Croatian Civil Aviation Agency

Zahtjev/Lista usklađenosti za odobrenje PPL (H) tečaja osposobljavanja

Application / Compliance Checklist for PPL (H) course approval

Upravne pristojbe
70,00 kn

UPUTE:

Ovaj zahtjev/listu usklađenosti potrebno je ispuniti kod inicijalnog stjecanja odobrenja tečaja osposobljavanja u skladu sa zahtjevima Uredbe Komisije (EU) br. 1178/2011 i njezinih izmjena i dopuna.

Uz ovaj zahtjev/listu usklađenosti potrebno je dostaviti:

- 70,00 kn upravnih pristojbi;
- tečaj osposobljavanja (priručnik/program osposobljavanja) - u papirnatom i elektroničkom (CD/DVD) izdanju.

Upute za ispunjavanje:

U rubriku *"Organisation Reference"* potrebno je upisati referencu na program/priručnik (ime programa/priručnika i poglavlje) gdje je zahtjev opisan ili označiti N/A ukoliko nije primjenjivo.
Ispunjavanjem liste usklađenosti odgovorne osobe organizacije potvrđuju usklađenost programa/priručnika sa primjenjivim zahtjevima.

Rubrika *"Results" (Satisfactory-S, Unsatisfactory – U, Not applicable – N/A)* ispunjava se od strane CCAA inspektora. Rubrike S, U i N/A označavaju se sa znakom "X".

Uputa za buduće ishođenje odobrenja izmjena tečaja osposobljavanja (programa/priručnika):

Nije potrebno ispunjavati ovaj zahtjev/listu usklađenosti, već je potrebno dostaviti zahtjev za odobrenje izmjena tečaja osposobljavanja (programa/priručnika) sa popisom izmjena i dopuna i 70,00 kn upravnih pristojbi, te izmjenom programa/priručnika u papirnatom i elektroničkom (CD/DVD) izdanju.

TRAINING MANUAL			Obligatory		
Ref.: AMC&GM to Part-ORA; Subpart ATO; Section II; AMC1 ORA.ATO.230 (a)		Organization reference	RESULTS		
			S	U	N/A
Part 1 – The training plan					
(1) The aim of the course (ATP, CPL/IR, CPL, etc. as applicable)	A statement of what the student is expected to do as a result of the training, the level of performance, and the training constraints to be observed.				
(2) Pre-entry requirements	(i) Minimum age, educational requirements (including language), medical requirements; (ii) Any individual Member State requirements.				
(3) Credits for previous experience	To be obtained from the competent authority before training begins.				
(4)Training syllabi	As applicable, the flying syllabus (single-engine or multi-engine, as applicable), the flight simulation training syllabus and the theoretical knowledge training syllabus.				
(5) The time scale and scale, in weeks, for each syllabus	Arrangements of the course and the integration of syllabi time.				
(6) Training programme	(i)The general arrangements of daily and weekly programmes for flying, theoretical knowledge training and training in FSTDs, if applicable;				
	(ii) Bad weather constraints;				
	(iii) Programme constraints in terms of maximum student training times,(flying, theoretical knowledge, on FSTDs), for example per day, week or month;				
	(iv) Restrictions in respect of duty periods for students;				
	(v) Duration of dual and solo flights at various stages;				
	(vi) Maximum flying hours in any day or night;				

TRAINING MANUAL			Obligatory		
Ref.: AMC&GM to Part-ORA; Subpart ATO; Section II; AMC1 ORA.ATO.230 (a)		Organization reference	RESULTS		
			S	U	N/A
	(vii) Maximum number of training flights in any day or night.				
	(viii) Minimum rest period between duty periods.				
(7) Training records	(i) Rules for security of records and documents;				
	(ii) Attendance records;				
	(iii) The form of training records to be kept;				
	(iv) Persons responsible for checking records and students' log books;				
	(v) The nature and frequency of record checks;				
	(vi) Standardization of entries in training records;				
	(vii) Rules concerning log book entries.				
(8) Safety training	(i) Individual responsibilities;				
	(ii) Essential exercises;				
	(iii) Emergency drills (frequency);				
	(iv) Dual checks (frequency at various stages);				
	(v) Requirement before first solo day, night or navigation etc. if applicable				
(9) Tests and examinations	(i) Flying: (A) progress checks; (B) skill tests.				
	(ii) Theoretical Knowledge: (A) progress tests; (B) theoretical knowledge examinations.				
	(iii) Authorization for test;				
	(iv) Rules concerning refresher training before retest;				
	(v) Test reports and records;				

TRAINING MANUAL			Obligatory		
Ref.: AMC&GM to Part-ORA; Subpart ATO; Section II; AMC1 ORA.ATO.230 (a)		Organization reference	RESULTS		
			S	U	N/A
	(vi) Procedures for examination paper preparation, type of question and assessment, standard required for 'pass';				
	(vii) Procedure for question analysis and review and for raising replacement papers;				
	(viii) Examinations resit procedures.				
(10) Training effectiveness	(i) Individual responsibilities;				
	(ii) General assessment;				
	(iii) Liaison between departments;				
	(iv) Identification of unsatisfactory progress (individual students);				
	(v) Actions to correct unsatisfactory progress;				
	(vi) Procedure for changing instructors;				
	(vii) Maximum number of instructor changes per student;				
	(viii) Internal feedback system for detecting training deficiencies;				
	(ix) Procedure for suspending a student from training;				
	(x) Discipline;				
	(xi) Reporting and documentation.				
(11) Standards and level of performance at various stages	(i) Individual responsibilities;				
	(ii) Standardisation;				
	(iii) Standardisation requirements and procedures;				
	(iv) Application of test criteria.				
Part 2 - Briefing and Air Exercises					
(1) Air Exercise	A detailed statement of the content specification of all the air exercises to be taught, arranged in the sequence to be flown with main and subtitles.				
(2) Air exercise reference	An abbreviated list of the above exercises giving only main and				

TRAINING MANUAL			Obligatory		
Ref.: AMC&GM to Part-ORA; Subpart ATO; Section II; AMC1 ORA.ATO.230 (a)		Organization reference	RESULTS		
			S	U	N/A
list	subtitles for quick reference, and preferably in flip-card form to facilitate daily use by instructors.				
(3) Course structure: phase of training	A statement of how the course will be divided into phases, indication of how the above air exercises will be divided between the phases and how they will be arranged to ensure that they are completed in the most suitable learning sequence and that essential (emergency) exercises are repeated at the correct frequency.				
	Also, the syllabus hours for each phase and for groups of exercises within each phase shall be stated and when progress tests are to be conducted, etc.				
(4) Course structure: integration of syllabi	The manner in which theoretical knowledge and flying training in an aircraft or an FSTD will be integrated so that as the flying training exercises are carried out students will be able to apply the knowledge gained from the associated theoretical knowledge instruction and flight training.				
(5) Student progress	The requirement for student progress and include a brief but specific statement of what a student is expected to be able to do and the standard of proficiency he/she must achieve before progressing from one phase of air exercise training to the next. Include minimum experience requirements in terms of hours, satisfactory exercise completion, etc. as necessary before significant exercises for example night flying.				
(6) Instructional methods	The ATO requirements, particularly in respect of pre- and post-flying briefing, adherence to syllabi and training specifications, authorization of solo flights, etc.				

