

## **IMPLEMENTING STANDARD 9**

### ***Civil Aviation (Aviation Training Organisation) Regulations 2007 – Implementing Standards***

## **TABLE OF CONTENTS**

<b>STANDARD</b>	<b>PAGE</b>
<b>9.1</b> Application for an ATO Regulation 5(2)(b)(i)	9-1
<b>9.2</b> Location, Facilities and Equipment and Airport Requirements of an ATO Regulation 16	9.2
9.2.1 Location, Facilities and Equipment Regulation 16(15)	9-2
9.2.2 Airport Requirements Regulation 16(18)	9-2
<b>9.3</b> Private, Glider, and Free Balloon Pilot Licensing Course Regulation 28(1)(a)(i)	9-4
<b>9.4</b> Instrument Rating Course Regulation 28(1)(a)(ii)	9-9
<b>9.5</b> Commercial Pilot Licensing Course Regulation 28(1)(a)(iii)	9-12
<b>9.6</b> Airline Transport Pilot Licensing Course Regulation 28(1)(a)(iv)	9-18
<b>9.7</b> Flight Instructor Course Regulation 28(1)(a)(v)	9-20
<b>9.8</b> Flight Instructor Instrument Rating Course Regulation 28(1)(a)(vi)	9-22
<b>9.9</b> Ground Instructor Authorization Course Regulation 28(1)(a)(vii)	9-25
<b>9.10</b> Additional Aircraft Category or Class Rating Course Regulation 28(1)(a)(viii)	9-27
<b>9.11</b> Aircraft Type Rating Course Regulation 28(1)(a)(ix)	9-28
<b>9.12</b> Flight Engineer Course Regulation 28(1)(a)(x)	9-30
<b>9.13</b> Special Preparation Courses Regulation 28(1)(b)	9-34
<b>9.14</b> Pilot Ground School Course Regulation 28(1)(c)	9-37

<b>9.15</b>	Level 2 ATO Instructor Training and Testing Requirements Regulation 33(2)	9-38
<b>9.16</b>	ATO with Level 1 Flight Training Specification Chief Flight Instructor Qualification Regulation 36(2)	9-39
<b>9.17</b>	ATO with Level 1 Flight Training Specification- Assistant Chief Flight Instructor Qualification Regulation 36(2)	9-41
<b>9.18</b>	ATO with Level 1 Flight Training Specification— Check Instructor Qualifications Regulation 38(2)	9-43
<b>9.19</b>	Transfer Privileges Regulation 42(2)	9-45
<b>9.20</b>	Training Course: Contents Regulation 45	9-46
<b>9.21</b>	AME Airframe and/or Power-plant Rating Curriculum Requirements Regulation 50(4)	9-47

**IMPLEMENTING STANDARD 9**  
*Civil Aviation (Aviation Training Organisation) Regulations 2007*

**STANDARD NO: - 9.1 APPLICATION FOR AN ATO**

**Regulation 5 (2)(b)(i)**

1. An Aviation Training Organization may provide a training and procedures manual for the use and guidance of personnel concerned and shall be issued in separate parts containing at least the following information:

- (a) a general description of the scope of training authorized under the organization's terms of approval;
- (b) the content of the training programmes offered including the courseware and equipment to be used;
- (c) a description of the organization's quality assurance system;
- (d) a description of the organizations facilities;
- (e) the name, duties and qualification of the person designated as responsible for compliance with the requirements of the approval;
- (f) a description of the duties and qualification of the personnel designated as responsible for planning, performing and supervising of the training;
- (g) a description of the procedures used to establish and maintain the competence of instructional personnel;;
- (h) a description of the method used for the completion and retention of the training records;
- (i) a description, when applicable, of additional training needed to comply with an operator's procedures and requirements; and
- (j) where an aviation training organization is authorized to conduct the testing required for the issue of a licence or rating, a description of the selection, role and duties of the authorized personnel, as well as the applicable requirements established by the DCA.

2. The aviation training organization shall ensure that the Training and Procedures manual is amended when necessary and shall keep the information contained in the Training and Procedures manual up to date.

3. Copies of all amendments to the Training and Procedures manual shall be furnished promptly to all organizations or persons to whom the manual has been issued.

**STANDARD NO: - 9.2- LOCATION, FACILITIES , EQUIPMENT AND AIRPORT REQUIRMENTS OF AN ATO**

**Regulation 16**

**STANDARD NO: - 9.2.1**

**Regulation 16 (15)**

**Location, Facilities And Equipment**

An applicant for, and holder of, an aviation training organization certificate shall have facilities the Director determines are appropriate for the maximum number of students expected to be taught at any time, as follows:

- (a) an enclosed classroom;
- (b) suitable facilities arranged to assure proper separation from the working space, for parts, tools, materials, and similar articles;
- (c) suitable area for application of finishing materials, including paint spraying;
- (d) suitable areas equipped with wash-tank and degreasing equipment with air pressure or other adequate cleaning equipment;
- (e) suitable facilities for running engines;
- (f) suitable area with adequate equipment, including benches, tables, and test equipment, to disassemble, service, and inspect;
- (i) ignition systems, electrical equipment, and appliances;
- (ii) carburettors and fuel systems; and
- (iii) hydraulic and vacuum systems for aircraft, aircraft engines, and their appliances;
- (g) suitable space with adequate equipment, including tables, benches, stands, and jacks, for disassembling, inspecting, and rigging aircraft;
- (h) suitable space with adequate equipment for disassembling, inspecting, assembling, troubleshooting, and timing engines.

**STANDARD NO: - 9.2.2**

**Regulation 16 (18)**

***Airport Requirements***

An applicant for, and holder of, an aviation training organization certificate with Level 1 Flight Training Specifications shall show that the airport at which training flights originate has the following:

- (a) at least one runway or takeoff area that allows training aircraft to make a normal takeoff and landing at the aircraft's maximum certified takeoff gross weight under the following conditions:
  - (i) wind not more than 5 knots;
  - (ii) temperatures equal to the mean high temperature for the hottest month of the year in the operating area;

- (iii) if applicable, with the powerplant operation, and landing gear and flap operation recommended by the manufacturer; and
- (iv) in the case of a takeoff—
  - (A) with smooth transition from lift-off to the best rate of climb speed without exceptional piloting skills or techniques; and
  - (B) clearing all obstacles in the takeoff flight path by at least 50 feet;
- (b) a wind direction indicator that is visible from the end of each runway at ground level;
- (c) a traffic direction indicator when—
  - (i) the airport does not have an operating control tower; and
  - (ii) traffic and wind advisories are not available;
- (d) except as provided in paragraph (e), permanent runway lights if that airport is to be used for night training flights; and
- (e) adequate non-permanent lighting or shoreline lighting for an airport or seaplane base for night training flights in seaplanes, if approved by the Director.

**STANDARD NO: 9.3.- PRIVATE, GLIDER, AND FREE BALLOON PILOT LICENSING COURSE**

**Regulation 28(1)(a)(i)**

The following curriculum meets the minimum curriculum standard for: a private pilot licensing course:

(1)(a) Private Pilot Licence

- (i) aeroplane single-engine;
- (ii) aeroplane multi-engine;
- (iii) helicopter;
- (iv) powered-lift and
- (v) airship)

(b) glider pilot licence;

(c) free balloon pilot licence

(2) Eligibility for enrolment: A person shall hold a student pilot license prior to enrolling in the flight portion of the private pilot licensing course.

(3) Aeronautical knowledge training:

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each approved course includes at least the following hours of ground training on the following aeronautical knowledge areas, appropriate to the aircraft category and class rating—

- (i) 35 hours for private pilot licence- aeroplane, helicopter, airship, or powered-lift category rating;
- (ii) 15 hours for a glider pilot licence; and
- (iii) 10 hours for a free balloon pilot licence; and

(b) ground training shall include the following aeronautical knowledge areas:

- (i) applicable Barbados Regulations for private, glider or free balloon pilot privileges, limitations, and flight operations;
- (ii) accident reporting requirements of Barbados;
- (iii) applicable subjects of the Director provided aeronautical information publications;
- (iv) aeronautical charts for visual flight rules navigation using pilotage, dead reckoning, and navigation systems;
- (v) radio communication procedures;
- (vi) recognition of critical weather situations from the ground and in flight, windshear avoidance, and the procurement and use of aeronautical weather reports and forecasts;

- (vii) safe and efficient operation of aircraft, including collision avoidance, and recognition and avoidance of wake turbulence;
- (viii) effects of density altitude on takeoff and climb performance;
- (ix) weight and balance computations;
- (x) principles of aerodynamics, powerplants, and aircraft systems;
- (xi) if the training course is for an aeroplane category or glider pilot licence, stall awareness, spin entry, spins, and spin recovery techniques;
- (xii) aeronautical decision making and judgement; and
- (xiii) pre-flight action that includes:
  - (A) obtaining information on runway lengths, data on takeoff and landing distances, weather reports and forecasts, and fuel requirements; and
  - (B) planning for alternatives if a planned flight cannot be completed or delays are encountered.

