



Republic of the Philippines

CIVIL AVIATION REGULATIONS (CAR)

PART 3

APPROVED TRAINING ORGANIZATIONS

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Republic of the Philippines
Department of Transportation and Communications

CIVIL AVIATION AUTHORITY OF THE PHILIPPINES

1300 MIA Road, Pasay City, Metro Manila
www.caap.gov.ph

BOARD RESOLUTION NO. 2011-025

WHEREAS, the Civil Aviation Authority of the Philippines (CAAP) was created by virtue of Republic Act 9497 which took effect on 23 March 2008;

WHEREAS, under Section 23, paragraph (j) of the same law, the Board is empowered to promulgate rules and regulations as may be necessary in the interest of safety in air commerce pertaining to the issuance of the airman's certificate including the licensing of operating and mechanical personnel, type certificate for aircraft, aircraft engines, propellers and appliances, airworthiness certificates, air carrier operating certificates, air agency certificates, navigation facility and aerodrome certificates; air traffic routes; radio and aeronautical telecommunications and air navigation aids; aircraft accident inquiries; aerodromes, both public and private-owned; construction of obstructions to aerodromes; height of buildings, antennae and other edifices; registration of aircraft; search and rescue; facilitation of air transports; operations of aircraft, both for domestic and international, including scheduled and non-scheduled; meteorology in relation to civil aviation; rules of the air; air traffic services; rules for prevention of collision of aircraft, identification of aircraft; rules for safe altitudes of flight; and such other rules and regulations, standards, governing other practices, methods and/or procedures as the Director General may find necessary and appropriate to provide adequately for safety regularity and efficiency in air commerce and air navigation;

WHEREAS, in the October 2009 ICAO-USOAP and 2010 EASA Audits, it was noted that portion of the Philippine Civil Aviation Regulations (PCAR) of 2008 is outdated and requires amendments/revisions;

WHEREAS, the CAAP Board of Directors, in its 03 March 2011 Board Meeting, approved the request of the Director General to initiate amendments and or revision of the Philippine Civil Aviation Regulations of 2008, subject to public consultations/hearings;

WHEREAS, the proposed PCARs cover the following regulatory/oversight functions:

Part I	General Policies, Procedures, Definitions
Part II	Personnel Licensing
Part III	Approved Training Organizations
Part IV	Aircraft Registration and Markings

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OF THE PHILIPPINES**
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[Signature] 05-27-2011
AIDA S. ROMULO
Chief, Central Records
and Archives Division

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W. Romulo 05-27-24
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Part V	Airworthiness
Part VI	Approved Maintenance Organizations
Part VII	Instruments and Organization
Part VIII	Operations
Part IX	Air Operator Certification and Administration
Part X	Commercial Air Transport by Foreign Air Carriers within Republic of the Philippines
Part XI	Aerial Work and Non-certificated Aircraft: Operating Limitations

WHEREAS, the Board finds the 2011 Revised Philippine Civil Aviation Regulation (PCAR) sufficient in form and substance, and fully comply with the standards set forth by FAA/ICAO/EASA;

WHEREFORE, RESOLVE, as it is hereby **RESOLVED**, that the 2011 Revised Philippine Civil Aviation Regulations Parts I to XI be **APPROVED**, and shall be valid and effective upon completion of the requisite publication and a copy filed with the University of the Philippines Law Center-Office of the National Administrative Register (UP-ONAR);

RESOLVED further that the Director General shall fully implement the approved 2011 Revised PCAR Parts I to XI with the accompanying information campaign to the Philippine civil aviation industry.

Adopted this 11th day of April 2011 at the Department of Transportation and Communications, Columbia Tower, Mandaluyong City.

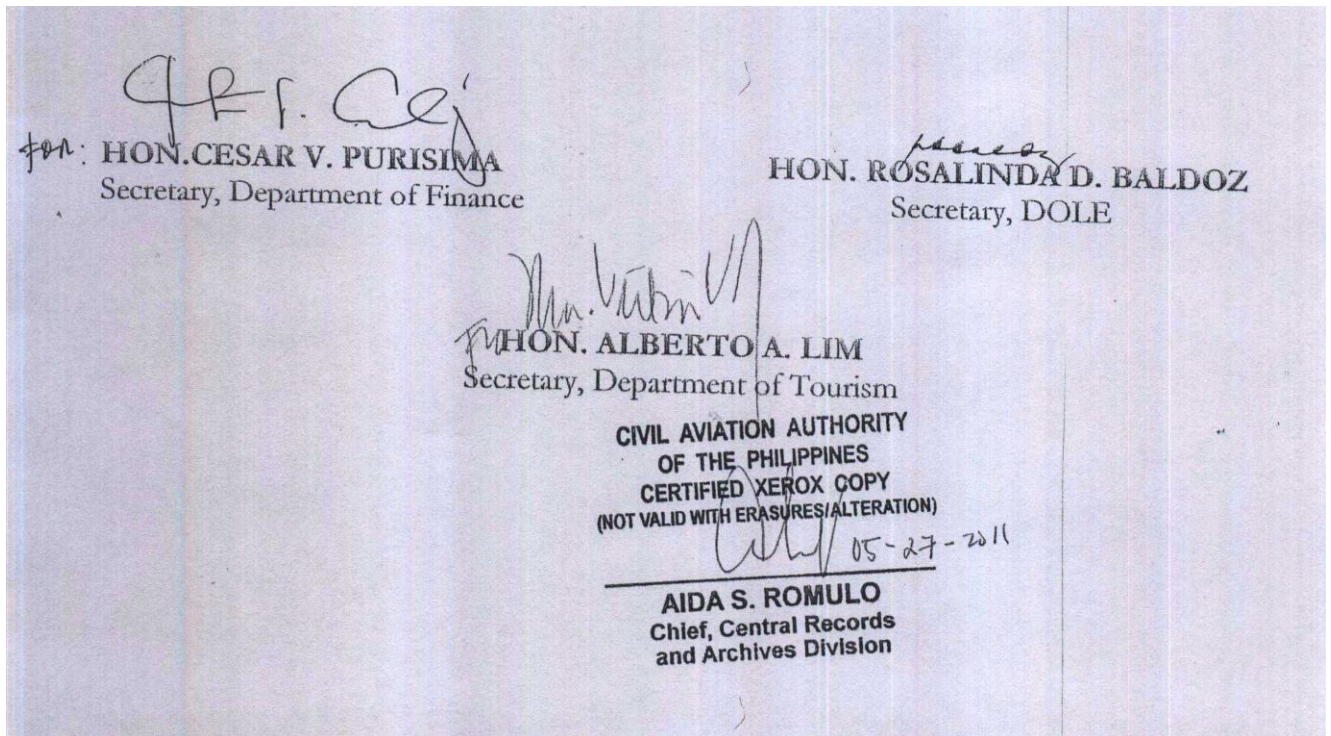
HON. JOSE P. DE JESUS
Chairman/Secretary, DOTC

Jose P. de Jesus
HON. RAMON S. GUTIERREZ
Vice-Chairman/Director General, CAAP

HON. LEILA M. DE LIMA
Secretary, Department of Justice

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Secretary, Department of Foreign Affairs

HON. JESSE M. ROBREDO
Secretary, DILG



RECORD OF AMENDMENTS

Amendment No.	Date	Subject	Incorporated By
Initial Issue	23 June 2008		Ruben F. Ciron
First Amendment	21 March 2011	3.2.1 Flight Crew Training Courses	Ramon S. Gutierrez
Second Amendment	01 August 2013	Inserted vertical bars on the previous amendments	LT GEN William K Hotchkiss III AFP (Ret)

LIST OF EFFECTIVE PAGES

Part	Page	Amendment No.	Page Date
Part 3 Approved Training Organizations			
Cover Page	i	Amendment 01	21 March 2011
Board Resolution	iii – v	Amendment 01	21 March 2011
Record of Amendments	vi	Amendment 02	01 August 2013
List of Effective Pages	vii – viii	Amendment 02	01 August 2013
Table of Contents	ix – xi	Original Issue	23 June 2008
Introduction			
Page			
	3.1-1	Original Issue	23 June 2008
	3.1-2	Original Issue	23 June 2008
	3.1-3	Original Issue	23 June 2008
	3.1-4	Original Issue	23 June 2008
	3.1-5	Original Issue	23 June 2008
	3.1-6	Original Issue	23 June 2008
	3.2-1	Amendment 01	21 March 2011
	3.2-2	Amendment 01	21 March 2011
	3.2-3	Original Issue	23 June 2008
	3.2-4	Original Issue	23 June 2008
	3.3-1	Original Issue	23 June 2008
	3.3-2	Original Issue	23 June 2008
	3.3-3	Original Issue	23 June 2008
	3.3-4	Original Issue	23 June 2008
	3.4-1	Original Issue	23 June 2008
	3.4-2	Original Issue	23 June 2008
	3.4-3	Original Issue	23 June 2008
	3.4-4	Original Issue	23 June 2008
	IS-1	Original Issue	23 June 2008
	IS-2	Original Issue	23 June 2008
	IS-3	Original Issue	23 June 2008
	IS-4	Original Issue	23 June 2008

	IS-5	Original Issue	23 June 2008
	IS-6	Original Issue	23 June 2008
	IS-7	Original Issue	23 June 2008
	IS-8	Original Issue	23 June 2008
	IS-9	Original Issue	23 June 2008
	IS-10	Original Issue	23 June 2008
	IS-11	Original Issue	23 June 2008
	IS-12	Original Issue	23 June 2008
	IS-13	Original Issue	23 June 2008
	IS-14	Original Issue	23 June 2008
	IS-15	Original Issue	23 June 2008
	IS-16	Original Issue	23 June 2008
	IS-17	Original Issue	23 June 2008
	IS-18	Original Issue	23 June 2008
	IS-19	Original Issue	23 June 2008
	IS-20	Original Issue	23 June 2008
	IS-21	Original Issue	23 June 2008
	IS-22	Original Issue	23 June 2008
	IS-23	Original Issue	23 June 2008
	IS-24	Original Issue	23 June 2008
	IS-25	Original Issue	23 June 2008
	IS-26	Original Issue	23 June 2008
	IS-27	Original Issue	23 June 2008
	IS-28	Original Issue	23 June 2008

TABLE OF CONTENTS

3.1	GENERAL.....	3.1-1
3.1.1	General.....	3.1-1
3.1.1.1	Applicability.....	3.1-1
3.1.1.2	Definitions.....	3.1-1
3.1.1.3	Abbreviations.....	3.1-1
3.1.2	Certification and local requirements.....	3.1-2
3.1.2.1	General.....	3.1-2
3.1.2.2	Application for issuance or amendment of an ATO certificate.....	3.1-2
3.1.2.3	Validity of the certificate and renewal.....	3.1-3
3.1.2.4	Inspection.....	3.1-4
3.1.2.5	Renewal of the certificate.....	3.1-4
3.1.2.6	Suspension or revocation.....	3.1-4
3.1.2.7	Facilities, equipment and material.....	3.1-4
3.1.2.8	Location.....	3.1-5
3.1.2.9	Satellite ATOs.....	3.1-5
3.1.2.10	Changes Requiring notice to the authority.....	3.1-5
3.2	TRAINING FOR FLIGHT CREW LICENSE AND RATINGS.....	3.2-1
3.2.1	Flight crew training courses.....	3.2-1
3.2.2	Personnel.....	3.2-2
3.2.3	Record Keeping.....	3.2-2
3.2.4	Training program and approval.....	3.2-2
3.2.5	Training aircraft.....	3.2-3
3.2.6	Synthetic flight trainers.....	3.2-3
3.2.7	Airports and sites.....	3.2-3
3.2.8	Training facilities.....	3.2-4
3.2.9	Training manual and procedures manual.....	3.2-4
3.3	TRAINING FOR LICENSES AND RATINGS FOR AVIATION MAINTENANCE, AIR TRAFFIC CONTROLLERS, FLIGHT OPERATIONS OFFICERS AND AERONAUTICAL STATION OPERATORS.....	3.3-1
3.3.1	Applicability.....	3.3-1
3.3.2	Training courses for licenses and rating for aviation maintenance, air traffic, Controllers, flight operations officers and aeronautical station officers.....	3.3-1