TRAINING MANUAL			Obligatory		
Ref.: AMC&GM to Part-ORA; Subpart ATO; Section II; AMC1 ORA.ATO.230 (a)		Organization reference	RESULTS		
			S	U	N/A
(7) Progress tests	The instructions given to examining staff in respect of the conduct and documentation of all progress tests.				
(8) Glossary of terms	Definition of significant terms as necessary.				
(9) Appendices	(i) Progress test report forms;				
	(ii) Skill test report forms;				
	(iii) ATO certificates of experience, competence, etc. as required.				
Part 3 – Flight training in an FSTD, if applicable					
(1) Air Exercise	A detailed statement of the content specification of all the air exercises to be taught, arranged in the sequence to be flown with main and subtitles.				
(2) Air exercise reference list	An abbreviated list of the above exercises giving only main and subtitles for quick reference, and preferably in flip-card form to facilitate daily use by instructors.				
(3) Course structure: phase of training	A statement of how the course will be divided into phases, indication of how the above air exercises will be divided between the phases and how they will be arranged to ensure that they are completed in the most suitable learning sequence and that essential (emergency) exercises are repeated at the correct frequency. Also, the syllabus hours for each phase and for groups of exercises within each phase shall be stated and when progress tests are to be conducted, etc.				
(4) Course structure: integration of syllabi	The manner in which theoretical knowledge and flying training in an aircraft or an FSTD will be integrated so that as the flying training exercises are carried out students will be able to apply the knowledge				

TRAINING MANUAL			Obligatory		
Ref.: AMC&GM to Part-ORA; Subpart ATO; Section II; AMC1 ORA.ATO.230 (a)		Organization reference	RESULTS		
			S	U	N/A
	gained from the associated theoretical knowledge instruction and flight training.				
(5) Student progress	The requirement for student progress and include a brief but specific statement of what a student is expected to be able to do and the standard of proficiency he/she must achieve before progressing from one phase of air exercise training to the next. Include minimum experience requirements in terms of hours, satisfactory exercise completion, etc. as necessary before significant exercises for example night flying.				
(6) Instructional methods	The ATO requirements, particularly in respect of pre- and post-flying briefing, adherence to syllabi and training specifications, authorization of solo flights, etc.				
(7) Progress tests	The instructions given to examining staff in respect of the conduct and documentation of all progress tests.				
(8) Glossary of terms	Definition of significant terms as necessary.				
(9) Appendices	(i) Progress test report forms;				
	(ii) Skill test report forms;				
	(iii) ATO certificates of experience, competence, etc. as required.				
Part 4 - Theoretical knowledge instruction					
(1) Structure of the theoretical knowledge course	A statement of the structure of the course, including the general sequence of the topics to be taught in each subject, the time allocated to each topic, the breakdown per subject and an example of a course schedule.				
	Distance learning courses should include instructions of the material to be studied for individual elements of the course.				

TRAINING MANUAL			Obligatory		
Ref.: AMC&GM to Part-ORA; Subpart ATO; Section II; AMC1 ORA.ATO.230 (a)		Organization reference	RESULTS		
			S	U	N/A
(2) Lesson Plans	A description of each lesson or group of lessons including teaching materials, training aids, progress test organisation and inter-connection of topics with other subjects.				
(3) Teaching materials	Specification of the training aids to be used (for example study materials, course manual references, exercises, self-study materials, demonstration equipment).				
(4) Student progress	The requirement for student progress, including a brief but specific statement of the standard that must be achieved and the mechanism for achieving this, before application for theoretical knowledge examinations.				
(5) Progress testing	The organization of progress testing in each subject, including topics covered, evaluation methods and documentation.				
(6) Review procedure	The procedure to be followed if the standard required at any stage of the course is not achieved, including an agreed action plan with remedial training if required.				

