

**MODULE 6. MATERIALS AND HARDWARE**
*Regulation (EU) 2018/1142*

MODULE 6. MATERIALS AND HARDWARE	LEVEL			
	A	B1	B2 B2L	B3
<b>6.1 Aircraft Materials — Ferrous</b>				
(a) Characteristics, properties and identification of common alloy steels used in aircraft; Heat treatment and application of alloy steels.	1	2	1	2
(b) Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.	—	1	1	1
<b>6.2 Aircraft Materials — Non-Ferrous</b>				
(a) Characteristics, properties and identification of common non-ferrous materials used in aircraft; Heat treatment and application of non-ferrous materials;	1	2	1	2
(b) Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance.	—	1	1	1
<b>6.3 Aircraft Materials — Composite and Non-Metallic</b>				
<b>6.3.1 Composite and non-metallic other than wood and fabric</b>				
(a) Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents;	1	2	2	2
(b) The detection of defects/deterioration in composite and non-metallic material; Repair of composite and non-metallic material.	1	2	—	2
<b>6.3.2 Wooden structures</b>	1	2	—	2
Construction methods of wooden airframe structures; Characteristics, properties and types of wood and glue used in aeroplanes; Preservation and maintenance of wooden structure; Types of defects in wood material and wooden structures; The detection of defects in wooden structure; Repair of wooden structure.				
<b>6.3.3 Fabric covering</b>	1	2	—	2
Characteristics, properties and types of fabrics used in aeroplanes; Inspections methods for fabric; Types of defects in fabric; Repair of fabric covering.				
<b>6.4 Corrosion</b>				
(a) Chemical fundamentals; Formation by, galvanic action process, microbiological, stress;	1	1	1	1
(b) Types of corrosion and their identification; Causes of corrosion; Material types, susceptibility to corrosion.	2	3	2	2
<b>6.5 Fasteners</b>				
<b>6.5.1 Screw threads</b>	2	2	2	2
Screw nomenclature; Thread forms, dimensions and tolerances for standard threads used in aircraft; Measuring screw threads.				

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<b>6.5.2 Bolts, studs and screws</b> Bolt types: specification, identification and marking of aircraft bolts, international standards; Nuts: self locking, anchor, standard types; Machine screws: aircraft specifications; Studs: types and uses, insertion and removal; Self tapping screws, dowels.	2	2	2	2
<b>6.5.3 Locking devices</b> Tab and spring washers, locking plates, split pins, pal-nuts, wire locking, quick release fasteners, keys, circlips, cotter pins.	2	2	2	2
<b>6.5.4 Aircraft rivets</b> Types of solid and blind rivets: specifications and identification, heat treatment.	1	2	1	2
<b>6.6 Pipes and Unions</b> (a) Identification of, and types of rigid and flexible pipes and their connectors used in aircraft; (b) Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.	2	2	2	2
<b>6.7 Springs</b> Types of springs, materials, characteristics and applications.	—	2	1	1
<b>6.8 Bearings</b> Purpose of bearings, loads, material, construction; Types of bearings and their application.	1	2	2	1
<b>6.9 Transmissions</b> Gear types and their application; Gear ratios, reduction and multiplication gear systems, driven and driving gears, idler gears, mesh patterns; Belts and pulleys, chains and sprockets.	1	2	2	1
<b>6.10 Control Cables</b> Types of cables; End fittings, turnbuckles and compensation devices; Pulleys and cable system components; Bowden cables; Aircraft flexible control systems.	1	2	1	2
<b>6.11 Electrical Cables and Connectors</b> Cable types, construction and characteristics; High tension and co-axial cables; Crimping; Connector types, pins, plugs, sockets, insulators, current and voltage rating, coupling, identification codes.	1	2	2	2