

LICENCE B1.2

MODULE 1 — MATHÉMATIQUES

Ref.	Intitulé (FR)	Intitulé (EN)	Niv B1.2	Contenu détaillé (EN)
1.1	Arithmétique	Arithmetic	2	Arithmetical terms and signs, methods of multiplication and division, fractions and decimals, factors and multiples, weights, measures and conversion factors, ratio and proportion, averages and percentages, areas and volumes, squares, cubes, square and cube roots.
1.2(a)	Algèbre — Expressions algébriques simples	Algebra (a)	2	Evaluating simple algebraic expressions, addition, subtraction, multiplication and division, use of brackets, simple algebraic fractions.
1.2(b)	Algèbre — Équations et logarithmes	Algebra (b)	1	Linear equations and their solutions; indices and powers, negative and fractional indices; binary and other applicable numbering systems; simultaneous equations and second-degree equations with one unknown; logarithms.
1.3(a)	Géométrie — Constructions géométriques simples	Geometry (a)	1	Simple geometrical constructions.
1.3(b)	Géométrie — Représentation graphique	Geometry (b)	2	Graphical representation: nature and uses of graphs, graphs of equations/functions.
1.3(c)	Géométrie — Trigonométrie	Geometry (c)	2	Simple trigonometry: trigonometrical relationships, use of tables and rectangular and polar coordinates.

MODULE 2 — PHYSIQUE

Ref. Sous-item	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
2.1	Matière	Matter	2	Nature of matter: the chemical elements, structure of atoms, molecules; chemical compounds; states: solid, liquid, and gaseous; changes between states.
2.2.1	Mécanique — Statique	Statics	2	Forces, moments and couples, representation as vectors; centre of gravity; elements of theory of stress, strain, and elasticity: tension, compression, shear, and torsion; nature and properties of solid, fluid, and gas matter; pressure and buoyancy in liquids (barometers).
2.2.2	Mécanique — Cinématique	Kinetics	2	Linear movement: uniform motion in a straight line, motion under constant acceleration (motion under gravity); rotational movement: uniform circular motion (centrifugal/centripetal forces); periodic motion: pendular movement; simple theory of vibration, harmonics, and resonance; velocity ratio, mechanical advantage, and
2.2.3(a)	Dynamique — Masse, force et énergie	Dynamics (a)	2	Mass; force, inertia, work, power, energy (potential, kinetic and total energy), heat, efficiency.
2.2.3(b)	Dynamique — Quantité de mouvement	Dynamics (b)	2	Momentum, conservation of momentum; impulse; gyroscopic principles; friction: nature and effects, coefficient of friction (rolling resistance).
2.2.4(a)	Dynamique des fluides — Pesanteur et masse volumique	Fluid dynamics (a)	2	Specific gravity and density.

2.2.4(b)	Dynamique des fluides — Viscosité, compressibilité	Fluid dynamics (b)	2	Viscosity, fluid resistance, effects of streamlining; effects of compressibility on fluids; static, dynamic, and total pressure: Bernoulli's Theorem, venturi.
2.3(a)	Thermodynamique — Température	Thermodynamics (a)	2	Temperature: thermometers and temperature scales (Celsius, Fahrenheit and Kelvin); definition of heat.
2.3(b)	Thermodynamique — Chaleur	Thermodynamics (b)	2	Heat capacity, specific heat; heat transfer: convection, radiation and conduction; volumetric expansion; first and second law of thermodynamics; gases: ideal gases laws, specific heat at constant volume and constant pressure, work done by expanding gas; isothermal, adiabatic expansion and compression, engine cycles, constant volume and constant pressure, refrigerators and heat pumps; latent heats of fusion and evaporation, thermal energy, heat of combustion.
2.4	Optique (lumière)	Optics (Light)	2	Nature of light; speed of light; laws of reflection and refraction: reflection at plane surfaces, reflection by spherical mirrors, refraction, lenses; fibre optics.
2.5	Propagation des ondes et acoustique	Wave motion and sound	2	Wave motion: mechanical waves, sinusoidal wave motion, interference phenomena, standing waves; sound: speed of sound, production of sound, intensity, pitch and quality, Doppler effect.

MODULE 3 — ELECTRICITE

Ref. Sous-item	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
3.1	Théorie de l'électron	Electron theory	1	Structure and distribution of electrical charges within atoms, molecules, ions, and compounds; molecular structure of conductors, semiconductors, and insulators.
3.2	Électricité statique et conduction	Static electricity and conduction	2	Static electricity and distribution of electrostatic charges; electrostatic laws of attraction and repulsion; units of charge, Coulomb's law; conduction of electricity in solids, liquids, gases and in vacuum.
3.3	Terminologie électrique	Electrical terminology	2	The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow.
3.4	Production d'électricité	Generation of electricity	1	Production of electricity by the following methods: light, heat, friction, pressure, chemical reaction, magnetism, and motion.
3.5	Sources d'électricité en courant continu	Sources of DC electricity	2	Construction and basic chemical reaction of primary cells, secondary cells, lead acid cells, nickel cadmium cells, lithium cells, nickel cells and other alkaline cells; cells connected in series and in parallel; internal resistance and its effect on a battery; construction, materials, and operation of thermocouples; operation of photocells.
3.6	Circuits en courant continu	DC circuits	2	Ohm's law, Kirchhoff's voltage, and current laws; calculations using the above laws to find resistance, voltage, and current; significance of the internal resistance of a supply.
3.7(a)	Résistance électrique	Resistance	2	Specific resistance; calculation of total resistance using series, parallel and series-parallel combinations; operation and use of potentiometers and rheostats; operation of Wheatstone Bridge.