(4) Flight training:

(a) each applicant for, and holder of, an aviation training organization certificate shall include at least the following hours of flight training on the areas of operation listed in paragraph (d), appropriate to the licence

- (i) 35 hours for private pilot licence- aeroplane, helicopter, powered-lift, or airship;
- (ii) 6 hours for a glider pilot licence; and
- (iii) 16 hours for a free balloon licence;

(b) each applicant for, and holder of, an aviation training organization certificate with these ratings shall include at least the following hours of flight training in each course:

- (i) for private pilot course, 20 hours from a licensed flight instructor on the applicable areas of operation that includes at least—
  - (A) 3 hours of cross-country flight training in the category and class involved;
  - (B) In the case of aeroplane and powered-lift category, 3 hours of night flight training in the class involved that includes—
    - (I) one cross-country flight of more than 100-nautical-miles total distance; and
    - (II) 10 takeoffs and 10 landings to a full stop (with each landing involving a flight in the traffic pattern);
  - (C) In the case of helicopter category, 3 hours of night flight training in a helicopter that includes one cross-country flight of more than 50 nautical-miles total distance;
  - (D) In the case of airship category, 3 hours of night flight training in an airship that includes—
    - (I) one cross-country flight over 25 nautical-miles total distance; and

- (II) five takeoffs and five landings to a full stop (with each landing involving a flight in the traffic pattern);
- (E) 3 hours of instrument training in the category and class involved; and
- (F) 3 hours in the category and class involved in preparation for the practical test within 60 days proceeding the date of the test;
- (ii) **for a glider course:** 4 hours from a licensed flight instructor on the applicable areas of operation in paragraph (d) and (e) that includes at least—
  - (A) five training flights in a glider on launch/tow procedures approved for the course and in the applicable areas of operation listed in paragraphs (d) and (e); and
  - (B) three training flights in a glider in preparation for the practical test within 60 days proceeding the date of the test;
- (iii) **for a free balloon course:** 8 hours, including at least five flights, from a commercial pilot with a balloon rating on the applicable areas of operation in paragraph (d) and (e), that includes—
  - (A) if the training is being performed in a gas balloon—
    - (I) two flights of 1 hour each;
    - (II) one flight involving a controlled ascent to 3,000 feet above the launch site; and
    - (III) two flights in preparation for the practical test within sixty days proceeding the date of the test;
  - (B) if the training is being performed in a balloon with an airborne heater—
    - (I) two flights of 30 minutes each;
    - (II) one flight involving a controlled ascent to 2,000 feet above the launch site; and
    - (III) two flights in preparation for the practical test within 60 days proceeding the date of the test;

(d) each approved course shall include flight training in the following areas of operation that are applicable to the aircraft category, class rating and licence:

- (i) preflight preparation;
- (ii) preflight procedures;
- (iii) airport and seaplane base operations;
- (iv) takeoffs, landings, and go-arounds;
- (v) performance manoeuvres;
- (vi) ground reference manoeuvres;
- (vii) navigation;

- (viii) slow flight and stalls;
- (ix) basic instrument manoeuvres;
- (x) emergency operations;
- (xi) night operations; and
- (xii) postflight procedures;

(e) in addition, for the specific category, class and licence of aircraft shown, each approved course shall include the applicable flight training in the following areas of operation:

- (i) for a multiengine aeroplane course, multiengine operations;
- (ii) for a helicopter course; hovering manoeuvres;
- (iii) for a gyroplane course flight at slow airspeeds;
- (iv) for a powered-lift course hovering manoeuvres;
- (v) for a glider course—
  - (A) launches/tows, as appropriate, and landings;
  - (B) performance speeds; and
  - (C) soaring techniques;
- (vi) for a lighter-than-air balloon course launches and landings;

(5) Solo flight training. Each approved course shall include at least the following solo flight training:

(a) for an aeroplane single-engine course: 5 hours of solo flight training in a single-engine aeroplane on the applicable areas of operation in paragraph (4)(d) that includes at least—

- (i) one solo cross-country flight of at least 100 nautical miles with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 50 nautical miles between the takeoff and landing locations; and
- (ii) three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower;

(b) for an aeroplane multiengine course: 5 hours of flight training in a multiengine aeroplane performing the functions of a pilot in command while under the supervision of a licensed flight instructor, the training shall consist of the applicable areas of operation in paragraph (4)(d) and include at least—

- (i) one cross-country flight of at least 100 nautical miles with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 50 nautical miles between the takeoff and landing locations; and
- (ii) three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower;

(c) for a helicopter course: 5 hours of solo flight training in a helicopter on the applicable areas of operation in paragraph (4)(d) that includes at least—

(i) one solo cross-country flight of more than 50 nautical miles with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 25 nautical miles between the takeoff and landing locations; and

(ii) three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower;

(d) for a gyroplane course: 5 hours of solo flight training in gyroplanes on the applicable areas of operation in paragraph (4)(d) that includes at least—

(i) one solo cross-country flight of more than 50 nautical miles with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 25 nautical miles between the takeoff and landing locations; and

(ii) three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower;

(e) for a powered-lift course: 5 hours of solo flight training in a powered-lift on the applicable areas of operation in paragraph (4)(d) that includes at least—

(i) one solo cross-country flight of at least 100 nautical miles with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 50 nautical miles between the takeoff and landing locations;

(ii) three takeoffs and three landings to a full stop (with each landing involving a flight in the traffic pattern) at an airport with an operating control tower; and

(iii) transition from hover to forward flight using wing lift;

(f) for a glider course: two solo flights in a glider on the applicable areas of operation in paragraph (4)(d) and the launch and tow procedures appropriate for the approved course;

(g) for a lighter-than-air airship course: 5 hours of flight training in the applicable areas of operation shown in paragraph (4)(d) in an airship performing the functions of pilot in command while under the supervision of a commercial pilot with an airship rating;

(h) for a lighter-than-air balloon course: training on the applicable areas of operation in paragraph (4)(d), as applicable, and

(i) two solo flights in a balloon with an airborne heater; or

(ii) at least two flights in a gas balloon performing the functions of pilot in command while under the supervision of a commercial pilot with a balloon rating.

(6) Stage checks and end-of-course tests.

(a) each student, to graduate from a private, glider or free balloon pilot course shall satisfactorily accomplish the stage checks and end-of-course tests, consisting of the applicable areas of operation listed in paragraph (4)(d) for the aircraft category and class rating;

(b) each student shall demonstrate satisfactory proficiency prior to being endorsed to operate an aircraft in solo flight.

## **STANDARD NO: - 9.4- INSTRUMENT RATING COURSE**

### **Regulation 28(1)(a)(ii)**

The following curriculum meets the minimum curriculum standard for an instrument rating course and additional instrument rating course:

(1) Ratings—

- (a) instrument: aeroplane;
- (b) instrument: helicopter; and
- (c) instrument: powered-lift;

(2) Eligibility for enrolment. A person shall hold at least a private pilot license with an aircraft category and class rating appropriate to the instrument rating for which the course applies prior to enrolling in the flight portion of the instrument rating course.

(3) Aeronautical knowledge training.

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each approved course includes at least the following hours of ground training on the aeronautical knowledge areas appropriate to the instrument rating sought:

- (i) 30 hours for an initial instrument rating; and
- (ii) 20 hours for an additional instrument rating;

(b) ground training shall include the following aeronautical knowledge areas:

- (i) applicable Barbados Regulations for IFR flight operations;
- (ii) appropriate information in aeronautical information publications provided by the Director;
- (iii) air traffic control system and procedures for instrument flight operations;
- (iv) IFR navigation and instrument approaches to an airport by use of navigation systems;
- (v) use of IFR enroute and instrument approach procedure charts;
- (vi) procurement and use of aviation weather reports and forecasts, and the elements of forecasting weather trends on the basis of that information and personal observation of weather conditions;
- (vii) safe and efficient operation of aircraft under IFR conditions;
- (viii) recognition of critical weather situations and windshear avoidance;
- (ix) aeronautical decision making and judgement; and
- (x) crew resource management, to include crew communication and co-ordination.