3.3.3	Personnel.....	3.3-1
3.3.4	Record keeping.....	3.3-1
3.3.5	Training program and approval.....	3.3-2
3.3.6	Training facilities, equipment and material for aviation maintenance (AM) Courses.....	3.3-2
3.3.7	Training , equipment and material for Air Traffic controller, flight operations officer and aeronautical station operator courses.....	3.3-3
3.3.8	Training manual and procedures manual.....	3.3-3
3.4	AMT TRAINING COURSE.....	3.4-1
3.4.1	Applicability.....	3.4-1
3.4.2	AMTtraining courses.....	3.4-1
3.4.3	General Curriculum Requirements.....	3.4-1
3.4.4	AMT Training Program Providers.....	3.4-2
3.4.5	Instructor Requirements.....	3.4-2
3.4.6	Attendance and Credit for Prior Instruction or Experience.....	3.4-2
IS 3.1.2.2	APPENDIX A – Application for Issuance or Amendment of an ATO Certificate.....	IS-2
IS 3.1.2.2	APPENDIX B: Quality System.....	IS-2
IS 3.1.2.2	APPENDIX C: Guidance Materials for Quality System.....	IS-2
IS 3.1.2.2	APPENDIX D: Aviation Training Organization Certificate.....	IS-10
IS 3.1.2.4	APPENDIX A: Section.....	IS-11
IS 3.1.2.4	APPENDIX B: Inspection Report.....	IS-11
IS 3.1.2.5	Renewal.....	IS-13
IS 3.2.2	APPENDIX A: Head of Training.....	IS-13
IS 3.2.2	APPENDIX B: Chief Flight Instructor.....	IS-13
IS 3.2.2	APPENDIX C: Instructor for Training for License and Rating.....	IS-14
IS 3.2.2	APPENDIX D: Instructors for Additional Class or Type Rating.....	IS-14
IS 3.2.2	APPENDIX E : Instructors for Synthetic Flight Training.....	IS-14
IS 3.2.2	APPENDIX F: Instructors for Flight Engineer License and/or Ratings.....	IS-14
IS 3.2.2	APPENDIX G: Chief Ground Instructor (CGI).....	IS-14
IS 3.2.2	APPENDIX H: Ground instructors.....	IS-15
IS 3.2.4	Flight crew Training Courses.....	IS-15
IS 3.2.7	Airports and Sites.....	IS-15
IS 3.2.9	APPENDIX A: Training Manual.....	IS-16

IS 3.2.9	APPENDIX B: Procedures Manual.....	IS-17
IS 3.4.3	AM Airframe and/or Powerplant and/or Avionics Ratings.....	IS-19

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3.1 GENERAL**3.1.1 GENERAL****3.1.1.1 APPLICABILITY**

Part 3 prescribes the requirements governing the certification of Aviation Training Organizations.

3.1.1.2 DEFINITIONS

(a) For the purpose of Part 3, the definitions in the Law, in Part 1 and 2 and the following definitions shall apply:

- (1) **Accountable manager.** The manager who has corporate Authority for ensuring that all training commitments can be financed and carried out to the standard required by the Authority and any additional requirements defined by the ATO. The accountable manager may delegate in writing to another person within the organization, the day to day management but not the overall approval management responsibility.

Note: The “accountable manager” is not specifically defined under ICAO, but the concept is partially discussed in ICAO Doc. 9642, Section IV, Chapter 2, as being either the CEO or a high level corporate official who has financial responsibility for the entire organization. The examples of an accountable manager are: the CEO, President, Managing Director, Director General, General Manager, etc.

- (2) **Procedures manual.** A manual containing procedures, instructions and guidance for use by personnel of the Aviation Training Organization in the execution of their duties in meeting the requirements of the certificate.
- (3) **Quality manager.** The manager, acceptable to the Authority, responsible for the management of the Quality system, monitoring function and requesting corrective actions.
- (4) **Training manual.** A manual containing the training goals, objectives, standards syllabi, and curriculum for each phase of the approved training course. ICAO Doc 7192, Part D-1.
- (5) **Training specifications.** A document issued to an Aviation Training Organization certificate holder by the Republic of the Philippines that specifies training program requirements and authorizes the conduct of training, checking, and testing with any limitations thereof.

3.1.1.3 ABBREVIATIONS

(a) The following abbreviations are used in Part 3:

- (1) A – Airplane
- (2) AMT – Aviation Maintenance Technician
- (3) ATCO – Air Traffic Controller
- (4) ATO – Aviation Training Organization
- (5) ATPL – Airline Transport Pilot License
- (6) CFI – Chief Flight Instructor
- (7) CGI – Chief Ground Instructor

- (8) CPL – Commercial Pilot License
- (9) CRM – Crew Resource Management
- (10) FE – Flight Engineer
- (11) H – Helicopter
- (12) IFR – Instrument Flight Rules
- (13) ICAO – International Civil Aviation Organization
- (14) MMEL – Master Minimum Equipment List
- (15) PIC – Pilot-in-Command
- (16) PPL – Private Pilot License
- (17) RT – Radiotelephony
- (18) VFR – Visual Flight Rules

3.1.2 CERTIFICATION AND LOCATION REQUIREMENTS

3.1.2.1 GENERAL

- (a) No person may operate an Aviation Training Organization (ATO) without, or in violation of, an ATO certificate and training specifications issued under this Part.
- (b) No person may conduct training, testing and/or checking in synthetic flight trainers without, or in violation of, the certificate and training specifications required under this Part.
- (c) The Licensing Authority will issue to a Aviation Training Organization that meets the requirements of this Part an ATO certificate and training specifications for providing courses for flight crew licenses and ratings and for courses for personnel other than flight crew members, as approved by the Authority.

3.1.2.2 APPLICATION FOR ISSUANCE OR AMENDMENT OF AN ATO CERTIFICATE

- (a) An applicant for an ATO certificate and training specifications shall apply at least 120 calendar days before the beginning of any proposed training.
- (b) An applicant for an ATO certificate shall submit an application:
 - (1) In a form and manner prescribed by the Licensing Authority; and
 - (2) Containing any information the Licensing Authority requires the applicant to submit including at least the information shown in IS 3.1.2.2, Appendix A.
Implementing Standard: See IS: 3.1.2.2 Appendix A for certificate information needed by the Authority
- (c) The ATO shall establish procedures acceptable to the Licensing Authority to ensure compliance with all relevant requirements of this Part. The procedures shall include a quality system which meets the procedures in IS: 3.1.2.2., Appendices B and C.
- (d) An applicant for a certificate shall ensure that the facilities and equipment described in its application are:
 - (1) available for inspection and evaluation prior to approval; and

- (2) in place and operational at the location of the ATO prior to issuance of a certificate under this Part.
- (e) The Authority will issue to an applicant who meets the requirements of this Part and is approved by the Authority:
- (1) an ATO certificate containing:
- (i) the name, location of the ATO;
 - (ii) the date of issue and period of validity;
 - (iii) the authorized locations of operations; and
 - (iv) training courses for the following categories, as applicable: flight crew training, training for personnel other than flight crew and other training as approved by the Authority;
- Implementing Standard: See IS 3.1.2.2 Appendix D for the Aviation Training Organization Certificate*
- (2) Training Specifications containing:
- (i) authorization for the ATO;
 - (ii) the type of training authorized, including approved courses;
 - (iii) the rating, category, class and type of aircraft, or parts thereof, that may be used for training, testing and checking;
 - (iv) for each synthetic flight trainer that may be used for training, testing and checking, the make, model and series of aircraft being simulated, the qualification level assigned and the identification number assigned by the Authority;
 - (v) any aircraft, or parts thereof, approved for training, as appropriate;
 - (vi) authorized deviations or waivers from this Part;
 - (vii) staff required to perform under this Part; and
 - (viii) any other items the Authority may require or allow.
- Implementing Standard: IS 3.1.2.2 – Appendix D – Aviation Training Organization Certificate*
- (f) The Authority may deny a certificate if the Authority finds that the applicant does not comply with the approval requirements of this Part.
- (g) The Authority may amend an ATO certificate and/or the training specifications:
- (1) On the Authority's own initiative, under the applicable Republic of the Philippines legislation; or
 - (2) Upon timely application by the certificate holder.
- (h) An ATO located outside Republic of the Philippines may apply for a Republic of the Philippines ATO certificate, to provide training leading to a license issued by Republic of the Philippines, provided the requirements of this Part are met.

3.1.2.3 VALIDITY OF THE CERTIFICATE AND RENEWAL

- (a) Subject to satisfactory compliance with the requirements of this Part, the initial certificate will be valid for 1 year and the validity of a renewed certificate is 3 years.

3.1.2.4 INSPECTION

- (a) The Authority may, at any time, inspect an ATO holder on the ATO holder's premises to determine the ATO's compliance with this Part.
- (b) Inspections will normally be conducted at least annually, unless the certificate holder continues to meet the requirements under which it was originally certificated. At the discretion of the Authority the inspection may be extended to 24 months.
- (c) After an inspection is made, the certificate holder will be notified, in writing, of any deficiencies found during the inspection.
- (d) Inspection will also be performed on the applicant for, or the holder of an ATO certificate held outside Republic of the Philippines. This inspection may be delegated to the Authority of the State where the ATO is located, provided an arrangement exists.

Implementing Standards: IS 3.1.2.4 Annex A and B for detailed inspection requirements

3.1.2.5 RENEWAL OF THE CERTIFICATE

- (a) An ATO may apply for renewal of its certificate within 30 days preceding the month its ATO certificate expires, provided the ATO meets the requirements prescribed in this Part.
- (b) After the application the ATO will be inspected to ensure that it meets the requirements prescribed in this Part.

Implementing Standards: IS 3.1.2.5 for detailed renewal requirements

3.1.2.6 SUSPENSION OR REVOCATION

- (a) The Authority may suspend or revoke an issued ATO certificate, if it is established that a certificate holder has not met, or no longer meets the requirements of Part 3.

3.1.2.7 FACILITIES, EQUIPMENT AND MATERIAL

- (a) The facilities and working environment shall be appropriate for the task to be performed.
- (b) The ATO shall have, or have the necessary information, technical data, equipment, training devices and material to conduct the courses for which it is approved.
- (c) Synthetic training devices shall be qualified according to requirements established by the Republic of the Philippines and their use shall be approved by the Licensing Authority to ensure that they are appropriate to the task.

Note.- The manual of Criteria for the qualification of flight simulator (Doc 9625) and FAA Advisory Circular 120-40B provides guidance on the approval of flight simulator.

- (d) A certificate holder may not make a substantial change in facilities, equipment or material that have been approved for a particular training program, unless that change is approved by the Authority in advance.
- (e) Each certificate holder shall maintain the records required by this Part in facilities adequate for that purpose.

3.1.2.8 LOCATION

- (a) An applicant for, or holder of, a certificate issued under this Part shall establish and maintain a principal business office that is physically located at the address shown on its certificate.

3.1.2.9 SATELLITE ATOs

- (a) The holder of an ATO certificate may conduct training in accordance with a training program approved by the Authority at a satellite ATO if:
 - (1) the facilities, equipment, personnel and course content of the satellite ATO meet the applicable requirements;
 - (2) the instructors at the satellite ATO are under the direct supervision of management personnel of the principal ATO; and
 - (3) the certificate holder's training specifications reflect the name and address of the satellite ATO and the approved courses offered at the satellite ATO.
- (b) The Authority will issue training specifications which prescribe the operations required and authorized at each satellite ATO.

