



CAAP Manual of Standards 2022

1 Name of Instrument

1.1 This instrument is the CAAP Manual of Standards for Part 2 of the *Philippine Civil Aviation Regulations 2022*

(PCAR 2022).

1.2 This instrument is called the *CAAP Manual of Standards 2022*

1.3 In this instrument, unless the contrary intention appears, a reference to “this CMOS” or “the CMOS” means the *CAAP Manual of Standards 2022*.

2 Scope

2.1 Under Regulation PCAR Part 2, this CMOS sets out matters relating to:

- (a) flight crew licenses, ratings and endorsements; and
- (b) aeronautical radio operations; and
- (c) airplane taxiing; and
- (d) procedures

3 Definitions

3.1 In this CMOS, unless the contrary intention appears:

cell, for a column of a table in a Schedule of this instrument, means each individual, undivided unit into which the column is subdivided.

in accordance with published procedures, for carrying out an activity in relation to an aircraft, means carrying out the activity in accordance with the applicable requirements (if any) set out in each of the following:

- (a) the aircraft flight manual;
- (b) the aircraft operator’s operations manual;
- (c) the Aeronautical Information Publication (AIP);
- (d) another operational document applicable to the activity that is approved in writing by PCAR or the operator.

3.2 In this CMOS, unless the contrary intention appears, an abbreviation has the meaning given to it by the PCAR Part 1 Appendix A: Definitions

3.3 Unless the contrary intention appears, if an abbreviation used in this CMOS is not given a meaning under PCAR Part 1 Appendix A: Definitions, the abbreviation has the meaning that is given to it by the prevalent usage, custom and practice of the aviation industry.

3.4 Unless the contrary intention appears, if a Schedule to this CMOS contains matter that is expressly described as being for guidance only, then, despite the matter being in the Schedule, the matter is not part of the Schedule.

4 Aviation English language proficiency standards and maintenance of English language proficiency

4.1 The aviation English language proficiency standard is as set out in PCAR 2.2.7, IS 2.2.7.

4.2 The ICAO level 4, level 5 and level 6 aviation English language proficiency standards (rating scales) are as set out in IS 2.2.7



5 Aeronautical knowledge standards

5.1 The aeronautical knowledge standards for a flight crew license with an aircraft category rating, a flight crew rating on a license or an endorsement on a rating are as set out in the PCAR Part that is for the license, rating or endorsement.

6 Flight tests – competency standards

6.1 In this section, references to a “flight examiner” are taken to include the following when conducting a flight test:

- (a) PCAR;
- (b) the holder of an approval under PCAR Part 2 to conduct the flight test.

6.2 The competency standards for a flight test for a flight crew license with an aircraft category rating, a flight crew rating on a license, or an endorsement on a rating are as set out in the Advisory Circulars that is for the license, rating or endorsement flight test.

6.3 For subsection 6.2, the competency standards for a flight test mentioned comprise the following:

- (a) the flight test requirements for the test;
- (b) the knowledge requirements for the test;
- (c) the activities and maneuvers for the test, but:
 - (i) subject to the operational scope and conditions for the test; and
 - (ii) within the flight tolerances that is for the category of aircraft and for the license, rating or endorsement.

6.4 For paragraph 6.3 (c), when conducting a flight test, the flight examiner must determine if an applicant has demonstrated the required competency in the activities and maneuvers for the test.

7 Proficiency checks – competency standards

7.1 In this section, references to a “flight examiner” are taken to include the following when conducting a flight test:

- (a) PCAR;
- (b) the holder of an approval under PCAR Part 2 to conduct the flight test.

7.2 The competency standards for a flight test for a flight crew license with an aircraft category rating, a flight crew rating on a license, or an endorsement on a rating are as set out in the Advisory Circulars that is for the license, rating or endorsement flight test.

7.3 For subsection 7.2, the competency standards for a flight test mentioned comprise the following:

- (a) the flight test requirements for the test;
- (b) the knowledge requirements for the test;
- (c) the activities and maneuvers for the test, but:
 - (i) subject to the operational scope and conditions for the test; and
 - (ii) within the flight tolerances that is for the category of aircraft and for the license, rating or endorsement.

7.4 For paragraph 7.3 (c), when conducting a flight test, the flight examiner must determine if an applicant has demonstrated the required competency in the activities and maneuvers for the test.

8 Abbreviations and Definitions

8.1 In this section, refer to PCAR Part 1 Appendix A: Definitions



Directory of competency and units of knowledge

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Section A Private pilot license (PPL)

Aeronautical Knowledge Standards

PPL Air Law
PPL Aircraft General Knowledge
PPL Flight Performance and Planning
PPL Human Performance
PPL Meteorology
PPL Navigation
PPL Operational Procedures
PPL Principles of Flight
PPL Radio telephony

Practical flight standards Unit code

Unit code	Unit of competency
C1	Communicating in the aviation environment
C2	Perform pre- and post-flight actions and procedures
C3	Operate aeronautical radio
C4	Manage fuel
C5	Manage passengers and cargo (only if required)
NTS1	Non-technical skills 1
NTS2	Non-technical skills 2
NAV	Navigate aircraft
A1	Control aeroplane on the ground
A2	Take off aeroplane
A3	Control aeroplane in normal flight
A4	Land aeroplane
A5	Aeroplane advanced maneuvers
A6	Manage abnormal situations – single-engine aeroplanes
IFF	Instrument flight full panel
ONTA	Operate at non-towered aerodrome
OGA	Operate in Class G airspace
CTR	Operate at a controlled aerodrome
CTA	Operate in controlled airspace

Section B Commercial pilot license (CPL)

Aeronautical Knowledge Standards

CPL Air Law
CPL Aircraft General Knowledge
CPL Flight Performance and Planning
CPL Human Performance
CPL Meteorology
CPL Navigation
CPL Operational Procedures
CPL Principles of Flight
CPL Radio telephony



Practical flight standards Unit code	Unit of competency
C1	Communicating in the aviation environment
C2	Perform pre- and post-flight actions and procedures
C3	Operate aeronautical radio
C4	Manage fuel
C5	Manage passengers and cargo (only if required)
NTS1	Non-technical skills 1
NTS2	Non-technical skills 2
NAV	Navigate aircraft
A1	Control aeroplane on the ground
A2	Take off aeroplane
A3	Control aeroplane in normal flight
A4	Land aeroplane
A5	Aeroplane advanced maneuvers
A6	Manage abnormal situations – single-engine aeroplanes
IFF	Instrument flight full panel
IFL	Limited instrument panel maneuvers
RNE	Radio navigation - en route
ONTA	Operate at non-towered aerodrome
OGA	Operate in Class G airspace
CTR	Operate at a controlled aerodrome
CTA	Operate in controlled airspace

Section C Instrument Rating (IR)

Aeronautical Knowledge Standards

IR Air Law
IR Aircraft General Knowledge
IR Flight Performance and Planning
IR Human Performance
IR Meteorology
IR Navigation: Air Navigation
IR Operational Procedures
IR Principles of Flight
IR Radio telephony
Threat and Error Management

Practical flight standards Unit code	Unit of competency
C1	Communicating in the aviation environment
C2	Perform pre- and post-flight actions and procedures
C3	Operate aeronautical radio
IFF	Instrument flight full panel
IFL	Limited instrument panel maneuvers



NTS1	Non-technical skills 1
NTS2	Non-technical skills 2
NAV	Navigate aircraft
A1	Control aeroplane on the ground
RNE	Radio navigation - en route
CTA	Operate in controlled airspace
CIR	Conduct an IFR flight
IAP2	Conduct an instrument approach 2D

Section D Flight Instructor License (FI)

Aeronautical Knowledge Standards

Theoretical Knowledge
Assessment of Student Performance
Learning Process
Teaching Process
Training Philosophies and Evaluation
Training Program Development
Lesson Planning
Teaching Methods
Use of Training Aids
Analysis and Correction of Student Errors
Human Performance
Threat and Error Management

Practical flight standards Unit code

FIR1
FIR2
FIR3

Unit of competency

Conduct aeronautical knowledge training and flight training
Range of variables
Foundation of knowledge



COMPETENCY STANDARDS

SECTION 1: COMMON STANDARDS

C1 Communicating in the aviation environment

1. Unit description

This unit describes the standards for communicating effectively that apply to flight crew using aeronautical radios for the purposes of safely conducting flight operations.

2. Elements and performance criteria

2.1 C1.1 – Communicating face-to-face

The person can communicate effectively in general English as follows:

- (a) pronounces words clearly, using an accent that does not cause difficulties in understanding;
- (b) conveys information in clearly structured sentences without confusion or ambiguity;
- (c) uses an extensive vocabulary to accurately communicate on general and technical topics, without excessive use of jargon, slang or colloquial language;
- (d) speaks fluently without long pauses, repetition or excessive false starts;
- (e) responds to communications with actions that demonstrate that the information has been received and understood;
- (f) exchanges information clearly in a variety of situations with both expert and non-expert English speakers while giving and receiving timely and appropriate responses;
- (g) uses appropriate techniques to validate communications.

2.2 C1.2 – Operational communication using an aeronautical radio

The person must be able to demonstrate her or his ability to communicate adequately for the purpose of conducting flying operations safely as follows:

- (a) maintain effective communication with others on operational matters;
- (b) communicate effectively in unfamiliar, stressful or non-standard situations;
- (c) apply the phonetic alphabet;
- (d) transmit numbers;
- (e) make appropriate transmissions using standard aviation phraseology;
- (f) use plain English effectively when standard phraseology is inadequate;
- (g) receive appropriate responses to transmissions;
- (h) respond to transmissions and take appropriate action;
- (i) recognise and manage communication errors and misunderstandings effectively;
- (j) seek clarification in the time available if a message is unclear or uncertainty exists;
- (k) react appropriately to a variety of regional accents;
- (l) communicate effectively in unexpected, stressful or non-standard situations using standard phraseology or plain English.



3. Range of variables

- (a) limited background noise associated with a typical work environment;
- (b) aircraft environment in a routine operational setting;
- (c) simulated conditions can be used;
- (d) disruptions to normal communication patterns that might be encountered in an operational situation, including background noise, equipment malfunctions and other distractions

4. Underpinning knowledge of the following:

- (a) basic radiotelephony phraseology specified in the aeronautical information package (AIP) for visual flight rules (VFR) operations;
- (b) common aviation terminology.

C2 Perform pre- and post-flight actions and procedures

1. Unit description

This unit describes the skills and knowledge required for a person to conduct pre- and post-flight actions and procedures for an aircraft of the applicable category, class or type.