3.7(b)	Résistances (composants)	Resistor	1	Positive and negative temperature coefficient conductance; resistor colour code, values and tolerances, preferred values, wattage ratings; resistors in series and in parallel; fixed resistors, stability, tolerance and limitations, methods of construction; variable resistors, thermistors, voltage-dependent resistors; construction of potentiometers and rheostats; construction of Wheatstone Bridge.
3.8	Puissance électrique	Power	2	Power, work, and energy (kinetic and potential); dissipation of power by a resistor; power formula; calculations involving power, work, and energy.
3.9	Capacité / condensateur	Capacitance/ Capacitor	2	Operation and function of a capacitor; factors that affect the capacitance: area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating; capacitor types, construction, and function; capacitor colour-coding; calculations of capacitance and voltage in series and in parallel circuits; exponential charge and discharge of a capacitor, time constants; testing of capacitors.
3.10(a)	Magnétisme — Théorie du magnétisme	Magnetism (a)	2	Theory of magnetism; properties of a magnet; action of a magnet suspended in the Earth's magnetic field; magnetisation and demagnetisation; magnetic shielding; various types of magnetic material; electromagnet construction and principles of operation; handclasp rules to determine magnetic field around current-carrying conductor.
3.10(b)	Magnétisme — Force magnétomotrice	Magnetism (b)	2	Magnetomotive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point, eddy currents; precautions for care and storage of magnets.
3.11	Inductance / inducteur	Inductance/ Inductor	2	Faraday's law; action of inducing a voltage in a conductor that moves in a magnetic field; induction principles; effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns; mutual induction; the effect that the rates of change of primary current and mutual inductance have on induced voltage; factors that affect mutual inductance: number of turns in the coil, physical size of the coil, permeability of the coil, position of coils with respect to each other; Lenz's law and polarity determining rules; back EMF, self-induction; saturation point; principal uses of inductors.
3.12	Théorie des moteurs et générateurs DC	DC motor/generator theory	2	Basic motor and generator theory; construction and purpose of components in a DC generator; operation of and factors that affect the output and direction of the current in DC generators; operation of and factors that affect the output power, torque, speed, and direction of rotation of DC motors; series-wound, shunt-wound and compound motors; starter generator construction.
3.13	Théorie du courant alternatif	AC theory	2	Sinusoidal waveform: phase, period, frequency, cycle; instantaneous, average, root mean square, peak, peak-to-peak current values and calculations of these values in relation to voltage, current and power; triangular/square waves; single-phase/three-phase principles.

3.14	Circuits R, C et L	Resistive (R), capacitive (C) and inductive (L) circuits	2	Phase relationship of voltage and current in L, C and R circuits, parallel, series and series-parallel; power dissipation in L, C and R circuits; impedance, phase angle, power factor and current calculations; true power, apparent power, and reactive power calculations.
3.15	Transformateurs	Transformers	2	Transformer construction principles and operation; transformer losses and methods for overcoming them; transformer action under load and no-load conditions; power transfer, efficiency, polarity markings; line and phase voltages and currents; power in a three-phase system; primary and secondary current, voltage, turn ratio, power, efficiency; auto-transformers.
3.16	Filtres	Filters	1	Operation, application, and uses of the following filters: low pass, high pass, band pass, band stop.
3.17	Alternateurs (générateurs CA)	AC generators	2	Rotation of loop in a magnetic field and waveform produced; operation and construction of revolving armature and revolving field type AC generators; single-phase, two-phase, and three-phase alternators; three-phase star and delta connection advantages, and uses; permanent magnet generators.
3.18	Moteurs à courant alternatif	AC motors	2	Construction, principles of operation and characteristics of: AC synchronous and induction motors both single-phase and polyphase; methods of speed control and direction of rotation; methods of producing a rotating field: capacitor, shaded or split pole.

MODULE 4 — ELECTRONIQUE

Ref. Sous-item	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
4.1.1(a)	Semi-conducteurs — Diodes : description et caractéristiques	Diodes - Description and characteristics	2	Diode symbols; diode characteristics and properties; diodes in series and in parallel; materials, electron configuration, electrical properties; P and N type materials: effects of impurities on conduction, majority and minority characters; P-N junction in a semiconductor, development of a potential across a P-N junction in unbiased, forward-biased and reverse-biased conditions; diode parameters: peak inverse voltage, maximum forward current, temperature, frequency, leakage current, power dissipation; main characteristics and use of silicon-controlled rectifiers (thyristors), light-emitting diodes (LEDs), photo-conductive diodes, rectifier diodes.
4.1.1(b)	Semi-conducteurs — Diodes : fonctionnement	Diodes - Operation and function	—	Operation and function of diodes in the following circuits: clippers, clampers, full- and half-wave rectifiers, bridge rectifiers, voltage doublers and triplers; detailed operation and characteristics of the following devices: silicon-controlled rectifier (thyristor), light-emitting diode (LED), Schottky diode, photo-conductive diode, varactor diode, varistor, rectifier diodes, Zener diode. Functional testing of diodes.
4.1.2(a)	Semi-conducteurs — Transistors : description et caractéristiques	Transistors - Description and characteristics	1	Transistor symbols; component description and orientation; transistor characteristics and properties.

4.1.2(b)	Semi-conducteurs — Transistors : construction et fonctionnement	Transistors - Construction and operation	—	Construction and operation of PNP and NPN transistors; base, collector and emitter configurations; testing of transistors; basic appreciation of other transistor types, including types of FET and their uses; application of transistors: amplifier classes (A, B, C); simple circuits including bias, decoupling, feedback and stabilisation; multistage circuit principles: cascades, push-pull, oscillators, multivibrators, flip-flop circuits; operation and amplifier stages connecting methods: resistive, capacitive, direct, inverting, non-inverting and adding.
4.1.3(a)	Circuits intégrés — Description et fonctionnement	Integrated circuits (a)	1	Description and operation of logic circuits and linear circuits/operational amplifiers.
4.1.3(b)	Circuits intégrés — Amplificateur opérationnel	Integrated circuits (b)	—	Introduction to the operation and function of an operational amplifier used as: an integrator, a differentiator, a voltage follower, a comparator; advantages and disadvantages of positive and negative feedback.
4.2	Circuits imprimés	Printed circuit boards	1	Description and use of printed circuit boards.
4.3(a)	Servomécanismes — Principes	Servomechanisms (a)	1	Understanding of the following principles: open- and closed-loop systems, servomechanism, feedback, follow-up, null, overshoot, damping, deadband, hunting, proximity switches, analogue transducers, synchro systems and components, digital tachometers and encoders, inductance, and capacitance transmitters.
4.3(b)	Servomécanismes — Construction et utilisation	Servomechanisms (b)	—	Construction operation and use of the following synchro-system components: resolvers, differential, control and torque, E and I transformers, inductance transmitters, capacitance transmitters, synchronous transmitters; construction, operation and use of servomechanism and PID controller; fault-finding of servo defects, reversal of synchro leads, hunting.

