**APPENDICES**

**Table of Content**

**APPENDIX 1. Aeroplanes . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 3**

**APPENDIX 2. Helicopters . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 21**

**APPENDIX 3. MPL, IR Courses . . . . . . . . . . . . . . . . . . . . . . . . . 41**

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**APPENDIX 1. AEROPLANES**

***AMC 1.*  to Appendix 3. Training Courses for the issue of a CPL and an ATPL**

*GENERAL*

a ) When ensuring that the applicant complies with the prerequisites for the course, in accordance with ORA. ATO. 145, the ATO should check that the applicant has enough knowledge of mathematics, physics and English to facilitate the understanding of the theoretical knowledge instruction content of the course ;

b ) Whenever reference is made to a certain amount of hours of training, this means a full hour. Time not directly assigned to training *( such as breaks, etc.. )* is not to be counted towards the total amount of time that is required.

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**A. ATP Integrated Course : *Aeroplanes***

a ) The ATP Integrated Course should last between 12 and 36 months.

This period may be extended where additional flying training or ground instruction is provided by the ATO.

*CREDITING*

b ) Credit for previous experience given to an applicant who already holds a PPL should be entered into the applicant’s training record.

In the case of a student - pilot who does not hold a pilot licence and with the approval of the GDCA of RA, an ATO may designate certain dual exercises to be flown in a helicopter or a TMG up to a maximum of 20 hours.

*THEORETICAL KNOWLEDGE*

c ) The **750 hours** of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the GDCA, in suitable proportions ;

The 750 hours of instruction should be divided in such a way that in each subject the minimum hours are :

1 ) Air Law 40 hours ;

2 ) Aircraft General Knowledge 80 hours ;

3 ) Flight Performance and Planning 90 hours ;

4 ) Human Performance and Limitations 50 hours ;

5 ) Meteorology 60 hours ;

6 ) Navigation 150 hours ;

7 ) Operational Procedures 20 hours ;

8 ) Principles of Flight 30 hours ;

9 ) Communications 30 hours.

Other subdivision of hours may be agreed upon between the GDCA and the ATO.

*FLYING TRAINING*

d ) The Flying Instruction is divided *into* ***5***  *( five ) Phases* :

(1) **Phase 1 :**

Exercises up to the first solo flight comprise *a total of at least* ***10*** *hours dual flight instruction* on an **SE** aeroplane including :

( i ) pre - flight operations, mass and balance determination, aeroplane inspection and servicing ;

( ii ) aerodrome and traffic pattern operations, collision avoidance and precautions ;

( iii ) control of the aeroplane by external visual references ;

( iv ) normal Take-offs and Landings ;

( v ) flight at critically low air speeds, recognition of recovery from incipient and full stalls, spin avoidance ;

( vi ) unusual attitudes and simulated engine failure.

(2) **Phase 2 :**

Exercises up to the first solo cross - country flight comprise *a total of at least* ***10*** *hours* of dual flight instruction and *at least* ***10*** *hours solo flight* including :

( i ) maximum performance *( short field and obstacle clearance )* take - offs and short - field landings ;

( ii ) flight by reference solely to instruments, including the completion of a 180 ° turn ;

( iii ) dual cross-country flying using external visual references, DR *( Dead Reckoning )* and radio navigation aids, diversion procedures ;

( iv ) aerodrome and traffic pattern operations at different aerodromes ;

( v ) crosswind take - offs and landings ;

( vi ) abnormal and emergency procedures and maneuvers, including simulated aeroplane equipment malfunctions ;

( vii ) operations to, from and transiting controlled aerodromes, compliance with ATS procedures, R / T procedures and phraseology ;

( viii ) knowledge of meteorological briefing arrangements, evaluation of weather conditions for flight and use of AIS.

(3) **Phase 3 :**

Exercises up to the VFR navigation progress test comprise a *total of at least* ***5*** *hours of dual instruction*  and *at least* ***40***  *hours as PIC*.

The dual instruction and testing up to the VFR navigation progress test should comprise :

( i ) repetition of exercises of phases 1 and 2 ;

( ii ) VFR flight at relatively critical high air speeds, recognition of and recovery from spiral dives ;

( iii ) VFR navigation progress test conducted by an FI not connected with the applicant’s training ;

( iv ) night flight time including take-offs and landings as PIC.