2. Elements and performance criteria

2.1 C2.1 – Pre-flight actions and procedures

- (a) complete all required pre-flight administration documentation;
- (b) obtain, interpret and apply information contained in the required pre-flight operational documentation, including to the following:
 - (i) minimum equipment list (MEL);
 - (ii) maintenance release;
 - (iii) weather forecasts;
 - (iv) local observations;
 - (v) Notice to Airmen (NOTAM);
- (c) identify special aerodrome procedures;
- (d) identify all relevant radio and navigation aid facilities to be used during the flight (if applicable);
- (e) determine the suitability of the current and forecast weather conditions for the proposed flight;
- (f) using the aircraft documents, calculate the following for a given set of environmental and operational conditions:
 - (i) weight and balance;
 - (ii) take-off and landing performance;
 - (iii) fuel requirements;
- (g) determine whether the aircraft is serviceable for the proposed flight.

2.2 C2.2 – Perform pre-flight inspection

This element is not applicable when the training or assessment activity is being conducted in an FSTD that is approved for the training or assessment purpose.

- (a) identify and secure equipment and documentation that is required for the flight;
- (b) complete an internal and external check of the aircraft;



- (c) identify all defects or damage to the aircraft;
- (d) report to, and seek advice from, qualified personnel to determine the action required in relation to any identified defects or damage;
- (e) ensure all aircraft locking and securing devices, covers and bungs are removed and stowed securely;
- (f) certify the aircraft flight technical log entering any defects or endorsements to permissible unserviceabilities as appropriate;
- (g) complete and certify the daily inspection.

2.3 C2.3 – Post-flight actions and procedures

- (a) shut down aircraft;
- (b) conduct post-flight inspection and secure the aircraft;
- (c) complete all required post-flight administration documentation.

3. Range of variables

- (a) an aircraft of the specified aircraft category;
- (b) any class or type of aircraft within that aircraft category;
- (c) activities are performed in accordance with published procedures
- (d) alternatively, competency is demonstrated in an FSTD that is approved for the purpose.

4. Underpinning knowledge of the following:

- (a) standard operating procedures for the category, and class or type of aircraft and the operator;
- (b) fuel requirements for day VFR flight operation;
- (c) MEL;
- (d) airworthiness requirements applicable to the aircraft category, and class or type;
- (e) local weather patterns;
- (f) local aerodrome requirements.

C3 Operate aeronautical radio

1. Unit description

This unit describes the skills and knowledge required for a person to operate radiotelephone and intercom equipment under normal and emergency conditions.

2. Elements and performance criteria

2.1 C3.1 – Operate radio equipment

- (a) confirm serviceability of radio equipment;
- (b) conduct transmission and receipt of radio communications using appropriate procedures and phraseology;
- (c) maintain a listening watch and respond appropriately to applicable transmissions;
- (d) conduct appropriate emergency and urgency transmissions.

2.2 C3.2 – Manage R/T equipment malfunctions

- (a) perform radio failure procedures;



- (b) use fault finding procedures and perform corrective actions.

2.3 C3.3 – Operate transponder

- (a) operate a transponder during normal, abnormal and emergency operations;
- (b) recall transponder emergency codes.

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) aircraft fitted with a common radio system and transponder;
- (c) VFR procedures.

4. Underpinning knowledge of the following:

- (a) the phonetic alphabet;
- (b) documented radio procedures relevant to the VFR;
- (c) the components of an aeronautical radio system:
 - (i) power source or battery switch, radio master, microphone;
 - (ii) transmitter;
 - (iii) receiver;
 - (iv) antenna;
 - (v) headphones and speaker;
 - (vi) the procedures for using an aeronautical radio system;
 - (vii) use of radio transmit and receive selector switches (VHF, HF, I/C, PA);
 - (viii) turning a radio on and off;
 - (ix) selecting correct frequencies;
 - (x) use of squelch control;
 - (xi) correct use of a microphone;
- (d) characteristics of radio waves, wave propagation, transmission and reception (except aircrew):
 - (i) radio frequency band ranges (MF, HF, VHF, UHF);
 - (ii) properties of radio waves;
 - (iii) propagation of paths of radio waves:
 - (A) ground waves;
 - (B) sky waves;
 - (iv) factors affecting the propagation of radio waves:
 - (A) terrain;
 - (B) ionosphere;
 - (C) interference from electrical equipment;
 - (D) thunderstorms;
 - (E) power attenuation;
 - (v) radio antennas:
 - (A) characteristics of antennas;
 - (B) use of antennas;
- (e) light signals, including interpretation and actions required.



C4 Manage fuel

1. Unit description

This unit describes the skills and knowledge required to effectively manage fuel for an aircraft operation.

2. Elements and performance criteria

2.1 C4.1 – Operate radio equipment

- (a) determine the required fuel reserves;
- (b) determine the quantity of fuel required taking into account operational requirements and relevant abnormal or emergency conditions and contingencies;
- (c) determine the total fuel required for the flight.

2.2 C4.2 – Manage fuel system

- (a) verify fuel quantity on-board aircraft prior to flight using 2 independent methods;
- (b) ensure the fuel caps are secured;
- (c) perform fuel quality check prior to flight;
- (d) ensure fuel drain cocks are closed;
- (e) monitor fuel usage during the flight;
- (f) accurately maintain fuel log;
- (g) calculate and state endurance at any point during flight;
- (h) perform fuel tank changes correctly;
- (i) maintain fuel load within aircraft limits;
- (j) operate the fuel cross-feed system correctly;
- (k) operate fuel pumps and engine controls correctly;
- (l) configure the aircraft correctly to achieve best endurance performance and correctly calculate the revised operational endurance.

2.3 C4.3 – Refuel aircraft

- (a) identify the correct type of fuel to be used;
- (b) ensure aircraft is earthed prior to refuelling and defueling operations;
- (c) correctly load and unload fuel;
- (d) ensure required fuel quantity is loaded;
- (e) ensure fuel caps are closed and secured after fuelling operations;
- (f) perform fuel quality checks.

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) aircraft of the applicable category;
- (c) VFR procedures.

4. Underpinning knowledge of the following:

- (a) minimum fuel requirements for day VFR operations;



- (b) fuel sources and fuel grades, including methods for identifying difference grades;
- (c) methods of verifying the quantity of fuel on board an aircraft;
- (d) fire extinguishers that can be used for fuel-related fires, including requirements and how to use them in the event of a fire;
- (e) location of refuelling places;
- (f) limitations on using drum stock fuel;
- (g) health and safety requirements applicable to fuelling operations;
- (h) variations to planned fuel consumption.

NTS1 Non-technical skills 1

1. Unit description

This unit describes the knowledge and skills required to manage a safe flight.

2. Elements and performance criteria

2.1 NTS1.1 – Maintain effective lookout

- (a) maintain traffic separation using a systematic visual scan technique at a rate determined by traffic density, visibility and terrain;
- (b) maintain radio listening watch and interpret transmissions to determine traffic location and intentions;
- (c) perform airspace-cleared procedure before commencing any maneuver.

2.2 NTS1.2 – Maintain situational awareness

- (a) monitor all aircraft systems using a systematic scan technique;
- (b) collect information to facilitate ongoing system management;
- (c) monitor flight environment for deviations from planned operations;
- (d) collect flight environment information to update planned operations.

2.3 NTS1.3 – Assess situations and make decisions

- (a) identify problems;
- (b) analyze problems;
- (c) identify solutions;
- (d) assess solutions and risks;
- (e) decide on a course of action;
- (f) communicate plans of action;
- (g) allocate tasks for action;
- (h) take actions to achieve optimum outcomes for the operation;
- (i) monitor progress against plan;
- (j) re-evaluate plan to achieve optimum outcomes.

2.4 NTS1.4 – Set priorities and manage tasks

- (a) organize workload and priorities to ensure optimum outcome of the flight;
- (b) plan events and tasks to occur sequentially;
- (c) anticipate events and tasks to ensure sufficient opportunity for completion;
- (d) use technology to reduce workload and improve cognitive and manipulative activities.

2.5 NTS1.5 – Maintain effective communications and interpersonal relationships

- (a) establish and maintain effective and efficient communications and interpersonal relationships with all stakeholders to ensure the optimum outcome of the flight;
- (b) define and explain objectives to stakeholders;
- (c) demonstrate a level of assertiveness that ensures the optimum completion of the flight.

3. Range of variables

- (a) simulated conditions may be used where appropriate.

4. Underpinning knowledge of the following:

- (a) effective communication under normal and non-normal circumstances;
- (b) task management.

NTS2 Non-technical skills 2

1. Unit description

This unit describes the knowledge and skills required to recognize, direct, and manage threats and errors during flight operations.

2. Elements and performance criteria

a. NTS2.1 – Recognize and manage threats

- (a) identify relevant environmental or operational threats that are likely to affect the safety of the flight;
- (b) identify when competing priorities and demands may represent a threat to the safety of the flight;
- (c) develop and implement countermeasures to manage threats;
- (d) monitor and assess flight progress to ensure a safe outcome, or modify actions when a safe outcome is not assured.

b. NTS2.2 – Recognize and manage errors

- (a) apply checklists and standard operating procedures to prevent aircraft handling, procedural or communication errors;
- (b) identify committed errors before safety is affected or the aircraft enters an undesired state;
- (c) monitor the following to collect and analyze information to identify potential or actual errors:
 - (i) aircraft systems using a systematic scan technique;
 - (ii) the flight environment;
 - (iii) other crew;
- (d) implement countermeasures to prevent errors or take action in the time available to correct errors before the aircraft enters an undesired state.

c. NTS2.3 – Recognize and manage undesired aircraft state

- (a) recognize an undesired aircraft state;
- (b) prioritize tasks to ensure an undesired aircraft state is managed effectively;
- (c) apply corrective actions to recover an undesired aircraft state in a safe and timely manner.

3. Range of variables

- (a) reserved;
- (b) simulated conditions may be used where appropriate.