(4) Flight training:

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least the following hours of flight training on the applicable areas of operation listed in paragraph (c):

(i) 35 hours for an initial instrument rating; and

(ii) 15 hours for an additional instrument rating;

(b) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes the following flight training;

(i) for an instrument aeroplane course: instrument training from a licensed flight instructor with an instrument rating on the applicable areas of operation in paragraph (c) including at least one cross-country flight that—

(A) is in the category and class of aeroplane that the course is approved for, and is performed under if;

(B) is a distance of at least 250 nautical miles with one segment of the flight consisting of at least a straightline distance of 100 nautical miles between airports;

(C) involves an instrument approach at each airport; and

(D) involves three approaches with the use of different kinds of navigation systems;

(ii) for an instrument helicopter course: instrument training from a licensed flight instructor with an instrument rating on the applicable areas of operation in paragraph (c) including at least one cross-country flight that;

(A) is performed in a helicopter under IFR;

(B) is a distance of at least 100 nautical miles with one segment of the flight consisting of at least a straightline distance of 50 nautical miles between airports;

(C) involves an instrument approach at each airport; and

(D) involves three approaches with the use of different kinds of navigation systems;

(iii) for an instrument powered-lift course: instrument training from a licensed flight instructor with an instrument rating on the areas of operation in paragraph (c) including at least one crosscountry flight that;

(A) is in a powered-lift and is performed under IFR;

(B) involves transition from wing-borne to rotor-borne flight under IFR;

(C) is a distance of at least 250 nautical miles with one segment of the flight consisting of at least a straight-line distance of 100 nautical miles between airports;

(D) involves an instrument approach at each airport; and

(E) involves three different kinds of approaches with the use of navigation systems;

(c) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes the flight training on the applicable areas of operation listed in this paragraph appropriate to the instrument aircraft category and class rating—

- (i) preflight preparation;
- (ii) preflight procedures;
- (iii) air traffic control clearances and procedures;
- (iv) flight by reference to instruments;
- (v) navigation systems;
- (vi) instrument approach procedures;
- (vii) emergency operations; and
- (viii) postflight procedures.

(5) Stage checks and end-of-course tests. Each student, to graduate from an instrument rating course shall satisfactorily accomplish the stage checks and end-of-course tests, consisting of the areas of operation listed in paragraph (4)(c) that are appropriate to the aircraft category and class rating.

**STANDARD NO: - 9.5- COMMERCIAL PILOT LICENSING COURSE**  
**Regulation 28(1)(a)(iii):-**

The following curriculum meets the minimum curriculum standard for a commercial pilot licensing course:

(1) Ratings:

- (a) aeroplane single-engine;
- (b) aeroplane multiengine;
- (c) helicopter;
- (d) powered-lift;
- (e) airship;

(2) Eligibility for enrolment: A person shall hold the following prior to enrolling in the flight portion of the commercial pilot licensing course:

(a) at least a private pilot license; and

(b) if the course is for a rating in an aeroplane or a powered-lift category—

- (i) hold an instrument rating in the aircraft that is appropriate to the aircraft category rating for which the course applies; or;
- (ii) be enrolled concurrently in an instrument rating course that is appropriate to the aircraft category rating for which the course applies, and pass the required instrument rating practical test prior to completing the commercial pilot licensing course.

(3) Aeronautical knowledge training:

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least the following ground training on the applicable aeronautical knowledge areas listed in paragraph (b):

- (i) 65 hours for an aeroplane category rating, powered-lift category rating, or an airship category rating;
- (ii) 30 hours for a helicopter category rating;
- (iii) 20 hours for a glider category rating;

(b) ground training shall include the following aeronautical knowledge areas:

- (i) Barbados Regulations that apply to commercial pilot privileges, limitations, and flight operations;
- (ii) accident reporting requirements of Barbados;
- (iii) basic aerodynamics and the principles of flight;
- (iv) meteorology, to include recognition of critical weather situations, windshear recognition and avoidance, and the use of aeronautical weather reports and forecasts;
- (v) safe and efficient operation of aircraft;

- (vi) weight and balance computations;
- (vii) use of performance charts;
- (viii) significance and effects of exceeding aircraft performance limitations;
- (ix) use of aeronautical charts and a magnetic compass for pilotage and dead reckoning;
- (x) use of air navigation facilities;
- (xi) aeronautical decision making and judgement;
- (xii) principles and functions of aircraft systems;
- (xiii) manoeuvres, procedures, and emergency operations appropriate to the aircraft;
- (xiv) night and high-altitude operations;
- (xv) descriptions of and procedures for operating within the Barbados airspace system;
- (xvi) procedures for flight and ground training for lighter-than-air ratings.

(4) Flight training:

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least the following flight training on the applicable areas of operation listed in paragraph (c)—

- (i) 155 hours for an aeroplane, powered-lift, or an airship rating;
- (ii) 115 hours for a helicopter rating;

(b) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least the following flight training:

- (i) for an aeroplane single-engine course: 55 hours of flight training from a licensed flight instructor on the areas of operation listed in paragraph (c) that includes at least—
  - (A) 5 hours of instrument training in a single-engine aeroplane;
  - (B) 10 hours of training in a single-engine aeroplane that has retractable landing gear, flaps, and a controllable pitch propeller, or is turbine-powered;
  - (C) one cross-country flight in a single-engine aeroplane of at least a 2-hour duration, a total straight-line distance of more than 100 nautical miles from the original point of departure, and occurring in day visual flight rules conditions;
  - (D) one cross-country flight in a single-engine aeroplane of at least a 2-hour duration, a total straight-line distance of more than 100 nautical miles from the original point of departure, and occurring in night visual flight rules conditions; and
  - (E) 3 hours in a single-engine aeroplane in preparation for the practical test within 60 days preceding the date of the test;
- (ii) for an aeroplane multiengine course: the flight training shown in paragraph (c), accomplished in a multiengine aeroplane;

(iii) for a helicopter course—the flight training shown in paragraph (c), accomplished in a helicopter;

except 30 hours of flight training from a licensed flight instructor on the areas of operation listed in paragraph (c) and (d) that includes at least—

(A) 5 hours of instrument training;

(B) one cross-country flight in a helicopter of at least a 2-hour duration, a total straight-line distance of more than 50 nautical miles from the original point of departure, and occurring in day visual flight rules conditions; and

(C) one cross-country flight in a helicopter of at least a 2-hour duration, a total straight-line distance of more than 50 nautical miles from the original point of departure, and occurring in night visual flight rules conditions;

(iv) for a powered-lift course: the applicable flight training shown in paragraph (c), flown in a powered-lift aircraft;

(vi) for a lighter-than-air airship course: 55 hours of training in airships from a commercial pilot with an airship rating on the areas of operation in paragraphs (c) and (d) that includes at least—

(A) 3 hours of instrument training in an airship;

(B) one cross-country flight in an airship of at least a 1-hour duration, a total straight-line distance of more than 25 nautical miles from the original point of departure, and occurring in day visual flight rules conditions;

(C) one cross-country flight in an airship of at least a 1-hour duration, a total straight-line distance of more than 25 nautical miles from the original point of departure, and occurring in night visual flight rules conditions; and

(D) 3 hours in an airship, in preparation for the practical test within 60 days preceding the date of the test;

(c) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes the flight training on the following areas of operation, as applicable:

(i) for an aeroplane single-engine course—

(A) preflight preparation;

(B) preflight procedures;

(C) airport and seaplane base operations;

(D) takeoffs, landings, and go-arounds;

(E) performance manoeuvres;

(F) navigation;

(G) slow flight and stalls;

(H) emergency operations;

- (I) high-altitude operations; and
- (J) postflight procedures;

(d) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course for the following category and class ratings includes flight training on the applicable areas of operation:

- (i) for an aeroplane multiengine course multiengine operations;
- (ii) for a helicopter course—
  - (A) hovering manoeuvres;
  - (B) transition to wing-borne flight;
  - (C) transition to hover; and
  - (D) special operations;
- (iii) for a powered-lift course—
  - (A) hovering manoeuvres; and
  - (B) special operations;
- (vi) for an airship course—
  - (A) fundamentals of instructing;
  - (B) technical subjects; and
  - (C) preflight lessons on a manoeuvre to be performed in flight;

(5) Solo training. Each applicant for, and holder of, an aviation training organization certificate with Level 1 Flight Training Specifications, shall ensure that each approved course includes at least the following solo flight training:

(a) for an aeroplane single-engine course: 10 hours of solo flight training in a single-engine aeroplane on the areas of operation in paragraph (4)(c)(i) that include at least—