(4) **Phase 4 :**

Exercises up to the Instrument Rating Skill Test comprise :

( i ) at least ***55***  *hours Instrument Flight*, which may contain *up to* ***25***  *hours* of instrument ground time in an FNPT I or *up to* ***40*** *hours* in an FNPT II or FFS which should be conducted by an FI or an authorized SFI ;

( ii ) ***20***  *hours Instrument Time* flown as SPIC ;

( iii ) pre - flight procedures for IFR flights, including the use of the Flight Manual and appropriate ATS documents in the preparation of an IFR flight plan ;

( iv ) procedures and maneuvers for IFR operation under normal, abnormal and emergency conditions covering at least :

(A) transition from visual to instrument flight on Take - off ;

(B) SID’s and STAR’s / arrivals ;

(C) en - route IFR procedures ;

(D) holding procedures ;

(E) instrument approaches to specified minima ;

(F) missed approach procedures ;

(G) landings from instrument approaches, including circling.

( v ) in - flight maneuvers and specific flight characteristics ;

( vi ) operation of an ME aeroplane in the exercises of *( iv ),* including operation of the aeroplane solely by reference to instruments with one engine simulated inoperative, and engine shut-down and restart *( the latter training should be at a safe altitude unless carried out in an FSTD ).*

(5) **Phase 5 :**

( i ) instruction and testing in MCC comprise the relevant training requirements ;

( ii ) if a Type Rating for MP aeroplanes is not required on completion of this part, the applicant will be provided with a Certificate of course completion for MCC Training.

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**B. ATP Modular Theoretical Knowledge Course : *Aeroplanes***

a ) The aim of this course is to train pilots who have not received the theoretical knowledge instruction during an integrated course to the level of theoretical knowledge required for the ATPL ;

b ) An approved course should include formal classroom work and may include the use of such facilities as interactive video, slide or tape presentation, learning carrels and computer-based training and other media distance learning *( correspondence )* courses as approved by the GDCA of RA. Approved distance learning ( correspondence ) courses may also be offered as part of the course ;

c ) The ATP Modular Course should *last* ***18*** *months.*

This period may be extended where additional training is provided by the ATO. The flight instruction and skill test need to be completed within the period of validity of the pass in the theoretical examinations.

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**C. CPL / IR Integrated Course : *Aeroplanes***

a ) The CPL / IR Integrated Course should last between 9 and 30 months. This period may be extended where additional flying training or ground instruction is provided by the ATO.

*CREDITING*

b) Credit for previous experience given to an applicant who already holds a PPL should be entered into the applicant’s training record. In the case of a student - pilot who does not hold a pilot licence and with the approval of the GDCA, an ATO may designate certain dual exercises to be flown in a helicopter or a TMG up to a maximum of 20 hours.

*THEORETICAL KNOWLEDGE*

c ) The **500** hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the GDCA, in suitable proportions.

The **500** hours of instruction should be divided in such a way that in each subject the minimum hours are :

1 ) Air Law 30 hours ;

2 ) Aircraft General Knowledge 50 hours ;

3 ) Flight Performance and Planning 60 hours ;

4 ) Human Performance and Limitations 15 hours ;

5 ) Meteorology 40 hours ;

6 ) Navigation 100 hours ;

7 ) Operational Procedures 10 hours ;

8 ) Principles of Flight 25 hours ;

9 ) Communications 30 hours.

Other subdivisions of hours may be agreed upon between the GDCA and the ATO.

*FLYING TRAINING*

d ) The flying instruction is divided *into* ***4***  *( four ) Phases* :

(1) **Phase 1 :**

Exercises up to the first solo flight comprise a total of *at least* ***10*** *hours dual flight instruction*  on an SE aeroplane, including :

( i ) pre-flight operations, mass and balance determination, aeroplane inspection and servicing ;

( ii ) aerodrome and traffic pattern operations, collision avoidance and precautions ;

( iii ) control of the aeroplane by external visual references ;

( iv ) normal Take - offs and Landings ;

( v ) flight at critically low air speeds, recognition of and recovery from incipient and full stalls, spin avoidance ;

( vi ) unusual attitudes and simulated engine failure.