4. Underpinning knowledge of the following:

- (a) effective communication under normal and non-normal circumstances;
- (b) threat and error management detailing processes that can be used to identify and mitigate or control threats and errors;
- (c) the application of situational awareness to identifying real or potential environmental or operational threats to flight safety;
- (d) developing and implementing plans of action for the following:
 - (i) removing and mitigating threats;
 - (ii) removing and mitigating errors;
- (e) undesired aircraft states, including prevention, identifying and controlling;
- (f) how an undesired aircraft state can develop from an unmanaged threat or error;
- (g) what aspects of multi-crew operations (if applicable) can prevent an undesired aircraft state;
- (h) use of checklists and standard operating procedures to prevent errors.
- (i) task management, including:
 - (i) workload organization and priority setting to ensure optimum safe outcome of the flight;
 - (ii) event planning to occur in a logical and sequential manner;
 - (iii) anticipating events to ensure sufficient opportunity is available for completion;
 - (iv) using technology to reduce workload and improve cognitive and manipulative activities;
 - (v) task prioritization and protection whilst filtering and managing real time information.



SECTION 2: NAVIGATION AND INSTRUMENT FLYING STANDARDS

NAV Navigate aircraft

1. Unit description

This unit describes the knowledge and skills required to plan and conduct a flight from a departure aerodrome to a destination aerodrome, or an alternate aerodrome, and navigating the aircraft under the applicable flight rules. This includes pre-flight planning, compliance with airspace, departure and arrival procedures, and navigation under normal and abnormal conditions.

2. Elements and performance criteria

2.1 NAV.1 – Prepare documents and flight plan

- (a) select and prepare appropriate navigation charts for the intended flight;
- (b) select a suitable route and altitude considering weather, terrain, airspace, NOTAMs and alternate landing areas;
- (c) obtain and interpret meteorological forecasts, NOTAMs and operational information applicable to the planned flight;
- (d) determine whether the planned flight can be conducted under the applicable flight rules and taking account of the beginning and end of daylight times;
- (e) calculate and document critical point (CP) and point of no return (PNR) locations;
- (f) complete a flight plan to the planned destination and alternates;
- (g) lodge suitable flight notification for search and rescue (SAR) purposes.

2.2 NAV.2 – Comply with airspace procedures while navigating

- (a) identify airspace restrictions and dimensions applicable to the flight;
- (b) obtain and comply with air traffic clearances;
- (c) comply with airspace procedures applicable to the airspace classification throughout the flight.

2.3 NAV.3 – Conduct departure procedures

- (a) organize cockpit to ensure charts, documentation and navigational calculator are accessible from the control seat;
- (b) comply with all departure procedures, clearances and noise abatement requirements;
- (c) establish planned track on departure within 5 nm of airfield or apply alternative procedure;
- (d) calculate estimated time of arrival (ETA) for first waypoint.

2.4 NAV.4 – Navigate aircraft en route

- (a) maintain a navigation cycle that ensures accurate tracking, and apply track correctional techniques to re-establish track prior to waypoint or destination;
- (b) maintain heading to achieve a nominated track;
- (c) maintain and revise ETAs (± 2 minutes) for waypoint or destination;
- (d) maintain track in accordance with published flight path tolerances in controlled airspace;
- (e) navigate using accepted map-reading techniques;
- (f) maintain navigation and fuel log to monitor tracking, ETAs and fuel status;
- (g) use appropriate techniques to obtain a positive fix at suitable intervals;



- (h) maintain awareness of route, en route terrain, en route and destination weather, and react appropriately to changing weather conditions;
- (i) perform pre-descent and turning point checks;
- (j) maintain appropriate radio communication and listening watch with ATS and other aircraft if radio is fitted and used;
- (k) configure the aircraft as required for the following environmental and operational conditions:
 - (i) turbulence;
 - (ii) holding;
 - (iii) maximum range;
- (l) maintain awareness of search and rescue times (SARTIME) and revise as required;
- (m) monitor aircraft systems, manage fuel and engine to ensure aircraft is operated to achieve flight plan objectives.

2.5 NAV.5 – Navigate at low level and in reduced visibility

- (a) configure the aircraft as required for the following environmental and operational conditions:
 - (i) reduced visibility;
 - (ii) low cloud base;
- (b) navigate aeroplane at minimum heights (not below 500 ft AGL, clear of built-up areas) and remain in VMC;
- (c) maintain separation from terrain, obstacles, allowing for wind and turbulence at low level;
- (d) avoid noise sensitive areas;
- (e) operate appropriately in the vicinity of aerodromes and landing areas.

2.6 NAV.6 – Perform lost procedure

- (a) acknowledge positional uncertainty in a timely manner;
- (b) configure aircraft for range and endurance as required;
- (c) apply recognized method to re-establish aircraft position;
- (d) fix position;
- (e) use radio to request assistance, if applicable;
- (f) plan a timely precautionary search and landing if unable to complete flight safely to suitable aerodrome.

2.7 NAV.7 – Perform diversion procedure

- (a) make timely decision to divert;
- (b) identify an acceptable alternate aerodrome;
- (c) select a suitable route and cruising level;
- (d) revise flight plan considering weather, terrain, airspace and fuel available;
- (e) advise ATS of an intention to divert.

2.8 NAV.8 – Use instrument navigation systems

- (a) initialize navigation system;
- (b) conduct navigation system validity check;
- (c) select, load, check and activate the flight plan;
- (d) operate instrument navigation systems correctly;
- (e) use instrument navigation systems to assist with navigation;
- (f) confirm waypoints and fixes using instrument navigation systems.



2.9 NAV.9 – Execute arrival procedures

- (a) obtain updated relevant aerodrome information;
- (b) determine landing direction and aerodrome suitability;
- (c) conduct arrival;
- (d) identify and avoid all traffic;
- (e) observe local and published noise abatement requirements and curfews;

2 Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) different terrain;
- (c) applicable airspace procedures;
- (d) simulated weather conditions.

3 Underpinning knowledge of the following:

- (a) dead-reckoning navigation;
- (b) navigate in featureless terrain and extended over-water flights;
- (c) diversion considerations and procedures;
- (d) maximum payload and minimum fuel operations.

RNE Radio Navigation – en route

1. Unit description

This unit describes the skills and knowledge required to navigate an aircraft using radio navigation aids and systems.

2. Elements and performance criteria

2.1 RNE.1 – Operate and monitor radio navigation aids and systems

- (a) select and operate navigation aids and systems;
- (b) monitor and take appropriate action in relation to the integrity of navigation aid systems information.

2.2 RNE.2 – Navigate the aircraft using navigation aids and systems

- (a) determine aircraft position fix solely with reference to navigation aids and systems;
- (b) intercept tracks to and from navigation aids and systems;
- (c) maintain tracks within specified tolerances;
- (d) record, assess and revise timings as required;
- (e) recognize station passage.

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) in an aircraft or an approved flight simulation training device;
- (c) course deviation indicator display systems.



4. Underpinning knowledge of the following:

- (a) tracking tolerances for radio navigation;
- (b) for non-directional beacon (NDB):
 - (i) effects of coastal refraction, night error, thunderstorms, mountainous areas, types of terrain and altitude of aircraft on NDB indications or range;
 - (ii) methods of selecting and using the most appropriate NDB for tracking during navigation;
 - (iii) NDB tracking techniques, procedures and limitations;
 - (iv) procedures for sector entry and holding using the NDB;
- (c) for VOR:
 - (i) VOR instrument settings required to provide command indications when flying on given tracks both to and from the VOR;
 - (ii) VOR tracking techniques, procedures and limitations;
 - (iii) procedures for sector entry and holding using the VOR;
- (d) PBN specifications and requirements:
 - (i) applicable navigation specifications for various airspace operations;
 - (ii) RNP tracking tolerances;
 - (iii) radius to fix path terminators on RF legs;
 - (iv) equipment requirements;
 - (v) system performance, monitoring and alert requirements;

IFL Limited Instrument Panel Maneuvers

1. Unit description

This unit describes the skills and knowledge required to perform normal flight maneuvers and recover from unusual attitudes in each of the following non-normal situations:

- (a) without reference to the primary attitude indicator or display;
- (b) without reference to the primary heading indicator or display;
- (c) without reference to reliable airspeed indications.

2. Elements and performance criteria

2.1 IFL.1 – Recognize failure of attitude indicator and stabilized heading indicator

- (a) monitor flight instruments and instrument power sources and recognize warning indicators or erroneous instrument indications;
- (b) transition from a full instrument panel to a limited instrument panel.

2.2 IFL.2 – Perform maneuver – limited panel

- (a) interpret and respond appropriately to instrument indications;
- (b) apply power and attitude settings to achieve straight and level performance during:
 - (i) normal cruise;
 - (ii) in an airplane-approach configuration with flaps (when fitted) and undercarriage down;
- (c) apply power and attitude settings to achieve:
 - (i) nominated climb performance;



- (ii) nominated descent performance;
- (iii) during climb, descent and straight and level flight, rate 1 turns onto a nominated heading;
- (d) trim and balance aircraft;
- (e) establish level flight at a nominated altitude, from a climb or descent during straight or turning flight.

2.3 IFL.3 – Recover from upset situations and unusual attitudes – limited panel

- (a) correctly identify upset situations and unusual attitudes under simulated IMC;
- (b) recover to stabilized straight and level flight using approved techniques from upset situations and unusual attitudes under simulated IMC from any combination of the following aircraft states:
 - (i) high and low-nose attitudes;
 - (ii) varying angles of bank;
 - (iii) various power settings;
 - (iv) various aircraft configurations;
 - (v) unbalanced flight.

2.4 IFL.4 – Re-establish visual flight

- (a) transition from visual flight conditions to instrument flight conditions while maintaining control of the aircraft;
- (b) perform a maneuver to re-establish visual flight;
- (c) implement a plan that ensures the flight continues in VMC.

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) single-engine or approved flight simulation training device;
- (c) manually flown in single-pilot operations;
- (d) simulated IMC conditions;
- (e) up to and including light turbulence.

4. Underpinning knowledge of the following:

- (a) scan technique appropriate to fitted flight instruments and phase of flight (without attitude or stabilized heading indicators);
- (b) performance instrument indications and power requirements to achieve specified flight profiles;
- (c) instrument failure and warning systems fitted to the aircraft;
- (d) the safety risks associated with application of large or rapid control inputs in more than 1 axis simultaneously.

CTR Operate at a controlled aerodrome

1. Unit description

This unit describes the skills and knowledge required to operate an aircraft to and from a controlled aerodrome.

2. Elements and performance criteria



2.1 CTR.1 – Controlled aerodrome pre-flight preparation

- (a) using a current NOTAM, for the controlled aerodrome, extract all the relevant operational information;
- (b) interpret the extracted information;
- (c) identify all special aerodrome procedures;
- (d) check current weather forecast and local observations;
- (e) identify all relevant radio and navigation aid frequencies.