- (i) one cross-country flight, if the training is being performed on a small island, with landings at a minimum of three points, and one of the segments consisting of a straight-line distance of at least 150 nautical miles;
- (ii) one cross-country flight, if the training is being performed on other than a small island, with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 250 nautical miles; and
- (iii) 5 hours in night visual flight rules conditions with 10 takeoffs and 10 landings with each landing involving a flight with a traffic pattern at an airport with an operating control tower;

(b) for an aeroplane multiengine course, 10 hours of flight training in a multiengine aeroplane performing the functions of pilot in command while under the supervision of a licensed flight instructor, consisting of the areas of operation in paragraph (4)(d)(i) that include at least-

- (i) one cross-country flight, if the training is being performed on a small island, with landings at a minimum of three points, and one of the segments consisting of a straight-line distance of at least 150 nautical miles;
- (ii) one cross-country flight, if the training is being performed on a small island, with landings at a minimum of three points and one segment of the flight consisting of straight-line distance of at least 250 nautical miles; and
- (iii) 5 hours in night visual flight rules conditions with 10 takeoffs and 10 landings with each landing involving a flight with a traffic pattern at an airport with an operating control tower;

(c) for a helicopter course: 10 hours of solo flight training in a helicopter on the areas of operation in paragraph (4)(d)(ii) that include at least—

- (i) one cross-country flight with landings at a minimum of three points and one segment of the flight consisting of a straight-line distance of at least 50 nautical miles from the original point of departure; and
- (ii) 5 hours in night visual flight rules conditions with 10 takeoffs and 10 landings with each landing involving a flight with a traffic pattern at an airport with an operating control tower;

(e) for a powered-lift course: 10 hours of solo flight training in a poweredlift on the areas of operation in paragraph (4)(d)(iv) that include at least—

- (i) one cross-country flight, if the training is being performed on a small island, with landings at a minimum of three points, and one segment of the flight consisting a straight-line distance of at least 150 nautical miles;
- (ii) one cross-country flight, if the training is being performed on a small island, with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 250 nautical miles; and
- (iii) 5 hours in night visual flight rules conditions with 10 takeoffs and 10 landings with each landing involving a flight with a traffic pattern at an airport with an operating control tower;

(f) for a lighter-than-air airship course: 10 hours of flight training in an airship, while performing the functions of pilot in command under the supervision of a commercial pilot with an airship rating consisting of the areas of operation in paragraph (4)(d)(vi) that include at least—

- (i) one cross-country flight with landings at a minimum of three points, and one segment of the flight consisting of a straight-line distance of at least 25 nautical miles from the original point of departure; and
- (ii) 5 hours in night visual flight rules conditions with 10 takeoffs and 10 landings with each landing involving a flight with a traffic pattern;

(6) Stage checks and end-of-course tests:

(a) each student, to graduate from a commercial pilot course, shall satisfactorily accomplish the stage checks and end-of-course tests consisting of the applicable areas of operation listed in paragraph (4)(d);and

(b) each student shall demonstrate satisfactory proficiency prior to being endorsed to operate an aircraft in solo flight.

**STANDARD NO: - 9.6- AIRLINE TRANSPORT PILOT LICENSING COURSE**

**Regulation 28(1)(a)(iv)**

The following curriculum meets the minimum curriculum standard for an Airline Transport Pilot Licensing Course:

(1) Rating:

- (a) aeroplane single-engine;
- (b) aeroplane multiengine;
- (c) helicopter;
- (d) powered-lift.

(2) Eligibility for enrolment: Prior to enrolling in the flight portion of the airline transport pilot licensing course, a person shall—

- (a) meet the aeronautical experience requirements prescribed in Civil Aviation (General Application and Personnel Licensing) Regulations, 2007, Part III for an Airline Transport Pilot License that is appropriate to the aircraft category and class rating for which the course applies;
  - (b) hold at least a commercial pilot license and an instrument rating;
- or
- (c) hold a foreign Airline Transport Pilot License or foreign Commercial Pilot License and an instrument rating, issued by a contracting state to the convention on international civil aviation.

(3) Aeronautical knowledge areas:

- (a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least 40 hours of ground training on the applicable aeronautical knowledge areas listed in paragraph (b);
- (b) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that ground training includes the following aeronautical knowledge areas:
  - (i) applicable Barbados Regulations that relate to airline transport pilot privileges, limitations, and flight operations;
  - (ii) meteorology, including knowledge of and effects of fronts, frontal characteristics, cloud formations, icing, and upper-air data;
  - (iii) general system of weather and NOTAM collection, dissemination, interpretation, and use;
  - (iv) interpretation and use of weather charts, maps, forecasts, sequence reports, abbreviations, symbols;
  - (v) Barbados weather service functions as they pertain to operations in the Barbados airspace system;
  - (vi) windshear and microburst awareness, identification and avoidance;

- (vii) principles of air navigation under instrument meteorological conditions in the Barbados airspace system;
- (viii) air traffic control procedures and pilot responsibilities as they relate to en route operations, terminal area and radar operations, and instrument departure and approach procedures;
- (ix) aircraft loading; weight and balance; use of charts, graphs, tables, formulas, and computations; and the effects on aircraft performance;
- (x) aerodynamics relating to an aircraft's flight characteristics and performance in normal and abnormal flight regimes;
- (xi) human factors;
- (xii) aeronautical decision making and judgement; and
- (xiii) crew resource management to include crew communication and co-ordination.

(4) Flight training:

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least 25 hours of flight training on the applicable areas of operation listed in paragraph (b), including at least 15 hours of instrument flight training; and

(b) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes flight training on the following areas of operation, as applicable:

- (i) preflight preparation;
- (ii) preflight procedures;
- (iii) takeoff and departure phase;
- (iv) in-flight manoeuvres;
- (v) instrument procedures;
- (vi) landings and approaches to landings;
- (vii) normal and abnormal procedures;
- (viii) emergency procedures; and
- (ix) postflight procedures.

(5) Stage checks and end-of-course tests. Each student, to graduate from an airline transport pilot course shall satisfactorily accomplish the stage checks and end-of-course tests, consisting of the areas of operation listed in paragraph 4(b) that are appropriate to the aircraft category and class rating for which the course applies.

**STANDARD NO: - 9.7- FLIGHT INSTRUCTOR COURSE**

**Regulation 28(1)(a)(v)**

The following curriculum meets the minimum curriculum standard for a flight instructor licensing course and an additional flight instructor rating course:

(1) Rating:

- (a) aeroplane single-engine;
- (b) aeroplane multiengine;
- (c) helicopter;
- (f) powered-lift; and
- (g) airships

(2) Eligibility for enrolment: A person shall hold the following prior to enrolling in the flight portion of the flight instructor or additional flight instructor rating course:

(a) a commercial pilot license or an airline transport pilot license with an aircraft category and class rating appropriate to the flight instructor rating for which the course applies; and

(b) an instrument rating or privilege in an aircraft that is appropriate to the aircraft category and class rating for which the course applies, if the course is for a flight instructor aeroplane or powered-lift instrument rating.

(3) Aeronautical knowledge training:

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least the following ground training in the aeronautical knowledge areas listed in paragraph (b):

- (i) 40 hours of training if the course is for an initial issuance of a flight instructor certificate; or;
- (ii) 20 hours of training if the course is for an additional flight instructor rating;

(b) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that ground training includes the following aeronautical knowledge areas;

- (i) the fundamentals of instructing, including;
  - (A) the learning process;
  - (B) elements of effective teaching;
  - (C) student evaluation and testing;
  - (D) course development;
  - (E) lesson planning; and
  - (F) classroom training techniques;
- (ii) the aeronautical knowledge areas required for—

(A) a private and commercial pilot license that is appropriate to the category and class rating sought; and

(B) an instrument rating that is appropriate to the aircraft category and class rating for which the course applies, if the course is for an aeroplane or powered-lift aircraft rating;

(c) an aviation training organization with level 1 flight training specifications may credit a student who satisfactorily completes 2 years of study on the principles of education at a college or university with no more than 20 hours of the training required in paragraph (a)(i).

(4) Flight training.