MODULE 5 — NUMERIQUE

Ref. Sous-item	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
5.1	Systèmes d'instruments électroniques	Electronic instrument systems	1	Typical arrangements of systems and cockpit layout of electronic instrument systems.
5.2	Systèmes de numération	Numbering systems	1	Numbering systems: binary, octal, and hexadecimal; demonstration of conversions between the decimal and binary systems, octal and hexadecimal systems and vice versa.
5.3	Conversion de données	Data conversion	1	Analogue data, digital data; operation and application of analogue-to-digital and digital-to-analogue converters, inputs and outputs, limitations of various types.
5.4	Bus de données	Data buses	2	Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications. Aircraft network/Ethernet.
5.5(a)	Circuits logiques — Identification et applications	Logic circuits (a)	2	Identification of common logic gate symbols, tables and equivalent circuits; applications used for aircraft systems, schematic diagrams.
5.5(b)	Circuits logiques — Interprétation	Logic circuits (b)	—	Interpretation of logic diagrams.

5.6(a)	Architecture informatique — Terminologie et technologie	Basic computer structure (a)	2	Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM); computer technology (as applied in aircraft systems).
5.6(b)	Architecture informatique — Fonctionnement	Basic computer structure (b)	—	Computer operation, layout, and interface of the major components in a microcomputer, including their associated bus systems; information contained in single- and multi-address instruction words; memory-associated terms; operation of typical memory devices; operation, advantages, and disadvantages of the various data storage systems.
5.7	Microprocesseurs	Microprocessors	—	Functions performed and overall operation of a microprocessor; basic operation of each of the following microprocessor elements: control and processing unit, clock, register, arithmetic logic unit.
5.8	Circuits intégrés	Integrated circuits	—	Operation and use of encoders and decoders; function of encoder types.
5.9	Multiplexage	Multiplexing	—	Operation, application and identification in logic diagrams of multiplexers and demultiplexers.
5.10	Fibres optiques	Fibre optics	1	Advantages and disadvantages of fibre optic data transmission over electrical wire propagation; fibre optic data bus; fibre-optic-related terms; terminations; couplers, control terminals, remote terminals; application of fibre optics in aircraft systems.
5.11	Afficheurs électroniques	Electronic displays	2	Principles of operation of common types of displays used in modern aircraft, including cathode-ray tubes (CRTs), light-emitting diodes (LEDs) and liquid crystal displays (LCDs).
5.12	Dispositifs sensibles aux décharges électrostatiques	Electrostatic-sensitive devices	2	Special handling of components sensitive to electrostatic discharges; awareness of risks and possible damage, component, and personnel antistatic protection devices.
5.13	Gestion et contrôle des logiciels	Software management control	2	Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programs.
5.14	Environnement électromagnétique	Electromagnetic environment	2	Influence of the following phenomena on maintenance practices for electronic systems: EMC — Electromagnetic Compatibility, EMI — Electromagnetic Interference, HIRF — High-Intensity Radiated Field, lightning / lightning protection.
5.15	Systèmes aéronautiques électroniques/numériques typiques	Typical electronic/digital aircraft systems	1	General arrangement of typical electronic/digital aircraft systems and associated BITE (Built-In Test Equipment), such as: ACARS, FBW — Fly-by-Wire, FMS — flight management system, IRS — inertial reference system; ECAM, EICAS, EFIS, GNSS, TCAS, Integrated Modular Avionics, Cabin Systems, Information Systems.

MODULE 6 — MATERIAUX

Ref. Sous-item	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
6.1(a)	Matériaux ferreux — Aciers alliés	Ferrous materials (a)	2	Characteristics, properties and identification of common alloy steels used in aircraft; heat treatment and application of alloy steels.

6.1(b)	Matériaux ferreux — Essais mécaniques	Ferrous materials (b)	1	Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.
6.1(c)	Matériaux ferreux — Procédures de réparation et d'inspection	Ferrous materials (c)	2	Repair and inspection procedures for ferrous materials, structures, and airframes.
6.2(a)	Matériaux non ferreux — Caractéristiques	Non-ferrous materials (a)	2	Characteristics, properties and identification of common non-ferrous materials used in aircraft; heat treatment and application of non-ferrous materials.
6.2(b)	Matériaux non ferreux — Essais mécaniques	Non-ferrous materials (b)	1	Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance.
6.2(c)	Matériaux non ferreux — Procédures de réparation et d'inspection	Non-ferrous materials (c)	2	Repair and inspection procedures for non-ferrous materials, structures, and airframes.
6.3.1(a)	Matériaux composites — Caractéristiques	Composite materials (a)	2	Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; sealant and bonding agents.
6.3.1(b)	Matériaux composites — Détection des défauts	Composite materials (b)	2	Detection of defects/deterioration in composite and non-metallic materials.
6.3.1(c)	Matériaux composites — Réparation et inspection	Composite materials (c)	2	Repair of and inspection procedures for composite and non-metallic materials, structures, and airframes.
6.3.2	Structures en bois	Wooden structures	1	Construction methods of wooden airframe structures; characteristics, properties and types of wood and glue used in aeroplanes; preservation and maintenance of wooden structures; types of defects in wood material and wooden structures; detection of defects in wooden structures; repair of wooden structures.
6.3.3	Revêtement en tissu	Fabric covering	1	Characteristics, properties and types of fabrics used in aeroplanes; inspection methods for fabrics; types of defects in fabrics; repair of fabric covering.
6.4(a)	Corrosion — Fondamentaux chimiques	Corrosion (a)	1	Chemical fundamentals; formation by galvanic action process, microbiological contamination, mechanical stress.
6.4(b)	Corrosion — Types de corrosion	Corrosion (b)	3	Types of corrosion and their identification; causes of corrosion; material types, and their susceptibility to corrosion.
6.5.1	Fixations — Filetages	Screw threads	2	Screw nomenclature; thread forms, dimensions and tolerances for standard threads used in aircraft; measuring screw threads.
6.5.2	Fixations — Boulons, goudjons et vis	Bolts, studs, and screws	2	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.
6.5.3	Fixations — Dispositifs de freinage	Locking devices	2	Tab and spring washers, locking plates, split pins, pal-nuts, wire locking, quick-release fasteners, keys, circlips, cotter pins.