2.2 CTR.2 – Taxi aircraft at a controlled aerodrome

- (a) obtain and comply with ATC clearances;
- (b) maneuver aircraft to holding point as instructed and take appropriate action to avoid other aircraft and obstructions;
- (c) recognize ground markings during taxi and take appropriate action;
- (d) recognize lighting signals and take appropriate action;
- (e) identify airport runway incursion hotspots;
- (f) maneuver aircraft to avoid jet blast hazard;
- (g) request taxi guidance if unsure of position;
- (h) use strobes when crossing any runway.

2.3 CTR.3 – Perform departure from controlled aerodrome

- (a) receive and correctly read back an airways clearance;
- (b) check and ensure runway approach is clear prior to entering a runway;
- (c) correctly set transponder code and mode prior to entering runway for take-off;
- (d) comply with ATC departure instructions;
- (e) advise ATC as soon as possible if unable to comply with clearance;
- (f) contact approach with airborne report or give departure call to tower;
- (g) maintain lookout;
- (h) avoid wake turbulence;
- (i) comply with airways clearances within tracking and altitude tolerances and maintain traffic lookout until clear of the aerodrome control zone.

2.4 CTR.4 – Perform arrival and landing at controlled aerodrome

- (a) check NOTAM prior to entering control area and extract required operational information;
- (b) receive ATIS and correctly set the appropriate QNH;
- (c) request and receive ATC clearance and set correct transponder code prior to entering control area;
- (d) advise ATC as soon as possible if unable to comply with clearance;
- (e) maintain lookout at all times;
- (f) update QNH as required;
- (g) maintain tracking tolerances;
- (h) establish aircraft on the correct leg of the circuit in preparation for landing and maintain separation from traffic;
- (i) confirm clearance to land;
- (j) vacate runway and obtain taxi clearance.

3. Range of variables



- (a) activities are performed in accordance with published procedures;
- (b) Class C or D aerodromes;
- (c) day VFR conditions.

4. Underpinning knowledge of the following:

- (a) NOTAM decoding;
- (b) aerodrome ground markings and lighting;
- (c) standard RT phraseology;
- (d) transponder codes for radio failure and emergency.

ONTA Operate at non-towered aerodromes

1. Unit description

This unit describes the skills and knowledge required to operate an aircraft to and from a non-towered aerodrome or landing area.

2. Elements and performance criteria

2.1 ONTA.1 – Non-towered aerodrome – pre-flight preparation

- (a) using a current NOTAM, for the non-towered aerodrome or landing area, extract all of the relevant operational information;
- (b) interpret the extracted information;
- (c) identify all special aerodrome procedures;
- (d) check current weather forecast and local observations;
- (e) identify all relevant radio and navigation aid frequencies.

2.2 ONTA.2 – Taxi aircraft at a non-towered aerodrome or landing area

- (a) refer to aerodrome or landing area chart;
- (b) set local QNH;
- (c) broadcast intentions on appropriate frequency;
- (d) obtain and interpret traffic information;
- (e) maintain lookout for, and separation from, other aircraft, wildlife and other obstructions;
- (f) recognize ground markings during taxi and take appropriate action;
- (g) reserved;
- (h) taxi aircraft to holding point;
- (i) use strobes when crossing any runway.

2.3 ONTA.3 – Perform departure at a non-towered aerodrome or landing area

- (a) check and ensure runway approach is clear prior to entering a runway;
- (b) correctly set transponder code and mode prior to entering runway for take-off;
- (c) confirm runway approaches clear in all directions prior to entering runway;
- (d) broadcast line up details;
- (e) Reserved;
- (f) transmit appropriate radio calls and maintain separation with other aircraft;
- (g) advise air service provider of departure details, if required;



- (h) conduct departure.

2.4 ONTA.4 – Perform arrival and landing at a non-towered aerodrome or landing area

- (a) check NOTAM prior to entering circuit area;
- (b) set correct local QNH;
- (c) use correct radio frequency to transmit inbound calls as required;
- (d) maintain effective lookout;
- (e) maintain aircraft separation and avoid other traffic;
- (f) maintain tracking tolerances;
- (g) determine wind velocity;
- (h) determine landing direction;
- (i) confirm runway is serviceable for the operation;
- (j) determine circuit direction;
- (k) conduct landing area inspection;
- (l) position aircraft in the circuit in preparation for landing and maintain separation from traffic;
- (m) make all necessary circuit radio calls;
- (n) verify runway is clear of other traffic, wildlife and other obstructions;
- (o) land the aircraft;
- (p) vacate runway;
- (q) cancel SARWATCH, if applicable.

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) non-towered aerodromes;
- (c) landing areas;
- (d) Class G airspace;
- (e) CTAF;
- (f) day VFR conditions.

4. Underpinning knowledge of the following:

- (a) decode NOTAM;
- (b) aerodrome ground markings and lighting;
- (c) standard RT phraseology for operations at non-towered aerodromes and landing areas;
- (d) transponder codes for G airspace

CTA Operate in controlled airspace

1. Unit description

This unit describes the skills and knowledge required to operate an aircraft in controlled airspace

2. Elements and performance criteria

2.1 CTA.1 – Operate aircraft in controlled airspace

The person must be able to demonstrate her or his ability to do the following:



- (a) comply with airways clearance requirements for operating in all classes of airspace, including lead time required for flight plan submission, contents, 'clearance void time', and 'readback' requirement;
- (b) apply airways clearance requirements for entering, operating in and departing from CTA and CTR, including details that need to be provided to ATC, and what details to expect from ATC;
- (c) maintain control area protection tolerances;
- (d) maintain tracking and altitude tolerances when operating on an airways clearance;
- (e) reconfirm any clearance items when doubt exists;
- (f) advise ATC as soon as possible if unable to maintain clearance due to adverse weather conditions;
- (g) follow ATC requirements for a change of level in CTA, including in an emergency situation;
- (h) comply with departure, climb, transition to cruise (levelling out), cruise, change of levels, descent and visual approach procedures in CTA and CTR instructions;
- (i) apply separation standards between IFR flights, and IFR and VFR flights in the various classes of CTA;
- (j) perform appropriate actions in the event of the loss of radio communication in CTA and CTR;
- (k) perform appropriate actions in the event of abnormal operations and emergency procedures in CTA and CTR;
- (l) operate under radar vectoring procedures, including radio procedures and phraseologies;
- (m) maximum permissible time interval between ATC transmissions during radar vectoring are not exceeded;
- (n) perform appropriate actions in the event of abnormal operations and emergencies;
- (o) recall transponder emergency code and communication failure code.

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) day VFR conditions;
- (c) any category of aircraft;
- (d) Class C, D, or G airspace.

4. Underpinning knowledge of the following:

- (a) decode NOTAMS;
- (b) aerodrome ground markings and lighting;
- (c) standard RT phraseology for operations at controlled aerodromes;
- (d) radio failure procedures;
- (e) transponder codes

OGA Operate in class G airspace

1. Unit description

This unit describes the skills and knowledge required to operate an aircraft in Class G (uncontrolled) airspace.

2. Elements and performance criteria

2.1 OGA.1 – Operate aircraft in Class G airspace



- (a) maintain tracking and altitude tolerances to remain outside controlled airspace;
- (b) apply separation tolerances between IFR flights, and IFR and VFR flights;
- (c) when using an aircraft radio:
 - (i) monitor appropriate radio frequency;
 - (ii) make appropriate radio calls;
 - (iii) obtain operational information from air services provider and other aircraft;
 - (iv) use information to ensure aircraft separation is maintained;
 - (v) apply loss of radio communication procedures;
- (d) using a suitable chart:
 - (i) operate clear of active aerodromes and landing areas in the vicinity of the aircraft;
 - (ii) identify and remain clear of controlled and restricted airspace;
 - (iii) take appropriate action when operating in the vicinity of a danger area;
- (e) perform actions in the event of abnormal operations and emergencies;
- (f) recall transponder emergency code and communication failure code.

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) day VFR conditions;
- (c) Class G airspace;
- (d) simulated or actual abnormal, emergency situations and radio failure.

4. Underpinning knowledge of the following:

Class G airspace



SECTION 3: AIRCRAFT RATING STANDARDS

AEROPLANE CATEGORY

A1 Control airplane on the ground

1. Unit description

This unit describes the skills and knowledge required to operate an airplane on the ground.

2. Elements and performance criteria

2.1 A1.1 – Start and stop engine

- (a) perform engine start and after start actions;
- (b) perform engine shutdown and after shutdown actions;
- (c) manage engine start and shutdown malfunctions and emergencies;
- (d) considers ground surface in relation to contamination and propeller care during engine start and stop activities

2.2 A1.2 – Taxi airplane

- (a) use aerodrome or landing area charts to taxi aircraft;
- (b) comply with taxiway and other aerodrome markings, right-of-way rules and ATC or marshalling instructions when applicable;
- (c) perform applicable taxi checks, including the following:
 - (i) brakes and steering function normally and take appropriate action in the event of a malfunction;
 - (ii) instruments for correct readings;
 - (iii) altimeter setting;
- (d) maintain safe taxi speed and control of the aircraft;
- (e) maintain safe spacing from other aircraft, obstructions, and persons;
- (f) maintain the aircraft on the taxiway centerline;
- (g) avoid causing a hazard to other aircraft, objects, or persons;
- (h) correct handling techniques are applied to consider wind from all 4 quadrants;
- (i) correctly manage the engine during taxi maneuvers.

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) single-engine airplane with propeller;
- (c) aircraft with undercarriage and flaps;
- (d) windsock located on the aerodrome;
- (e) sufficient wind that requires control adjustment;
- (f) hazardous weather;
- (g) day VFR conditions;
- (h) local area operational limitations such as noise abatement and aerodrome curfews.

4. Underpinning knowledge of the following:



- (a) typical single-engine airplane aircraft systems;
- (b) differences between normally aspirated and fuel-injected systems;
- (c) carburetor icing;
- (d) the cause and effect of fuel vaporization;
- (e) typical aircraft performance characteristics of single-engine airplanes and the effects of local weather conditions on performance;
- (f) aircraft weight and balance and the how to calculate aircraft center of gravity;
- (g) the contents of the flight manual and POH for the aircraft being flown;
- (h) the environmental conditions that represent VMC;
- (i) propeller wash, rotor wash and jet blast and how they affect other aircraft;
- (j) the day VFR flight rules;
- (k) the meaning of:
 - (i) light and marshalling signals;
 - (ii) aerodrome markings, signals, and local procedures;
- (l) care of propellers;
- (m) the actions to be taken in the event of a brake or tire or steering failure;

A2 Take-off airplane

1. Unit description

This unit describes the skills and knowledge required to complete pre-take-off checks, take-off airplane into wind and in cross-wind conditions and perform after take-off checks in an airplane.