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least the following flight training on the applicable areas of operation of paragraphs (b) and (c):

(i) 25 hours for an aeroplane, rotorcraft, or powered-lift rating; and

(ii) 10 hours and 10 flights for airship category rating;

(b) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes flight training on the following areas of operation, as applicable for each category and class:

(i) fundamentals of instructing;

(ii) technical subject areas;

(iii) preflight preparation;

(iv) preflight lesson on a manoeuvre to be performed in flight;

(v) preflight procedures;

(vi) airport and seaplane base operations;

(vii) takeoffs, landings, and go-arounds;

(viii) fundamentals of flight;

(ix) performance manoeuvres;

(x) ground reference manoeuvres;

(xi) slow flight, stalls, and spins;

(xii) basic instrument manoeuvres;

(xiii) emergency operations; and

(xiv) postflight procedures;

(c) for the category and class of aircraft shown below, each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes flight training in the following areas of operation, as applicable:

(i) for an aeroplane: multiengine course, multiengine operations;

(ii) for a helicopter course—

- (A) hovering manoeuvres; and
- (B) special operations;
- (iii) for a powered-lift course—
  - (A) hovering manoeuvres;
  - (B) transition to wing-borne flight;
  - (C) transition to hover; and
  - (D) special operations;
- (v) for an airship course—
  - (A) launches, landings, and go-around; and
  - (B) performance speeds;

(5) Stage checks and end-of-course tests:

(a) each student, to graduate from a flight instructor course shall satisfactorily accomplish the stage checks and end-of-course tests, consisting of the applicable areas of operation listed in paragraph (4);

(b) a student enrolled in a flight instructor-aeroplane rating shall have—

- (i) received a logbook endorsement from a licensed flight instructor certifying the student received ground and flight training on stall awareness, spin entry, spins, and spin recovery procedures in an aircraft that is certified for spins and that is appropriate to the rating sought; and
- (ii) demonstrated instructional proficiency in stall awareness, spin entry, spins, and spin recovery procedures.

**STANDARD NO: - 9.8- FLIGHT INSTRUCTOR INSTRUMENT RATING COURSE**  
**Regulation 28(1)(a)(vi)**

This following curriculum meets the minimum curriculum standard for a flight instructor instrument licensing course:

(1) Ratings:

- (a) flight instructor instrument: aeroplane;
- (b) flight instructor instrument: helicopter;
- (c) flight instructor instrument airship: and
- (c) flight instructor instrument: powered-lift aircraft;

(2) Eligibility for enrolment: A pilot shall hold, prior to enrolling in the flight portion of the course—

- (a) a commercial pilot license or airline transport pilot license with a category and class rating appropriate to the rating sought; and
- (b) for commercial pilot license holders, an instrument rating that is appropriate to the rating sought.

(3) Aeronautical knowledge training:

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least 15 hours of ground training on the applicable aeronautical knowledge areas listed in paragraph (b);

(b) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes ground training on the following aeronautical knowledge areas:

(i) the fundamentals of instructing including—

- (A) learning process;
- (B) elements of effective teaching;
- (C) student evaluation and testing;
- (D) course development;
- (E) lesson planning; and
- (F) classroom training techniques;

(ii) the aeronautical knowledge areas required for the instrument rating that is appropriate to the category and class of aircraft.

(4) Flight training:

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least 15 hours of flight training in the applicable areas of operation of paragraph (b);

(b) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course for the flight instructor-instrument rating includes flight training on the following areas of operation:

- (i) fundamentals of instructing;
- (ii) technical subject areas;
- (iii) pre-flight preparation;
- (iv) pre-flight lesson on a manoeuvre to be performed in flight;
- (v) air traffic control clearances and procedures;
- (vi) flight by reference to instruments;
- (vii) navigation systems;
- (viii) instrument approach procedures;
- (ix) emergency operations; and
- (x) post-flight procedures.

(5) Stage checks and end-of-course tests: Each student, to graduate from a flight instructor instrument course shall satisfactorily accomplish the stage checks and end-of-course tests, consisting of the applicable areas of operation listed in paragraph (4)(b).

**STANDARD NO: - 9.9- GROUND INSTRUCTOR AUTHORIZATION COURSE**

**Regulation 28(1)(a)(vii)-**

The following curriculum meets the minimum curriculum standard for a ground instructor licensing course and an additional ground instructor rating course, issued under Civil Aviation (General Application and Personnel Licensing) Regulations, 2007:

(1) Ratings:

(a) ground instructor: basic;

(b) ground instructor: advanced; and

(c) ground instructor: instrument.

(2) Aeronautical knowledge training:

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least the following ground training on the applicable knowledge areas listed in paragraphs (b), (c), (d) and (e);

(i) 20 hours of training for an initial issuance of a ground instructor certificate; or

(ii) 10 hours of training for an additional ground instructor rating;

(b) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that ground training includes the following aeronautical knowledge areas:

(i) learning process;

(ii) elements of effective teaching;

(iii) student evaluation and testing;

(iv) course development;

(v) lesson planning; and

(vi) classroom training techniques;

(c) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that ground training for a basic ground instructor license includes the aeronautical knowledge areas applicable to a private pilot;

(d) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that ground training for an advanced ground instructor rating includes the aeronautical knowledge areas applicable to a private, commercial, and airline transport pilot;

(e) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that ground training for an instrument ground instructor rating includes the aeronautical knowledge areas applicable to an instrument rating; and

(f) an aviation training organization with level 1 flight training specifications may credit a student who satisfactorily completed 2 years of study on the principles of education at a college or university with 10 hours of the training required in paragraph (a)(i);

(3) Stage checks and end-of-course tests:

Each student, to graduate from a ground instructor course shall satisfactorily accomplish the stage checks and end-of-course tests, consisting of the applicable knowledge areas of paragraph (2).

**STANDARD NO: - 9.10- ADDITIONAL AIRCRAFT CATEGORY OR CLASS RATING COURSE**

**Regulation 28(1)(a)(viii)-**

The following curriculum meets the minimum curriculum standard for an additional aircraft category rating course or an additional aircraft class rating course:

(1) Ratings:

(a) aeroplane single-engine;

(b) aeroplane multiengine;

(c) helicopter;

(d) powered-lift;

(e) glider;

(f) airship; and

(h) free balloon.

(2) Eligibility for enrolment. A person shall hold the level of pilot license for the additional aircraft category and class rating for which the course applies prior to enrolling in the flight portion of an additional aircraft category or additional aircraft class rating course.

(3) Aeronautical knowledge training. Each applicant for, and holder of, an aviation training organization certificate with Level 1 Flight Training Specifications shall ensure that each course for an additional category rating and additional class rating includes the total number of hours of training in all the aeronautical knowledge areas appropriate to the aircraft rating and pilot license level sought.

(4) Flight training. Each applicant for, and holder of, an aviation training organization certificate with Level 1 Flight Training Specifications shall ensure that each course for an additional aircraft category rating or additional aircraft class includes the total number of hours of flight training on all of the areas of operation of this paragraph appropriate to the aircraft rating and pilot license level for which the course applies.

(5) Stage checks and end-of-course tests:

(a) each student, to graduate from an additional aircraft category rating course or an additional aircraft class rating course shall satisfactorily accomplish the stage checks and end-of-course tests, consisting of the applicable areas of operation in paragraph (4);

(b) each student shall demonstrate satisfactory proficiency prior to being endorsed to operate an aircraft in solo flight.

**STANDARD NO: - 9.11- AIRCRAFT TYPE RATING COURSE**

**Regulation 28(1)(a)(ix)-**

The following curriculum meets the minimum Level 1 aviation training organization curriculum standard for an aircraft type rating course for:

(1) Ratings.

(a) a type rating in an aeroplane category: single-engine class;

(b) a type rating in an aeroplane category: multiengine class;

(c) a type rating in a helicopter category:

(d) a type rating in a powered-lift category; and

(e) other aircraft type ratings specified by the Director through the aircraft type certificate procedures.

(2) Eligibility for enrolment:

(a) prior to enrolling in the flight portion of an aircraft type rating course, a person shall hold at least a private pilot license;

(b) an instrument rating in the category and class of aircraft that is appropriate to the aircraft type rating for which the course applies, provided the aircraft's type certificate does not have a visual flight rules limitation; or

(c) be concurrently enrolled in an instrument rating course in an aircraft of the type rating sought, and pass the required instrument rating practical test concurrently with the type rating practical test.

(3) Aeronautical knowledge training:

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least 10 hours of ground training on the applicable aeronautical knowledge areas listed in paragraph (b);

(b) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that ground training includes the following aeronautical areas:

(i) subjects requiring a practical knowledge of the aircraft type and its powerplant, systems, components, operational, and performance factors;

(ii) the aircraft's normal, abnormal, and emergency procedures, and the operations and limitations relating thereto;

(iii) appropriate provisions of the aviation aircraft's flight manual;

(iv) location of and purpose of inspecting each item on the aircraft's checklist that relate to the exterior and interior preflight; and

(v) use of the aircraft's prestart checklist, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communication radio facilities and frequencies.