3.1.2.10 CHANGES REQUIRING NOTICE TO THE AUTHORITY

- (a) Each ATO shall notify the Authority within 30 days of any of the following changes:
 - (1) the Accountable Manager;
 - (2) the Quality Manager;
 - (3) the instructional staff; and
 - (4) the housing, training facilities and equipment, procedures, training programs and work scope that could affect the approval.
- (b) The Authority may prescribe the conditions under which the ATO may operate during such changes unless the Authority determines that the approval should be suspended.

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3.2 TRAINING FOR FLIGHT CREW LICENSES AND RATINGS

3.2.1 FLIGHT CREW TRAINING COURSES

The Authority may approve, as provided in the training specifications, the following courses of instruction to an applicant for, or a holder of an ATO certificate, provided the applicant meets the requirements of Parts 2 and 3:

- (1) Private Pilot License (PPL) Course for Airplane Single-Engine (SE) Land/Sea;
- (2) Private Pilot License (PPL) Course for Airplane Multi-Engine (ME) Land/Sea;
- (3) Commercial Pilot License (CPL) Course for Airplane Single-Engine (SE) Land/Sea;
- (4) Commercial Pilot License (CPL) Course for Airplane Multi-Engine (ME) Land/Sea;
- (5) Instrument Rating (IR) Course for Airplane;
- (6) Flight Instructor (FI) Course for Airplane Single-Engine (SE) Land/Sea;
- (7) Flight Instructor (FO) Course for Airplane Multi-Engine (ME) Land/Sea;
- (8) Flight (FI) Course with Instrument Rating (IR) Course for Airplane Single-Engine (SE) Land/Sea;
- (9) Flight Instructor (FI) Course with Instrument Rating (IR) Course for Airplane Multi-Engine (ME) Land/Sea;
- (10) Instructor Course for Synthetic Flight Training for Airplane Single-Engine (SE) Land/Sea;
- (11) Instructor Course for Synthetic Flight Training for Airplane Multi-Engine (ME) Land/Sea;
- (12) Refresher Course for Airplane Single-Engine (SE) Land/Sea;
- (13) Refresher Course for Airplane Multi-Engine (ME) Land/Sea;
- (14) Airplane Transport Pilot License (ATPL) for Airplane;
- (15) Commercial Pilot License (CPL) / Instrument Rating (IR), Multi-Engine (ME) / Crew Resource Management (CRM) Integrated Course for Airplane;
- (16) Flight Engineer License (FEL) Course;
- (17) Flight Navigator License (FNL) Course;
- (18) Multi-Crew Pilot License (MPL) Course for Airplane;
- (19) Private Helicopter Pilot License (PHPL) Course;
- (20) Commercial Helicopter Pilot License (CHPL) Course;
- (21) Flight Instructor (FI) Course for Helicopter (H);
- (22) Flight Instructor (FI) with Instrument Rating (IR) Course for Helicopter (H);
- (23) Instrument Rating (IR) Course for Helicopter (H);
- (24) Instructor Course for Synthetic Flight Training for Helicopter (H);
- (25) Type Rating Training Course.

Note 1: See ICAO Document 7192, Part B-5, Volume 1 and 2 for Integrated Commercial Pilot Course

Note 2: Course contents are not specified in detail in this Part 3 to allow courses to be tailored to specific training needs of students and to be updated promptly.
(21 March 2011)

3.2.2 PERSONNEL

- (a) The ATO shall satisfy the Authority that there shall be on the staff:
 - (1) an Accountable Manager;
 - (2) a Quality Manager;
 - (3) a Head of Training;
 - (4) a Chief Flight Instructor, as applicable;
 - (5) a Chief Ground Instructor, as applicable; and
 - (6) an adequate number of ground and flight instructors relevant to the courses provided.
- (b) Each instructor to be used for flight training must hold an instructor rating or authorization in accordance with 2.3, relevant to the instruction given.
- (c) The ATO shall ensure that all instructional personnel receive initial and continuation training appropriate to their assigned tasks and responsibilities. The training program established by the training organization shall include training in knowledge and skills related to human performance.

Note: Guidance material to design training programs to develop knowledge and skills in human performance can be found in the ICAO Human Factors Training Manual (Doc 9583).

Implementing Standard: See IS 3.2.2 Appendix A – H for detailed requirements for staff of the ATO.

3.2.3 RECORD KEEPING

- (a) A certificate holder shall maintain and retain the following records for a period of one year after the completion of training:
 - (1) details of ground, flying and simulated flight training given to individual students;
 - (2) detailed and regular progress reports from instructors including assessments, and regular progress flight tests and ground examinations;
 - (3) personal trainee information, e.g. names, course, certificates held, expiry dates of medical certificates, ratings, etc.; and
 - (4) record of each instructor that indicates qualifications and compliance with this Part and Part 2.
- (b) The format of the student training records shall be specified in the Training Manual
- (c) The ATO shall submit training records and reports as required by the Authority.

3.2.4 TRAINING PROGRAM AND APPROVAL

- (a) The applicant for, or the holder of an ATO certificate shall apply to the Authority for training program approval.
- (b) The applicant for, or the holder of an ATO certificate shall develop a training program for each type of course offered. This program shall include;

- (1) a breakdown of flying and theoretical knowledge instruction in either a week-by-week or phase presentation, a list of standard exercises and a curriculum summary. In particular, synthetic flight training and theoretical knowledge instruction shall be phased in such a manner as to ensure that students shall be able to apply to flying exercises the knowledge gained on the ground;
 - (2) minimum aircraft and flight training equipment requirements for each proposed program;
 - (3) minimum instructor qualifications for each proposed program; and
 - (4) a program for initial training and continuing training of each instructor employed to instructing a proposed program.
- (c) The content and sequence of the training program shall be acceptable to the Authority.

3.2.5 TRAINING AIRCRAFT

- (a) An adequate fleet of training aircraft appropriate to the courses of training shall be provided for the training for flight crew licenses and ratings. Each aircraft shall be fitted with duplicated primary flight controls for use by the instructor and the student. Swing-over flight controls shall not be acceptable.
- (1) The fleet shall include, as appropriate to the courses of training, Airplane(s) suitable for demonstrating stalling and spin avoidance.
 - (2) ATO fleet helicopter(s) shall include, as appropriate to the courses of training, helicopter(s) suitable for auto-rotation demonstration.
 - (3) ATO fleet aircraft shall be suitably equipped to simulate instrument meteorological conditions and suitably equipped for the instrument flight training and testing.

3.2.6 SYNTHETIC FLIGHT TRAINERS

- (a) An applicant for, or holder of an ATO certificate, providing synthetic flight training, shall satisfy the Authority that suitably equipped synthetic flight trainers are provided having regard to the number of students and organization of courses.
- (b) An applicant for, or holder of, an ATO certificate shall show that each synthetic flight trainer used for training, testing and checking or is specifically qualified and approved by the Authority for:
- (1) each manoeuvre and procedure for the make, model and series of aircraft, set of aircraft, or aircraft type simulated, as applicable; and
 - (2) each training program or training course in which the synthetic flight trainer is used, if that program or course is used to satisfy any requirement of these regulations.

3.2.7 AIRPORTS AND SITES

- (a) Each applicant for, and holder of, an ATO certificate shall show that it has continuous use of each airport and sites (for helicopter training) at which training flights originate, and that the airport has an adequate runway and the necessary equipment.

Implementing Standard: See 3.2.7 for specific runway and equipment requirements and requirements for sites.

3.2.8 TRAINING FACILITIES

- (a) An applicant for, and holder of an ATO certificate shall have facilities, as determined by the Authority, appropriate for the maximum number of students expected to be taught at any time, as follows:
 - (1) Flight operations facilities:
 - (i) an operations room;
 - (ii) a flight planning room
 - (iii) adequate briefing rooms
 - (iv) offices for the instructors
 - (2) Knowledge instruction facilities
 - (i) classroom accommodation,
 - (ii) suitable demonstration equipment;
 - (iii) a RT training and testing facility
 - (iv) a library
 - (v) offices for instructors
- (b) A certificate holder may not make a substantial change in facilities, equipment or material that have been approved for a particular training program, unless that change is approved by the Authority in advance.

3.2.9 TRAINING MANUAL AND PROCEDURES MANUAL

- (a) Each applicant for, or holder of an ATO certificate shall prepare and maintain a Training Manual and a Procedures Manual containing information and instructions to enable staff to perform their duties and to give guidance to students on how to comply with course requirements, as listed in IS 3.2.9 Appendix A: Training Manual and IS 3.2.9 Appendix B: Procedures Manual.
- (b) The Training Manual and Procedures Manual may be combined.
- (c) The ATO shall ensure that the Training Manual and the Procedures Manual are amended as necessary to keep the information contained therein up to date.
- (d) Copies of all amendments to the Training Manual and the Procedures Manual shall be furnished promptly to all organizations or persons to whom the manual has been issued.

Implementing Standards: See IS 3.2.9 Appendix A and B for detailed requirements for the Training Manual and the Procedures Manual and format for each manual.

3.3 TRAINING FOR LICENSES AND RATINGS FOR AVIATION MAINTENANCE, AIR TRAFFIC CONTROLLERS, FLIGHT OPERATIONS OFFICERS AND AERONAUTICAL STATION OPERATORS

3.3.1 APPLICABILITY

- (a) Certification under this Subpart is not required for training that is approved under the provisions of Part 9.

3.3.2 TRAINING COURSES FOR LICENSES AND RATINGS FOR AVIATION MAINTENANCE, AIR TRAFFIC CONTROLLERS, FLIGHT OPERATION OFFICERS AND AERONAUTICAL STATION OPERATORS.

The Authority may approve the following courses of instruction to an applicant for, or a holder of an ATO certificate, provided the applicant meets the requirements of CAR Parts 2 and 3:

- (a) Aviation maintenance license course
- (b) Airframe rating, powerplant rating, avionics rating course
- (c) Air traffic controller license course
- (d) Courses for ratings for Air traffic controller licenses
- (e) Flight operations officer course
- (f) Aeronautical station operator course

Note: Course contents are not specified in detail because it allows courses to be tailored to specific training needs of students and to be updated in a quicker way.

3.3.3 PERSONNEL

- (a) The ATO shall satisfy the Authority that an adequate number of qualified, competent staff are employed as follows:
 - (1) An Accountable Manager;
 - (2) A Quality Control Manager;
 - (3) A Head of Training; and
 - (4) An adequate number of instructors relevant to the courses provided, qualified in accordance with the requirements of Part 2.
- (b) The ATO shall ensure that all instructional personnel receive initial and continuation training appropriate to their assigned tasks and responsibilities. The training program established by the training organization shall include training in knowledge and skills related to human performance.

Note: Guidance material to design training programs to develop knowledge and skills in human performance can be found in the ICAO Human Factors Training Manual (Doc 9583).

3.3.4 RECORD KEEPING

- (a) A certificate holder shall maintain and retain the following records for a minimum period of one year after the completion of training:

- (1) details of training given to individual students;
 - (2) detailed and regular progress reports from instructors including assessments, and regular progress tests and examinations;
 - (3) personal trainee information, e.g. names, course, certificates held, expiry dates of medical certificates, if applicable, ratings, etc.; and
 - (4) record of each instructor that indicates qualifications and compliance with this Part and Part 2.
- (b) The ATO shall submit training records and reports as required by the Authority.

3.3.5 TRAINING PROGRAM AND APPROVAL

- (a) Each applicant for, or holder of an ATO certificate, shall apply to the Authority for training program approval.
- (b) Each applicant shall ensure that each training program submitted to the Authority for approval meets the applicable requirements.
- (c) Each applicant for training program approval shall indicate in the application:
 - (1) Which courses are part of the program; and
 - (2) Which requirements of Part 2 will be satisfied by the training program.
- (d) After a certificate holder begins operations under an approved training program, the Authority may require the certificate holder to make revisions to the training program, if the Authority finds that the certificate holder is not meeting the provisions of its approved training program.