6.5.4	Fixations — Rivets aéronautiques	Aircraft rivets	2	Types of solid and blind rivets: specifications and identification, heat treatment.
6.6(a)	Tuyauteries et raccords — Identification	Pipes and unions (a)	2	Identification and types of rigid and flexible pipes and their connectors used in aircraft.
6.6(b)	Tuyauteries et raccords — Raccords normalisés	Pipes and unions (b)	2	Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.
6.7	Ressorts	Springs	2	Types of springs, materials, characteristics, and applications.
6.8	Roulements	Bearings	2	Purpose of bearings, loads, material, construction; types of bearings and their application.
6.9	Transmissions mécaniques	Transmissions	2	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.
6.10	Câbles de commande	Control cables	2	Types of cables; end fittings, turnbuckles and compensation devices; pulleys and cable system components; Bowden cables; aircraft flexible control systems.
6.11	Câbles électriques et connecteurs	Electrical cables and connectors	2	Cable types, construction and characteristics; high-tension and coaxial cables; crimping; connector types, pins, plugs, sockets, insulators, current and voltage rating, coupling, identification codes.

MODULE 7 — PRATIQUES D'ENTRETIEN

Ref. Sous-item	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
7.1	Précautions de sécurité — Aéronef et atelier	Safety precautions	3	Aspects of safe working practices including precautions to be taken when working with electricity, gases (especially oxygen), oils, and chemicals. Fuel tank safety and fuel tank entry procedures and precautions. Awareness and precautions regarding aircraft equipped with ballistic recovery systems. Also, instructions for the remedial action to be taken in the event of a fire or another accident with one or more of these hazards, including information on fire-extinguishing agents.
7.2	Pratiques d'atelier	Workshop practices	3	Care of tools, control of tools, use of workshop materials; dimensions, allowances and tolerances, workmanship standards; calibration of tools and equipment, calibration standards.
7.3	Outils	Tools	3	Common hand-tool types; common power-tool types; operation and use of precision-measuring tools; lubrication equipment and methods; operation, function, and use of electrical general test equipment.
7.5	Dessins techniques, schémas et normes	Engineering drawings, diagrams, and standards	2	Drawing types and diagrams, their symbols, dimensions, tolerances and projections; identification of title block information; microfilm, microfiche, and computerised presentations; Specification 100 of the Air Transport Association (ATA) of America; aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL; wiring diagrams and schematic diagrams.
7.6	Ajustements et jeux fonctionnels	Fits and clearances	2	Drill sizes for bolt holes, classes of fits; common system for fits and clearances; schedule of fits and clearances for aircraft and engines; limits for bow, twist and wear; standard methods for checking shafts, bearings, and other parts.

7.7	Système d'interconnexion du câblage électrique (EWIS)	Electrical wiring interconnection system (EWIS)	3	Continuity, insulation and bonding techniques and testing; use of crimp tools: hand and hydraulic operated; testing of crimp joints; connector pin removal and insertion; coaxial cables: testing and installation precautions; identification of wire types, their inspection criteria and damage tolerance; wiring protection techniques: cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding; High-Intensity Radiated Fields (HIRF) and protection principles; soldering of electrical wires, EWIS installations, inspection, repair, maintenance, and cleanliness standards.
7.8	Rivetage	Riveting	2	Riveted joints, rivet spacing and pitch; tools used for riveting and dimpling; inspection of riveted joints.
7.9	Tuyaux et flexibles	Pipes and hoses	2	Bending and belling/flaring aircraft pipes; inspection and testing of aircraft pipes and hoses; installation and clamping of pipes.
7.10	Ressorts	Springs	2	Inspection and testing of springs.
7.11	Roulements	Bearings	2	Testing, cleaning and inspection of bearings; lubrication requirements for bearings; defects in bearings and their causes.
7.12	Transmissions mécaniques	Transmissions	2	Inspection of gears, backlash; inspection of belts and pulleys, chains and sprockets; inspection of screw jacks, lever devices, push-pull rod systems.
7.13	Câbles de commande	Control cables	2	Swaging of end fittings; inspection and testing of control cables; Bowden cables; aircraft flexible control systems.
7.14.1	Travail de la tôle	Sheet metal	2	Marking out and calculation of bend allowance; sheet metal working, including bending and forming; inspection of sheet metal work.
7.14.2	Matériaux composites et non métalliques	Composite and non-metallic	2	Bonding practices; environmental conditions; inspection methods.
7.14.3	Fabrication additive	Additive manufacturing	1	Common additive manufacturing techniques and their influence on the mechanical properties of the finished part; inspection of additive manufactured parts and common production failures.
7.16(a)	Masse et centrage — Calcul du centre de gravité	Aircraft weight and balance (a)	2	Calculation of centre-of-gravity / balance limits: use of relevant documents.
7.16(b)	Masse et centrage — Pesée de l'aéronef	Aircraft weight and balance (b)	2	Preparation of aircraft for weighing; aircraft weighing.
7.17	Manutention et stockage des aéronefs	Aircraft handling and storage	2	Aircraft taxiing/towing and associated safety precautions; aircraft jacking, chocking, securing and associated safety precautions; aircraft storage methods; refuelling/defuelling procedures; de-icing/anti-icing procedures; electrical, hydraulic, and pneumatic ground supplies; effects of environmental conditions on aircraft handling and operation.
7.18(a)	Inspection — Types de défauts et inspection visuelle	Disassembly/ inspection techniques (a)	3	Types of defects and visual inspection techniques; corrosion removal, assessment and reprotection.