(4) Flight training:

(a) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each course includes at least—

- (i) flight training on the applicable areas of operation of paragraph (b) in the aircraft type for which the course applies; and
- (ii) at least 5 hours shall be instrument training in the aircraft for which the course applies;

(b) each applicant for, and holder of, an aviation training organization with level 1 flight training specifications certificate shall ensure that each type rating course includes the flight training on the following areas of operation:

- (i) preflight preparation;
- (ii) preflight procedures;
- (iii) takeoff and departure phase;
- (iv) in-flight manoeuvres;
- (v) instrument procedures;
- (vi) landings and approaches to landings;
- (vii) normal and abnormal procedures;
- (viii) emergency procedures; and
- (ix) postflight procedures.

(5) Stage checks and end-of-course tests: Each student, to graduate from an aircraft type rating course shall satisfactorily accomplish the stage checks and end-of-course tests, consisting of the applicable areas of operation for the Airline Transport Pilot License..

**STANDARD NO: - 9.12- FLIGHT ENGINEER COURSE****Regulation 28(1)(a)(x)-**

(1) Each flight engineer training course holder shall comply with the following:

(a) training course outline:

- (i) format: An applicant shall prepare separate course outlines for each type of aeroplane;
- (ii) ground course outline;
- (iii) the Director will accept any arrangement of subjects if all the subject material listed here is included and at least the minimum programmed hours are assigned to each subject;
- (iv) if any flight engineer training course holder desires to include additional subjects in the ground course curriculum, the hours allotted these additional subjects may not be included in the minimum programmed classroom hours;
- (v) all subjects, except theory of flight and aerodynamics and regulations, shall apply to the same type of aeroplane in which the flight engineer training course holder presents training;

Subject Area		Classroom Hours
Civil Aviation Regulations		10
Theory of Flight and Aerodynamics		10
Aeroplane Familiarisation, to include, as applicable	Specifications Construction features Flight controls Hydraulic systems Pneumatic systems Electrical systems Anti-icing and de-icing systems Pressurisation and air-conditioning systems Vacuum systems Pilot static systems Instrument systems Fuel and oil systems Emergency equipment	90
Engine Familiarisation, to include, as applicable	Specifications: Construction features Lubrication Ignition Fuel systems Accessories Propellers Instrumentation Emergency equipment	45

Normal Operations (Ground and Flight), to include, as appropriate	Servicing methods and procedures Operation of all the aeroplane systems Operation of all the engine systems Loading and centre of gravity computations Cruise control (normal, long range, maximum endurance) Power and fuel computation Meteorology as applicable to engine operation	50
Emergency Operations, to include	Landing gear, brakes, flaps, speed brakes, and leading edge devices Pressurisation and air-conditioning Portable fire extinguishers Fuselage fire and smoke control Loss of electrical power Engine fire control Engine shut-down and restart Oxygen	80
Total (exclusive of final tests)		285

(b) flight course outline;

- (i) the flight training curriculum shall include at least 10 hours of flight instruction in an aeroplane. A student may not credit the flight time required for the practical test as part of the required flight instruction;
- (ii) the flight engineer training course holder shall present all of the flight training in the same type aircraft;
- (iii) as appropriate to the aircraft type, the flight engineer training course holder shall teach the following subjects in the flight training course:

SUBJECT AREA	
Normal Duties, Procedures and Operations	To include as appropriate— Aeroplane pre-flight. Engine starting, power checks, pre-takeoff, post-landing and shut-down procedures. Power control. Temperature control. Engine operation analysis. Operation of all systems. Fuel management. Logbook entries. Pressurisation and air conditioning.
Recognition And Correction Of In-Flight Malfunctions	Analysis of abnormal engine operation. Analysis of abnormal operation of all systems. Corrective action.

Emergency Operations In Flight	Engine fire control. Fuselage fire control. Smoke control. Loss of power or pressure in each system. Engine overspeed. Fuel dumping. Landing gear, spoilers, speed brakes, and flap extension and retraction. Engine shut-down and restart. Use of oxygen
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(iv) the Director may allow the school to teach the flight training time in a flight simulator;

(v) to obtain credit for flight training time in a flight simulator, the student shall occupy the flight engineer station and operate the controls.

(2) Revisions: Each flight engineer training course holder shall request revisions of the course outlines, facilities or equipment by following the procedures for original approval of the course.

(3) Ground school credits:

(a) a flight engineer training course holder may grant credit to a student in the ground school course for comparable previous training or experience that the student can show by written evidence;

(b) before granting credit for previous training or experience, the flight engineer training course holder shall ensure that the student passes a test given by the flight engineer training course holder on the subject for which the credit is to be given;

(c) the flight engineer training course holder shall incorporate results of the test, the basis for credit allowance, and the hours credited as part of the student's records.

(4) Records and reports:

(a) the flight engineer training course holder shall maintain, for at least two years after a student graduates, fails, or drops from a course, a record of the student's training, including a chronological log of the subject course, attendance examinations, and grades;

(b) except as provided in paragraph (c), the flight engineer training course holder shall submit to the Director, not later than January 31 of each year, a report for the previous calendar year's training, to include—

(i) name, enrolment and graduation date of each student;

(ii) ground school hours and grades of each student;

(iii) flight and flight simulator hours, and grades of each student; and

(iv) names of students failed or dropped, together with their school grades and reasons for dropping;

(c) upon request, the Director may waive the reporting requirements of subparagraph (b) of this paragraph for an approved flight engineer course that is part of an approved training course under Civil Aviation (Air Operator Certification and Administration) Regulations, 2007.

(5) Time limitation: Each student shall apply for the written test and the flight test within 90 days after completing the ground school course.

(6) Statement of course completion:

(a) each flight engineer training course holder shall give to each student who successfully completes an approved flight engineer ground school training course, and passes the Director knowledge test, a statement of successful completion of the course that indicates the date of training, the type of aeroplane on which the ground course training was based, and the number of hours received in the ground school course;

(b) each flight engineer training course holder shall give each student who successfully completes an approved flight engineer flight course, and passed the Director practical test, a statement of successful completion of the flight course that indicates the dates of the training, the type of aeroplane used in the flight course, and the number of hours received in the flight course;

(c) a flight engineer training course holder who is approved to conduct both the ground course and the flight course may include both courses in a single statement of course completion if the provisions of paragraphs (a) and (b) of this subsection are included; and

(d) the requirements of this paragraph do not apply to a holder of an Air Operator Certificate with an approved training course under Civil Aviation (Air Operator Certification and Administration) Regulations, 2007, providing the student receives a flight engineer license upon completion of that course.

(7) Duration: Except for a course operated as part of an approved training course under of Civil Aviation (Air Operator Certification and Administration) Regulations, 2007, the approval to operate a flight engineer ground course or flight course terminates 24 months after the last day of the month of issue.

## **STANDARD NO: - 9.13- SPECIAL PREPARATION COURSES**

### **Regulation 28(1)(b)-**

The following curriculum meets the minimum curriculum standard for the special preparation courses that are listed in Regulation 28(1)(b).

(1) Eligibility for enrolment: Prior to enrolling in the flight portion of a special preparation course, a person shall hold a pilot license, flight instructor certificate, or ground instructor license that is appropriate for the exercise of the operating privileges or authorisations sought.

(2) General requirements—

(a) to be approved, an applicant for a special preparation course shall present to the Director a proposal that:

(i) meets the appropriate requirements of this standard;

(ii) prepares the graduate with the necessary skills, competency, and proficiency to exercise safely the privileges of the certificate,

rating, or authorisation for which the course is established;

(iii) includes ground and flight training on the operating privileges or authorisation sought.

(3) Stage check and end-of-course tests: Each person, to graduate from a special preparation course shall satisfactorily accomplish the stage checks and end-of course tests, consisting of the areas of operation that are appropriate to the operating privileges or authorisation sought, and for which the course applies.

(4) Agricultural aircraft operations course: A special preparation course for pilots in agricultural aircraft operations shall include at least the following:

(a) 25 hours of training on—

(i) agricultural aircraft operations;

(ii) safe piloting operating practices and procedures for handling, dispensing, and disposing agricultural and industrial chemicals, including operating in and around congested areas; and

(iii) applicable provisions of the Act or Regulations made there under;

(b) 15 hours of flight training on agricultural aircraft operations.