3.3.6 TRAINING FACILITIES, EQUIPMENT AND MATERIAL FOR AVIATION MAINTENANCE (AM) COURSES

- (a) An applicant for, and holder of, an ATO certificate shall have facilities, as determined by the Authority, appropriate for the maximum number of students expected to be taught at any time, as follows:
 - (1) An enclosed classroom.
 - (2) Suitable facilities arranged to assure proper separation from the working space, for parts, tools, materials and similar articles.
 - (3) Suitable area for application of finishing materials, including paint spraying.
 - (4) Suitable areas equipped with wash-tank and degreasing equipment with air pressure or other adequate cleaning equipment.
 - (5) Suitable facilities for running engines.
 - (6) Suitable area with adequate equipment, including benches, tables, and test equipment, to disassemble, service and inspect:
 - (i) Ignition systems, electrical equipment and appliances;
 - (ii) Carburetors and fuel systems; and
 - (iii) Hydraulic and vacuum systems for aircraft, aircraft engines, and their appliances.
 - (7) Suitable space with adequate equipment, including tables, benches, stands and jacks for disassembling, inspecting and rigging aircraft.

- (8) Suitable space with adequate equipment for disassembling, inspecting, assembling, troubleshooting and timing engines.
- (b) An applicant for, or holder of an ATO certificate with approved AM courses shall have and maintain the following instructional equipment as is appropriate to the rating sought:
 - (1) Various kinds of airframe structures, airframe systems and components, powerplants and powerplant system and components (including propellers) of a quantity and type suitable to complete the practical projects required by its approved training program;
 - (2) At least one aircraft of a type acceptable to the Authority;
- (c) An applicant for, or holder of an ATO certificate with an AM rating shall have airframes, powerplants, propellers, appliances and components thereof, to be used for instruction and from which students will gain practical working experience and shall insure that the airframes, powerplants, propellers, appliances and components thereof be sufficiently diversified as to show the different methods of construction, assembly, inspection and operation when installed in an aircraft for use.
- (d) An applicant for an ATO certificate with an AM rating, or an applicant seeking an additional AM rating, shall have at least the facilities, equipment and materials appropriate to the rating sought.
- (e) An applicant for, or holder of, an ATO certificate with an AM rating shall maintain, on the premises and under the full control of the ATO, an adequate supply of material, special tools and shop equipment used in constructing and maintaining aircraft as is appropriate to the approved training program of the ATO, in order to assure that each student will be properly instructed.
- (f) A certificate holder may not make a substantial change in facilities, equipment or material that have been approved for a particular training program, unless that change is approved by the Authority in advance.

**3.3.7 TRAINING FACILITIES, EQUIPMENT AND MATERIAL FOR AIR TRAFFIC
CONTROLLER, FLIGHT OPERATIONS OFFICER AND
AERONAUTICAL STATION OPERATOR COURSES**

Reserved.

3.3.8 TRAINING MANUAL AND PROCEDURES MANUAL

- (a) Each applicant for, or holder of an ATO certificate shall prepare and maintain a Training Manual and a Procedures Manual containing information and instructions to enable staff to perform their duties and to give guidance to students on how to comply with course requirements.
- (b) The Training Manual and Procedures Manual may be combined.
- (c) The ATO shall ensure that the Training Manual and the Procedures Manual is amended as necessary to keep the information contained therein up to date.
- (d) Copies of all amendments to the Training Manual and the Procedures Manual shall be furnished promptly to all organizations or persons to whom the manual has been issued.

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3.4 AMT TRAINING COURSE**3.4.1 APPLICABILITY**

- (a) This Subpart prescribes the requirements for—
- (1) Issuing ATO certificates and ratings;
 - (2) Conducting licensing courses and associated ratings for AMTs; and
 - (3) Instructing the general operating rules for the holders of AMT licenses and ratings.

3.4.2 AMT TRAINING COURSES

- (a) The Authority may approve the following courses of instruction to an applicant for, or holder of an ATO certificate, provided the applicant meets the requirements of 3.1.2.2
- (1) AMT—
 - (i) Airframe rating;
 - (ii) Powerplant rating;
 - (iii) Airframe and Powerplant rating; and
 - (iv) Avionics rating.

3.4.3 GENERAL CURRICULUM REQUIREMENTS

- (a) Each ATO shall have an approved curriculum that is designed to qualify its students to perform the duties of an AMT for a particular rating or ratings.
- (b) The curriculum shall offer at least the following number of hours of instruction shown, and the instruction unit hour shall be not less than 50 minutes in length.
- (1) Airframe – 1,150 hours (400 general plus 750 airframe).
 - (2) Powerplant – 1,150 hours (400 general and 750 powerplant).
 - (3) Combined airframe and powerplant – 1,900 hours (400 general plus 750 airframe and 750 powerplant).
 - (4) Avionics - 1,150 hours (400 hours of General Subjects, and 750 hours of Avionics Subjects)
- (c) The curriculum shall cover the subjects and items prescribed in IS: 3.4.3, AMT Airframe and/or Powerplant and/or Avionics Ratings
- (d) Each ATO shall teach each subject to at least the indicated level of proficiency defined in IS: 3.4.3, AMT Airframe and/or Powerplant and/or Avionics Ratings.
- (e) The certificate holder shall maintain a curriculum that shows—
- (1) The required practical projects to be completed;
 - (2) For each subject, the proportions of theory and other instruction to be given; and
 - (3) A list of the minimum required tests to be given.
- (f) Each ATO may issue AMT licenses of competency to persons successfully completing speciality courses provided that all requirements are met and the licenses of competency specifies the aircraft make and model to which the license applies.

Implementing Standard: See IS: 3.4.3, AMT Airframe and/or Powerplant and/or Avionics Ratings for applicable AMT course curricula CFR: 147.21

3.4.4 AMT TRAINING PROGRAM PROVIDERS

- (a) The holder of a training organization applicant may apply to the Authority for approval for an AMT training program.
- (b) An AOC holder, an AMO, or an ATO may apply to the Authority for approval for an AMT training program that meets the requirements of this Subpart.

Implementing Standard: See IS: 3.4.3 for AMT training program curriculum requirements.

3.4.5 INSTRUCTOR REQUIREMENTS

- (a) Each ATO shall provide the number of instructors holding appropriate licenses and ratings, issued under Part 2, Section 2.6.2 that the Authority determines is necessary to provide adequate instruction and supervision of the students, including at least one such instructor for each 25 students in each class held in a shop where students are performing actual tasks appropriate to the curriculum.
- (b) An ATO may provide specialized instructors, who are not licensed in accordance with Part 2, to teach mathematics, physics, basic electricity, basic hydraulics, drawing, and similar subjects.
- (c) Each ATO shall maintain a list of the names and qualifications of such specialized instructors, and upon request, provide a copy of the list, with a summary of the qualifications of each specialized instructor to the Authority.

3.4.6 ATTENDANCE AND CREDIT FOR PRIOR INSTRUCTION OR EXPERIENCE

- (a) An ATO may credit a student with instruction or previous experience as follows:
 - (1) Instruction satisfactorily completed at—
 - (i) An accredited university, college, or junior college;
 - (ii) An accredited vocational, technical, trade or high school;
 - (iii) A military technical school; or (iv) An ATO.
 - (2) Previous aviation maintenance experience comparable to required curriculum subjects—
 - (i) By determining the amount of credit to be allowed by documents verifying previous experience; and
 - (ii) By giving the student a test equal to the one given to students who complete the comparable required curriculum subject at the ATO.
 - (3) Credit to be allowed for previous instruction —
 - (i) By an entrance test equal to one given to the students who complete a comparable required curriculum subject at the crediting ATO;
 - (ii) By an evaluation of an authenticated transcript from the student's former school; or

- (iii) In the case of an applicant from a military school, only on the basis of an entrance test.
- (4) A certificate holder may credit a student seeking an additional rating with previous satisfactory completion of the general portion of an ATO's curriculum.
- (b) Each ATO shall show hours of absence allowed and how it will make missed material available to the student.

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Republic of the Philippines

CIVIL AVIATION REGULATIONS (CAR)

PART 3: IS

APPROVED TRAINING ORGANIZATIONS
IMPLEMENTING STANDARDS

IS 3.1.2.2 APPENDIX A – APPLICATION FOR ISSUANCE OR AMENDMENT OF AN ATO CERTIFICATE

Each applicant for an ATO certificate and training specification shall provide the Authority with the following information:

- (a) a statement showing that the minimum qualification requirements for each management position are met;
- (b) a description of the minimum qualifications and ratings for each instructor;
- (c) a statement acknowledging that the applicant may notify the Authority within 10 working days of any change made in the assignment of persons in the required management or instructors positions;
- (d) the proposed training specifications requested by the applicant;
- (e) a description of the training equipment that the applicant proposes to use e.g. the aircraft, the synthetic flight trainers including any special equipment used for each phase of training;
- (f) a listing of the airports or sites at which training flights originate and a description of the applicant's training facilities, equipment and qualifications of personnel to be use; and
- (g) a training program, including manuals, curricula, outlines, courseware, procedures and documentation to support the items required in 3.2.3, 3.2.4, 3.3.4 and 3.3.5.

IS 3.1.2.2 APPENDIX B - QUALITY SYSTEM

- (a) In a quality system of an ATO for training for licenses and ratings the following five elements should be clear identifiable:
 - (1) determination of the organization's training policy and training and flight safety standards;
 - (2) determination and establishment of assignment of responsibility, resources, organization and operational processes, which will make allowance for policy and training and flight safety standards;
 - (3) follow up system to ensure that policy, training and flight safety standards are complied with;
 - (4) registration and documentation of deviations from policy, training and flight safety standards together with necessary analysis, evaluations and correction of such deviations; and
 - (5) evaluation of experiences and trends concerning policy, training and flight safety standards.

IS 3.1.2.2 APPENDIX C - GUIDANCE MATERIAL FOR A QUALITY SYSTEM

- (a) Introduction
 - (1) A basis for quality should be established by every ATO and problem-solving techniques to run processes should be applied. Knowledge in how to measure, establish and ultimately achieve quality in training and education is considered to be essential.

- (2) The purpose of this Guidance material is to provide information and guidance to the ATO on how to establish a Quality System that enables compliance with 3.1.2.2 (c).
 - (3) In order to show compliance with 3.1.2.2 (c) an ATO should establish its Quality System in accordance with the instructions and information contained in the succeeding paragraphs.
- (b) The Quality system of the ATO
- (1) Terminology
 - (i) Quality. The totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.
 - (ii) Quality Assurance. All those planned and systematic actions necessary to provide adequate confidence that all training activities satisfy given requirements, including the ones specified by the ATO in relevant manuals.
 - (iii) Quality Manual. The document containing the relevant information pertaining to the ATO's quality system and quality assurance program.
 - (iv) Quality audit. A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives.
 - (2) Quality Policy and Strategy
 - (i) It is of vital importance that the ATO describes how the organization formulates, deploys, reviews its policy and strategy and turns it into plans and actions. A formal written Quality Policy Statement should be established that is a commitment by the Head of Training, as to what the Quality System is intended to achieve. The Quality Policy should reflect the achievement and continued compliance with relevant parts of Part 2 and 3 together with any additional standards specified by the ATO.
 - (ii) The Accountable Manager will have overall responsibility for the Quality System including the frequency, format and structure of the internal management evaluation activities.
 - (3) Purpose of a Quality System: The implementation and employment of a Quality System will enable the ATO to monitor compliance with relevant parts of Part 2 and 3, the Procedures Manual and the Training Manual, and any other standards as established by the ATO, or the Authority, to ensure safe and efficient training.
 - (4) Quality Manager
 - (i) The primary role of the Quality Manager is to verify, by monitoring activities in the field of training, that the standards required by the Authority, and any additional requirements as established by the ATO are being carried out properly under the supervision of the Head of Training, Chief Flight Instructor and Chief Ground Instructor.
 - (ii) The Quality Manager should be responsible for ensuring that the Quality Assurance Program is properly implemented, maintained and continuously reviewed and improved. The Quality Manager should: - have direct access to the Head of Training; - have access to all parts of the ATO's organization.