PPL training course				
FCL.210 Training course	Organization reference	RESULTS		
		S	U	N/A
Applicants for a BPL, SPL or PPL shall complete a training course at an ATO. The course shall include theoretical knowledge and flight instruction appropriate to the privileges given.				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
SYLLABUS OF THEORETICAL KNOWLEDGE FOR THE PPL(A) AND PPL(H)				
The following tables contain the syllabi for the courses of theoretical knowledge, as well as for the theoretical knowledge examinations for the PPL(A) and PPL(H). The training and examination should cover aspects related to non-technical skills in an integrated manner, taking into account the particular risks associated to the licence and the activity. An approved course shall comprise **at least 100 hours of theoretical knowledge instruction.** This theoretical knowledge instruction provided by the ATO should include a certain element of formal classroom work but may include also such facilities as interactive video, slide or tape presentation, computer-based training and other media distance learning courses. The training organisation responsible for the training has to check if all the appropriate elements of the training course of theoretical knowledge instruction have been completed to a satisfactory standard before recommending the applicant for the examination.				
1. AIR LAW AND ATC PROCEDURES				
International law: conventions, agreements and organisations				
The Convention on international civil aviation (Chicago) Doc. 7300/6				
- Part I Air Navigation: relevant parts of the following chapters: (a) general principles and application of the convention; (b) flight over territory of Contracting States; (c) nationality of aircraft; (d) measures to facilitate air navigation; (e) conditions to be fulfilled on aircraft; (f) international standards and recommended practices; (g) validity of endorsed certificates and licences; (h) notification of differences. - Part II The International Civil Aviation Organisation (ICAO): objectives and composition				
Annex 8: Airworthiness of aircraft				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Foreword and definitions – Certificate of airworthiness				
Annex 7: Aircraft nationality and registration marks – Foreword and definitions – Common- and registration marks – Certificate of registration and aircraft nationality				
Annex 1: Personnel licensing – Definitions – Relevant parts of Annex 1 connected to Part-FCL and Part-Medical				
Annex 2: Rules of the air Essential definitions, applicability of the rules of the air, general rules (except water operations), visual flight rules, signals and interception of civil aircraft				
Procedures for air navigation: aircraft operations doc. 8168-ops/611, volume 1				
Altimeter setting procedures (including IACO doc. 7030 – regional supplementary procedures) Basic requirements (except tables), procedures applicable to operators and pilots (except tables)				
Secondary surveillance radar transponder operating procedures (including ICAO Doc. 7030 – regional supplementary procedures) – Operation of transponders – Phraseology				
Annex 11: Doc. 4444 air traffic management				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Definitions – General provisions for air traffic services – Visual separation in the vicinity of aerodromes – Procedures for aerodrome control services – Radar services – Flight information service and alerting service – Phraseologies – Procedures related to emergencies, communication failure and contingencies				
Annex 15: Aeronautical information service				
– Introduction, essential definitions – AIP, NOTAM, AIRAC and AIC				
Annex 14, volume 1 and 2: Aerodromes				
– Definitions – Aerodrome data: conditions of the movement area and related facilities – Visual aids for navigation: (a) indicators and signalling devices; (b) markings; (c) lights; (d) signs; (e) markers. – Visual aids for denoting obstacles: (a) marking of objects; (b) lighting of objects. – Visual aids for denoting restricted use of areas – Emergency and other services: (a) rescue and fire fighting;				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(b) apron management service.				
Annex 12: Search and rescue – Essential definitions – Operating procedures: (a) procedures for PIC at the scene of an accident; (b) procedures for PIC intercepting a distress transmission; (c) search and rescue signals. – Search and rescue signals: (a) signals with surface craft; (b) ground or air visual signal code; (c) air or ground signals.				
Annex 17: Security General: aims and objectives				
Annex 13: Aircraft accident investigation – Essential definitions – Applicability				
National law National law and differences to relevant ICAO Annexes and relevant EU regulations.				
2. HUMAN PERFORMANCE				
HUMAN FACTORS: BASIC CONCEPTS				
Human factors in aviation Becoming a competent pilot				
Basic aviation physiology and health maintenance – The atmosphere: (a) composition;				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(b) gas laws. – Respiratory and circulatory systems: (a) oxygen requirement of tissues; (b) functional anatomy; (c) main forms of hypoxia (hypoxic and anaemic): (1) sources, effects and counter-measures of carbon monoxide; (2) counter measures and hypoxia; (3) symptoms of hypoxia. (d) hyperventilation; (e) the effects of accelerations on the circulatory system; (f) hypertension and coronary heart disease.				
Man and environment – Central, peripheral and autonomic nervous systems – Vision: (a) functional anatomy; (b) visual field, foveal and peripheral vision; (c) binocular and monocular vision; (d) monocular vision cues; (e) night vision; (f) visual scanning and detection techniques and importance of 'look-out'; (g) defective vision. – Hearing: (a) descriptive and functional anatomy; (b) flight related hazards to hearing; (c) hearing loss. – Equilibrium:				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(a) functional anatomy; (b) motion and acceleration; (c) motion sickness. – Integration of sensory inputs: (a) spatial disorientation: forms, recognition and avoidance; (b) illusions: forms, recognition and avoidance: (1) physical origin; (2) physiological origin; (3) psychological origin. (c) approach and landing problems.				
Health and hygiene – Personal hygiene: personal fitness – Body rhythm and sleep: (a) rhythm disturbances; (b) symptoms, effects and management. – Problem areas for pilots: (a) common minor ailments including cold, influenza and gastro-intestinal upset; (b) entrapped gases and barotrauma, (scuba diving); (c) obesity; (d) food hygiene; (e) infectious diseases; (f) nutrition; (g) various toxic gases and materials. – Intoxication: (a) prescribed medication; (b) tobacco;				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(c) alcohol and drugs; (d) caffeine; (e) self-medication.				
BASIC AVIATION PSYCHOLOGY				
Human information processing – Attention and vigilance: (a) selectivity of attention; (b) divided attention. – Perception: (A) perceptual illusions; (B) subjectivity of perception; (C) processes of perception. – Memory: (a) sensory memory; (b) working or short term memory; (c) long term memory to include motor memory (skills).				
Human error and reliability – Reliability of human behaviour – Error generation: social environment (group, organisation)				
Decision making Decision-making concepts: (a) structure (phases); (b) limits; (c) risk assessment; (d) practical application.				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
Avoiding and managing errors: cockpit management – Safety awareness: (a) risk area awareness; (b) situational awareness. – Communication: verbal and non-verbal communication				
Human behavior – Personality and attitudes: (a) development; (b) environmental influences. – Identification of hazardous attitudes (error proneness)				
Human overload and underload – Arousal – Stress: (a) definition(s); (b) anxiety and stress; (c) effects of stress. – Fatigue and stress management: (a) types, causes and symptoms of fatigue; (b) effects of fatigue; (c) coping strategies; (d) management techniques; (e) health and fitness programmes;				
3. METEOROLOGY				
THE ATMOSPHERE				
Composition, extent and vertical division				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Structure of the atmosphere – Troposphere				
Air temperature – Definition and units – Vertical distribution of temperature – Transfer of heat – Lapse rates, stability and instability – Development of inversions and types of inversions – Temperature near the earth's surface, surface effects, diurnal and seasonal variation, effect of clouds and effect of wind				
Atmospheric pressure – Barometric pressure and isobars – Pressure variation with height – Reduction of pressure to mean sea level – Relationship between surface pressure centres and pressure centres aloft				
Air density – Relationship between pressure, temperature and density – ISA				
ICAO STANDARD ATMOSPHERE				
Altimetry – Terminology and definitions – Altimeter and altimeter settings – Calculations – Effect of accelerated airflow due to topography				
WIND				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
Definition and measurement of wind				
Definition and measurement				
Primary cause of wind				
– Primary cause of wind, pressure gradient, coriolis force and gradient wind – Variation of wind in the friction layer – Effects of convergence and divergence				
4. COMMUNICATIONS				
VFR COMMUNICATIONS				
Definitions				
– Meanings and significance of associated terms – ATS abbreviations – Q-code groups commonly used in RTF air-ground communications – Categories of messages				
General operating procedures				
– Transmission of letters – Transmission of numbers (including level information) – Transmission of time – Transmission technique – Standard words and phrases (relevant RTF phraseology included) – R/T call signs for aeronautical stations including use of abbreviated call signs – R/T call signs for aircraft including use of abbreviated call signs – Transfer of communication – Test procedures including readability scale – Read back and acknowledgement requirements				