7.18(b)	Méthodes générales de réparation — SRM	Disassembly/ inspection techniques (b)	2	General repair methods, structural repair manual; ageing, fatigue, and corrosion control programmes.
7.18(c)	Contrôles non destructifs (CND)	Non-destructive inspection (c)	2	Non-destructive inspection techniques including penetrant, radiographic, eddy current, magnetic particle, ultrasonic and borescope inspections; including practical training in colour contrast penetrant inspection.
7.18(d)	Techniques de démontage et de remontage	Disassembly/ reassembly techniques (d)	2	Disassembly and reassembly techniques.
7.18(e)	Techniques de dépannage (troubleshooting)	Troubleshooting techniques (e)	2	Troubleshooting techniques.
7.19(a)	Événements anormaux — Foudre et HIRF	Abnormal events (a)	2	Inspections following lightning strikes and HIRF penetration.
7.19(b)	Événements anormaux — Atterrissage dur et turbulences	Abnormal events (b)	2	Inspections following abnormal events such as heavy landings and flight through turbulence.
7.20	Procédures de maintenance	Maintenance procedures	2	Maintenance planning; modification procedures; stores procedures; certification/release procedures; interface with aircraft operation; maintenance inspection / quality control / quality assurance; additional maintenance procedures; control of life-limited components.
7.21	Documentation et communication	Documentation and communication	2	Documentation: elements and criteria for writing work reports, troubleshooting reports, and shift handover instructions. Communication: clear, comprehensive, and concise.

MODULE 8 — AÉRODYNAMIQUE

Ref. Sous-item	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
8.1	Physique de l'atmosphère — ISA	Physics of the atmosphere	2	International Standard Atmosphere (ISA), and its application to aerodynamics.
8.2	Aérodynamique	Aerodynamics	2	Airflow around a body; boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation; the terms: camber, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, centre of pressure, angle of attack, wash-in and wash-out, fineness ratio, wing shape and aspect ratio; thrust, weight, aerodynamic resultant; generation of lift and drag: angle of attack, lift coefficient, drag coefficient, polar curve, stall; aerofoil contamination including ice, snow, and frost.
8.3	Théorie du vol	Theory of flight	2	Relationship between lift, weight, thrust and drag; glide ratio; steady-state flights, performance; theory of the turn; influence of load factor: stall, flight envelope, and structural limitations; lift augmentation.
8.4	Écoulement à grande vitesse	High-speed airflow	2	Speed of sound, subsonic flight, transonic flight, supersonic flight, Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating, area rule; factors that affect airflow in engine intakes of high-speed aircraft; effects of sweepback on critical Mach number.

8.5	Stabilité et dynamique du vol	Flight stability and dynamics	2	Longitudinal, lateral, and directional stability (active and passive).
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MODULE 9 — FACTEURS HUMAINS

Ref.	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
9.1	Généralités	General	2	The need to take human factors into account when performing maintenance; incidents attributable to human factors/human error; Murphy's law.
9.2	Performances et limitations humaines	Human performance and limitations	2	Vision; hearing; information processing; attention and perception; memory; claustrophobia and physical access.
9.3	Psychologie sociale	Social psychology	1	Accountability and responsibility: individual and group; motivation and demotivation; peer pressure; cultural issues; teamwork; management, supervision, and leadership.
9.4	Facteurs influençant les performances	Factors that affect performance	2	Fitness/health; stress: domestic and work related; time pressure and deadlines; workload: overload, underload, and workload management; sleep and fatigue, shift work; alcohol, medication, drug abuse; lack of manpower.
9.5	Environnement physique	Physical environment	1	Noise and fumes; illumination; climate and temperature; motion and vibration; working environment; situational awareness.
9.6	Tâches	Tasks	1	Physical work; repetitive tasks, complacency; visual inspection; complex systems; critical maintenance tasks and error-capturing methods; technical documentation: access, use, and quality.
9.7	Communication	Communication	2	Within and between teams; work logging and recording; shift handover; keeping up to date, currency; dissemination of information.
9.8	Erreur humaine	Human error	2	Error models and theories; types of error in maintenance tasks; implications of errors (e.g. accidents); organisational errors; avoiding and managing errors.
9.9	Gestion de la sécurité	Safety management	2	Risk management; occurrence reporting; safety culture; just culture; identifying, avoiding, and reporting hazards; organisational human-factors programme: professionalism and integrity, error-provoking behaviour, reporting errors, disciplinary policy, error investigation, action to address problems, feedback, assertiveness; dealing with emergencies.
9.10	La 'Sale Douzaine' (Dirty Dozen) et atténuation des risques	The 'Dirty Dozen' and risk-mitigation	2	The 'Dirty Dozen': the twelve most common human-factors errors in maintenance: lack of communication, lack of teamwork, lack of assertiveness, complacency, fatigue, stress, lack of knowledge, lack of resources, lack of awareness, distraction, pressure, norms. Risk-mitigation methods.