(2) **Phase 2 :**

Exercises up to the first solo cross-country flight comprise *a total of at least* ***10*** *hours of dual flight instruction* and *at least* ***10***  *hours solo flight* including :

( i ) maximum performance *( short field and obstacle clearance )* Take- offs and short-field Landings ;

( ii ) flight by reference solely to instruments, including the completion of a 180 ° turn ;

( iii ) dual cross-country flying using external visual references, DR and radio navigation aids, diversion procedures ;

( iv ) aerodrome and traffic pattern operations at different aerodromes ;

( v ) crosswind take-offs and landings ;

( vi ) abnormal and emergency operations and maneuvers, including simulated aeroplane equipment malfunctions ;

( vii ) operations to, from and transiting controlled aerodromes, compliance with ATS procedures, R / T procedures and phraseology ;

( viii ) knowledge of meteorological briefing arrangements, evaluation of weather conditions for flight and use of AIS.

(3) **Phase 3 :**

Exercises up to the VFR navigation progress test comprise *a total of at least* ***5*** *hours of instruction* and *at least* ***40***  *hours as PIC*.

The dual instruction and testing up to the VFR navigation progress test and the skill test should contain the following :

( i ) repetition of exercises of *Phases 1* and *2* ;

( ii ) VFR flight at relatively critical high air speeds, recognition of and recovery from spiral dives ;

( iii ) VFR navigation progress test conducted by an FI not connected with the applicant’s training ;

( iv ) night flight time including take-offs and landings as PIC.

(4) **Phase 4 :**

Exercises up to the Instrument Rating Skill Test comprise :

( i ) at least 55 hours Instrument Time, which may contain *up to* ***25*** *hours of Instrument Ground Time* in an FNPT I or *up to* ***40*** *hours* in an FNPT II or FFS which should be conducted by an FI or an authorized SFI ;

( ii ) ***20*** *hours Instrument Time* flown as SPIC ;

( iii ) pre-flight procedures for IFR flights, including the use of the Flight Manual and appropriate ATS documents in the preparation of an IFR flight plan ;

( iv ) procedures and maneuvers for IFR operation under normal, abnormal and emergency conditions covering at least:

(A) transition from visual to instrument flight on take - off ;

(B) SID’s and STAR’s / arrivals ;

(C) en - route IFR procedures ;

(D) holding procedures ;

(E) instrument approaches to specified minima ;

(F) missed approach procedures ;

(G) landings from instrument approaches, including circling.

( v ) in - flight maneuvers and particular flight characteristics ;

( vi ) operation of either an SE or an ME aeroplane in the exercises of *( iv ),* including in the case of an ME aeroplane operation of the aeroplane solely by reference to instruments with one engine simulated inoperative and engine shut-down and restart. The latter exercise is to be conducted at a safe altitude unless carried out in an FSTD.

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**D. CPL Integrated Course : *Aeroplanes***

a ) The CPL Integrated Course should last between 9 and 24 months.

This period may be extended where additional flying training or ground instruction is provided by the ATO.

*CREDITING*

b ) Credit for the hours flown should be entered into the applicant’s training record. In the case of a student - pilot who does not hold a pilot licence and with the approval of the GDCA of RA, an ATO may designate certain dual exercises to be flown in a helicopter or a TMG up to a maximum of 20 hours.

*THEORETICAL KNOWLEDGE*

c ) The **350** hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the GDCA, in suitable proportions.

*FLYING TRAINING*

d ) The flying instruction is divided into ***4***  *( four ) Phases* :

(1) **Phase 1 :**

Exercises up to the first solo flight comprise a total of *at least* ***10*** *hours dual flight instruction* on an SE aeroplane, including :

( i ) pre-flight operations, mass and balance determination, aeroplane inspection and servicing ;

( ii ) aerodrome and traffic pattern operations, collision avoidance and precautions ;

( iii ) control of the aeroplane by external visual references ;

( iv ) normal take-offs and landings ;

( v ) flight at relatively slow air speeds, recognition of and recovery from incipient and full stalls, spin avoidance ;

( vi ) unusual attitudes and simulated engine failure.