- (iii) In the case of small or very small ATO's, the posts of the Head of Training and the Quality Manager may be combined. However, in this event, quality audits should be conducted by independent personnel.
- (5) Quality System
 - (i) The Quality System of the ATO should ensure compliance with and adequacy of training activities conducted.
 - (ii) The ATO should specify the basic structure of the Quality System applicable to all training activities conducted.
 - (iii) The Quality System should be structured according to the size of the ATO and the complexity of the training to be monitored.
- (6) Scope: A quality System should address the following:
 - (i) Leadership
 - (ii) Policy and Strategy
 - (iii) Processes
 - (iv) The provisions of Parts 2 and 3
 - (v) Additional standards and training procedures as stated by the ATO
 - (vi) The organizational structure of the ATO
 - (vii) Responsibility for the development, establishment and management of the Quality System
 - (viii) Documentation, including manuals, reports and records
 - (ix) Quality Assurance Program
 - (x) The required financial, material and human resources
 - (xi) Training requirements
 - (xii) Customer satisfaction
- (7) Feedback System: The quality system should include a feedback system to ensure that corrective actions are both identified and promptly addressed. The feedback system should also specify who is required to rectify discrepancies and non-compliance in each particular case, and the procedure to be followed if corrective action is not completed within an appropriate timescale.
- (8) Documentation: Relevant documentation includes the relevant part(s) of the Training and Procedures Manual, which may be included in a separate Quality Manual.
 - (i) In addition relevant document should also include the following:
 - (A) Quality Policy
 - (B) Terminology
 - (C) Specified training standards
 - (D) A description of the organization
 - (E) The allocation of duties and responsibilities
 - (F) Training procedures to ensure regulatory compliance
 - (ii) The Quality Assurance Program, reflecting:

- (A) Schedule of the monitoring process
 - (B) Audit procedures
 - (C) Reporting procedures
 - (D) Follow-up and corrective action procedures
 - (E) Recording System
 - (F) The training syllabus
 - (G) Document control
- (9) Quality Assurance Program: The Quality Assurance Program should include all planned and systematic actions necessary to provide confidence that all training are conducted in accordance with all applicable requirements, standards and procedures.
- (10) Quality Inspection
- (i) The primary purpose of a quality inspection is to observe a particular event/action/document etc., in order to verify whether established training procedures and requirements are followed during the accomplishment of that event and whether the required standard is achieved.
 - (ii) Typical subject areas for quality inspections are:
 - (A) Actual flight and ground training
 - (B) Maintenance
 - (C) Technical Standards
 - (D) Training Standards
- (11) Audit
- (i) An audit is a systematic, and independent comparison of the way in which a training is being conducted against the way in which the published training procedures say it should be conducted.
 - (ii) Audits should include at least the following quality procedures and processes:
 - (A) An explanation of the scope of the audit
 - (B) Planning and preparation
 - (C) Gathering and recording evidence
 - (D) Analysis of the evidence
 - (iii) The various techniques that make up an effective audit are:
 - (A) Interviews or discussions with personnel
 - (B) A review of published documents
 - (C) The examination of an adequate sample of records
 - (D) The witnessing of the activities which make up the training
 - (E) The preservation of documents and the recording of observations
- (12) Auditors
- (i) The ATO should decide, depending on the complexity of the training, whether to make use of a dedicated audit team or a single auditor. In any event, the

auditor or audit team should have relevant training and/or operational experience.

- (ii) The responsibilities of the auditors should be clearly defined in the relevant documentation.

(13) Auditor's Independence

- (i) Auditors should not have any day-to-day involvement in the area of the operation or maintenance activity which is to be audited. An ATO may, in addition to using the services of full-time dedicated personnel belonging to a separate quality department, undertake the monitoring of specific areas or activities by the use of part-time auditors.
 - (ii) An ATO whose structure and size does not justify the establishment of full-time auditors, may undertake the audit function by the use of part-time personnel from within its own organization or from an external source under the terms of an agreement acceptable to the Authority.
 - (iii) In all cases the ATO should develop suitable procedures to ensure that persons directly responsible for the activities to be audited are not selected as part of the auditing team. Where external auditors are used, it is essential that any external specialist is familiar with the type of training conducted by the ATO.
 - (iv) The Quality Assurance Program of the ATO should identify the persons within the company who have the experience, responsibility and Authority to:
 - (A) Perform quality inspections and audits as part of ongoing Quality Assurance
 - (B) Identify and record any concerns or findings, and the evidence necessary to substantiate such concerns or findings
 - (C) Initiate or recommend solutions to concerns or findings through designated reporting channels
 - (D) Verify the implementation of solutions within specific timescales
 - (E) Report directly to the Quality Manager
- (14) Audit Scope: ATOs are required to monitor compliance with the Training and Procedures Manuals they have designed to ensure safe and efficient training. In doing so they should as a minimum, and where appropriate, monitor:
- (i) Organization
 - (ii) Plans and objectives
 - (iii) Training Procedures
 - (iv) Flight Safety
 - (v) Manuals, Logs and Records
 - (vi) Flight and Duty Time limitations
 - (vii) Rest requirements and scheduling
 - (viii) Aircraft Maintenance/Operations interface
 - (ix) Maintenance programs and continued airworthiness
 - (x) Maintenance accomplishment

(15) Audit Scheduling

- (i) A Quality Assurance Program should include a defined audit schedule and a periodic review cycle. The schedule should be flexible, and allow unscheduled audits when trends are identified. Follow-up audits should be scheduled when necessary to verify that corrective action was carried out and that it was effective.
- (ii) An ATO should establish a schedule of audits to be completed during a specific calendar period. All aspects of the training should be reviewed within a period of 12 months in accordance with the program unless an extension to the audit period is accepted as explained below.
- (iii) An ATO may increase the frequency of their audits at their discretion but should not decrease the frequency without the acceptance of the Authority. It is considered unlikely that a period of greater than 24 months would be acceptable for any audit topic.
- (iv) When an ATO defines the audit schedule, significant changes to the management, organization, training, or technologies should be considered, as well as changes to the regulatory requirements.

(16) Monitoring and corrective action

- (i) The aim of monitoring within the Quality System is primarily to investigate and judge its effectiveness and thereby to ensure that defined policy, training standards are continuously complied with. Monitoring activity is based upon quality inspections, audits, corrective action and follow-up. The ATO should establish and publish a quality procedure to monitor regulatory compliance on a continuing basis. This monitoring activity should be aimed at eliminating the causes of unsatisfactory performance.
- (ii) Any non-compliance identified should be communicated to the manager responsible for taking corrective action or, if appropriate, the Accountable Manager. Such non-compliance should be recorded, for the purpose of further investigation, in order to determine the cause and to enable the recommendation of appropriate corrective action.
- (iii) The Quality Assurance Program should include procedures to ensure that corrective actions are developed in response to findings. These quality procedures should monitor such actions to verify their effectiveness and that they have been completed. Organizational responsibility and accountability for the implementation of corrective action resides with the department cited in the report identifying the finding. The Accountable Manager will have the ultimate responsibility for ensuring, through the Quality Manager(s), that corrective action has re-established compliance with the standard required by the Authority and any additional requirements established by the ATO.

(17) Corrective action

- (i) Subsequent to the quality inspection/audit, the ATO should establish:
 - (A) The seriousness of any findings and any need for immediate corrective action
 - (B) The origin of the finding
 - (C) What corrective actions are required to ensure that the non-compliance does not recur
 - (D) A schedule for corrective action

- (E) The identification of individuals or departments responsible for implementing corrective action
- (F) Allocation of resources by the Accountable Manager, where appropriate
- (ii) The Quality Manager should:
 - (A) Verify that corrective action is taken by the manager responsible in response to any finding of non-compliance
 - (B) Verify that corrective action includes the elements outlined in paragraph (16) above
 - (C) Monitor the implementation and completion of corrective action
 - (D) Provide management with an independent assessment of corrective action, implementation and completion
 - (E) Evaluate the effectiveness of corrective action through the follow-up process
- (18) Management Evaluation
 - (i) A management evaluation is a comprehensive, systematic documented review by the management of the quality system, training policies, and procedures, and should consider: The results of quality inspections, audits and any other indicators; as well as the overall effectiveness of the management organization in achieving stated objectives. A management evaluation should identify and correct trends, and prevent, where possible, future non-conformities. Conclusions and recommendations made as a result of an evaluation should be submitted in writing to the responsible manager for action. The responsible manager should be an individual who has the Authority to resolve issues and take action. The Accountable Manager should decide upon the frequency, format, and structure of internal management evaluation activities.
- (19) Recording
 - (i) Accurate, complete and readily accessible records documenting the result of the Quality Assurance Program should be maintained by the ATO. Records are essential data to enable an ATO to analyze and determine the root causes of non-conformity, so that areas of non-compliance can be identified and subsequently addressed.
 - (ii) The following records should be retained for a period of 5 years:
 - (A) Audit schedules
 - (B) Quality inspection and audit reports
 - (C) Responses to findings
 - (D) Corrective action reports
 - (E) Follow-up and closure reports
 - (F) Management evaluation reports
- (20) Quality Assurance Responsibility for Satellite ATOs
 - (i) An ATO may decide to sub-contract out in accordance with Subpart 3.1.2.10, certain activities to external organizations subject to the approval of the Authority.

- (ii) The ultimate responsibility for the training provided by the satellite ATO always remains with the ATO. A written agreement should exist between the ATO and the satellite ATO clearly defining the safety related services and quality to be provided. The satellite ATO's safety related activities relevant to the agreement should be included in the ATO's Quality Assurance Program.
- (iii) The ATO should ensure that the satellite ATO has the necessary authorization/approval when required, and commands the resources and competence to undertake the task. If the ATO requires the satellite ATO to conduct activity which exceeds the satellite ATO's authorization/approval, the ATO is responsible for ensuring that the satellite ATO's quality assurance takes account of such additional requirements.

(21) Quality System Training

- (i) Correct and thorough training is essential to optimize quality in every organization. In order to achieve significant outcomes of such training the ATO should ensure that all staff understand the objectives as laid down in the Quality Manual.
- (ii) Those responsible for managing the Quality System should receive training covering:
 - (A) An introduction to the concept of Quality System
 - (B) Quality management
 - (C) Concept of Quality Assurance
 - (D) Quality manuals
 - (E) Audit techniques
 - (F) Reporting and recording
 - (G) The way in which the Quality System will function in the ATO
- (iii) Time should be provided to train every individual involved in quality management and for briefing the remainder of the employees. The allocation of time and resources should be governed by the size and complexity of the operation concerned.

(22) Sources of Training:

Quality management courses are available from the various National or International Standards Institutions, and an ATO should consider whether to offer such courses to those likely to be involved in the management of Quality Systems. Organizations with sufficient appropriately qualified staff should consider whether to carry out in-house training.

(23) Quality Systems for small/very small Organizations

- (i) The requirement to establish and document a Quality System and to employ a Quality Manager applies to all ATOs.
- (ii) Complex quality systems could be inappropriate for small or very small ATOs and the clerical effort required to draw up manuals and quality procedures for a complex system may stretch their resources. It is therefore accepted that such ATOs should tailor their quality systems to suit the size and complexity of their training and allocate resources accordingly.
- (iii) For small and very small ATOs it may be appropriate to develop a Quality Assurance Program that employs a checklist. The checklist should have a

supporting schedule that requires completion of all checklist items within a specified timescale, together with a statement acknowledging completion of a periodic review by top management. An occasional independent overview of the checklist content and achievement of the Quality Assurance should be undertaken.