2. Elements and performance criteria

2.1 A2.1 – Carry out pre-take-off procedures

- (a) correctly identify critical airspeeds, configurations, and emergency and abnormal procedures for normal and cross-wind take-offs;
- (b) work out a plan of action, in advance, to ensure the safest outcome in the event of abnormal operations;
- (c) verify and correctly apply correction for the existing wind component to the take-off performance;
- (d) perform all pre-take-off and line-up checks required by the aircraft checklist;
- (e) ensure approach path is clear of conflicting traffic and other hazards before lining up for take-off;
- (f) align the airplane on the runway centerline.

2.2 A2.2 – Take off airplane

- (a) apply the controls correctly to maintain longitudinal alignment on the centerline of the runway, if appropriate, prior to initiating and during the take-off;
- (b) adjust the power controls considering the existing conditions;
- (c) monitor power controls, settings, and instruments during take-off to ensure all predetermined parameters are achieved and maintained;
- (d) adjust the controls to attain the desired pitch attitude at the predetermined airspeed to attain the desired performance;



- (e) perform the take-off applying the required pitch, roll and yaw inputs as appropriate in a smooth, coordinated manner;
- (f) trim the airplane accurately;
- (g) perform gear and flap retractions, power adjustments and other required pilot-related activities;
- (h) maintain flight path along the runway extended centerline;
- (i) apply the applicable noise abatement and wake turbulence avoidance procedures;
- (j) recognize take-off abnormalities and take appropriate action to reject take-off.

2.3 A2.3 – Take off airplane in a crosswind

- (a) perform a take-off in an airplane making appropriate adjustments for cross-wind conditions;
- (b) maintain the runway centerline and extended centerline.

2.4 A2.4 – Carryout after take-off procedures

- (a) perform after take-off checklist;
- (b) maintain the appropriate climb segment at the nominated heading and airspeed;
- (c) maneuver according to local and standard procedures;
- (d) maintain traffic separation.

2.5 A2.5 – Take-off airplane from ‘short field’

- (a) calculate take-off and landing performance in accordance with the airplane’s performance charts;
- (b) perform take-off airplane to achieve the minimum length take-off performance;
- (c) perform take-off airplane to achieve the obstacle clearance parameters

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) airplane with piston or turbine powerplant and propeller;
- (c) aircraft with nose wheel or tail wheel;
- (d) aircraft with fixed or retractable undercarriage;
- (e) aircraft with or without flaps;
- (f) sealed, gravel or grass runways and taxiways;
- (g) windsock located on aerodrome;
- (h) engine start and shutdown malfunctions and emergencies covered by the aircraft flight manual;
- (i) simulated hazardous weather;
- (j) day VFR conditions;
- (k) for take-off in cross-wind, the cross-wind component must be:
 - (i) otherwise, 70% of the maximum permitted for the type of airplane being flown;
- (l) local area operational limitations such as noise abatement and aerodrome curfews.

4. Underpinning knowledge of the following:

- (a) obtaining or calculating the crosswind and down or up wind components;
- (b) the factors affecting take-off and initial climb performance;
- (c) interpreting windsock indications and determining wind direction and speed;
- (d) take-off distance required calculation;
- (e) aerodrome charts and an ability to interpret them;



(f) local topographical charts to identify safe areas for engine-failure purposes and noise abatement considerations.

A3 Control airplane in normal flight

1. Unit description

This unit describes the skills and knowledge required to control an airplane while performing normal flight maneuvers.

2. Elements and performance criteria

2.1 A3.1 – Climb airplane

- (a) operate and monitor all aircraft systems when commencing, during, and completing a climbing flight maneuver;
- (b) adjust altimeter subscale according to applicable settings;
- (c) identify and avoid terrain and traffic;
- (d) for the following climbing maneuvers select power, attitude and configuration as required for the flight path, balance and trim the airplane accurately, and apply smooth, coordinated control inputs to achieve the required flight tolerances that apply to the maneuver:
 - (i) cruise climb;
 - (ii) best angle climb;
 - (iii) best rate climb;
- (e) anticipate level-off altitude and achieve straight and level flight.

2.2 A3.2 – Maintain straight and level flight

- (a) operate and monitor all aircraft systems during straight and level flight maneuvers;
- (b) adjust altimeter subscale according to applicable settings;
- (c) identify and avoid terrain and traffic;
- (d) for the following straight and level maneuvers select power, attitude and configuration as required for the flight path, balance and trim the airplane accurately, and apply smooth, coordinated control inputs to achieve the required flight tolerances that apply to the maneuver:
 - (i) at slow speed;
 - (ii) at normal cruise;
 - (iii) at high-speed cruise;
 - (iv) during acceleration and deceleration;
 - (v) except for the RPL, at maximum range;
 - (vi) except for the RPL, at maximum endurance;
 - (vii) with flaps selected.

2.3 A3.3 – Descend airplane

- (a) operate and monitor all aircraft systems during descending flight maneuvers;
- (b) for the following descending maneuvers select power, attitude and configuration as required for the flight path, balance and trim the airplane accurately, and apply smooth, coordinated control inputs to achieve the required flight tolerances that apply to the maneuver:
 - (i) glide;
 - (ii) powered;



- (iii) approach configuration descent;
- (c) anticipate level-off altitude and achieve straight and level flight.

2.4 A3.4 – Turn airplane

- (a) operate and monitor all aircraft systems during turning flight maneuvers;
- (b) for the following turning maneuvers select power, attitude and configuration as required for the flight path, balance and trim the airplane accurately, and apply smooth, coordinated control inputs to achieve the required flight tolerances that apply to the maneuver:
 - (i) level turns;
 - (ii) climbing turn;
 - (iii) powered descending;
 - (iv) gliding descending turn;
- (c) complete turn maneuver on a nominated heading or geographical feature;
- (d) turn airplane at varying rates to achieve specified tracks;
- (e) maneuver airplane over specified tracks or geographical features.

2.5 A3.5 – Control airplane at slow speeds

- (a) complete pre-maneuver checks;
- (b) operate and monitor all aircraft systems when operating the airplane at slow speed in straight and level, climbing, descending and turning flight;
- (c) for the following manoeuvres select power, attitude, and configuration as required for the flight path, balance and trim the airplane accurately, and apply smooth, coordinated control inputs to achieve stable flight at the required flight tolerances that apply to the following:
 - (i) minimum approach speed with flaps retracted;
 - (ii) minimum approach speed in approach configuration;
- (d) observe audible and visible stall warnings and recover aeroplane to controlled flight;
- (e) recognize and respond positively to reduced effectiveness of controls during slow flight maneuvers;
- (f) recognize the need to increase power while maneuvering in slow flight to maintain nominated altitude and a margin of speed above the stall;
- (g) transition from slow speed configuration, using take-off power to achieve nominated speed in excess of 1.5 Vs without loss of height.

2.6 A3.6 – Perform circuits and approaches

- (a) operate and monitor all aircraft systems when operating the airplane in the circuit;
- (b) in accordance with specific local procedures, safely perform a full circuit pattern (5 legs) by balancing and trimming the airplane accurately while applying smooth, coordinated control inputs to achieve the required flight tolerances specified for the flight path flown during traffic pattern maneuvers as follows:
 - (i) track upwind along extended centerline to 500 ft;
 - (ii) establish and maintain cross-wind leg tracking 90° to the runway;
 - (iii) establish and maintain downwind leg tracking parallel to, and at a specified distance from, the runway at circuit height;
 - (iv) establish base leg tracking 90° to the runway at a specified distance from the runway threshold;
- (c) perform checks as required throughout circuit;



(d) establish the approach and landing configuration appropriate for the runway and meteorological conditions, and adjust the powerplant controls as required for the following:

- (i) commence and control approach descent path;
- (ii) adjust descent commencement point to take account of extended downwind leg or traffic adjustments;
- (iii) align and maintain aircraft on final approach flight path with specified or appropriate runway;
- (iv) set and maintain approach configuration not below 500 ft AGL;
- (v) identify and maintain the nominated aiming point;
- (vi) maintain a stabilized approach angle at the nominated airspeed not less than 1.3VS to the round-out height;
- (vii) verify existing wind conditions, make proper correction for drift, and maintain a precise ground track;
- (viii) apply speed allowances for wind gusts;
- (ix) configure airplane for landing;

(e) maintain aircraft separation and position in the circuit with reference to other aircraft traffic in the circuit area.

2.7 A3.7 – Local area airspace

(a) using an appropriate chart, for the local area and circuit area:

- (i) identify geographical features;
- (ii) identify geographical limits;
- (iii) identify restricted, controlled, and uncontrolled airspace areas;
- (iv) state local airspace limits;
- (v) identify the transit route between the departure aerodrome and training area;
- (vi) identify the geographical limits of the training area;
- (vii) identify aerodromes and landing areas within the local area;

(b) maintain orientation and pinpoint location by using geographical features and a local area chart;

(c) transit from the circuit area and transit to the designated training area;

(d) operate safely within a transit lane (if applicable);

(e) remain clear of restricted, controlled and other appropriately designated airspace;

(f) operate safely in the vicinity of local aerodromes and landing areas;

(g) transit from the designated training area to the circuit area;

(h) set QNH appropriately;

(i) correctly determine which runway is to be used for landing;

(j) ensure runway is serviceable and available;

(k) position aircraft for arrival into the circuit.

3. Range of variables

(a) activities are performed in accordance with published procedures;

(b) airplane with piston and propeller;

(c) aircraft with fixed or retractable undercarriage;

(d) aircraft with or without flaps;

(e) simulated hazardous weather;

(f) approach and landing configurations:

- (i) normal;



- (ii) flapless;
- (iii) glide;
- (g) circuit patterns:
 - (i) normal 1,000 ft AGL circuit;
 - (ii) low-level 500 ft AGL circuit;
 - (iii) full circuit pattern, including 5 legs;
 - (iv) shortened circuit pattern;
- (h) day VFR conditions;
- (i) local area airspace limitations.