Relevant weather information terms (VFR)				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Aerodrome weather – Weather broadcast				
ACTION REQUIRED TO BE TAKEN IN CASE OF COMMUNICATION FAILURE				
Distress and urgency procedures – Distress (definition, frequencies, watch of distress frequencies, distress signal and distress message) – Urgency (definition, frequencies, urgency signal and urgency message)				
General principles of VHF propagation and allocation of frequencies				
5. PRINCIPLES OF FLIGHT				
5.2. PRINCIPLES OF FLIGHT: HELICOPTER				
Subsonic aerodynamics – Basics concepts, laws and definitions – Conversion of units – Definitions and basic concepts about air: (a) the atmosphere and International Standard Atmosphere; (b) density; (c) influence of pressure and temperature on density. – Newton's laws: (a) Newton's second law: Momentum equation; (b) Newton's third law: action and reaction. – Basic concepts about airflow: (a) steady airflow and unsteady airflow; (b) Bernoulli's equation; (c) static pressure, dynamic pressure, total pressure and stagnation point; (d) TAS and IAS; (e) two-dimensional airflow and three-dimensional airflow;				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(f) viscosity and boundary layer. – Two-dimensional airflow – Aerofoil section geometry: (a) aerofoil section; (b) chord line, thickness and thickness to chord ratio of a section; (c) camber line and camber; (d) symmetrical and asymmetrical aerofoils sections. – Aerodynamic forces on aerofoil elements: (a) angle of attack; (b) pressure distribution; (c) lift and lift coefficient (d) relation lift coefficient: angle of attack; (e) profile drag and drag coefficient; (f) relation drag coefficient: angle of attack; (g) resulting force, centre of pressure and pitching moment. – Stall: (a) boundary layer and reasons for stalling; (b) variation of lift and drag as a function of angle of attack; (c) displacement of the centre of pressure and pitching moment. – Disturbances due to profile contamination: (a) ice contamination; (b) ice on the surface (frost, snow and clear ice). – The three-dimensional airflow round a wing and a fuselage – The wing: (a) planform, rectangular and tapered wings; (b) wing twist.				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Airflow pattern and influence on lift: (a) span wise flow on upper and lower surface; (b) tip vortices; (c) span-wise lift distribution. – Induced drag: causes and vortices – The airflow round a fuselage: (a) components of a fuselage; (b) parasite drag; (c) variation with speed.				
Transonic aerodynamics and compressibility effects – Airflow velocities – Airflow speeds: (a) speed of sound; (b) subsonic, high subsonic and supersonic flows. – Shock waves: (a) compressibility and shock waves; (b) the reasons for their formation at upstream high subsonic airflow; (c) their effect on lift and drag. – Influence of wing planform: sweep-angle				
Rotorcraft types – Rotorcraft – Rotorcraft types: a) autogyro; b) helicopter. – Helicopters – Helicopters configurations: the single main rotor helicopter				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– The helicopter, characteristics and associated terminology: (a) general lay-out, fuselage, engine and gearbox; (b) tail rotor, fenestron and NOTAR; (c) engines (reciprocating and turbo shaft engines); (d) power transmission; (e) rotor shaft axis, rotor hub and rotor blades; (f) rotor disc and rotor disc area; (g) teetering rotor (two blades) and rotors with more than two blades; (h) skids and wheels; (i) helicopter axes and fuselage centre line; (j) roll axis, pitch axis and normal or yaw axis; (k) gross mass, gross weight and disc loading.				
Main rotor aerodynamics				
Hover flight outside ground effect				
Airflow through the rotor discs and round the blades: (a) circumferential velocity of the blade sections; (b) induced airflow, through the disc and downstream; (c) downward fuselage drag; (d) equilibrium of rotor thrust, weight and fuselage drag; (e) rotor disc induced power; (f) relative airflow to the blade; (g) pitch angle and angle of attack of a blade section; (h) lift and profile drag on the blade element; (i) resulting lift and thrust on the blade and rotor thrust; (j) collective pitch angle changes and necessity of blade feathering; (k) required total main rotor-torque and rotor-power;				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(l) influence of the air density.				
Anti-torque force and tail rotor: (a) force of tail rotor as a function of main rotor-torque; (b) anti-torque rotor power; (c) necessity of blade feathering of tail rotor blades and yaw pedals.				
Maximum hover altitude OGE: (a) total power required and power available; (b) maximum hover altitude as a function of pressure altitude and OAT.				
Vertical climb				
Relative airflow and angles of attack: (a) climb velocity VC, induced and relative velocity and angle of attack; (b) collective pitch angle and blade feathering.				
Power and vertical speed: (a) induced power, climb power and profile power; (b) total main rotor power and main rotor torque; (c) tail rotor power; (d) total power requirement in vertical flight.				
Forward flight				
Airflow and forces in uniform inflow distribution: (a) assumption of uniform inflow distribution on rotor disc; (b) advancing blade (90°) and retreating blade (270°); (c) airflow velocity relative to the blade sections, area of reverse flow; (d) lift on the advancing and retreating blades at constant pitch angles; (e) necessity of cyclic pitch changes; (f) compressibility effects on the advancing blade tip and speed limitations; (g) high angle of attack on the retreating blade, blade stall and speed limitations;				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(h) thrust on rotor disc and tilt of thrust vector; (i) vertical component of the thrust vector and gross weight equilibrium; (j) horizontal component of the thrust vector and drag equilibrium.				
The flare (power flight): (a) thrust reversal and increase in rotor thrust; (b) increase of rotor RPM on non governed rotor.				
Power and maximum speed: (a) induced power as a function of helicopter speed; (b) rotor profile power as a function of helicopter speed; (c) fuselage drag and parasite power as a function of forward speed; (d) tail rotor power and power ancillary equipment; (e) total power requirement as a function of forward speed; (f) influence of helicopter mass, air density and drag of additional external equipment; (g) translational lift and influence on power required.				
Hover and forward flight in ground effect				
Airflow in ground effect and downwash: rotor power decrease as a function of rotor height above the ground at constant helicopter mass				
Vertical descent				
Vertical descent, power on: (a) airflow through the rotor, low and moderate descent speeds; (b) vortex ring state, settling with power and consequences.				
Autorotation: (a) collective lever position after failure; (b) up flow through the rotor, auto-rotation and anti-autorotation rings; (c) tail rotor thrust and yaw control; (d) control of rotor RPM with collective lever;				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(e) landing after increase of rotor thrust by pulling collective and reduction in vertical speed. Forward flight: Autorotation				
Airflow through the rotor disc: (a) descent speed and up flow through the disc; (b) the flare, increase in rotor thrust, reduction of vertical speed and ground speed.				
Flight and landing: (a) turning; (b) flare; (c) autorotative landing; (d) height or velocity avoidance graph and dead man's curve.				
Main rotor mechanics				
Flapping of the blade in hover				
Forces and stresses on the blade: (a) centrifugal force on the blade and attachments; (b) limits of rotor RPM; (c) lift on the blade and bending stresses on a rigid attachment; (d) the flapping hinge of the articulated rotor and flapping hinge offset; (e) the flapping of the hinge less rotor and flexible element				
Coning angle in hover: (a) lift and centrifugal force in hover and blade weight negligible (b) flapping, tip path plane and disc area.				
Flapping angles of the blade in forward flight				
Forces on the blade in forward flight without cyclic feathering: (a) aerodynamic forces on the advancing and retreating blades without cyclic feathering; (b) periodic forces and stresses, fatigue and flapping hinge; (c) phase lag between the force and the flapping angle (about 90°);				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(d) flapping motion of the hinged blades and tilting of the cone and flap back of rotor; (e) rotor disc attitude and thrust vector tilt.				
Cyclic pitch (feathering) in helicopter mode, forward flight: (a) necessity of forward rotor disc tilt and thrust vector tilt; (b) flapping and tip path plane, virtual rotation axis or no flapping axis and plane of rotation; (c) shaft axis and hub plane; (d) cyclic pitch change (feathering) and rotor thrust vector tilt; (e) collective pitch change, collective lever, swash plate, pitch link and pitch horn; (f) cyclic stick, rotating swash plate and pitch link movement and phase angle.				
Blade lag motion				
Forces on the blade in the disc plane (tip path plane) in forward flight: (a) forces due to the Coriolis effect because of the flapping; (b) alternating stresses and the need of the drag or lag hinge.				
The drag or lag hinge: (a) the drag hinge in the fully articulated rotor; (b) the lag flexure in the hinge less rotor; (c) drag dampers.				
Ground resonance: (a) blade lag motion and movement of the centre of gravity of the blades and the rotor; (b) oscillating force on the fuselage; (c) fuselage, undercarriage and resonance.				
Rotor systems				
See-saw or teetering rotor				
Fully articulated rotor: (a) three hinges arrangement; (b) bearings and elastomeric hinges.				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