- (iv) The small ATO may decide to use internal or external auditors or a combination of the two. In these circumstances it would be acceptable for external specialists and or qualified organizations to perform the quality audits on behalf of the Quality Manger.
- (v) If the independent quality audit function is being conducted by external auditors, the audit schedule should be shown in the relevant documentation.
- (vi) Whatever arrangements are made, the main ATO retains the ultimate responsibility for the quality system and especially the completion and flowing.

IS 3.1.2.2 APPENDIX D – AVIATION TRAINING ORGANIZATION CERTIFICATE

Republic of the Philippines AVIATION TRAINING ORGANIZATION CERTIFICATE This certificate is issued to: Whose business address is: Number: Upon finding that its organization complies in all respects with MARD Part 3 relating to the establishment of an Aviation Training Organization and is empowered to operate an approved <i>[enter words of Aviation Training Organization]</i> for the following courses: This certificate, unless suspended or revoked, shall continue in effect until <i>[enter date 12 months after first issue, 36 months after second and further issues]</i>. Date of issue: _____ Signature: _____
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IS 3.1.2.4 APPENDIX A: INSPECTION

(a) The inspection shall focus on:

- (1) staff: adequacy of number and qualifications;
- (2) instructors: validity of licenses and ratings; logbooks;
- (3) training aircraft: registration; associated documents; maintenance records;
- (4) synthetic flight trainers: qualification and approval;
- (5) facilities: adequacy to the courses being conducted and the number of students;
- (6) documentation: documents related to the courses; updating system; training and operations manuals;
- (7) training records and checking forms;
- (8) flight instruction including pre-flight briefing, actual flight debriefing for ATOs for flight crew training;
- (9) instruction program for personnel other than flight crew;]
- (10) quality system.

IS 3.1.2.4 APPENDIX B: INSPECTION REPORT

Report for the inspection of an ATO for training for flight crew licenses.

INSPECTION REPORT**AVIATION TRAINING ORGANIZATION**

Date of inspection		ATO Reference No.	
ATO/Satellite ATO		Inspection Leader	
Location		Additional Inspectors	

Approved Courses Inspected
(Tick those relevant)

PPL course		Class rating course	
CPL course		Type rating course	
IR course		CRM course	
CPL/IR integrated course		Flight instructor course	
ATPL course		Instructor course for additional Type or class rating	
Flight engineer course		Instructor course for synthetic flight training	
Flight navigator course		Refresher courses	

Itemized Inspector's report**Personnel**

The personnel arrangements have been checked in accordance with the requirements laid down in 3.2.2.	Satisfactory	Unsatisfactory
--	--------------	----------------

Record keeping

The records have been checked in accordance with the requirements of 3.2.3.	Satisfactory	Unsatisfactory
---	--------------	----------------

Training program and approval

The training program has been checked in accordance with the requirements of 3.2.4.	Satisfactory	Unsatisfactory
---	--------------	----------------

Course material

The course material and aids have been checked in accordance with the requirements laid down in 3.2.9 and IS 3.2.9.	Satisfactory	Unsatisfactory
---	--------------	----------------

Instructional standards

The following lectures were sampled in accordance with the requirements of 3.2.9 and IS 3.2.9.	Satisfactory	Unsatisfactory
--	--------------	----------------

Sampling cross reference of records

Course	Date	A/C Type SFT	Aircraft Registration	ATO	Student	Instructor	SAT	UNSAT

Approved course aircraft

TYPE	NUMBER	TYPE	NUMBER

Aircraft sampled (check to include documentation)

Aircraft Registration: Have been checked in accordance with the inspection checklist and the requirements of 3.2.5.	Satisfactory	Unsatisfactory
--	--------------	----------------

Synthetic flight trainers

The synthetic flight trainers have been checked in accordance with the requirements of 3.2.6.	Satisfactory	Unsatisfactory
---	--------------	----------------

Airports and Sites

The Airports and sites have been checked in accordance with the requirements of 3.2.7.	Satisfactory	Unsatisfactory
--	--------------	----------------

Training facilities

The training facilities have been checked in accordance with the requirements of 3.1.2.8 and 3.2.8.	Satisfactory	Unsatisfactory
---	--------------	----------------

Training Manual

The Training Manual has been checked in accordance with the requirements in 3.2.9 and IS 3.2.9.	Satisfactory	Unsatisfactory
---	--------------	----------------

Procedures Manual

The Procedures Manual has been checked in accordance with the requirements in 3.2.9 and IS 3.2.9.	Satisfactory	Unsatisfactory
---	--------------	----------------

Quality system

The Quality system has been checked in accordance with the requirements in 3.1.2.2 and IS 3.1.2.2.	Satisfactory	Unsatisfactory
--	--------------	----------------

Satellite ATOs

The satellite ATO, if applicable, has been checked in accordance with the requirements in 3.1.2.10.	Satisfactory	Unsatisfactory
---	--------------	----------------

Note 1: Where it has not been possible to carry out a check item, this shall be stated with reasons.

Note 2: Any item(s) marked unsatisfactory shall have an explanation attached to this report.

IS 3.1.2.5 Renewal

- (a) The holder of an ATO approval must apply for a renewal in sufficient time before the expiry date of the approval certificate in order to continue training without interruption because of the expiry date of the approval certificate. Renewal of approval is based on criteria and a report in IS 3.1.2.4.

IS 3.2.2 Appendix A: Head of Training

- (a) The Head of Training shall have overall responsibility for ensuring satisfactory integration of flying training, synthetic flight training and theoretical knowledge instruction and for supervising the progress of individual students. The Head of Training shall have had extensive experience in training as a flight instructor for professional pilot licenses and possess a sound managerial capability.

IS 3.2.2 Appendix B: Chief Flight Instructor (CFI)

- (a) The CFI shall be responsible for the supervision of flight and synthetic flight instructors and for the standardization of all flight instruction and synthetic flight instruction.
- (b) The CFI shall:
- (1) hold the highest professional pilot license related to the flying training courses conducted;

- (2) hold the rating(s) related to the flying training courses conducted;
- (3) hold a flight instructor rating for at least one of the types of aircraft used on the course; and
- (4) have completed 1,000 hours pilot-in-command flight time of which a minimum of 500 hours shall be on flying instructional duties related to the flying courses conducted, of which 200 hours may be instrument ground time.

IS 3.2.2 Appendix C: Instructors for training for licenses and ratings

Flight instructors, shall hold:

- (a) A professional pilot license and rating(s) in accordance with Part 2 related to the flying training courses they are appointed to conduct; and
- (b) an instructor rating or authorization in accordance with Part 2, relevant to the part of the course being conducted e.g. flight instructor, flight instrument rating instructor, instructor for additional class or type rating(s), instructor for synthetic flight training, as appropriate.

IS 3.2.2 Appendix D: Instructors for additional class or type ratings

Instructors for additional class or type ratings training shall hold:

- (a) the license and the rating(s) in accordance with Part 2 related to the class or type rating training courses they are appointed to conduct; and
- (b) an instructor rating in accordance with Part 2, relevant to the part of the course being conducted.

IS 3.2.2 Appendix E: Instructors for synthetic flight training

- (a) Instructors for synthetic flight training shall hold the authorization in accordance with Part 2 related to the synthetic flight training courses they are appointed to conduct.

IS 3.2.2 Appendix F: Instructors for flight engineer licenses and/or ratings

Instructors for flight engineer licenses and rating training shall hold:

- (a) the license and the rating(s) in accordance with Part 2 related to the flight engineer license and/or rating training courses they are appointed to conduct; and
- (b) an instructor rating in accordance with Part 2, relevant to the part of the course being conducted.

IS 3.2.2 Appendix G: Chief ground instructor (CGI)

- (a) The CGI shall be responsible for the supervision of all ground instructors and for the standardization of all theoretical knowledge instruction.
- (b) The CGI shall have a practical background in aviation and have undergone a course of training in instructional techniques or have had extensive previous experience in giving theoretical knowledge instruction.

IS 3.2.2 Appendix H: Ground instructors

- (a) Ground instructors in license and ratings knowledge subjects shall have appropriate experience in aviation and shall, before appointment, give proof of their competency by giving a test lecture based on material they have developed for the subjects they are to teach.

IS 3.2.4 Flight crew training courses

- (a) Each applicant for, and holder of, an approved flight crew training course shall include training on the knowledge and flight training subjects that are based on the requirements of Part 2 and are:
 - (1) needed to safely exercise the privileges of the license, rating or authorization for which the course is established; and
 - (2) conducted to develop competency, proficiency, resourcefulness, self-confidence and self-reliance in each student.
- (b) Each applicant for, and holder of, an approved flight crew training course shall include:
 - (1) the knowledge and flight training that is appropriate to the aircraft rating and flight crew license level for which the course applies; and
 - (2) an adequate number of total knowledge and flight training hours appropriate to the aircraft rating and flight crew license level for which the course applies.
- (c) Each person, to graduate from an approved pilot training course shall satisfactorily accomplish the progress checks and skill tests, consisting of the areas of operation that are appropriate to the operating privileges or authorization that graduation from the course will permit.

IS 3.2.7 Airports and Sites

- (a) The base airport, and any alternative base airport, at which flying training is being conducted shall have at least the following facilities:
 - (1) at least one runway or take-off area that allows training aircraft to make a normal take-off or landing at the maximum take-off or maximum landing weight authorized, and touch down autorotation as appropriate:
 - (i) under calm wind (not more than four knots) conditions and temperatures equal to the mean high temperature for the hottest month of the year in the operating area;
 - (ii) clearing all obstacles in the take-off flight path by at least 50 feet;
 - (iii) with the powerplant operation and the landing gear (if applicable) recommended by the manufacturer; and
 - (iv) with a smooth transition from lift-off to the best rate of climb speed without exceptional piloting skills or techniques;
 - (2) have a wind direction indicator that is visible at ground level from the ends of each runway;
 - (3) have adequate runway electrical lighting if used for night training; and
 - (4) have a traffic direction indicator when:

- (i) the airport does not have an operating control tower; and (ii) traffic and wind advisories are not available.

IS 3.2.9 **Appendix A: Training Manual**

The Training Manual for use at an ATO conducting approved training courses shall include the following:

(a) Chapter 1: The Training Plan:

- (1) The aim of the course: A statement of what the student is expected to do as a result of the training, the level of performance, and the training constraints to be observed.
- (2) Pre-entry requirements: Minimum age, educational requirements (including language), medical requirements.
- (3) Credits for previous experience: To be obtained from the Authority before training begins.
- (4) Training Curricula: The flying curriculum (single-engine), the flying curriculum (multi-engine), the synthetic flight training curriculum and the theoretical knowledge training curriculum.
- (5) The time scale and scale in weeks, for each curriculum: Arrangements of the course and the integration of curricula time.
- (6) Training program: The general arrangements of daily and weekly programs for flying, ground and synthetic flight training. Bad weather constraints, Program constraints in terms of maximum student training times, (flying, theoretical knowledge, synthetic) e.g. per day/week/month, Restrictions in respect of duty periods for students. Duration of dual and solo flights at various stages, Maximum flying hours in any day/night, Maximum number of training flights in any day/night, Minimum rest period between duty period.
- (7) Training records: Rules for security of records and documents. Attendance records. The form of training records to be kept. Persons responsible for checking records and students' log books. The nature and frequency of records checks. Standardization of entries in training records. Rules concerning log book entries.
- (8) Safety training: Individual responsibilities. Essential exercises. Emergency drills (frequency). Dual checks (frequency at various stages). Requirement before first solo day/night/navigation, etc.
- (9) Checks and tests: Flying: Progress checks and skill tests. Knowledge: Progress tests and knowledge tests. Authorization for test: Rules concerning refresher training before retest. Test reports and records. Procedures for test paper preparation, type of question and assessment, standard required for 'Pass'. Procedure for question analysis and review and for raising replacement papers. Test resit procedures.
- (10) Training effectiveness: Individual responsibilities. General Assessment. Liaison between departments. Identification of unsatisfactory progress (individual students). Actions to correct unsatisfactory progress. Procedure for changing instructors. Maximum number of instructor changes per student. Internal feedback system for detecting training deficiencies. Procedure for suspending a student from training. Discipline. Reporting and documentation.

