

Structuring and preparation of a lesson: **EAB module 2 (Surface treatment)**

time	Theme, core information, statements or questions	Learning objectives ¹	Methods (e.g. presentation/ discussion/group work)	Media/ training material
4 h	<p>Objectives and other requirements of a surface (Reflection/repetition of following terms: wetting, surface energy, forces)</p> <p>Classification of methods (surface preparation and pretreatment) and influencing factors on the choice of method(s)</p> <p>Cross section of metals</p> <p>Cleaning: Objectives (remove all contaminations)</p> <p>Reflection/repetition of following terms: wetting, surface energy, nanometer rule</p> <p>Procedures (cleaning methods like wiping or bath technique)</p> <p>Types of cleaning agents (solvent or water based)</p> <p>Heeding points related to cleaning procedure (e.g. correct wiping technique, bath renewal)</p>	<p>To be able to name the requirements on substrate surfaces for effective bonding and the objectives of surface treatment prior to bonding (2)</p> <p>To be able to name the objective of cleaning substrate surfaces prior to bonding and the requirements on cleaning agents (1)</p> <p>To be able to explain why silicones must be totally avoided when carrying out bonding work and to be able to name potential sources of silicones (2)</p> <p>To be able to describe the different methods of surface treatment discussed in the course and their objectives (2)</p>	<p>Question about pretreatment methods in the work shop</p> <p>Discussion about daily experiences and procedure in the practical course exercises</p> <p>Development of content with the participants</p> <p>Practical demonstration (e.g. correct wiping technique, peel ply, wetting tests with plasma treated substrates, primer processing)</p>	<p>Demonstration objects (e.g. low alloy steel, cleaning tissue, hand cream that contains silicone, substrate with peel ply, corundum as grit material, plasma treated substrates, test inks, primer bottle, application tools for primers)</p> <p>White board</p> <p>Handouts</p> <p>Text book</p> <p>Videos</p>

¹ (1) Know and understand, (2) transfer and practically apply, (3) analyze and assess; (0) no learning objective; additional information

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	<p>Properties for an appropriate cleaning agent (remove all contaminations, residue free evaporation especially for water based systems, no damage of substrates, occupational health and safety)</p> <p>Silicone problem (wetting problem, impossible to remove, consequences for the workshop, sources)</p> <p>Several pretreatment methods with focus on their objectives/aims and the procedures: Mechanical (grinding / grit blasting, peel ply), Chemical (etching) Physical (flame treatment, plasma treatment), Primers</p> <p>Heading points related to each method (e.g. requirements for cleaning agents, mechanical treatment of different sorts of plastic, stability of activation effect, risk of over activation, effects of deviations from correct primer application)</p>	<p>To be able to explain why plastics are often difficult to bond and to be able to name methods for pretreating plastics (2)</p> <p>To be able to briefly explain how a primer works and to be able to explain what must be heeded when using and processing primers (2)</p>		
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