Hinge less rotor and bearing less rotor				
Blade sailing: (a) low rotor RPM and effect of adverse wind; (b) minimising the danger; (c) droop stops.				
Vibrations due to main rotor: (a) origins of the vibrations: in plane and vertical; (b) blade tracking and balancing.				
Tail rotors				
Conventional tail rotor				
Rotor description: (a) two-blades tail rotors with teetering hinge; (b) rotors with more than two blades; (c) feathering bearings and flapping hinges; (d) dangers to people and to the tail rotor, rotor height and safety.				
Aerodynamics: (a) induced airflow and tail rotor thrust; (b) thrust control by feathering, tail rotor drift and roll; (c) effect of tail rotor failure and vortex ring.				
The fenestron: technical lay-out				
The NOTAR: technical lay-out				
Vibrations: high frequency vibrations due to the tail rotors				
Equilibrium, stability and control				
Equilibrium and helicopter attitudes				
Hover:				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(a) forces and equilibrium conditions; (b) helicopter pitching moment and pitch angle; (c) helicopter rolling moment and roll angle.				
Forward flight: (a) forces and equilibrium conditions; (b) helicopter moments and angles; (c) effect of speed on fuselage attitude.				
Control				
Control power (a) fully articulated rotor; (b) hinge less rotor; (c) teetering rotor.				
Static and dynamic roll over				
Helicopter performances				
Engine performances				
Piston engines: (a) power available; (b) effects of density altitude.				
Turbine engines: (a) power available; (b) effects of ambient pressure and temperature.				
Helicopter performances				
Hover and vertical flight: (a) power required and power available; (b) OGE and IGE maximum hover height; (c) influence of AUM, pressure, temperature and density.				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
Forward flight: (a) maximum speed; (b) maximum rate of climb speed; (c) maximum angle of climb speed; (d) range and endurance; (e) influence of AUM, pressure, temperature and density.				
Manoeuvring: (a) load factor; (b) bank angle and number of g's; (c) manoeuvring limit load factor.				
Special conditions: (a) operating with limited power; (b) over pitch and over torque.				
6. OPERATIONAL PROCEDURES				
General				
Operation of aircraft: ICAO Annex 6, General requirements – Definitions – Applicability				
Special operational procedures and hazards (general aspects)				
Noise abatement – Noise abatement procedures – Influence of the flight procedure (departure, cruise and approach) – Runway incursion awareness (meaning of surface markings and signals)				
Fire or smoke – Carburettor fire				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Engine fire – Fire in the cabin and cockpit, (choice of extinguishing agents according to fire classification and use of the extinguishers) – Smoke in the cockpit and (effects and action to be taken) and smoke in the cockpit and cabin (effects and actions taken)				
Windshear and microburst – Effects and recognition during departure and approach – Actions to avoid and actions taken during encounter				
Wake turbulence – Cause – List of relevant parameters – Actions taken when crossing traffic, during take-off and landing				
Emergency and precautionary landings – Definition – Cause – Passenger information – Evacuation – Action after landing				
Contaminated runways – Kinds of contamination – Estimated surface friction and friction coefficient				
Rotor downwash				
Operation influence by meteorological conditions (helicopter)				
White out, sand or dust				
Strong winds				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
Mountain environment				
Emergency procedures				
Influence by technical problems				
Engine failure				
Fire in cabin, cockpit or engine				
Tail, rotor or directional control failure				
Ground resonance				
Blade stall				
Settling with power (vortex ring)				
Overpitch				
Overspeed: rotor or engine				
Dynamic rollover				
Mast bumping				
7. FLIGHT PERFORMANCE AND PLANNING				
7.1. MASS AND BALANCE: AEROPLANES OR HELICOPTERS				
Purpose of mass and balance considerations				
Mass limitations – Importance in regard to structural limitations – Importance in regard to performance limitations				
CG limitations – Importance in regard to stability and controllability – Importance in regard to performance				
Loading				
Terminology				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Mass terms – Load terms (including fuel terms)				
Mass limits – Structural limitations – Performance limitations – Baggage compartment limitations				
Mass calculations – Maximum masses for take-off and landing – Use of standard masses for passengers, baggage and crew				
Fundamentals of CG calculations – Definition of centre of gravity – Conditions of equilibrium (balance of forces and balance of moments) – Basic calculations of CG				
Mass and balance details of aircraft				
Contents of mass and balance documentation – Datum and moment arm – CG position as distance from datum				
Extraction of basic mass and balance data from aircraft documentation – BEM – CG position or moment at BEM – Deviations from standard configuration				
Determination of CG position				
Methods – Arithmetic method – Graphic method				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
Load and trim sheet – General considerations – Load sheet and CG envelope for light aeroplanes and for helicopters				
7.3. FLIGHT PLANNING AND FLIGHT MONITORING				
Flight planning for VFR flights				
VFR navigation plan – Routes, airfields, heights and altitudes from VFR charts – Courses and distances from VFR charts – Aerodrome charts and aerodrome directory – Communications and radio navigation planning data – Completion of navigation plan				
Fuel planning – General knowledge				
Pre-flight calculation of fuel required – Calculation of extra fuel – Completion of the fuel section of the navigation plan (fuel log) and calculation of total fuel				
Pre-flight preparation				
AIP and NOTAM briefing – Ground facilities and services – Departure, destination and alternate aerodromes – Airway routings and airspace structure				
Meteorological briefing Extraction and analysis of relevant data from meteorological documents				
ICAO flight plan (ATS flight plan)				
Individual flight plan				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Format of flight plan – Completion of the flight plan – Submission of the flight plan				
Flight monitoring and in-flight re-planning				
Flight monitoring				
– Monitoring of track and time – In-flight fuel management – In-flight re-planning in case of deviation from planned data				
7.4. PERFORMANCE: HELICOPTERS				
General				
Introduction				
– Stages of flight – Effect on performance of atmospheric, airport or heliport and helicopter conditions				
Applicability of airworthiness requirements				
Definitions and terminology				
Performance: SE helicopters				
Definitions of terms (a) masses; (b) velocities: v_x, v_y; (c) velocity of best range and of maximum endurance; (d) power limitations; (e) altitudes.				
Take-off, cruise and landing performance				
Use and interpretation of diagrams and tables:				
(a) Take-off:				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(1) take-off run and distance available; (2) take-off and initial climb; (3) effects of mass, wind and density altitude; (4) effects of ground surface and gradient.				
(b) Landing: (1) effects of mass, wind, density altitude and approach speed; (2) effects of ground surface and gradient.				
(c) In-flight: (1) relationship between power required and power available; (2) performance diagram; (3) effects of configuration, mass, temperature and altitude; (4) reduction of performance during climbing turns; (5) autorotation; (6) adverse effects (icing, rain and condition of the airframe).				
8. AIRCRAFT GENERAL KNOWLEDGE				
8.1. AIRFRAME AND SYSTEMS, ELECTRICS, POWERPLANT AND EMERGENCY EQUIPMENT				
System design, loads, stresses, maintenance Loads and combination loadings applied to an aircraft's structure				
Airframe				
Fuselage, doors, floor, wind-screen and windows – Design and constructions – Structural components and materials – Stresses – Structural limitations				
Flight and control surfaces				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Design and constructions – Structural components and materials – Stresses and aero elastic vibrations – Structural limitations				
Hydraulics				
Hydromechanics: basic principles				
Hydraulic systems – Hydraulic fluids: types and characteristics, limitations – System components: design, operation, degraded modes of operation, indications and warnings				
Landing gear, wheels, tyres and brakes				
Landing gear Types and materials				
Nose wheel steering: design and operation				
Brakes – Types and materials – System components: design, operation, indications and warnings				
Wheels and tyres Types and operational limitations				
Helicopter equipments				
Flight controls – Mechanical or powered – Control systems and mechanical – System components: design, operation, indications and warnings, degraded modes of operation and jamming				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
Anti-icing systems Types and operation (pitot and windshield)				
Fuel system				
Piston engine System components: design, operation, degraded modes of operation, indications and warnings				
Turbine engines System components: design, operation, degraded modes of operation, indications and warnings				
Electrics				
Electrics: general and definitions – Direct current: voltage, current, resistance, conductivity, Ohm's law, power and work – Alternating current: voltage, current, amplitude, phase, frequency and resistance – Circuits: series and parallel – Magnetic field: effects in an electrical circuit				
Batteries – Types, characteristics and limitations – Battery chargers, characteristics and limitations				
Static electricity: general – Basic principles – Static dischargers – Protection against interference – Lightning effects				