- (11) Standards and level of performance at various stages: Individual responsibilities. Standardization. Standardization requirements and procedures. Application of test criteria.
- (b) Chapter 2: Briefing and Air Exercises
- (1) Air Exercise: A detailed statement of the content specification of all the air exercises to be taught, arranged in the sequence to be flown with main and sub-titles.
 - (2) Air exercise reference list: An abbreviated list of the above exercises giving only main and sub-titles for quick reference, and preferably in flip-card form to facilitate daily use by instructors.
 - (3) Course structure – Phase of training: A statement of how the course will be divided into phases, indication of how the above air exercises will be divided between the phases and how they will be arranged to ensure that they are completed in the most suitable learning sequence and that essential (emergency) exercises are repeated at the correct frequency. Also, the curriculum hours for each phase and for groups of exercises within each phase shall be stated and when progress tests are to be conducted, etc.
 - (4) Course structure integration of curricula: The manner in which theoretical knowledge, synthetic flight training and flying training will be integrated so that as the flying training exercises are carried out students will be able to apply the knowledge gained from the associated theoretical knowledge instruction and synthetic flight training.
 - (5) Student progress: The requirement for student progress and include a brief but specific statement of what a student is expected to be able to do and the standard of proficiency he or she must achieve before progressing from one phase of air exercise training to the next. Include minimum experience requirements in terms of hours, satisfactory exercise completion, etc. As necessary before significant exercises, e.g. night flying.
 - (6) Instructional methods: The ATO requirements, particularly in respect of pre- and post-flying briefing, adherence to curricula and training specifications, authorization of solo flights, etc.
 - (7) Progress tests: The instructions given to examining staff in respect of the conduct and document of all progress tests.
 - (8) Glossary of terms: Definition of significant terms as necessary.
 - (9) Appendices: Progress test report forms. Skill test report forms. ATO certificates of experience, competence, etc. as required.
- (c) Chapter 3: Synthetic flight training: Structure generally as for Chapter 2.
- (d) Chapter 4: Knowledge instruction: Structure generally as for Chapter 2 with a training specification and objectives for each subject. Individual lesson plans to include mention of the specific training aids available for use.

IS 3.2.9 **Appendix B: Procedures Manual**

The Procedures Manual for use at an ATO conducting approved training courses shall include the following:

- (a) Chapter 1: General:
- (1) A list and description of all volumes in the Procedures Manual.

- (2) Administration (function and management).
 - (3) Responsibilities (all management and administrative staff).
 - (4) Student discipline and disciplinary action.
 - (5) Approval/authorization of flights.
 - (6) Preparation of flying program (restriction of numbers of aircraft in poor weather).
 - (7) Command of aircraft.
 - (8) Responsibilities of pilot-in-command.
 - (9) Carriage of passengers.
 - (10) Aircraft documentation.
 - (11) Retention of documents.
 - (12) Flight crew qualification records (licenses and ratings).
 - (13) Revalidation (licenses, ratings and medical certificates).
 - (14) Flying duty period and flight time limitations (flying instructors).
 - (15) Flying duty period and flight time limitations (students).
 - (16) Rest periods (flying instructors).
 - (17) Rest periods (students).
 - (18) Pilots' log books
 - (19) Flight planning (general).
 - (20) Safety general: equipment, radio listening watch, hazards, accidents and incidents (including reports), safety pilots, etc.
- (b) Chapter 2: Technical
- (1) Aircraft descriptive notes.
 - (2) Aircraft handling (including checklists, limitations, aircraft maintenance and technical logs, in accordance with relevant requirements, etc.)
 - (3) Emergency procedures.
 - (4) Radio and radio navigation aids.
 - (5) Allowable deficiencies (based on MMEL, if available).
- (c) Chapter 3: Route
- (1) Performance (legislation, take-off, route, landing, etc.).
 - (2) Flight planning (fuel, oil, minimum safe altitude, navigation equipment, etc.)
 - (3) Loading (load sheets, weight, balance, limitations).
 - (4) Weather minima (flying instructors)
 - (5) Weather minima (students: at various stages of training).
 - (6) Training routes/areas
- (d) Chapter 4: Staff training
- (1) Appointments of persons responsible for standards/competence of flying staff.
 - (2) Initial training.

- (3) Refresher training.
- (4) Standardization training.
- (5) Proficiency checks
- (6) Upgrading training.
- (7) ATO staff standards evaluation.

IS 3.4.3 AM AIRFRAME AND/OR POWERPLANT AND/OR AVIONICS RATINGS

Curriculum Requirements

This Implementing Standard defines terms used in Section A, B, C and D of this part, and describes the levels of proficiency at which items under each subject in each curriculum must be taught, as outlined in Sections A, B, C and D.

(a) Definitions. As used in Sections A, B, C and D:

- (1) "Inspect" means to examine by sight and touch.
- (2) "Check" means to verify proper operation.
- (3) "Troubleshoot" means to analyze and identify malfunctions.
- (4) "Service" means to perform functions that assure continued operation.
- (5) "Repair" means to correct a defective condition. Repair of an airframe or powerplant system includes component replacement and adjustment, but not component repair.
- (6) "Overhaul" means to disassemble, inspect, repair as necessary, and check.

(b) Teaching levels.

(1) Level 1 requires:

- (i) Knowledge of general principles, but no practical application.
- (ii) No development of manipulative skill.
- (iii) Instruction by lecture, demonstration, and discussion.

(2) Level 2 requires:

- (i) Knowledge of general principles, and limited practical application.
- (ii) Development of sufficient manipulative skill to perform basic operations.
- (iii) Instruction by lecture, demonstration, discussion, and limited practical application.

(3) Level 3 requires:

- (i) Knowledge of general principles, and performance of a high degree of practical application.
- (ii) Development of sufficient manipulative skills to simulate return to service.
- (iii) Instruction by lecture, demonstration, discussion, and a high degree of practical application.

(c) Teaching materials and equipment.

- (1) The curriculum may be presented utilizing currently accepted educational materials and equipment, including, but not limited to: calculators, computers, and audio-visual equipment.

Section A – General Curriculum Subjects

This section list the subjects required for at least 400 hours of general curriculum subjects. The number in parentheses before each item listed under each subject heading indicates the level of proficiency at which that item shall be taught.

Teaching

Level

A. BASIC ELECTRICITY 30 HOURS

- (2) 1. Calculate and measure capacitance and inductance.
- (2) 2. Calculate and measure electrical power.
- (3) 3. Measure voltage, current, resistance, and continuity.

Teaching

Level

- (3) 4. Determine the relationship of voltage, current, and resistance in electrical circuits.
- (3) 5. Read and interpret aircraft electrical circuit diagrams, including solid state devices and logic functions.
- (3) 6. Inspect and service batteries.

B. AIRCRAFT DRAWINGS 40 HOURS

- (2) 7. Use aircraft drawings, symbols, and system schematics.
- (3) 8. Draw sketches of repairs and alterations.
- (3) 9. Use blueprint information.
- (3) 10. Use graphs and charts.

C. WEIGHT AND BALANCE 30 HOURS

- (2) 11. Weigh aircraft.
- (3) 12. Perform complete weight and balance check and record data.

D. FLUID LINES AND FITTINGS 15 HOURS

- (3) 13. Fabricate and install rigid and flexible fluid lines and fittings.

E. MATERIALS AND PROCESSES 50 HOURS

- (1) 14. Identify and select appropriate non-destructive testing methods.
- (2) 15. Perform dye penetrate, eddy current, ultrasonic, and magnetic particle inspections.
- (1) 16. Perform basic heat-treating processes.
- (3) 17. Identify and select aircraft hardware and materials.

(3) 18. Inspect and check welds.

(3) 19. Perform precision measurements.

F. GROUND OPERATION AND SERVICING 30 HOURS

(2) 20. Start, ground operate, move, service, and secure aircraft and identify typical ground operation hazards.

(2) 21. Identify and select fuels.

G. CLEANING AND CORROSION CONTROL 30 HOURS

(3) 22. Identify and select cleaning materials.

(3) 23. Inspect, identify, remove, and treat aircraft corrosion and perform aircraft cleaning.

H. MATHEMATICS 75 HOURS

(3) 24. Extract roots and raise numbers to a given power.

(3) 25. Determine areas and volumes of various geometric shapes.

(3) 26. Solve ratio, proportion, and percentage problems.

(3) 27. Perform algebraic operations involving addition, subtraction, multiplication, and division of positive and negative numbers.

I. MAINTENANCE FORMS AND RECORDS 40 HOURS

(3) 28. Write descriptions of work performed including aircraft discrepancies and corrective actions using typical aircraft maintenance records.

Teaching

Level

(3) 29. Complete required maintenance forms, records, and inspection reports.

J. BASIC PHYSICS 40 HOURS

(2) 30. Use and understand the principles of simple machines; sound, fluid, and heat dynamics; basic aerodynamics; aircraft structures; and theory of flight.

K. MAINTENANCE PUBLICATIONS 50 HOURS

(3) 31. Demonstrate ability to read, comprehend, and apply information contained in CAA and manufacturers' aircraft maintenance specifications, data sheets, manuals, publications, and related Civil Aviation Regulations (CAR) Airworthiness Directives, and Model Advisory Material.

(3) 32. Read technical data.

L. MECHANIC PRIVILEGES AND LIMITATIONS 20 HOURS

(3) 33. Exercise mechanic privileges within the limitations prescribed by Part 2 of the CAR.

Section B - Airframe Curriculum Subjects

This section list the subjects required in at least 750 hours of each airframe curriculum, in addition to at least 400 hours in general curriculum subjects. The number in

parentheses before each item listed under each subject heading indicates the level of proficiency at which that item must be taught.

I. AIRFRAME STRUCTURES

Teaching

level

A. WOOD STRUCTURES 15 HOURS

- (1) 1. Service and repair wood structures.
- (1) 2. Identify wood defects.
- (1) 3. Inspect wood structures.

B. AIRCRAFT COVERING 15 HOURS

- (1) 4. Select and apply fabric and fiberglass covering materials.
- (1) 5. Inspect, test, and repair fabric and fiberglass.

C. AIRCRAFT FINISHES 30 HOURS

- (1) 6. Apply trim, letters, and touch-up paint.
- (2) 7. Identify and select aircraft finishing materials.
- (2) 8. Apply finishing materials.
- (2) 9. Inspect finishes and identify defects.

D. SHEET METAL AND NONMETALLIC STRUCTURES 60 HOURS

- (2) 10. Select, install, and remove special fasteners for metallic, bonded, and composite structures.
- (2) 11. Inspect bonded structures.
- (2) 12. Inspect, test and repair fiberglass, plastics, honeycomb, composite, and laminated primary and secondary structures.
- (2) 13. Inspect, check, service, and repair windows, doors, and interior furnishings.
- (3) 14. Inspect and repair sheet metal structures.

Teaching

level

- (3) 15. Install conventional rivets.
- (3) 16. Form, layout, and bend sheet metal.

E. WELDING 70 HOURS

- (1) 17. Weld magnesium and titanium.
- (1) 18. Solder stainless steel.
- (1) 19. Fabricate tubular structures.
- (2) 20. Solder, braze, gas weld, and arc weld steel.
- (1) 21. Weld aluminum and stainless steel.

F. ASSEMBLY AND RIGGING 50 HOURS

- (1) 22. Rig rotary wing aircraft.
- (2) 23. Rig fixed wing aircraft.
- (2) 24. Check alignment of structures.
- (3) 25. Assemble aircraft components, including flight control surfaces.
- (3) 26. Balance, rig, and inspect moveable primary and secondary flight control surfaces.
- (3) 27. Jack aircraft.