(5) Helicopter external-load operations course: A special preparation course for pilots of external-load operations shall include at least the following:

(a) 10 hours of training on—

(i) helicopter external-load operations;

(ii) safe piloting operating practices and procedures for external load operations, including operating in and around congested areas; and

(iii) applicable provisions of the Act or Regulations made there under;

(b) 15 hours of flight training on external-load operations.

(6) Test pilot course: Each applicant for, and holder of, a special preparation course for test pilot duties shall include at least the following:

(a) aeronautical knowledge training on—

(i) performing aircraft maintenance, quality assurance, and certification test flight operations; and

(ii) applicable parts of the Barbados Civil Aviation Regulations that pertain to aircraft maintenance, quality assurance, and certification tests;

(b) 15 hours of flight training.

(7) Special operations course:

(a) a special preparation course for pilots in special operations that are mission-specific for certain aircraft shall include at least the following:

(i) aeronautical knowledge training on—

(A) performing that special flight operation;

(B) safe piloting operating practices and procedures for performing that special flight operation;

(C) applicable parts of the Barbados Civil Aviation Regulations that pertain to that special flight operation; and

(D) pilot in command duties and responsibilities for performing that special flight operation;

(ii) flight training on that special flight operation.

(8) Pilot refresher course: Each applicant for, and holder of, a special preparation pilot refresher course for a pilot license, aircraft category and class rating, or an instrument rating shall include at least the following:

(a) 4 hours of aeronautical knowledge training on—

(i) the aeronautical knowledge areas that are applicable to the level of pilot license, category rating, class rating, or instrument rating sought;

(ii) safe piloting operating practices and procedures; and

(iii) applicable provisions of Civil Aviation (General Application and Personnel Licensing) and (Air Operator Certification and Administration) Regulations, 2007;

(b) 6 hours of flight training on the areas of operation that are applicable to the level of pilot license, aircraft category and class rating, or instrument rating, as appropriate, for performing pilot-in-command duties and responsibilities.

(9) Flight instructor refresher course: Each applicant for, and holder of, a special preparation flight instructor refresher course shall include at least a combined total of 16 hours of aeronautical knowledge training, flight training, or any combination of ground and flight training on the following:

(a) aeronautical knowledge training on—

- (i) the aeronautical knowledge areas that apply to student, private, and commercial pilot licenses and instrument ratings;
- (ii) the aeronautical knowledge areas that apply to flight instructor certificates;
- (iii) safe piloting operating practices and procedures, including airport operations and operating in the Barbados airspace system; and
- (iv) applicable provisions of Civil Aviation (General Application and Personnel Licensing) and (Air Operator Certification and Administration) Regulations, 2007;

(b) flight training, to review—

- (i) the areas of operations applicable to student, private, and commercial pilot licenses and instrument ratings; and
- (ii) the skills, competency, and proficiency for performing flight instructor duties and responsibilities.

(10) Ground instructor refresher course: A special preparation ground instructor refresher course shall include at least 16 hours of aeronautical knowledge training on—

- (a) the aeronautical knowledge areas that apply to student, private, and commercial pilots and instrument rated pilots and ground instructors;
- (b) safe piloting operating practices and procedures, including airport operations and operating in the Barbados airspace system;

and

(c) applicable provisions of Civil Aviation (General Application and Personnel Licensing and (Air Operator Certification and Administration) Regulations, 2007.

**STANDARD NO: - 9.14- PILOT GROUND SCHOOL COURSE**

**Regulation 28(1)(c)**

The following curriculum meets the minimum curriculum standard for a pilot ground school course:

(1) General requirements: Each applicant for, and holder of, an approved training course for a pilot ground school shall include training on the aeronautical knowledge areas that are—

(a) needed to safely exercise the privileges of the certificate, rating, or Director for which the course is established; and

(b) conducted to develop competency, proficiency, resourcefulness, self-confidence, and self-reliance in each student.

(2) Aeronautical knowledge training requirements: Each applicant for, and holder of, an approved pilot ground school course shall include—

(a) the aeronautical knowledge training that is appropriate to the aircraft rating and pilot license level for which the course applies; and

(b) an adequate number of total aeronautical knowledge training hours appropriate to the aircraft rating and pilot license level for which the course applies.

(4) Stage checks and end-of-course tests: Each person, to graduate from a pilot ground school course shall satisfactorily accomplish the stage checks and end-of-course tests, consisting of the areas of operation that are appropriate to the operating privileges or authorisation that graduation from the course will permit.

**STANDARD NO:-9.15- LEVEL 2 ATO INSTRUCTOR TRAINING AND TESTING REQUIREMENTS**

**Regulation 33(2) -**

(1) Prior to initial designation, each flight and simulator flight instructor shall complete the following requirements:

(a) complete at least 8 hours of ground training on the following subject matter:

- (i) instruction methods and techniques;
- (ii) training policies and procedures;
- (iii) the fundamental principles of the learning process;
- (iv) instructor duties, privileges, responsibilities, and limitations;
- (v) proper operation of simulation controls and systems;
- (vi) proper operation of environmental control and warning or caution panels;
- (vii) limitations of simulation;
- (viii) minimum equipment requirements for each curriculum;
- (ix) revisions to the training courses; and
- (x) cockpit resource management and crew co-ordination;

(b) satisfactorily complete a knowledge test—

- (i) on the subjects specified in paragraph (a); and
- (ii) that is accepted by the Director as being of equivalent difficulty, complexity, and scope as the tests provided by the Director for the flight instructor aeroplane and instrument flight instructor knowledge tests.

(2) Each certificate holder shall ensure that each instructor who instructs in a flight simulator that the Director has approved for all training and all testing for the airline transport pilot licensing test, aircraft type rating test, or both, has met at least one of the following requirements:

(a) each instructor shall have performed 2 hours in flight, including three takeoffs and three landings as the sole manipulator of the controls of an aircraft of the same category and class, and, if a type rating is required, of the same type replicated by the approved flight simulator in which that instructor is designated to instruct;

(b) each instructor shall have participated in an approved line-observation programme as specified in Civil Aviation (Operations) Regulations, 2007 and that—

- (i) was accomplished in the same aeroplane type as the aeroplane represented by the flight simulator in which that instructor is designated to instruct; and
- (ii) included line-oriented flight training of at least 1 hour of flight during which the instructor was the sole manipulator of the controls in a flight simulator that replicated the same type aircraft for which that instructor is designated to instruct.

**STANDARD NO: - 9.16- ATO WITH LEVEL 1 FLIGHT TRAINING SPECIFICATION  
CHIEF FLIGHT INSTRUCTOR QUALIFICATION**

**Regulation 36(2)-**

(1) Each aviation training organization shall designate a supervisory instructor for a flight training course who shall meet one or more of the following requirements, as applicable:

(a) hold a commercial pilot license or an airline transport pilot license, and, except for a chief instructor for a training course solely for a lighter-than-air rating, a current flight instructor license with appropriate aircraft category, class, and instrument ratings for the category and class of aircraft used in the course;

(b) meet the pilot in command recent flight experience requirements of Civil Aviation (Operations) Regulation, 2007 as applicable;

(c) pass a knowledge test on—

(i) teaching methods;

(ii) applicable provisions of Director provided aeronautical information publications;

(iii) applicable provisions of Civil Aviation (General Application and Personnel Licensing), Regulations 2007, Civil Aviation (Operations) Regulations, 2007 and Civil Aviation (Aviation Training Organization) Regulations, 2007; and

(iv) the objectives and approved course completion standards of the course for which the person seeks to obtain designation; and

(d) pass a proficiency test on instructional skills and ability to train students on the flight procedures and manoeuvres appropriate to the course.

(2) Except for a training course for gliders, balloons, or airships, the chief instructor shall meet the applicable requirements in paragraphs (3), (4), and (5).

(3) For a training course for a private pilot license or rating, a chief instructor shall have—

(a) at least 1,000 hours as pilot in command; and

(b) primary flight training experience as a licensed flight instructor or an instructor in a military pilot flight training programme, or a combination thereof, consisting of at least 2 years and a total of 500 flight hours.

(4) For a training course for an instrument rating or a rating with instrument privileges, a chief instructor shall have—

(a) at least 100 hours of flight time under actual or simulated instrument conditions;

(b) at least 1,000 hours as pilot in command and

(c) instrument flight instructor experience as a licensed flight instructor instrument or an instructor in a military pilot flight training programme, or a combination thereof, consisting of at least—

(i) 2 years and a total of 250 flight hours; or

(ii) 400 flight hours of instrument flight instruction.