Generation: production, distribution and use – DC generation: types, design, operation, degraded modes of operation, indications and warnings – AC generation: types, design, operation, degraded modes of operation, indications and				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
warnings				
Electric components				
Basic elements: basic principles of switches, circuit-breakers and relays				
Distribution				
General: (a) bus bar, common earth and priority; (b) AC and DC comparison.				
Piston engines				
General				
– Types of internal combustion engine: basic principles and definitions – Engine: design, operation, components and materials				
Fuel				
– Types, grades, characteristics and limitations – Alternate fuel: characteristics and limitations				
Carburettor or injection system				
– Carburettor: design, operation, degraded modes of operation, indications and warnings – Injection: design, operation, degraded modes of operation, indications and warnings – Icing				
Air cooling systems				
Design, operation, degraded modes of operation, indications and warnings				
Lubrication systems				
– Lubricants: types, characteristics and limitations – Design, operation, degraded modes of operation, indications and warnings				
Ignition circuits				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
Design, operation, degraded modes of operation				
Mixture Definition, characteristic mixtures, control instruments, associated control levers and indications				
Performance and engine handling – Performance: influence of engine parameters, influence of atmospheric conditions, limitations and power augmentation systems – Engine handling: power and mixture settings during various flight phases and operational limitations				
Turbine engines				
Definitions – Coupled turbine engine: design, operation, components and materials – Free turbine engine: design, operation, components and materials				
Fuel Types, characteristics and limitations				
Main engine components				
Compressor: (a) types, design, operation, components and materials; (b) stresses and limitations; (c) stall, surge and means of prevention.				
Combustion chamber: (a) types, design, operation, components and materials; (b) stresses and limitations; (c) emission problems.				
Turbine: (a) types, design, operation, components and materials;				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
(b) stresses, creep and limitations.				
Exhaust: (a) design, operation and materials; (b) noise reduction.				
Fuel control units: types, operation and sensors				
Helicopter air intake: different types, design, operation, materials and optional equipments				
Additional components and systems				
Helicopter additional components and systems: lubrication system, ignition circuit, starter, accessory gearbox, free wheel units: design, operation and components				
Performance aspects				
Torque, performance aspects, engine handling and limitations: (a) engine ratings; (b) engine performance and limitations; (c) engine handling.				
Protection and detection systems				
Fire detection systems				
Operation and indications				
Miscellaneous systems				
Rotor design				
Rotor heads				
Main rotor – Types – Structural components and materials, stresses and structural limitations – Design and construction – Adjustment				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
Tail rotor – Types – Structural components and materials, stresses and structural limitations – Design and construction – Adjustment				
Transmission				
Main gear box Different types, design, operation and limitations				
Rotor brake Different types, design, operation and limitations				
Auxiliary systems				
Drive shaft and associated installation				
Intermediate and tail gear box Different types, design, operation and limitations				
Blades				
Main rotor blade – Design and construction – Structural components and materials – Stresses – Structural limitations – Adjustment – Tip shape				
Tail rotor blade – Design and construction – Structural components and materials				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Stresses – Structural limitations – Adjustment				
8.2. INSTRUMENTATION				
Instrument and indication systems				
Pressure gauge Different types, design, operation, characteristics and accuracy				
Temperature sensing Different types, design, operation, characteristics and accuracy				
Fuel gauge Different types, design, operation, characteristics and accuracy				
Flow meter Different types, design, operation, characteristics and accuracy				
Position transmitter Different types, design, operation, characteristics and accuracy				
Torque meter Design, operation, characteristics and accuracy				
Tachometer Design, operation, characteristics and accuracy				
Measurement of aerodynamic parameters				
Pressure measurement – Static pressure, dynamic pressure, density and definitions – Design, operation, errors and accuracy				
Temperature measurement: helicopter				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Design, operation, errors and accuracy – Displays				
Altimeter – Standard atmosphere – The different barometric references (QNH, QFE and 1013.25) – Height, indicated altitude, true altitude, pressure altitude and density altitude – Design, operation, errors and accuracy – Displays				
Vertical speed indicator – Design, operation, errors and accuracy – Displays				
Air speed indicator – The different speeds IAS, CAS, TAS: definition, usage and relationships – Design, operation, errors and accuracy – Displays				
Magnetism: direct reading compass				
Earth magnetic field				
Direct reading compass – Design, operation, data processing, accuracy and deviation – Turning and acceleration errors				
Gyroscopic instruments				
Gyroscope: basic principles – Definitions and design – Fundamental properties – Drifts				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
Turn and bank indicator Design, operation and errors				
Attitude indicator Design, operation, errors and accuracy				
Directional gyroscope Design, operation, errors and accuracy				
Communication systems				
Transmission modes: VHF, HF and SATCOM Principles, bandwidth, operational limitations and use				
Voice communication Definitions, general and applications				
Alerting systems and proximity systems				
Flight warning systems Design, operation, indications and alarms				
Radio-altimeter Design, operation, errors, accuracy and indications				
Rotor or engine over speed alert system Design, operation, displays and alarms				
Integrated instruments: electronic displays				
Display units Design, different technologies and limitations				
9. NAVIGATION				
9.1. GENERAL NAVIGATION				
Basics of navigation				
The solar system				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
Seasonal and apparent movements of the sun				
The earth – Great circle, small circle and rhumb line – Latitude and difference of latitude – Longitude and difference of longitude – Use of latitude and longitude co-ordinates to locate any specific position				
Time and time conversions – Apparent time – UTC – LMT – Standard times – Dateline – Definition of sunrise, sunset and civil twilight				
Directions – True north, magnetic north and compass north – Compass deviation – Magnetic poles, isogonals, relationship between true and magnetic				
Distance – Units of distance and height used in navigation: nautical miles, statute miles, kilometres, metres and ft – Conversion from one unit to another – Relationship between nautical miles and minutes of latitude and minutes of longitude				
Magnetism and compasses				
General principles				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Terrestrial magnetism – Resolution of the earth's total magnetic force into vertical and horizontal components – Variation-annual change				
Aircraft magnetism – The resulting magnetic fields – Keeping magnetic materials clear of the compass				
Charts				
General properties of miscellaneous types of projections – Direct Mercator – Lambert conformal conic				
The representation of meridians, parallels, great circles and rhumb lines – Direct Mercator – Lambert conformal conic				
The use of current aeronautical charts – Plotting positions – Methods of indicating scale and relief (ICAO topographical chart) – Conventional signs – Measuring tracks and distances – Plotting bearings and distances				
DR navigation				
Basis of DR				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Track – Heading (compass, magnetic and true) – Wind velocity – Air speed (IAS, CAS and TAS) – Groundspeed – ETA – Drift and wind correction angle – DR position fix				
Use of the navigational computer – Speed – Time – Distance – Fuel consumption – Conversions – Air speed – Wind velocity – True altitude				
The triangle of velocities – Heading – Ground speed – Wind velocity – Track and drift angle				
Measurement of DR elements – Calculation of altitude – Determination of appropriate speed				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
In-flight navigation				
Use of visual observations and application to in-flight navigation				
Navigation in cruising flight, use of fixes to revise navigation dana – Ground speed revision – Off-track corrections – Calculation of wind speed and direction – ETA revisions				
Flight log				
9.2. RADIO NAVIGATION				
Basic radio propagation theory				
Antennas Characteristics				
Wave propagation Propagation with the frequency bands				
Radio aids				
Ground DF – Principles – Presentation and interpretation – Coverage – Range – Errors and accuracy – Factors affecting range and accuracy				
NDB/ADF				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Principles – Presentation and interpretation – Coverage – Range – Errors and accuracy – Factors affecting range and accuracy				
VOR – Principles – Presentation and interpretation – Coverage – Range – Errors and accuracy – Factors affecting range and accuracy				
DME – Principles – Presentation and interpretation – Coverage – Range – Errors and accuracy – Factors affecting range and accuracy				
Radar				
Ground radar				