4. Underpinning knowledge of the following:

- (a) the primary effects of controls;
- (b) the secondary effects of controls;
- (c) the stall warning devices;
- (d) aircraft systems;
- (e) aircraft performance;
- (f) aircraft weight and balance;
- (g) hazards when performing performance maneuvers;
- (h) turning using a magnetic compass;
- (i) relationship between angle of bank, load factor and stall speed;
- (j) relationship between induced drag and operating at slow speed;
- (k) dangers associated with mechanical and wake turbulence;
- (l) engine considerations during prolonged climbing and descending;
- (m) contents of the aircraft flight manual and pilot's operating handbook;
- (n) environmental conditions that represent VMC;
- (o) day VFR flight rules;
- (p) local area operating procedures;
- (q) relevant sections of the AIP.

A4 Land airplane

1. Unit description

This unit describes the skills and knowledge required to conduct a landing in an airplane.

2. Elements and performance criteria

2.1 A4.1 – Land airplane

- (a) maintain a constant landing position aim point;
- (b) achieve a smooth, positively-controlled transition from final approach to touchdown, including the following:
 - (i) control ballooning during flare;
 - (ii) touchdown at a controlled rate of descent, in the specified touchdown zone within tolerances
 - (iii) control bouncing after touchdown;
 - (iv) touchdown aligned with the centerline within tolerances;



- (c) ensure separation is maintained;
- (d) maintain positive directional control and cross-wind correction during the after-landing roll;
- (e) use drag and braking devices, as applicable, in such a manner to bring the airplane to a safe stop;
- (f) complete the applicable after-landing checklist items in a timely manner.

2.2 A4.2 – Land airplane in a crosswind

- (a) verify existing wind conditions, make proper correction for drift, and maintain a precise ground track;
- (b) configure the airplane for the crosswind conditions;
- (c) control the airplane during the transition from final approach to touchdown and during after landing roll to compensate for the crosswind conditions.

2.3 A4.3 –Conduct a missed approach

- (a) recognize the conditions when a missed approach should be executed;
- (b) make the decision to execute a missed approach when it is safe to do so;
- (c) make a smooth, positively-controlled transition from approach to missed approach, including the following:
 - (i) select power, attitude, and configuration to safely control airplane;
 - (ii) maneuver airplane clear of the ground and conduct after take-off procedures;
 - (iii) make allowance for wind velocity during go-around;
 - (iv) avoid wake turbulence.

2.4 A4.4 – Perform recovery from missed landing

- (a) recognize when a missed landing is occurring and when it is appropriate to take recovery action;
- (b) make the decision to execute recovery from a missed landing only when it is safe to do so;
- (c) make a smooth, positively-controlled transition from missed landing to missed approach, including the following:
 - (i) select power, attitude, and configuration to safely control airplane;
 - (ii) maneuver airplane clear of the ground and conduct after take-off procedures;
 - (iii) make allowance for wind velocity during go-around;
 - (iv) avoid wake turbulence.

2.5 A4.5 – Short landing

- (a) land airplane at nominated touchdown point at minimum speed;
- (b) control ballooning during flare;
- (c) control bouncing after touchdown;
- (d) maintain direction after touchdown;
- (e) apply maximum braking without locking up wheels;
- (f) stop aircraft within landing distance available.

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) airplane with piston or turbine powerplant and propeller;
- (c) aircraft with nose wheel or tail wheel;
- (d) aircraft with fixed or retractable undercarriage;
- (e) aircraft with or without flaps;



- (f) sealed, gravel or grass runways and taxiways;
- (g) windsock located on aerodrome;
- (h) simulated hazardous weather;
- (i) day VFR conditions;
- (j) for landing an airplane in cross-wind, the cross-wind component must be:
 - (i) for RPL, not more than 10 kts;
 - (ii) otherwise, 70% of the maximum permitted for the type of airplane being flown;
- (k) local area operational limitations such as noise abatement and aerodrome curfews.

4. Underpinning knowledge of the following:

- (a) typical single-engine airplane aircraft systems;
- (b) airplane performance;
- (c) airplane limitations;
- (d) airplane weight and balance;
- (e) options when local conditions are not suitable for landing;
- (f) causes of loss of control of airplane on landing;
- (g) contents of the aircraft flight manual and pilot's operating handbook;
- (h) environmental conditions that represent VMC;
- (i) day VFR flight rules;
- (j) propeller wash, rotor wash and jet blast;
- (k) relevant sections of the AIP.

A5 Airplane advanced maneuvers

1. Unit description

This unit describes the skills and knowledge required to perform advanced maneuvers in an airplane.

2. Elements and performance criteria

2.1 A5.1 – Enter and recover from stall

- (a) perform stalling pre-maneuver checks;
- (b) recognize symptoms of a stall;
- (c) control the airplane by trimming and balancing accurately for slow flight and then applying the required pitch, roll and yaw inputs to enter and recover from the following:
 - (i) slow flight where initial symptoms of a stall become evident;
 - (ii) stall, recovering without application of power;
 - (iii) stall, recovering with full power applied;
 - (iv) stall under the following conditions:
 - (A) straight and level flight;
 - (B) climbing flight;
 - (C) descending flight;
 - (D) approach to land configuration;
 - (E) turning flight;
- (d) perform stall recovery including the following:
 - (i) reduce angle of attack;



- (ii) prevent yaw;
- (iii) use available power and height to increase the aircraft energy state;
- (iv) avoid secondary stall;
- (v) re-establish desired flight path and aircraft control with balanced control application;
- (e) perform stall recovery in simulated partial and complete engine failure conditions;

2.2 A5.2 – Avoid spin

This element only applies to a single-engine airplane:

- (a) perform stalling pre-maneuver checks;
- (b) recognize wing drop at the stall;
- (c) from balanced flight, recover from stall in the attitudes and configurations most likely to cause a wing drop;
- (d) perform recovery where the airplane exhibits a tendency to drop a wing at the stall;
- (e) perform stall recovery at simulated low altitude.

2.3 A5.3 – Turn airplane steeply

- (a) pre-maneuver checks for steep turning;
- (b) steep level turn using a nominated bank angle, ending on a nominated heading or geographical feature, without altitude change;
- (c) steep descending turn using a nominated bank angle, ending on a nominated heading or geographical feature ending on a nominated altitude;
- (d) airplane operating limits are not exceeded.

2.4 A5.4 – Sideslip airplane

- (a) straight sideslip:
 - (i) induce slip to achieve increased rate of descent while maintaining track and airspeed; and
 - (ii) adjust rate of descent by coordinating angle of bank and applied rudder;
- (b) sideslipping turn by adjusting the bank angle to turn through minimum heading change of 90° at constant airspeed using sideslip, and exiting the turn on a specified heading or geographical feature, within tolerance;
- (c) recover from a sideslip and return the airplane to balanced flight.

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) maneuvers are performed within operating limits of airplane;
- (c) airplane with piston and propeller;
- (d) aircraft with nose wheel or tail wheel;
- (e) aircraft with fixed or retractable undercarriage;
- (f) aircraft with or without flaps;
- (g) sealed, gravel or grass runways and taxiways;
- (h) windsock located on aerodrome;
- (i) simulated hazardous weather;
- (j) day VFR conditions;
- (k) local area operational limitations such as noise abatement and aerodrome curfews.

4. Underpinning knowledge of the following:

- (a) operational circumstances where steep turns are required;
- (b) aerodynamic and airplane operational considerations related to slow flight, sideslipping, stalling, spinning, steep turns, upset airplane states, including but not limited to the following:
 - (i) symptoms of approach to stall and throughout the stall maneuver until recovery;
 - (ii) relationship between angle of attack and stall;
 - (iii) effects of weight, center of gravity position, 'g' force and angle of attack;
 - (iv) dangers of unbalanced flight;
 - (v) principle of stick and control and the point of stall;
 - (vi) priority given to reduce angle of attack during stall maneuvers;
 - (vii) loss of height is considered in relation to available height and energy state;
 - (viii) the technique of converting excess speed to height;
 - (ix) the technique of converting excess height to speed;
 - (x) symmetrical and rolling 'g' force limitations;
 - (xi) higher stall speeds when airplane is turning;
 - (xii) effects on fuel, pitot and flap systems;
- (c) contents of the flight manual and POH;
- (d) environmental conditions that represent VMC;
- (e) day VFR flight rules;
- (f) relevant sections of the AIP.

A6 Manage abnormal situations -single-engine airplanes

1. Unit description

This unit describes the skills and knowledge required to accurately assess an abnormal situation, reconfigure the airplane, control the airplane and execute appropriate maneuvers to achieve a safe outcome with no injury to personnel or damage to the airplane or property.

2. Elements and performance criteria

2.1 A6.1 – Manage engine failure – take-off (simulated)

- (a) correctly identify an engine failure after take-off;
- (b) apply the highest priority to taking action to control the airplane;
- (c) maintain control of airplane;
- (d) perform recall actions;
- (e) perform emergency actions as far as time permits;
- (f) maneuver the airplane to achieve the safest possible outcome;
- (g) ensure passengers adopt brace position;
- (h) advise others such as ATS and other aircraft of intentions if time permits.

2.2 A6.2 – Manage engine failure in the circuit area (simulated)

- (a) correctly identify an engine failure during flight;
- (b) apply the highest priority to taking action to control the airplane;
- (c) perform recall actions;
- (d) select a suitable landing area within gliding distance, on the aerodrome or elsewhere;

- (e) perform emergency procedures and land the airplane if the engine cannot be restarted as time permits;
- (f) advise ATS or other agencies capable of aiding of situation and intentions;
- (g) re-brief passengers about flight situation, brace position and harness security;
- (h) land the airplane ensuring safest outcome if an engine restart is not achieved.