(2) **Phase 2 :**

Exercises up to the first solo cross-country flight comprise a total of *at least* ***10*** *hours of dual flight instruction and at least* ***10*** *hours solo flight* including :

( i ) maximum performance ( short field and obstacle clearance ) take- offs and short-field landings ;

( ii ) flight by reference solely to instruments, including the completion of a 180 ° turn ;

( iii ) dual cross-country flying using external visual references, DR and radio navigation aids, diversion procedures ;

( iv ) aerodrome and traffic pattern operations at different aerodromes ;

( v ) crosswind take-offs and landings ;

( vi ) abnormal and emergency procedures and maneuvers, including simulated aeroplane equipment malfunctions ;

( vii ) operations to, from and transiting controlled aerodromes, compliance with ATS procedures, R / T procedures and phraseology ;

( viii ) knowledge of meteorological briefing arrangements, evaluation of weather conditions for flight and use of AIS.

(3) **Phase 3 :**

Exercises up to the VFR navigation progress test comprise a total of *at least* ***30*** *hours instruction and at least* ***58*** *hours as PIC*, including :

a ) *at least* ***10***  *hours Instrument Time*, which *may contain* ***5***  *hours of Instrument Ground Time* in an FNPT or an FFS and should be conducted by an FI or an authorized SFI ;

b ) repetition of exercises of *Phases 1* and *2,* which should include *at least* ***5*** *hours* in an aeroplane certificated for the carriage of at least four persons and have a variable pitch propeller and retractable landing gear ;

c ) VFR flight at relatively critical high air speeds, recognition of and recovery from spiral dives ;

d ) night flight time including take-offs and landings as PIC.

(4) **Phase 4 :**

The Dual Instruction and Testing up to the CPL ( A ) Skill Test contain the following :

( i ) up to 30 hours instruction which may be allocated to specialized aerial work training ;

( ii ) repetition of exercises in Phase 3, as required ;

( iii ) in - flight maneuvers and particular flight characteristics ;

( iv ) ME training.

If required, operation of an ME aeroplane including operation of the aeroplane with one engine simulated inoperative, and engine shutdown and restart *( the latter exercise at a safe altitude unless carried out in an FSTD ).*

**E. CPL Modular Course : *Aeroplanes***

a ) The CPL Modular Course should last 18 months.

This period may be extended where additional training is provided by the ATO.

The flight instruction and Skill Test need to be completed within the period of validity of the pass in the theoretical examinations ;

b ) An approved course should include formal classroom work and may include the use of such facilities as interactive video, slide or tape presentation, learning carrels and computer-based training and other media distance learning *( correspondence )* courses as approved by the GDCA of RA. Approved distance learning *( correspondence )* courses may also be offered as part of the course.

*THEORETICAL KNOWLEDGE*

(c) The 250 hours of instruction can include classroom work, interactive video, slide or tape presentation, learning carrels, computer-based training, and other media as approved by the competent authority, in suitable proportions.

*FLYING TRAINING*

d ) The following flight time is suggested for the flying training :