PPL (H)		N/A ☐		
AMC1 FCL.210; FCL.215	Organization reference	RESULTS		
		S	U	N/A
– Principles – Presentation and interpretation – Coverage – Range – Errors and accuracy – Factors affecting range and accuracy				
Secondary surveillance radar and transponder – Principles – Presentation and interpretation – Modes and codes				
GNSS				
GPS, GLONASS OR GALILEO – Principles – Operation – Errors and accuracy – Factors affecting accuracy				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
FLIGHT INSTRUCTION FOR THE PPL(H)				
(a) Entry to training				
Before being accepted for training an applicant should be informed that the appropriate medical certificate must be obtained before solo flying is permitted.				
(b) Ground instruction				
Enhanced ground instruction in weather interpretation, planning and route assessment, decision making on encountering DVE including reversing course or conducting a precautionary landing.				
(c) Flight instruction				
(1) The PPL(H) flight instruction syllabus should take into account the principles of threat and error management and cover:				
(i) pre-flight operations, including mass and balance determination, helicopter inspection and servicing;				
(ii) aerodrome and traffic pattern operations, collision avoidance precautions and procedures;				
(iii) control of the helicopter by external visual reference;				
(iv) take-offs, landings, hovering, look-out turns and normal transitions from and to the hover;				
(v) emergency procedures, basic autorotations, simulated engine failure, ground resonance recovery if relevant to type;				
(vi) sideways and backwards flight, turns on the spot;				
(vii) incipient vortex ring recognition and recovery;				
(viii) touchdown autorotations, simulated engine-off landings, practice forced landings. Simulated equipment malfunctions and emergency procedures relating to malfunctions of engines, controls, electrical and hydraulic circuits;				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(ix) steep turns;				
(x) transitions, quick stops, out of wind manoeuvres, sloping ground landings and take-offs;				
(xi) limited power and confined area operations, including selection of and operations to and from unprepared sites;				
(xii) flight by sole reference to basic flight instruments, including completion of a level 180 ° turn and recovery from unusual attitudes to simulate inadvertent entry into cloud (this training may be conducted by an FI(H));				
(xiii) cross-country flying by using visual reference, DR, GNNS and, where available, radio navigation aids; simulation of deteriorating weather conditions and actions to divert or conduct precautionary landing;				
(xiv) operations to, from and transiting controlled aerodromes; compliance with air traffic services procedures, communication procedures and phraseology.				
(2) Before allowing the applicant for a PPL(H) to undertake his/her first solo flight, the FI should ensure that the applicant can use R/T communication.				
(3) Wherever possible, flight simulation should be used to demonstrate to student pilots the effects of flight into DVE and to enhance their understanding and need for avoidance of this potentially fatal flight regime.				
(d) Syllabus of flight instruction				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(1) The numbering of exercises should be used primarily as an exercise reference list and as a broad instructional sequencing guide; therefore the demonstrations and practices need not necessarily be given in the order listed. The actual order and content will depend upon the following interrelated factors: (i) the applicant's progress and ability; (ii) the weather conditions affecting the flight; (iii) the flight time available; (iv) instructional technique considerations; (v) the local operating environment; (vi) applicability of the exercises to the helicopter.				
(2) Each of the exercises involves the need for the applicant to be aware of the needs of good airmanship and look-out, which should be emphasised at all times.				
(i) Exercise 1a: Familiarisation with the helicopter: (A) characteristics of the helicopter, external features; (B) cockpit layout; (C) systems; (D) checklists, procedures and controls.				
(ii) Exercise 1b: Emergency procedures: (A) action if fire on the ground and in the air; (B) engine, cabin and electrical system fire; (C) systems failures; (D) escape drills, location and use of emergency equipment and exits.				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(iii) Exercise 2: Preparation for and action after flight: (A) flight authorisation and helicopter acceptance; (B) serviceability documents; (C) equipment required, maps, etc.; (D) external checks; (E) internal checks; (F) seat, harness and flight controls adjustments; (G) starting and warm-up checks clutch engagement and starting rotors; (H) power checks; (I) running down system checks and switching off the engine; (J) parking, security and picketing; (K) completion of authorisation sheet and serviceability documents.				
(iv) Exercise 3: Air experience: (A) to introduce the student to rotary wing flight; (B) flight exercise.				
(v) Exercise 4: Effects of controls: (A) function of flight controls, primary and secondary effect; (B) effects of: (a) air speed; (b) power changes (torque); (c) yaw (sideslip); (d) disc loading (bank and flare); (e) controls of selecting hydraulics on/off; (f) control friction. (C) instruments; (D) use of carburettor heat or anti-icing control.				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(vi) Exercise 5: Power and attitude changes: (A) relationship between cyclic control position, disc attitude, fuselage attitude and air speed; (B) flapback; (C) power required diagram in relation to air speed; (D) power and air speed changes in level flight; (E) use of instruments for precision; (F) engine and air speed limitations.				
(vii) Exercise 6: Straight and level: (A) at normal cruising power, attaining and maintaining straight and level flight; (B) control in pitch, including use of control friction or trim; (C) maintaining direction and balance, (ball or yawstring use); (D) setting power for selected air speeds and speed changes; (E) use of instruments for precision.				
(viii) Exercise 7: Climbing: (A) optimum climb speed, best angle or rate of climb from power required diagram; (B) initiation, maintaining the normal and maximum rate of climb, levelling off; (C) levelling off at selected altitudes or heights; (D) use of instruments for precision.				
(ix) Exercise 8: Descending: (A) optimum descent speed, best angle or rate of descent from power required diagram; (B) initiation, maintaining and levelling off; (C) levelling off at selected altitudes or heights; (D) descent (including effect of power and air speed); (E) use of instruments for precision.				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(x) Exercise 9: Turning: (A) initiation and maintaining medium level turns; (B) resuming straight flight; (C) altitude, bank and co-ordination; (D) climbing and descending turns and effect on rate of climb or descent; (E) turns onto selected headings, use of gyro heading indicator and compass; (F) use of instruments for precision.				
(xi) Exercise 10: Basic autorotation: (A) safety checks, verbal warning and look-out; (B) entry, development and characteristics; (C) control of air speed and RRPM, rotor and engine limitations; (D) effect of AUM, IAS, disc loading, G forces and density altitude; (E) re-engagement and go-around procedures (throttle override or ERPM control); (F) vortex condition during recovery; (G) gentle and medium turns in autorotation; (H) demonstration of variable flare simulated engine off landing.				
(xii) Exercise 11a: Hovering: (A) demonstrate hover IGE, importance of wind effect and attitude, ground cushion, stability in the hover and effects of over controlling; (B) student holding cyclic stick only; (C) student handling collective lever (and throttle) only; (D) student handling collective lever, (throttle) and pedals; (E) student handling all controls; (F) demonstration of ground effect; (G) demonstration of wind effect; (H) demonstrate gentle forward running touchdown;				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(l) specific hazards for example snow, dust and litter.				
(xiii) Exercise 11b: Hover taxiing and spot turns: (A) revise hovering; (B) precise ground speed and height control; (C) effect of wind direction on helicopter attitude and control margin; (D) control and co-ordination during spot turns; (E) carefully introduce gentle forward running touchdown.				
(xiv) Exercise 11c: Hovering and taxiing emergencies: (A) revise hovering and gentle forward running touchdown, explain (demonstrate where applicable) effect of hydraulics failure in the hover; (B) demonstrate simulated engine failure in the hover and hover taxi; (C) demonstrate dangers of mishandling and over-pitching.				
(xv) Exercise 12: Take-off and landing: (A) pre-take-off checks or drills; (B) look-out; (C) lifting to hover; (D) after take-off checks; (E) danger of horizontal movement near ground; (F) danger of mishandling and overpitching; (G) landing (without sideways or backwards movement); (H) after landing checks or drills; (I) take-off and landing crosswind and downwind.				
(xvi) Exercise 13: Transitions from hover to climb and approach to hover: (A) look-out; (B) revise take-off and landing;				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(C) ground effect, translational lift and its effects; (D) flapback and its effects; (E) effect of wind speed and direction during transitions from or to the hover; (F) the constant angle approach; (G) demonstration of variable flare simulated engine off landing.				
(xvii) Exercise 14a: Circuit, approach and landing: (A) revise transitions from hover to climb and approach to hover; (B) circuit procedures, downwind and base leg; (C) approach and landing with power; (D) pre-landing checks; (E) effect of wind on approach and IGE hover; (F) crosswind approach and landing; (G) go-around; (H) noise abatement procedures.				
(xviii) Exercise 14b: Steep and limited power approaches and landings: (A) revise the constant angle approach; (B) the steep approach (explain danger of high sink rate and low air speed) (C) limited power approach (explain danger of high speed at touch down); (D) use of the ground effect; (E) variable flare simulated engine off landing.				
(xix) Exercise 14c: Emergency procedures: (A) abandoned take-off; (B) missed approach and go-around; (C) hydraulic off landing (if applicable); (D) tail rotor control or tail rotor drive failure (briefing only) (E) simulated emergencies in the circuit to include:				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(a) hydraulics failure; (b) simulated engine failure on take-off, crosswind, downwind and base leg; (c) governor failure.				
(xx) Exercise 15: First solo: (A) instructor's briefing, observation of flight and debriefing; (B) warn of change of attitude from reduced and laterally displaced weight; (C) warn of low tail, low skid or wheel during hover, landing; (D) warn of dangers of loss of RRPM and overpitching; (E) pre-take-off checks; (F) into wind take-off; (G) procedures during and after take-off; (H) normal circuit, approaches and landings; (I) action if an emergency.				
(xxi) Exercise 16: Sideways and backwards hover manoeuvring: (A) manoeuvring sideways flight heading into wind; (B) manoeuvring backwards flight heading into wind; (C) combination of sideways and backwards manoeuvring; (D) manoeuvring sideways and backwards and heading out of wind; (E) stability and weather cocking; (F) recovery from backwards manoeuvring (pitch nose down); (G) limitations for sideways and backwards manoeuvring.				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(xxii) Exercise 17: Spot turns: (A) revise hovering into wind and downwind; (B) turn on spot through 360º: (a) around pilots position; (b) around tail rotor; (c) around helicopter geometric centre; (d) square and safe visibility clearing turn. (C) rotor RPM control, torque effect, cyclic limiting stops due to CG position and wind speed and direction.				
(xxiii) Exercise 18: Hover OGE and vortex ring: (A) establishing hover OGE; (B) drift, height or power control; (C) demonstration of incipient stage of vortex ring, recognition and recovery (from a safe altitude); (D) loss of tail rotor effectiveness.				
(xxiv) Exercise 19: Simulated EOL: (A) the effect of weight, disc loading, density attitude and RRPM decay; (B) revise basic autorotation entry; (C) optimum use of cyclic and collective to control speed or RRPM; (D) variable flare simulated EOL; (E) demonstrate constant attitude simulated EOL; (F) demonstrate simulated EOL from hover or hover taxi; (G) demonstrate simulated EOL from transition and low level.				
(xxv) Exercise 20: Advanced autorotation: (A) over a selected point at various height and speed; (B) revise basic autorotation: note ground distance covered;				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(C) range autorotation; (D) low speed autorotation; (E) constant attitude autorotation (terminate at safe altitude); (F) 'S' turns; (G) turns through 180 ° and 360 °; (H) effects on angles of descent, IAS, RRPM and effect of AUM.				
(xxvi) Exercise 21: Practice forced landings: (A) procedure and choice of the forced landing area; (B) forced landing checks and crash action; (C) re-engagement and go-around procedures.				
(xxvii) Exercise 22: Steep turns: (A) steep (level) turns (30 ° bank); (B) maximum rate turns (45 ° bank if possible); (C) steep autorotative turns; (D) faults in the turn: balance, attitude, bank and co-ordination; (E) RRPM control and disc loading; (F) vibration and control feedback; (G) effect of wind at low level.				
(xxviii) Exercise 23: Transitions: (A) revise ground effect, translational lift and flapback; (B) maintaining constant height, (20-30 ft AGL); (C) transition from hover to minimum 50 knots IAS and back to hover; (D) demonstrate effect of wind.				
(xxix) Exercise 24: Quick stops: (A) use of power and controls; (B) effect of wind;				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(C) quick stops into wind; (D) quick stops from crosswind and downwind terminating into wind; (E) danger of vortex ring; (F) danger of high disc loading.				
(xxx) Exercise 25a: Navigation: (A) flight planning: (a) weather forecast and actuals; (b) map selection and preparation and use; (1) choice of route: (2) controlled airspace, danger and prohibited areas; (3) safety altitudes and noise abatement considerations. (c) calculations: (1) magnetic heading(s) and time(s) en-route; (2) fuel consumption; (3) mass and balance. (d) flight information: (1) NOTAMs, etc.; (2) radio frequencies; (3) selection of alternate landing sites. (e) helicopter documentation; (f) notification of the flight: (1) pre-flight administrative procedures; (2) flight plan form (where appropriate). (B) departure: (a) organisation of cockpit workload; (b) departure procedures:				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(1) altimeter settings; (2) ATC liaison in controlled or regulated airspace; (3) setting heading procedure; (4) noting of ETAs. (c) maintenance of height or altitude and heading; (d) revisions of ETA and heading: (1) 10 ° line, double track and track error and closing angle; (2) 1 in 60 rule; (3) amending an ETA. (e) log keeping; (f) use of radio; (g) use of navaids (if fitted); (h) minimum weather conditions for continuation of flight; (i) in-flight decisions; (j) transiting controlled or regulated airspace; (k) uncertainty of position procedure; (l) lost procedure. (C) arrival and aerodrome joining procedure: (a) ATC liaison in controlled or regulated airspace; (b) altimeter setting; (c) entering the traffic pattern; (d) circuit procedures. (e) parking; (f) security of helicopter; (g) refuelling; (h) closing of flight plan (if appropriate);				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(i) post-flight administrative procedures.				
(xxxi) Exercise 25b: Navigation problems at low heights and in reduced visibility: (A) actions before descending; (B) hazards (for example obstacles and other aircraft); (C) difficulties of map reading; (D) effects of wind and turbulence; (E) avoidance of noise sensitive areas; (F) actions in the event of encountering DVE; (G) decision to divert or conduct precautionary landing; (H) bad weather circuit and landing; (I) appropriate procedures and choice of landing area; (J) precautionary landing.				
(xxxii) Exercise 25c: Radio navigation: (A) use of GNSS: (a) selection of waypoints; (b) to or from indications and orientation; (c) error messages; (d) hazards of over-reliance on the use of GNSS in the continuation of flight in DVE. (B) use of VHF omni range: (a) availability, AIP and frequencies; (b) selection and identification; (c) OBS; (d) to or from indications and orientation; (e) CDI; (f) determination of radial; (g) intercepting and maintaining a radial;				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(h) VOR passage; (i) obtaining a fix from two VORs. (C) use of ADF equipment: NDBs: (a) availability, AIP and frequencies; (b) selection and identification; (c) orientation relative to the beacon; (d) homing. (D) use of VHF/DF: (a) availability, AIP and frequencies; (b) RTF procedures and ATC liaison; (c) obtaining a QDM and homing. (E) use of en-route or terminal radar: (a) availability and AIP; (b) procedures and ATC liaison; (c) pilots responsibilities; (d) secondary surveillance radar (if transponder fitted): (1) transponders; (2) code selection; (3) interrogation and reply. (F) use of DME: (a) station selection and identification; (b) modes of operation: distance, groundspeed and time to run.				
(xxxiii) Exercise 26: Advanced take-off, landings and transitions: (A) landing and take-off out of wind (performance reduction); (B) ground effect, translational lift and directional stability variation when out of wind; (C) downwind transitions;				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(D) vertical take-off over obstacles; (E) running take-off; (F) cushion creep take-off; (G) reconnaissance of landing site; (H) running landing; (I) zero speed landing; (J) crosswind and downwind landings; (K) steep approach; (L) go-around.				
(xxxiv) Exercise 27: Sloping ground: (A) limitations and assessing slope angle; (B) wind and slope relationship: blade and control stops; (C) effect of CG when on slope; (D) ground effect on slope and power required; (E) right skid up slope; (F) left skid up slope; (G) nose up slope; (H) avoidance of dynamic roll over, dangers of soft ground and sideways movement on touchdown; (I) danger of striking main or tail rotor by harsh control movement near ground.				
(xxxv) Exercise 28: Limited power: (A) take-off power check; (B) vertical take-off over obstacles; (C) in-flight power check; (D) running landing; (E) zero speed landing;				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(F) approach to low hover; (G) approach to hover; (H) approach to hover OGE; (I) steep approach; (J) go-around.				
(xxxvi) Exercise 29: Confined areas: (A) landing capability and performance assessment; (B) locating landing site and assessing wind speed and direction; (C) reconnaissance of landing site; (D) select markers; (E) select direction and type of approach; (F) circuit; (G) approach to committed point and go-around; (H) approach; (I) clearing turn; (J) landing; (K) power check and performance assessment in and out of ground effect; (L) normal take-off to best angle of climb speed; (M) vertical take-off from hover.				
(xxxvii) Exercise 30: Basic instrument flight: (A) physiological sensations; (B) instrument appreciation: (a) attitude instrument flight; (b) instrument scan. (C) instrument limitations; (D) basic manoeuvres:				