2.3 A6.3 – Perform forced landing (simulated)

- (a) after a simulated complete engine failure has occurred, without prior indications, carryout the following:
 - (i) identify complete power failure condition and control airplane;
 - (ii) perform immediate actions;
 - (iii) formulate and describe a recovery plan, including selecting the most suitable landing area;
 - (iv) establish optimal gliding flight path to position the airplane for a landing on the selected landing area;
 - (v) perform emergency procedures and land the airplane if the engine cannot be restarted as time permits;
 - (vi) advise ATS or other agencies capable of aiding of situation and intentions;
 - (vii) re-brief passengers about flight situation, brace position and harness security;
 - (viii) land the airplane ensuring safest outcome if an engine restart is not achieved;
- (b) after a simulated partial engine failure has occurred, without prior indications, carryout the following:
 - (i) identify partial power failure condition;
 - (ii) perform recall actions;
 - (iii) adjust flight controls to re-establish flight path that maximizes performance for partial power condition and maintain a safe airspeed margin above stall speed;
 - (iv) establish radio communications where possible;
 - (v) perform partial engine failure actions;
 - (vi) formulate a plan to recover airplane to a safe landing area or aerodrome, considering that partial failure might lead to a full power failure at any time;
 - (vii) maneuver the airplane to a selected landing area or aerodrome using the remaining power to establish an optimal aircraft position for a safe landing;
 - (viii) advise ATS, or other agencies capable of providing assistance of situation and intentions;
 - (ix) re-brief passengers about flight situation, brace position and harness security;
 - (x) maintain a contingency plan for coping with a full power failure throughout the maneuver;
 - (xi) when a safe landing position is established, shut down and secure engine and airplane

2.4 A6.4 – Conduct precautionary search and landing (simulated)

- (a) assess flight circumstances and make an appropriate decision when to perform precautionary landing;
- (b) configure airplane for conditions;
- (c) perform precautionary search procedure;
- (d) select landing area, carryout an inspection and assess its suitability for landing, taking into account:
 - (i) unobstructed approach and overshoot paths;
 - (ii) landing area length adequate for landing;
 - (iii) landing area surface is suitable for airplane type and clear of hazards;
- (e) maintain orientation and visual contact with the landing area;



- (f) advise ATS or other agencies capable of aiding of situation and intentions;
- (g) re-brief passengers about flight situation, brace position and harness security;
- (h) land and secure aircraft and manage passengers.

2.5 A6.5 – Manage other abnormal situations (simulated)

- (a) correctly identify the situation and always maintain safe control of the airplane;
- (b) manage abnormal and emergency situations in accordance with relevant emergency procedures and regulatory requirements;
- (c) follow appropriate emergency procedures while maintaining control of the airplane;
- (d) identify and conduct flight with an unreliable airspeed indication;
- (e) correctly identify when an emergency evacuation of an airplane is required;
- (f) execute a simulated emergency evacuation of an airplane;
- (g) advise ATS or other agencies capable of aiding of situation and intentions.

2.6 A6.6 – Recover from unusual flight attitudes

- (a) identify nose-high or nose-low unusual attitude flight condition;
- (b) recover from nose-low or nose-high unusual attitudes by adjusting pitch, bank and power to resume controlled and balanced flight;
- (c) apply controlled corrective action while maintaining aircraft performance within limits

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) single-engine airplane with piston or turbine powerplant and propeller;
- (c) discontinue simulated maneuvers that would be terminated by a forced landing when the assessor is satisfied that the landing standard would be achieved;
- (d) day VFR conditions

4. Underpinning knowledge of the following:

- (a) engine failure scenarios and procedures for partial and complete power loss;
- (b) forced landing scenarios and procedures;
- (c) causes leading to precautionary landings;
- (d) judging descent profiles in various configurations;
- (e) prioritizing activities during emergencies and non-normal situations;
- (f) ditching;
- (g) suitable fields for forced landings and precautionary landings;
- (h) considerations when practicing emergencies and non-normal operations;
- (i) aircraft performance in a glide (straight and turning);
- (j) hazard of sideslip at low altitude;
- (k) effects of partial engine power on performance, flight profile, range and landing options;
- (l) contents of the flight manual and pilot's operating handbook;
- (m) passenger control and briefing;
- (n) VMC;
- (o) low-flying hazards.



SECTION 4: OPERATIONAL RATING AND ENDORSEMENT STANDARDS

INSTRUMENT RATING

CIR Conduct an IFR flight

1. Unit description

This unit describes the skills and knowledge required to conduct a flight in an aircraft under the IFR.

2. Elements and performance criteria

2.1 CIR.1 – Plan a flight under the IFR

- (a) determine aircraft is properly equipped and serviceable for IFR flight;
- (b) possess and use all the required documentation that is current to plan an IFR flight;
- (c) prepare an accurate flight plan that ensures all applicable operational requirements are met;
- (d) make flight notification;
- (e) check navigation system database is current;
- (f) conduct RAIM check if required;

2.2 CIR.2 – Perform an instrument departure

- (a) prepare aircraft and aircraft systems for departure;
- (b) demonstrate consideration of and planning for non-normal and emergencies during departure;
- (c) demonstrate adequate knowledge of both of published and cleared and non-published and non-cleared instrument departures;
- (d) establish lowest take-off minima required considering aircraft performance, aerodrome, available instrument approaches and environmental conditions;
- (e) conduct instrument departure to comply with obstacle clearance requirements

2.3 CIR.3 – Conduct a published instrument departure (all engines)

- (a) perform a SID or other published departure;
- (b) maintain assigned SID, including all tracks, headings, altitudes, and speeds;
- (c) perform a cleared departure safely and maintain tracks, headings, altitudes, and speeds within specified tolerances.

2.4 CIR.4 – Conduct an instrument departure (1 engine inoperative) – simulated IMC

- (a) for single-engine aircraft instrument endorsements:
 - (i) following engine failure establish optimum flight path and maneuvers aircraft towards most suitable terrain considering conditions;
 - (ii) time permitting conduct checklists and radio calls

2.5 CIR.6 – Perform a descent and arrival under the IFR

- (a) demonstrate adequate knowledge of the published procedures for the conduct of a descent and arrival to an aerodrome;
- (b) perform a descent and published arrival procedure to an aerodrome.



2.6 CIR.7 – Perform a published holding procedure

- (a) demonstrate adequate knowledge of a published holding procedure;
- (b) track aircraft to the holding fix and performs holding procedure (entry, full holding pattern and exit) safely.

2.7 CIR.8 – Perform an instrument approach 2D or 3D

- (a) demonstrate adequate knowledge of published procedures associated with an instrument approach;
- (b) perform an instrument approach unique to the instrument approach type;
- (c) maintain a stabilized flight path within specified tolerances during the approach procedure

2.8 CIR.10 – Perform visual approach operations (includes visual circling where applicable)

- (a) demonstrate adequate knowledge of published procedures for the conduct of a visual approach;
- (b) conduct a visual circling approach requiring at least 90 degrees change of heading to establish the aircraft onto the final approach leg to the specified runway whilst maintaining a stabilized flight path.

3. Range of variables

- (a) for the single-engine airplane instrument endorsement, the aircraft must be a single-engine airplane;
- (b) activities are performed in accordance with published procedures;
- (c) IMC or Simulated IMC conditions;
- (d) aircraft or approved synthetic training device;
- (e) day and night;
- (f) analogue or digital flight decks;
- (g) RVSM or non-RVSM airspace;
- (h) AIP, Jeppesen or other approved IAL plates;
- (i) approved checklists;

4. Underpinning knowledge of the following:

- (a) full panel instrument maneuvers;
- (b) limited and partial panel instrument maneuvers;
- (c) AIP and published regulations;
- (d) approved aircraft flight manual;
- (e) relevant sections of published regulations;
- (f) airspace requirements and procedures under IFR conditions;
- (g) IFR route planning requirements;
- (h) use of the navigational computer;
- (i) aircraft fuel planning, including holding, alternate, fixed reserve, and usage rates;
- (j) visual and instrument flight rules and procedures;
- (k) factors affecting en route performance, range, and endurance;
- (l) critical point and point of no return;
- (m) meteorological considerations for an IFR flight;
- (n) icing conditions and hazards;
- (o) requirements for an alternate aerodrome;
- (p) determine take-off minima for single at aerodromes with and without suitable departure or instrument approach procedures;



- (q) conditions for take-off if a forecast cannot be obtained;
- (r) departure procedures;
- (s) transponder codes;
- (t) when departure track must be established;
- (u) contents of airborne and departure reports, and when these must be made;
- (v) pilot's responsibility in an IFR visual departure;
- (w) procedures for loss of radio communication;
- (x) procedures for abnormal operations and emergencies;
- (y) aerodrome and en route holding procedures;
- (z) IFR cruising levels, selection, and hazards;
- (za) operations, functions, modes, limitations and errors of navigations aids and systems;
- (zb) instrument approach procedure chart;
- (zc) instrument approach procedures and limitations, including the minimum system components required to conduct an approach;
- (zd) correct sector entry join for entering the holding pattern of the approach procedure;
- (ze) tracking tolerance and altitude limitations for flying a published arc of the approach procedure;
- (zf) approach procedure applicable minima for aircraft;
- (zg) conditions under which a circling approach must be discontinued and a missed approach initiated;
- (zh) circling area applicable to the aircraft performance category being flown;
- (zj) when an aircraft may descend below the MDA (day and night);
- (zj) procedure to conduct a missed approach from any nominated point within a circling area on a specified approach;
- (zk) read and interpret a STAR chart;
- (zl) STAR procedures and limitations;
- (zm) pilot's responsibilities when STAR clearance is given or cancelled;
- (zn) applicable instrument approach procedure or visual approach at end of STAR;
- (zo) knowledge of STAR radio procedures;
- (zp) procedures for loss of radio communication during STAR;
- (zq) procedures for abnormal operations and emergencies during STAR, including navigation aid failure;
- (zr) conditions permitting descent below minima;
- (zs) procedure for joining the circuit from an approach procedure;
- (zt) approach procedure missed approach procedure;
- (zu) minimum obstacle clearance criteria during an approach procedure missed approach procedure;
- (zv) knowledge of approach procedure radio procedures;
- (zw) procedures for loss of radio communication during an approach procedure;
- (zx) procedures for abnormal operations and emergencies during an approach procedure, including navigation aid failure, loss of signal integrity and disparity between aids

IAP2 Conduct an instrument approach 2D

1. Unit description

This unit describes the skills and knowledge required to perform a 2D instrument approach operation.



2. Elements and performance criteria

2.1 IAP2.1 – Prepares for approach

- (a) review latest available information for destination;
- (b) conduct navigation system validity check;
- (c) conduct RAIM check if required;
- (d) select and brief current approach chart for the approach to be flown;
- (e) check and confirm navigation aid required for the approach is serviceable.

2.2 IAP2.2 – Conducts initial approach

- (a) set altimeter QNH correctly;
- (b) maneuver aircraft to the holding fix.

2.3 IAP2.3 – Conducts a holding pattern

- (a) from the holding fix enter and perform a holding pattern;
- (b) fly aircraft in accordance with procedure.

2.4 IAP2.4 – Conducts an approach

- (a) update and set Altimeter QNH;
- (b) approach performed correctly and within published tolerances;
- (c) navigation aid signal integrity monitored during approach;
- (d) from the final approach fix to minima aircraft is flown to a stabilized descent profile;
- (e) after establishing visual reference, a visual circling or runway approach is conducted for a landing on the selected runway.