G. AIRFRAME INSPECTION 40 HOURS

- (3) 28. Perform airframe conformity and airworthiness inspections.

II. AIRFRAME SYSTEMS AND COMPONENTS**A. AIRCRAFT LANDING GEAR SYSTEMS 30 HOURS**

- (3) 29. Inspect, check, service, and repair landing gear, retraction systems, shock struts, brakes, wheels, tires, and steering systems.

B. HYDRAULIC AND PNEUMATIC POWER SYSTEMS 20 HOURS

- (2) 30. Repair hydraulic and pneumatic power systems components.
- (3) 31. Identify and select hydraulic fluids.
- (3) 32. Inspect, check, service, troubleshoot, and repair hydraulic and pneumatic power systems.

C. CABIN ATMOSPHERE CONTROL SYSTEMS 60 HOURS

- (1) 33. Inspect, check, troubleshoot, service, and repair heating, cooling, air conditioning, pressurization systems, and air cycle machines.
- (1) 34. Inspect, check, troubleshoot, service, and repair heating, cooling, air conditioning, and pressurization systems.
- (2) 35. Inspect, check, troubleshoot, service and repair oxygen systems.

D. AIRCRAFT INSTRUMENT SYSTEMS 20 HOURS

- (1) 36. Inspect, check, service, troubleshoot, and repair electronic flight instrument systems and both mechanical and electrical heading, speed, altitude, temperature, pressure, and position indicating systems to include the use of built-in test equipment.
- (2) 37. Install instruments and perform a static pressure system leak test.

**Teaching
level****E. COMMUNICATION AND NAVIGATION SYSTEMS 30 HOURS**

- (1) 38. Inspect, check, and troubleshoot autopilot, servos, and approach coupling systems.
- (1) 39. Inspect, check, and service aircraft electronic communication and navigation systems, including VHF passenger address interphones and static discharge

devices, aircraft VOR, ILS, LORAN/GPS, Radar beacon transponders, flight management computers, and GPWS.

- (2) 40. Inspect and repair antenna and electronic equipment installations.

F. AIRCRAFT FUEL SYSTEMS 70 HOURS

- (1) 41. Check and service fuel dump systems.
- (1) 42. Perform fuel management transfer, and De-fuelling.
- (1) 43. Inspect, check, and repair pressure-fuelling systems.
- (2) 44. Repair aircraft fuel system components.
- (2) 45. Inspect and repair fluid quantity indicating systems.
- (2) 46. Troubleshoot, service, and repair fluid pressure and temperature warning systems.
- (3) 47. Inspect, check, service, troubleshoot, and repair aircraft fuel systems.

G. AIRCRAFT ELECTRICAL SYSTEMS 50 HOURS

- (2) 48. Repair and inspect aircraft electrical system components; crimp and splice wiring to manufacturers' specifications, and repair pins and sockets of aircraft connectors.
- (3) 49. Install, check, and service airframe electrical wiring, controls, switches, indicators, and protective devices.
- (3) 50.a. Inspect, check, troubleshoot, service, and repair alternating and direct current electrical systems.
- (1) 50.b. Inspect, check, and troubleshoot constant speed and integrated speed drive generators.

H. POSITION AND WARNING SYSTEMS 50 HOURS

- (2) 51. Inspect, check, and service speed and configuration warning systems, electrical brake controls, and anti-skid systems.
- (3) 52. Inspect, check, troubleshoot and service landing gear position indicating and warning systems.

I. ICE AND RAIN CONTROL SYSTEMS 40 HOURS

- (2) 53. Inspect, check, troubleshoot, service, and repair airframe ice and rain control systems.

J. FIRE PROTECTION SYSTEMS 70 HOURS

- (1) 54. Inspect, check, and service smoke and carbon monoxide detection systems.
- (3) 55. Inspect, check, service, troubleshoot, and repair aircraft fire detection and extinguishing systems.

Section C - Powerplant Curriculum Subjects

This section list the subjects required in at least 750 hours of each powerplant curriculum, in addition to at least 400 hours in general curriculum subjects. The number in parentheses before each item listed under each subject heading indicates the level of proficiency at which that item must be taught.

Teaching

level

I. POWERPLANT THEORY AND MAINTENANCE**A. RECIPROCATING ENGINES 80 HOURS**

- (1) 1. Inspect and repair a radial engine.
- (2) 2. Overhaul reciprocating engine.
- (3) 3. Inspect, check, service, and repair reciprocating engines and engine installations.
- (3) 4. Install, troubleshoot, and remove reciprocating engines.

B. TURBINE ENGINES 80 HOURS

- (2) 5. Overhaul turbine engine.
- (3) 6. Inspect, check, service, and repair turbine engines and turbine engine installations.
- (3) 7. Install, troubleshoot, and remove turbine engines.

C. ENGINE INSPECTION 80 HOURS

- (3) 8. Perform powerplant conformity and airworthiness inspections.

II. POWERPLANT SYSTEMS AND COMPONENTS**A. ENGINE INSTRUMENT SYSTEMS 50 HOURS**

- (2) 9. Troubleshoot, service, and repair electrical and mechanical fluid rate-of-flow indicating systems.
- (3) 10. Inspect, check, service, troubleshoot, and repair electrical and mechanical engine temperature, pressure, and rpm indicating systems.

B. ENGINE FIRE PROTECTION SYSTEMS 40 HOURS

- (3) 11. Inspect, check, service, troubleshoot, and repair engine fire detection and extinguishing systems.

C. ENGINE ELECTRICAL SYSTEMS 30 HOURS

- (2) 12. Repair engine electrical system components.
- (3) 13. Install, check, and service engine electrical wiring, controls, switches, indicators, and protective devices.

D. LUBRICATION SYSTEMS 30 HOURS

- (2) 14. Identify and select lubricants.
- (2) 15. Repair engine lubrication system components.
- (3) 16. Inspect, check, service, troubleshoot, and repair engine lubrication systems.

E. IGNITION AND STARTING SYSTEMS 50 HOURS

- (2) 17. Overhaul magneto and ignition harness.
- (2) 18. Inspect, service, troubleshoot, and repair reciprocating and turbine engine ignition systems and components.
- (3) 19. a. Inspect, service, troubleshoot, and repair turbine engine electrical starting systems.
- (1) 19. b. Inspect, service, and troubleshoot turbine engine pneumatic starting systems.

**Teaching
level****F. FUEL METERING SYSTEMS 60 HOURS**

- (1) 20. Troubleshoot and adjust turbine engine fuel metering systems and electronic engine fuel controls.
- (2) 21. Overhaul carburetor.
- (2) 22. Repair engine fuel metering system components.
- (3) 23. Inspect, check, service, troubleshoot, and repair reciprocating and turbine engine fuel metering systems.

G. ENGINE FUEL SYSTEMS 30 HOURS

- (2) 24. Repair engine fuel system components.
- (3) 25. Inspect, check, service, troubleshoot, and repair engine fuel systems.

H. INDUCTION AND ENGINE AIRFLOW SYSTEMS 40 HOURS

- (2) 26. Inspect, check, troubleshoot, service, and repair engine ice and rain control systems.
- (1) 27. Inspect, check, service, troubleshoot and repair heat exchangers, superchargers, and turbine engine airflow and temperature control systems.
- (3) 28. Inspect, check, service, and repair carburetor air intake and induction manifolds.

I. ENGINE COOLING SYSTEMS 30 HOURS

- (2) 29. Repair engine cooling system components.
- (3) 30. Inspect, check, troubleshoot, service, and repair engine-cooling systems.

J. ENGINE EXHAUST AND REVERSER SYSTEMS 40 HOURS

- (2) 31. Repair engine exhaust system components.
- (3) 32.a. Inspect, check, troubleshoot, service, and repair engine exhaust systems.
- (1) 32.b. Troubleshoot and repair engine thrust reverser systems and related components.

K. PROPELLERS 60 HOURS

- (1) 33. Inspect, check, service, and repair propeller synchronizing and ice control systems.
- (2) 34. Identify and select propeller lubricants.
- (1) 35. Balance propellers.
- (2) 36. Repair propeller control system components.
- (3) 37. Inspect, check, service, and repair fixed pitch, constant speed, and feathering propellers, and propeller governing systems.
- (3) 38. Install, troubleshoot, and remove propellers.
- (3) 39. Repair aluminum alloy propeller blades.

L. UNDUCTED FANS 40 HOURS

- (1) 40. Inspect and troubleshoot unducted fan systems and components.

M. AUXILIARY POWER UNITS 40 HOURS

- (1) 41. Inspect, check, service, and troubleshoot turbine driven auxiliary power units.

Section D - Avionics Curriculum Subjects

This section list the subjects required in at least 750 hours of each avionics curriculum, in addition to at least 400 hours in general curriculum subjects. The number in parentheses before each item listed under each subject heading indicates the level of proficiency at which that item must be taught.

I. AVIONICS THEORY AND MAINTENANCE COURSE

A. AIRCRAFT INSTRUMENTS 20 HOURS

Teaching level

- (3) 1. Aircraft instruments test and repair electrical flight instruments.
- (3) 2. Inspect altitude indicating and reporting equipment.
- (3) 3. Test aircraft systems utilizing built in test equipment.

B. COMMUNICATION AND NAVIGATION 20 HOURS

- (3) 4. Test aircraft antenna systems
- (3) 5. Install systems and components.
- (3) 6. Test, inspect, and repair autopilot systems.

C. AIRCRAFT ELECTRICAL SYSTEMS 20 HOURS

- (3) 4. Inspect, test and repair electrical cables.
- (3) 5. Inspect and repair electrical generating system components.

D. AIRCRAFT DIGITAL COMPUTER SYSTEMS. 20 HOURS

- (3) 4. Test and repair digital systems and components.
- (3) 5. Test and troubleshoot computer systems.

II. AVIONICS SYSTEMS AND COMPONENTS COURSE

A. AIRCRAFT INSTRUMENT SYSTEMS 150 HOURS

Teaching

Level

- (1) 1. Inspect, check, service, troubleshoot, and repair electronic flight instrument systems and both mechanical and electrical heading, speed, altitude, temperature, pressure, and position indicating systems to include the use of built-in test equipment.
- (3) 2. Install instruments and perform a static pressure system leak test.

B. COMMUNICATION AND NAVIGATION SYSTEMS 150 HOURS

- (2) 3. Inspect, check, and troubleshoot autopilot, servos and approach coupling systems.
- (3) 4. Inspect, check, and service aircraft electronic communication and navigation systems, including VHF passenger address interphones, audio control devices and static discharge devices, aircraft VOR, ILS, LORAN, GPS, Radar beacon transponders, flight management computers, and GPWS. Inspect, test, troubleshoot and repair INS, IRS and other forms of inertial navigation devices and systems.
- (2) 5. Inspect and repair antenna and electronic equipment installations.

Teaching**Level****C. AIRCRAFT ELECTRICAL SYSTEMS 150 HOURS**

- (3) 6. Repair and inspect aircraft electrical system components, cable routing and security; crimp and splice wiring to manufacturers' specifications; and repair pins and sockets of aircraft connectors.
- (3) 7. Install, check, test, and service airframe electrical wiring, controls, switches, indicators, and protective devices.
- (3) 8. Inspect, check, troubleshoot, service, and repair alternating and direct current electrical systems and components.
- (1) 9. Inspect, check, and troubleshoot constant speed and integrated speed drive generators.
- (3) 10. Install, check, and service engine electrical wiring controls, switches, indicators, and protective devices.

D. AIRCRAFT DIGITAL COMPUTER SYSTEMS 220 HOURS

- (2) 11. Install, inspect, test and repair digital systems and equipment, indicating, and switching systems and components. Install, test, inspect, repair onboard-integrated EFIS systems, entertainment systems and components, and logic and control components.