e. university level study programme of at least three years' duration with vocational-technical orientation); additional examinations must be taken if the educational objective of the respective course requires it.</p>	<p>International agreements</p> <p>Between Germany, Hungary, South Tyrol and Austria, international agreements on the mutual automatic recognition of apprenticeship-leave examinations and other vocational qualifications have been concluded. Information on equivalent apprenticeship occupations can be obtained from the Federal Ministry for Digital and Economic Affairs.</p>
<p>Legal basis</p> <ol style="list-style-type: none"> 1. Training Regulation for surface engineering BGBl. II (Federal Law Gazette) No. 99/2022 (company-based training) 2. Curriculum framework (education at the vocational school for apprentices) 3. The present apprenticeship trade replaces the apprenticeship trade surface engineering (Training and Examination Regulation BGBl. II (Federal Law Gazette) No. 192/2000 as amended by BGBl. II (Federal Law Gazette) No. 177/2005), which expired as of April 30, 2022. 	

6. OFFICIALLY RECOGNISED WAYS OF ACQUIRING THE CERTIFICATE

1. Training in the framework of the given Training Regulation for surface engineering and of the curriculum of the vocational school for apprentices. Admission to the final apprenticeship examination upon completion of the apprenticeship period specified for the apprenticeship trade concerned. The final apprenticeship examination aims to establish whether the apprentice has acquired the skills and competences required for the respective apprenticeship trade and is able to carry out the activities particular to the learned trade herself/himself in an appropriate manner.
2. Admission to the final apprenticeship examination in accordance with Article 23 (5) of the *Berufsausbildungsgesetz* (Vocational Training Act). An applicant for an examination is entitled to sit the final apprenticeship examination without completing a formal apprenticeship training if she/he has reached 18 years of age and is able to prove acquisition of the required skills and competences by means of a relevant practical or an on-the-job training activity of appropriate length, by attending relevant courses etc.

Additional information:

Entry requirements: successful completion of 9 years of compulsory schooling.

Duration of training: 3.5 years

Enterprise-based training: Enterprise-based training comprises $\frac{4}{5}$ of the entire duration of the training and focuses on the provision of job-specific skills and competences according to Article 3 (2) of the Training Regulation, BGBl. II (Federal Law Gazette) No. 99/2022, enabling the apprentice to exercise qualified activities as defined by the profile of skills and competences specified above (cf. job profile).

Education at vocational school: School-based education comprises $\frac{1}{5}$ of the entire duration of the training. The vocational school for apprentices has the tasks of imparting to apprentices the basic theoretical knowledge, of supplementing their enterprise-based training and of widening their general education in the framework of subject-oriented part-time instruction.

More information (including a description of the national qualification system) is available at:
www.zeugnisinfo.at and www.edusystem.at

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