2.5 IAP2.5 – Conducts a missed approach

- (a) conditions requiring a missed approach are recognized and missed approach is initiated;
- (b) aircraft is maneuvered to MAPt;
- (c) missed approach procedure is conducted in accordance with the IAL chart;
- (d) obstacle clearance in IMC or simulated IMC is maintained.

3. Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) tasks may be undertaken in:
 - (i) IMC;
 - (ii) VMC with simulated IMC conditions;
- (c) performance may be demonstrated in:
 - (i) single-engine aircraft;
 - (ii) approved flight simulation training device;
 - (iii) variable air traffic conditions;
 - (iv) variable weather conditions;
 - (v) variable flight situations;
 - (vi) abnormal situations;
 - (vii) differing classes of airspace;
- (d) aircraft may include:
 - (i) fixed wing;

- (ii) other commercial or military aircraft;
- (e) crew may include:
 - (i) single pilot;
- (f) instruments may be:
 - (i) fitted flight instruments suitable for instrument flight;
 - (ii) head up display suitable for instrument flight;
- (g) performance must be demonstrated using azimuth guidance and CDI guidance in the following:
 - (i) tracking;
 - (ii) holding pattern;
 - (iii) approach operations;
 - (iv) missed approach operations;
- (h) limitations may be imposed by:
 - (i) local noise abatement requirements and curfews;
 - (ii) airspace endorsements;
- (i) conditions may include:
 - (i) a method of simulating IMC;
 - (ii) simulated icing conditions;
 - (iii) moderate turbulence;
 - (iv) simulated hazardous weather;
 - (v) autopilot and flight director;
 - (vi) simulation of emergency and abnormal procedures;
- (j) one of the following kinds of 2D instrument approach procedures:
 - (i) NDB;
 - (ii) VOR and LOC;
- (k) approaches may include:
 - (i) NDB;
 - (ii) VOR;
- (l) for an approach — NDB private instrument endorsement, competency must be demonstrated using a non-directional beacon navigation system;
- (m) for an approach — VOR private instrument endorsement, competency must be demonstrated using a VHF omni-range/localizer navigation system;
- (n) for an approach — DME private instrument endorsement, competency must be demonstrated using distance measuring equipment or a global navigation satellite system;

4. Underpinning knowledge of the following:

- (a) instrument approach procedures and limitations;
- (b) sector entry join procedures for entering a holding pattern;
- (c) tracking tolerance and altitude limitations for flying the published approach procedure;
- (d) procedure for joining the circuit from an approach procedure;
- (e) minimum obstacle clearance criteria during a approach procedure and missed approach procedure;
- (f) missed approach procedure for an approach;
- (g) radio procedures during an approach;
- (h) loss of radio communication during an approach procedure;
- (i) abnormal operations and emergencies procedures during an approach, including navigation aid failure;



FLIGHT INSTRUCTOR RATING

FIR Conduct aeronautical knowledge training and flight training

1. Unit description

This unit describes the skills and knowledge required to competently plan, conduct and review aeronautical knowledge training and effectively conduct flight training in an aircraft or flight simulation training device.

2. Elements and performance criteria

2.1 FIR1.1 – Plan training

- (a) confirm trainee readiness for proposed training through review of training records to confirm their competency status;
- (b) identify training objectives based on performance criteria in the manual of standards and operator's training plans;
- (c) identify underpinning knowledge for the units and elements relevant to the lesson and confirm trainee understanding;
- (d) select appropriate training methods to facilitate training objectives and knowledge transfer;
- (e) apply threat and error management into each ground lesson;
- (f) identify potential threats and errors in a flight lesson, including those associated with simulation of abnormal or emergency procedures or aircraft mishandling by trainee, and consider suitable mitigators;
- (g) select appropriate training resources and confirm availability and serviceability of required facilities, equipment, training aids, reference material and the airworthiness of the training aircraft or device.

2.2 FIR1.2 – Conduct aeronautical knowledge training

- (a) establish a learning environment and motivation that suits the trainee's needs;
- (b) clearly state training objectives that are relevant, practical and measurable;
- (c) conduct the lesson following or modifying the lesson plan to achieve training objectives and transfer of knowledge;
- (d) present and link new knowledge to previous knowledge;
- (e) use selected training aids to illustrate and enhance explanations;
- (f) apply appropriate instructional techniques; with instruction to the point using clear and deliberate speech;
- (g) deliver technical knowledge accurately and clearly to the required standard;
- (h) provide opportunities for trainee participation and practice;
- (i) discuss threat and error management issues and ensure application is understood by the trainee;
- (j) confirm training objectives have been achieved by questioning, review and other suitable methods;
- (k) provide feedback on trainee performance;
- (l) develop trainee self-assessment skills;
- (m) complete training objectives in the time available;
- (n) ensure all training is conducted effectively.

2.3 FIR1.3 – Conduct a published instrument departure (all engines)

- (a) confirm the trainee is mentally and physically prepared for flight training;
- (b) brief the trainee on the training outcomes, the associated performance criteria and the actions required of the trainee during the flight;
- (c) link previous training to the current exercise;
- (d) brief the trainee on how the flight will be conducted to meet the training outcomes;
- (e) confirm the trainee's ability to recall the training outcomes, underpinning knowledge, handling technique and planned flight scenario;
- (f) discuss the environmental conditions and their suitability for the training exercise;
- (g) discuss threat and error management issues applicable to the proposed flight and confirm the trainee understands her or his responsibility for managing those issues (airmanship).

2.4 FIR1.4 – Conduct airborne training

- (a) manage responsibilities as pilot in command for the safe operation of the aircraft;
- (b) apply flying techniques and procedures to the competency standards specified for the qualification being trained for whilst occupying the instructor seat;
- (c) demonstrate the task:
 - (i) introduce tasks in manageable portions without trainee overload;
 - (ii) make clear, concise and systematic explanations;
 - (iii) coordinate demonstration with explanation of maneuver;
 - (iv) make coordinated control inputs without abrupt maneuvering, using accepted techniques;
 - (v) demonstrate the maneuver to the competency standards specified in this manual for a commercial pilot.
- (d) direct the task :
 - (i) implement handover and takeover procedures for control of the aircraft;
 - (ii) provide direction appropriate to the trainee's progress;
 - (iii) provide instructions in a clear, concise and timely manner;
 - (iv) provide sufficient practice for the trainee to achieve the task;
 - (v) intervene only to the extent necessary to assist the trainee's progress or to maintain safety.
- (e) monitor the task (unassisted practice):
 - (i) identify the trainee's deficiencies and provide feedback to assist the trainee in achieving the standard;
 - (ii) provide and vary additional instruction and demonstration as necessary to assist trainee;
 - (iii) ensure remedial training is effective such that errors are corrected;
 - (iv) encourage the trainee to develop self-assessment skills;
 - (v) note training events for debriefing and assessment.
- (f) intervene to recover the aircraft if the trainee does not manage an undesired aircraft state;
- (g) develop the trainee's responsibility through the application of human factors principles for threat and error management.

2.5 FIR1.5 Conduct post-flight briefing

- (a) encourage the trainee to self-assess performance against the performance criteria;
- (b) describe clearly and accurately, significant details of the trainee's performance and assess the trainee's achievement against the training outcomes for the lesson and associated performance criteria;
- (c) identify any deficiencies in performance and suggest remedial actions and training;
- (d) discuss threat and error management issues encountered during the flight;
- (e) brief the trainee on the details of the next training exercise;



2.6 FIR1.6 – Complete post-training administration

- (a) record achievement, or otherwise, of competency, any remedial training required and identify content of the next training exercise;
- (b) complete administration procedures required for issue of an endorsement or military equivalent where applicable.
- (c) inform relevant staff of the trainee's performance and results where required;
- (d) review effectiveness of training and identify any adjustments to delivery, presentation and content for improvement, and discuss with appropriate stakeholders.

FIR2 Range of variables

- (a) activities are performed in accordance with published procedures;
- (b) flight training includes training for the issue of a flight crew license, rating or endorsement using a suitable training aircraft or approved flight simulation training device;
- (c) flight training includes the units and elements authorized by the flight training endorsement(s) held by the instructor;
- (d) aeronautical knowledge training, including pre- and post-flight briefings, is provided to support the flight training units and elements;
- (e) flight training and aircraft operation is conducted in accordance with regulatory requirements and safe operational practices and includes administrative procedures associated with authorizing and recording flight training and maintaining training records;
- (f) suitable learning resources may be used to assist the presentation, including audio visual aids, aircraft models, synthetic training devices, regulatory publications and aircraft and operations manuals;

FIR3 Foundation of knowledge

- (a) relevant sections of Civil Aviation Safety Regulations;
- (b) principles and methods of instruction
- (c) the process of making an objective assessment against a standard;
- (d) provision of evidence of competency in performing as a flight crew member
- (e) terms used in respect of the evidence used to determine an individual's competency against a standard
- (f) the different forms of assessment and application in flight training
- (g) the requirements for assessing consistency of performance of flight crew standards;
- (h) the differences in standards for consistency of performance at different license levels;
- (i) the application of the range of variables in making an assessment.
- (j) performing and learning complex skills, including cognitive and developmental issues and observational learning;
- (k) the levels of situational awareness and methods of developing and monitoring trainees situation awareness skills
- (l) rate of learning, enforced automaticity and the foundations of expertise;
- (m) instructor professionalism, including interpersonal skills, implications of being a role-model, self-reflection and self-managed professional development;
- (n) effective use of a course of training, curricula and syllabus and lesson plans;
- (o) training and assessment standards;
- (p) debriefing and feedback techniques;



- (q) transfer of control
- (r) principles of flight;
- (s) crew resource management (CRM) principles;
- (t) techniques for introducing tasks in manageable segments to avoid overloading a trainee and principles for integrating task segments;
- (u) appropriate use of scenario-based training in flight instruction;
- (v) application of risk management principles to emergency procedure simulations in flight;
- (w) checklists for single-pilot or multi-crew operations as applicable;
- (x) common student errors and suggested suitable remedial instruction;
- (y) obstacles to learning associated with flight training
- (z) operational concept of threat and error management in relation to flight training
- (aa) procedures and strategies for developing trainee threat and error management skills;
- (bb) task prioritization system to assist the development of trainee task management skills
- (cc) suitable procedures for making decisions in-flight and for developing trainee decision-making skills;
- (dd) goal fixation effects on good decision making;
- (ee) Stress management
- (ff) completing relevant documentation;