MODULE 10 — REGLEMENTATION

Ref.	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
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10.1	Cadre réglementaire	Regulatory framework	1	Role of: the International Civil Aviation Organization (ICAO); the European Commission (EC); the European Union Aviation Safety Agency (EASA); the European Union Member States and national aviation authorities; the bilateral agreements concluded by the European Commission; Regulation (EU) 2018/1139 (the Basic Regulation) and its implementing acts: Regulations (EU) No 748/2012 (Initial Airworthiness) and (EU) No 1321/2014 (Continuing Airworthiness); the relationship between regulations (hard law) and AMC, GM and CSs (soft law); occurrence reporting according to Regulation (EU) No 376/2014; the relationship between the various annexes (parts) relating to Initial and Continuing Airworthiness (such as Part 21, Part-M, Part-145, Part-66, Part-147, Part-T, Part-ML, Part-CAMO, and Part-CAO) and Regulations (EU) No 965/2012 (the Air Operations Regulation) and (EU) No 1178/2011 (the Air Crew Regulation).
10.2	Personnel de certification — Maintenance	Certifying staff — maintenance	2	Deep understanding of Part-66 maintenance licences with the associated privileges and authorisations, and how to exercise them properly for the different aircraft categories.
10.3	Organismes d'entretien agréés (OEA / Part-145)	Approved maintenance organisations	2	General understanding of Part-145 and Part-CAO.
10.4	Personnel de certification indépendant	Independent certifying staff	3	Privileges, responsibilities, record-keeping, limitations, and oversight according to Part-M, Part-66 and Part-ML.
10.5	Opérations aériennes	Air operations	1	General understanding of Regulation (EU) No 965/2012 (the Air Operations Regulation); differences between commercial and non-commercial air operations, and their influence on aircraft maintenance; Air Operator Certificates (AOCs) and self-declaration authorisations; air operator responsibilities, in particular regarding continuing airworthiness and maintenance; specialised operations / specific approvals: ETOPS, CAT I/II/III, and BRNAV. Minimum Equipment List (MEL) and Configuration Deviation List (CDL); aircraft placarding and markings; documents to be carried on board.
10.6	Certification des aéronefs, pièces et équipements	Certification of aircraft, parts, and appliances	2	Basic understanding of Part 21 and of the following EASA certification specifications: CS-22, CS-23, CS-25, CS-27, CS-29, and CS-STAN.
10.7	Maintien de la navigabilité	Continuing airworthiness	2	General understanding of the Part 21 requirements on continuing airworthiness; general understanding of Part-M, Part-ML and Part-CAMO; Aircraft Maintenance Programme.
10.8	Principes de surveillance du maintien de la navigabilité	Oversight principles in continuing airworthiness	1	Oversight principles in continuing airworthiness.
10.9	Maintenance et certification hors réglementation UE	Maintenance beyond current EU regulations	1	Maintenance of European Union aircraft that are not within the scope of Regulation (EU) 2018/1139 (Annex I aircraft); European military airworthiness requirement (EMAR) 66 licence; applicable national and international requirements for component maintenance, welding, painting, NDT, etc. (if not superseded by EU requirements).

10.10	Cybersécurité en maintenance aéronautique	Cybersecurity in aviation maintenance	1	Regulation on the introduction of organisation requirements for the management of information security risks related to aeronautical information systems used in civil aviation.
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MODULE 11 — SYSTEMES AVION

Ref.	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
11.1(a)	Théorie du vol — Commandes de vol	Theory of flight (a)	2	Operation and effect of: roll control: ailerons and spoilers; pitch control: elevators, stabilators, variable incidence stabilisers and canards; yaw control, rudder limiters; elevons, ruddervators; high-lift devices: slots, slats, flaps, flaperons; drag-inducing devices: spoilers, lift dumpers, speed brakes; trim tabs, servo tabs, control surface bias.
11.1(b)	Théorie du vol — Autres dispositifs aérodynamiques	Theory of flight (b)	2	Operation and effect of: balance and antibalance (leading) tabs; spring tabs, mass balance, aerodynamic balance panels; effects of wing fences, saw tooth leading edges; boundary layer control using vortex generators, stall wedges or leading-edge devices.
11.2(a)	Structures de cellule (ATA 51) — Concepts généraux	Airframe structures (a)	2	Zonal and station identification systems; electrical bonding; lightning strike protection provisions.
11.2(b)	Structures de cellule (ATA 51) — Exigences de résistance	Airframe structures (b)	2	Structural classification: primary, secondary, and tertiary; fail-safe, safe-life, damage-tolerance concepts; stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; drains and ventilation provisions; system installation provisions.
11.2(c)	Structures de cellule (ATA 51) — Méthodes de construction	Airframe structures (c)	2	Stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, skinning, anticorrosive protection, wing, empennage and engine attachments; structure assembly techniques: riveting, bolting, bonding; methods of surface protection, such as chromating, anodising, painting; surface cleaning; airframe symmetry: methods of alignment and symmetry checks.
11.3.1(a)	Fuselage, portes, hublots (ATA 52/53/56) — Principes de construction	Fuselage, doors, windows (a)	2	Construction and pressurisation sealing; wing, stabiliser, pylon, and undercarriage attachments; seat installation and cargo loading system; doors and emergency exits: construction, mechanisms, operation and safety devices; windows and windscreen construction and mechanisms.
11.3.1(b)	Fuselage — Dispositifs de remorquage aérien	Fuselage - Airborne towing devices	1	Airborne towing devices (glider, banner, target).
11.3.1(c)	Portes et sorties de secours	Doors and emergency exits	1	Doors and emergency exits: safety devices; cargo loading system.
11.3.2	Voilure (ATA 57)	Wings (ATA 57)	2	Construction; fuel storage; landing gear, pylon, control surface and high lift/drag attachments.
11.3.3	Empennages (ATA 55)	Stabilisers (ATA 55)	2	Construction; control surface attachment.
11.3.4	Surfaces de commande de vol (ATA 55/57)	Flight control surfaces (ATA 55/57)	2	Construction and attachments; balancing — mass and aerodynamics.

11.3.5	Nacelles et pylônes (ATA 54)	Nacelles/pylons (ATA 54)	2	Nacelles/Pylons: construction, firewalls, engine mounts.
11.4(a)	Conditionnement d'air et pressurisation (ATA 21) — Pressurisation	Air conditioning (a) - Pressurisation	3	Pressurisation systems; cabin pressure controllers, control, and safety valves; control and indication.
11.4(b)	Conditionnement d'air et pressurisation (ATA 21) — Alimentation en air	Air conditioning (b) - Air supply		Sources of air supply including engine bleed, APU and ground cart; distribution systems.
11.4(c)	Conditionnement d'air et pressurisation (ATA 21) — Climatisation	Air conditioning (c)	—	Air-conditioning systems; air cycle and vapour cycle machines; flow, temperature and humidity control system; control and indication control valves.
11.4(d)	Conditionnement d'air et pressurisation (ATA 21) — Sécurité et alarmes	Air conditioning (d) - Safety	3	Protection and warning devices.
11.4(e)	Conditionnement d'air — Chauffage et ventilation	Air conditioning (e) - Heating and ventilation	3	Heating and ventilation systems.
11.5.1	Instruments (ATA 31)	Instrument systems (ATA 31)	2	Pitot-static: airspeed indicators, vertical speed indicators, altimeters; gyroscopic: gyroscopic principles, artificial horizons, attitude directors, direction indicators, horizontal situation indicators (HSI), slip indicators, turn indicators, turn coordinators; compass systems: systems, direct reading, remote reading; stall-warning systems and angle-of-attack indicating systems; glass cockpit; indications of other aircraft systems.
11.5.2	Systèmes avioniques	Avionics systems	1	Fundamentals of system layouts and operation of: autoflight (ATA 22); communication systems (ATA 23): VHF, HF, SATCOM, CPDLC, audio systems, ELTs, CVR; navigation systems (ATA 34): VOR, ADF, ILS, MLS, FDS/DME, RNAV, FMS, satellite navigation, ATC transponder/SSR, TCAS, weather avoidance radar, radio altimeter, INS, ARINC communication and reporting. Types and uses of avionics general test equipment.
11.6	Alimentation électrique (ATA 24)	Electrical power (ATA 24)	3	Installation and operation of batteries; DC power generation; AC power generation; emergency power generation; voltage regulation; power distribution; inverters, transformers, rectifiers; circuit protection; external/ground power.
11.7(a)	Équipements et aménagements (ATA 25) — Équipements de secours	Equipment and furnishings (a)	2	Emergency equipment requirements.