PPL (H) - Experience requirements and crediting		N/A ☐		
AMC1 FCL.210.H Experience requirements and crediting	Organization reference	RESULTS		
		S	U	N/A
(a) straight and level at various air speeds and configurations; (b) climbing and descending; (c) standard rate turns, climbing and descending, onto selected headings. (E) recoveries from climbing and descending turns; (F) recoveries from unusual attitudes.				
(xxxviii) Exercise 31a: Night flying (if night rating required): (A) pre-flight inspection using torch, pan lights, etc.; (B) take-off (no sideways or backwards manoeuvring); (C) hover taxi (higher and slower than by day); (D) transition to climb; (E) level flight; (F) approach and transition to hover; (G) landing; (H) autorotation; (I) practice forced landing (with flares if appropriate: simulated); (J) night emergencies (for example failure of lights, etc.).				
(xxxix) Exercise 31b: Night cross-country (if night rating required): (A) navigation principles as for day cross-country; (B) map marking (highlighting built-up areas with thicker lines, etc.).				

Croatian Civil Aviation Agency

Zahtjev/Lista usklađenosti za odobrenje
PPL (H) tečaja osposobljavanja

Application / Compliance Checklist
for PPL (H) course approval

Naziv organizacije:		
Datum podnošenja zahtjeva:		
	Ime i prezime:	Potpis:
Šef školstva *(Head of Training):*		
Voditelj nadgledanja usklađenosti *(Compliance Monitoring Manager)* :		
Odgovorni rukovoditelj *(Accountable Manager):*		

Position	Name and Surname	Signature	Date
CCAA Inspector			
CCAA Inspector			

Note: CCAA Inspector shall provide detailed list of non-compliances, if found.