

Module 6

Materials and Hardware

	Level		
	A	B1	B2
6.1 Aircraft Materials - Ferrous	A	B1	B2
a) Characteristics, properties and identification of common alloy steels used in aircraft; Heat treatment and application of alloys steels;	1	2	1
b) Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.	-	1	1
6.2 Aircraft Materials - Non-Ferrous	A	B1	B2
a) Characteristics, properties and identification of common non-ferrous materials used in aircraft; Heat treatment and application of non-ferrous materials;	1	2	1
b) Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance.	-	1	1
6.3 Aircraft Materials - Composite and Non-Metallic	A	B1	B2
Composite and non-metallic other than wood and fabric	1	2	2
a) Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents.	1	2	-
b) The detection of defects in composite and non-metallic material; Repair of composite material.			
Wooden Structures	1	2	-
Construction methods of wooden airframe structures; Characteristics, properties and types of wood and glue used in aeroplanes; Preservation of maintenance of wooden structures; Types of defects in wood material and wooden structures; The detection of defects in wooden structure; Repair of wooden structure.			
Fabric covering	1	2	-
Characteristics, properties and types of fabric used in aeroplanes; Inspection methods for fabric; Types of defects in fabric; Repair of fabric covering.			
6.4 Corrosion	A	B1	B2
a) Chemical fundamentals; Formation by, galvanic action process, microbiological, stress;	1	1	1
b) Types of corrosion and their identification; Causes of corrosion; Material types, susceptibility to corrosion.	2	3	2



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6.5 Fasteners	A	B1	B2
Screw Threads Screw nomenclature; Thread forms, dimensions and tolerances for standard threads used in aircraft; Measuring screw threads.	2	2	2
Bolds, studs and screws 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
Locking devices Tab and spring washers, locking plates, split pins, pal-nuts, wire locking, quick release fasteners, keys, circlips, cotter pins.	2	2	2
Aircraft rivets Types of solid and blind rivets: specifications and identification, heat treatment.	1	2	1
6.6 Pipes and Unions	A	B1	B2
a) Identification of, and types of rigid and flexible pipes and their connectors used in aircraft;	2	2	2
b) Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.	2	2	1
6.7 Springs	A	B1	B2
Types of springs, materials, characteristics and applications.	-	2	1
6.8 Bearings	A	B1	B2
Purpose of bearings, loads, material, construction; Types of bearings and their application.	1	2	2
6.9 Transmissions	A	B1	B2
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
6.10 Control Cables	A	B1	B2
Types of cables; End fittings, turnbuckles and compensation devices; Pulleys and cable system components; Bowden cables; Aircraft flexible control systems.	1	2	1



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6.11 Electrical Cables and Connectors	Level		
	A	B1	B2
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