11.7(b)	Équipements et aménagements (ATA 25) — Aménagement cabine	Equipment and furnishings (b)	1	Seats, harnesses, and belts; cabin layout; equipment layout; cabin furnishing installation; galley installation; cargo handling and retention equipment; airstairs.
11.8(a)	Protection incendie (ATA 26) — Détection fumée/feu et extinction	Fire protection (a)	1	Fire and smoke detection and warning systems; fire-extinguishing systems; system tests.
11.8(b)	Protection incendie (ATA 26) — Extincteurs portatifs	Fire protection (b)	1	Portable fire extinguisher.
11.9(a)	Commandes de vol (ATA 27) — Commandes primaires et secondaires	Flight controls (a)	3	Primary controls: aileron, elevator, rudder, spoiler; trim control, trim tabs; high-lift devices; system operation: manual; gust locks and gust lock systems; artificial feel, yaw damper, Mach trim, rudder limiter; stall-warning systems.
11.9(b)	Commandes de vol (ATA 27) — Actionnement et protection	Flight controls (b)	—	Active load control; lift dump, speed brakes; hydraulic, pneumatic systems; stall-protection systems.
11.9(c)	Commandes de vol (ATA 27) — Fonctionnement du système	Flight controls (c)	—	Electrical systems, fly-by-wire systems.
11.9(d)	Commandes de vol (ATA 27) — Équilibrage et réglage	Flight controls (d) - Balancing and rigging	3	Balancing and rigging.
11.10(a)	Systèmes carburant (ATA 28/47) — Architecture	Fuel systems (a) - Systems	3	System layout; fuel tanks; supply systems.
11.10(b)	Systèmes carburant (ATA 28/47) — Gestion du carburant	Fuel systems (b) - Fuel handling	3	Cross-feed and transfer; refuelling and defuelling.
11.10(c)	Systèmes carburant (ATA 28/47) — Indications et alarmes	Fuel systems (c) - Indication	3	Indication and warnings.
11.10(d)	Systèmes carburant (ATA 28/47) — Systèmes spéciaux	Fuel systems (d) - Special systems	—	Dumping, venting, and draining; inert gas systems.
11.10(e)	Systèmes carburant (ATA 28/47) — Équilibrage longitudinal	Fuel systems (e) - Balancing	—	Longitudinal balance fuel systems.

11.11(a)	Système hydraulique (ATA 29) — Description	Hydraulic power (a)	3	System layout; hydraulic fluids; hydraulic reservoirs and accumulators; filters; power distribution.
11.11(b)	Système hydraulique (ATA 29) — Fonctionnement (1)	Hydraulic power (b)	3	Pressure generation: electric and mechanical; pressure control; indication and warning systems; servicing.
11.11(c)	Système hydraulique (ATA 29) — Fonctionnement (2)	Hydraulic power (c)	—	Pressure generation: pneumatic; emergency pressure generation; interface with other systems.
11.12(a)	Protection givrage et pluie (ATA 30) — Principes	Ice and rain protection (a)	3	Ice formation, classification, and detection.
11.12(b)	Protection givrage et pluie (ATA 30) — Dégivrage	Ice and rain protection (b)	3	De-icing systems: electrical, hot-air, pneumatic, chemical; probe and drain heating.
11.12(c)	Protection givrage et pluie (ATA 30) — Antigivrage	Ice and rain protection (c)	—	Anti-icing systems: electrical, hot-air, chemical.
11.12(d)	Protection givrage et pluie (ATA 30) — Essuie-glaces	Ice and rain protection (d)	3	Wiper systems.
11.12(e)	Protection givrage et pluie (ATA 30) — Répulsif de pluie	Ice and rain protection (e)	—	Rain-repellent systems.
11.13(a)	Train d'atterrissage (ATA 32) — Description	Landing gear (a)	3	Construction, shock absorbing; tyres.
11.13(b)	Train d'atterrissage (ATA 32) — Fonctionnement du système	Landing gear (b)	3	Extension and retraction systems: normal and emergency; indications and warnings; wheels, brakes, antiskid, and autobraking; steering.
11.13(c)	Train d'atterrissage (ATA 32) — Détection sol/air	Landing gear (c)	—	Air-ground sensing.
11.13(d)	Train d'atterrissage (ATA 32) — Protection de l'empennage arrière	Landing gear (d)	3	Tail protection: skids.
11.14	Éclairage (ATA 33)	Lights (ATA 33)	3	External: navigation, anticollision, landing, taxiing, ice; internal: cabin, cockpit, cargo; emergency.
11.15	Oxygène (ATA 35)	Oxygen (ATA 35)	3	System layout: cockpit, cabin; sources, storage, charging and distribution; supply regulation; indications and warnings.