|  |  |  |  |
| --- | --- | --- | --- |
| **N 0** | **Exercise**  **N 0** | **Training Item** | **Suggested**  **Flight**  **Time** |
| **1.** | **Visual Flight Training :** | |  |
| ***Exercise 1*** | | Pre-flight operations : mass and balance determination, aeroplane inspection and servicing. | - |
| ***Exercise 2*** | | Take-off, traffic pattern, approach and landing, use of Checklist, collision avoidance and Checking procedures. | **0 : 45** *hours* |
| ***Exercise 3*** | | Traffic patterns : simulated engine failure during and after  take - off. | **0 : 45** *hours* |
| ***Exercise 4*** | | Maximum performance *( short field and obstacle clearance )*  take - offs and short - field landings. | **1 : 00** *hours* |
| ***Exercise 5*** | | Crosswind take - offs, landings and Go - around’s. | **1 : 00** *hours* |
| ***Exercise 6*** | | Flight at relatively critical high air speeds :  recognition of and recovery from spiral dives. | **0 : 45** *hours* |
| ***Exercise 7*** | | Flight at critically slow air speeds, spin avoidance, recognition of and recovery from incipient and full stalls. | **0 : 45** *hours* |
| ***Exercise 8*** | | Cross - country flying using DR and radio navigation aids ; flight planning by the applicant ; filing of ATC flight plan ; evaluation of weather briefing documentation, NOTAM, etc..; R / T  procedures and phraseology ; positioning by radio navigation aids; operation to, from and transiting controlled aerodromes, compliance with ATS procedures for VFR flights, simulated radio communication failure, weather deterioration, diversion procedures; simulated engine failure during cruise flight ; selection of an emergency landing strip. | **10 : 00** *hours* |
| **2.** | **Instrument Flight Training :** | |  |
| **2.1** | *This module is identical to the 10 hours basic instrument flight module as set out in AMC 2 to Appendix 6. This module is focused on the basics of flying by sole reference to instruments, including limited panel and unusual attitudes.* | | |
| **2.2** | *All exercises may be performed in an FNPT I or II or an FFS. If Instrument Flight Training is in VMC, a suitable means of simulating IMC for the student should be used.* | | |
| **2.3** | *A BITD may be used for the following exercises : ( 9 ), ( 10 ), ( 11 ), ( 12 ), ( 14 ) and ( 16 ).* | | |
| **2.4** | *The use of the BITD is subject to the following :*  *a. the training is complemented by exercises on an aeroplane*  *b. the record of the parameters of the flight is available*  *c. an FI ( A ) or IRI ( A ) conducts the instruction* | | |
| ***Exercise 9*** | | Basic instrument flying without external visual cues ; horizontal flight ; power changes for acceleration or deceleration, maintaining straight and level flight ; turns in level flight with 15 ° and 25 ° bank, left and right ; roll - out onto predetermined headings. | **0 : 30** *hours* |
| ***Exercise 10*** | | Repetition of *Exercise* ***9*** ; additionally climbing and descending, maintaining heading and speed, transition to horizontal flight ; climbing and descending turns. | **0 : 45** *hours* |
| ***Exercise 11*** | | Instrument Pattern : | **0 : 45** *hours* |
| a | start exercise, decelerate to approach speed, flaps into approach configuration | |
| b | initiate standard turn *( left or right )* | |

|  |  |  |  |
| --- | --- | --- | --- |
| **N 0** | **Exercise**  **N 0** | **Training Item** | **Suggested**  **Flight**  **Time** |
| ***Exercise 11*** | | Instrument Pattern / cont ‘ d / |  |
| c | roll out on opposite heading, maintain new heading for 1 minute | |
| d | standard turn, gear down, descend 500 ft / min | |
| e | roll out on initial heading, maintain descent ( 500 ft / min ) and new heading for 1 minute | |
| f | transition to horizontal flight, 1.000 ft below initial flight level | |
| g | initiate Go - around | |
| h | climb at best rate of climb speed | |
| ***Exercise 12*** | | Repetition of *Exercise* ***9***  and steep turns with 45° bank ;  recovery from unusual attitudes. | **0 : 45** *hours* |
| ***Exercise 13*** | | Repetition of *Exercise* ***12*** | **0 : 45** *hrs* |
| ***Exercise 14*** | | Radio navigation using VOR, NDB or, if available, VDF ; interception of predetermined QDM and QDR. | **0 : 45**  *hours* |
| ***Exercise 15*** | | Repetition of *Exercise* ***9***  and recovery from unusual attitudes. | **0 : 45** *hrs* |
| ***Exercise 16*** | | Repetition of *Exercise* ***9*,** turns and level change and recovery from unusual attitudes with simulated failure of the artificial horizon or directional gyro. | **0 : 45**  *hours* |
| ***Exercise 17*** | | Recognition of, and recovery from, incipient and full stalls. | **0 : 45** *hrs* |
| ***Exercise 18*** | | Repetition of *Exercises (14 ), ( 16 )* and *( 17 ).* | **3 : 30** *hrs* |
| **3.** | **ME Training** | |  |
|  | *If required, operation of an ME aeroplane in the Exercises* ***1*** *through* ***18****, including operation of the aeroplane with one engine simulated inoperative, and engine shutdown and restart. Before commencing training, the applicant should have complied with the Type and Class Ratings requirements as appropriate to the aeroplane used for the Test.* | | |

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