11.16(a)	Pneumatique / dépression (ATA 36) — Systèmes	Pneumatic/ vacuum (a)	3	System layout; sources: engine/APU, compressors, reservoirs, ground supply; pressure control; distribution; indications and warnings; interface with other systems.
11.16(b)	Pneumatique / dépression (ATA 36) — Pompes	Pneumatic/ vacuum (b)	3	Pressure and vacuum pumps.
11.17(a)	Eau et déchets (ATA 38) — Systèmes	Water/waste (a)	3	Water system layout, supply, distribution, servicing and draining; toilet system layout, flushing and servicing.
11.17(b)	Eau et déchets (ATA 38) — Corrosion	Water/waste (b)	3	Corrosion aspects.
11.18	Systèmes de maintenance embarqués — CMC (ATA 45)	Onboard maintenance systems (ATA 45)	—	Central maintenance computers; data-loading system; electronic library system; printing systems; structure monitoring (damage-tolerance monitoring).
11.19(a)	Avionique modulaire intégrée — AMI (ATA 42) — Description	IMA (ATA 42) (a)	—	Overall system description and theory: core system; network components. Functions typically integrated: bleed management, air pressure control, air ventilation and control, avionics and cockpit ventilation control, temperature control, air traffic communication, avionics communication router, electrical load management, circuit breaker monitoring, electrical system BITE, fuel management, braking control, steering control, landing gear extension and retraction, tyre pressure indication, oleo pressure indication, brake temperature monitoring.
11.19(b)	Avionique modulaire intégrée — AMI (ATA 42) — Architectures types	IMA (ATA 42) (b)	—	Typical system layout.
11.20	Systèmes cabine (ATA 44)	Cabin systems (ATA 44)	—	System architecture, operation, and control of systems for: passenger in-flight entertainment; communication within the aircraft (CIDS); communication between the aircraft cabin and ground stations including voice, data, music, and video transmission. CIDS interface; data exchange between LRUs; flight attendant panels (FAPs); CNS server interfaces.
11.21	Systèmes d'information (ATA 46)	Information systems (ATA 46)	—	System architecture, operation, and control of: storage and electronic library; updating; retrieving of digital information; ATIMS and network server systems; aircraft general information system; flight deck information system; maintenance information system; passenger cabin information system; miscellaneous information systems.

MODULE 16 — MOTEUR à PISTONS

Ref.	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
16.1	Principes fondamentaux	Fundamentals	2	Mechanical, thermal, and volumetric efficiencies; operating principles: 2-stroke, 4-stroke, Otto, diesel, and rotary (Wankel); piston displacement and compression ratio; engine configuration and firing order.
16.2	Performances moteur	Engine performance	2	Power calculation and measurement; factors that affect engine power; mixtures/leaning, pre-ignition.

16.3	Construction du moteur	Engine construction	2	Crank case, crank shaft, cam shafts, sumps; accessory gearbox; cylinder and piston assemblies; connecting rods, inlet and exhaust manifolds; valve mechanisms; propeller reduction gearboxes.
16.4.1	Systèmes de carburant — Carburateurs	Carburettors	2	Types, construction, and principles of operation; icing and heating.
16.4.2	Systèmes de carburant — Injection de carburant	Fuel injection systems	2	Types, construction, and principles of operation.
16.4.3	Systèmes de carburant — Contrôle électronique moteur	Electronic engine control	2	Operation of engine control and fuel-metering systems including FADEC; system layout and components.
16.5	Systèmes de démarrage et d'allumage	Starting and ignition systems	2	Starting systems, preheat systems; magneto types, construction, and principles of operation; ignition harnesses, spark plugs; low- and high-tension systems.
16.6	Admission, échappement et refroidissement	Induction, exhaust, and cooling systems	2	Construction and operation of induction systems, including alternate air systems; exhaust systems, engine cooling systems — air and liquid.
16.7	Suralimentation / turbocompression	Supercharging/turbocharging	2	Principles and purpose of supercharging and its effects on engine parameters; construction and operation of supercharging/turbocharging systems; system terminology; control systems; system protection.
16.8	Lubrifiants et carburants	Lubricants and fuels	2	Properties and specifications of standard, alternate, and drop-in fuel; properties and specifications of lubricants; fuel additives; safety precautions.
16.9	Système de lubrification	Lubrication systems	2	System operation/layout and components.
16.10	Systèmes d'indication moteur	Engine indication systems	2	Engine speed; cylinder head temperature; coolant temperature; oil pressure and temperature; exhaust gas temperature; fuel pressure and flow; manifold pressure.
16.11	Installation de la tranche moteur	Power plant installation	2	Configuration of firewalls, cowlings, acoustic panels, engine mounts, antivibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.
16.12	Surveillance moteur et opérations au sol	Engine monitoring and ground operation	3	Procedures for starting and ground run-up; interpretation of engine power output and parameters; inspection of engine and components: criteria, tolerances, and data specified by the engine manufacturer.
16.13	Stockage et conservation moteur	Engine storage and preservation	2	Preservation and depreservation for the engine and its accessories/systems.
16.14	Constructions alternatives du moteur à pistons	Alternate piston-engine constructions	1	Hybrid piston-electric concepts and electric power augmentation.

MODULE 17 — HELICE

Ref.	Intitulé (FR)	Intitulé (EN)	Niveau	Contenu détaillé (EN)
17.1	Principes fondamentaux	Fundamentals	2	Blade element theory; high/low blade angle, reverse angle, angle of attack, rotational speed; propeller slip; aerodynamic, centrifugal, and thrust forces; torque; relative airflow on blade angle of attack; vibration and resonance.

17.2	Construction de l'hélice	Propeller construction	2	Construction methods and materials used in wooden, composite and metal propellers; blade station, blade face, blade shank, blade back / thrust face and hub assembly; fixed pitch, controllable pitch, constant speeding propeller; propeller/spinner installation.
17.3	Contrôle du pas d'hélice	Propeller pitch control	2	Speed control and pitch change methods — mechanical and electrical/electronic; feathering and reverse pitch; overspeed protection.
17.4	Synchronisation des hélices	Propeller synchronising	2	Synchronising and synchrophasing equipment.
17.5	Protection de l'hélice contre le givrage	Propeller ice protection	2	Fluid and electrical de-icing equipment.
17.6	Entretien de l'hélice	Propeller maintenance	3	Static and dynamic balancing; blade tracking; assessment of blade damage, erosion, corrosion, impact damage, delamination; propeller treatment/repair schemes; propeller engine running.
17.7	Stockage et conservation de l'hélice	Propeller storage and preservation	2	Propeller preservation and depreservation.