(5) For a training course for other than a private pilot license or rating, or an instrument rating or a rating with instrument privileges, a chief instructor shall have—

(a) at least 2,000 hours as pilot in command; and

(b) flight training experience as a licensed flight instructor or an instructor in a military pilot flight training programme, or a combination thereof, consisting of at least 3 years and a total of 1,000 flight hours.

(6) A chief instructor for a training course for gliders or balloons is required to have only 40 per cent of the hours required in paragraphs (3) and (5).

(7) A chief instructor for a training course for airships is required to have only 40 percent of the hours required in paragraphs (3), (4), and (5).

(8) To be eligible as chief instructor for a ground school course, a person shall have one year of experience as a ground school instructor at a certified Level 1 aviation training organization.

**STANDARD NO: - 9.17- ATO WITH LEVEL 1 FLIGHT TRAINING SPECIFICATION—  
ASSISTANT CHIEF FLIGHT INSTRUCTOR QUALIFICATION  
Regulation 36(2)-**

(1) To be eligible for designation as an assistant chief instructor, a person shall meet the following requirements:

(a) hold a commercial pilot or an airline transport pilot license and, except for the assistant chief instructor for a training course for a lighter-than-air rating, a current flight instructor license with appropriate aircraft category, class, and instrument ratings for the category and class of aircraft used in the course;

(b) meet the pilot in command recent flight experience requirements of Civil Aviation (Operations) Regulations, 2007, as applicable;

(c) pass a knowledge test on—

(i) teaching methods;

(ii) applicable provisions of the Barbados-provided aeronautical information publications;

(iii) applicable provisions of Civil Aviation (General Application and Personnel Licensing), Regulations 2007, Civil Aviation (Operations) Regulations, 2007 and Civil Aviation (Aviation Training Organization) Regulations, 2007; and

(iv) the objectives and approved course completion standards of the course for which the person seeks to obtain designation;

(d) pass a proficiency test on the flight procedures and manoeuvres appropriate to that course;

(e) meet the applicable requirements in paragraphs (2), (3), and (4), except that an assistant chief instructor for a training course for gliders, balloons, or airships is required to have only 40 per cent of the hours required in paragraphs (2) and (3).

(2) For a training course for a private pilot license or rating, an assistant chief instructor shall have—

(a) at least 500 hours as pilot in command; and

(b) flight training experience as a licensed flight instructor or an instructor in a military pilot flight training programme, or a combination thereof, consisting of at least 1 year and a total of 250 flight hours.

(3) For a training course for an instrument rating or a rating with instrument privileges, an assistant chief flight instructor shall have—

(a) at least 50 hours of flight time under actual or simulated instrument conditions;

(b) at least 500 hours as pilot in command; and

(c) instrument flight instructor experience as a licensed flight instructor instrument or an instructor in a military pilot flight training programme, or a combination thereof, consisting of at least 1 year and a total of 125 flight hours.

(4) For a training course other than for a private pilot license or rating, or an instrument rating or a rating with instrument privileges, an assistant chief instructor shall have—

(a) at least 1,000 hours as pilot in command; and

(b) flight training experience as a licensed flight instructor or an instructor in a military pilot flight training programme, or a combination thereof, consisting of at least 1 1/2 years and a total of 500 flight hours.

(5) To be eligible for designation as an assistant chief instructor for a ground school course, a person shall have 6 months of experience as a ground school instructor at a certified Level 1 aviation training organization.

**STANDARD NO: - 9.18- ATO WITH LEVEL 1 FLIGHT TRAINING  
SPECIFICATION—CHECK INSTRUCTOR QUALIFICATIONS  
Regulation 38(2) -**

(1) To be designated as a check instructor for conducting student stage checks, end-of course tests, and instructor proficiency checks under this Part, a person shall meet the following requirements, as applicable:

(a) pass a test, given by the chief instructor, on;

(i) teaching methods;

(ii) applicable provisions of the Barbados-provided aeronautical information publications;

(iii) applicable provisions of Civil Aviation (General Application and Personnel Licensing), Regulations 2007, Civil Aviation (Operations) Regulations, 2007 and Civil Aviation (Aviation Training Organization) Regulations, 2007; and

(iv) the objectives and course completion standards of the approved training course for the designation sought;

(b) for flight checks and tests—

(i) meet the requirements in paragraph (1)(a);

(ii) hold a commercial pilot license or an airline transport pilot license and, except for a check instructor for a training course for a lighter-than-air rating, a current flight instructor license, with appropriate aircraft category, class, and instrument ratings for the category and class of aircraft used in the course;

(iii) meet the pilot in command recent flight experience requirements of Civil Aviation (Operations) Regulations, 2007, as applicable; and

(iv) pass a proficiency test, given by the chief instructor or assistant chief instructor, on the flight procedures and manoeuvres of the approved training course;

(c) for checks and tests that relate to ground training—

(i) meet the requirements in paragraph (1)(a);

(ii) except for a training course for a lighter-than-air rating, hold a current flight instructor license or ground instructor license with ratings appropriate to the category and class of aircraft used in the course; and

(iii) for a training course for a lighter-than-air rating, hold a commercial pilot license with a lighter-than-air category rating and the appropriate class rating.

(2) Before functioning as a check instructor, a person who meets the eligibility requirements in paragraph (a) shall—

(a) be designated in writing by the chief instructor to conduct student stage checks, end-of-course tests, and instructor proficiency checks; and

(b) be approved by the Director.

(3) A check instructor may not conduct a stage check or an end-of-course test of any student for whom the check instructor has—

(a) served as the principal instructor; or

(b) recommended for a stage check or end-of-course test.

**STANDARD NO: - 9.19- TRANSFER PRIVILEGES**

**Regulation 42(2)-**

(1) An aviation training organization with Level 1 Flight Training Specifications receiving a student from another Level 1 aviation training organization may credit that pilot's previous experience towards the curriculum requirements of a course subject to the following conditions:

(a) if the credit is based upon Regulation 42 or Regulation 53, the gaining aviation training organization may credit that student not more than 50 per cent of the curriculum requirements;

(b) if the credit is not based upon Regulation 42 or Regulation 53, the gaining aviation training organization may credit that student not more than 25 per cent of the curriculum requirements.

*Note: The receiving Aviation Training Organization shall determine the amount of course credit to be credited under paragraph (a) or paragraph (b), based on a proficiency test or knowledge test, or both, of the student;.*

(2) The receiving aviation training organization may grant credit for training specified in paragraph (1)(a) or paragraph (1)(b) only if the previous provider of the training has certified the kind and amount of training provided, and the result of each stage check and end-of-course test, if applicable, given to the student.

(3) An AME training course holder may evaluate and grant credit for an entrant's previous training provided—

(a) the AME training course holder determines that the training is verifiable and comparable to portions of the training programme; and

(b) the individual requesting credit passes an examination given by the AME training course holder, which is equivalent to those examinations given by the AME training course holder for the same subject in the training programme.

**STANDARD NO: - 9.20.- TRAINING COURSE: CONTENTS**

**Regulation 45-**

(1) Each applicant for, and holder of, an aviation training organization certificate with Level 1 Flight Training Specifications shall ensure that each training course contains—

(a) a description of each flight simulator or flight training device used for training;

(b) a listing of the airports at which training flights originate and a description of the facilities, including pilot briefing areas that are available for use by the school's students and personnel at each of those airports;

(c) a description of the type of aircraft including any special equipment used for each phase of training;

(d) the minimum qualifications and ratings for each instructor assigned to ground or flight training; and

(e) a training syllabus that includes—

(i) the prerequisites for enrolling in the ground and flight portion of the course that include the pilot license and rating (if required by this part), training, pilot experience, and pilot knowledge;

(ii) a detailed description of each lesson, including the lesson's objectives, standards, and planned time for completion;

(iii) course learning objectives;

(iv) stage learning objectives and standards; and

(v) a description of the checks and tests to be used to measure learning after each stage of training.

(2) An aviation training organization with Level 2 Specifications may—

(a) include training in a flight simulator or flight training device, provided it is representative of the aircraft for which the course is approved, meets the requirements of this paragraph, and the training is given by an authorised instructor; and

(b) permit a student to credit training in a flight simulator that meets the requirements of Regulation 30 for a maximum of 25 percent of the total flight training hour requirements of the approved course.

## **STANDARD NO:-9.21- AME AIRFRAME AND/OR POWERPLANT RATING CURRICULUM REQUIREMENTS**

### **Regulation 50(4)**

This standard defines terms used in Sections A, B, and C 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, and C.

(1) **Definitions.** As used in Sections A, B, and C:

(a) “inspect” means to examine by sight and touch;

(b) “check” means to verify proper operation;

(c) “troubleshoot” means to analyse and identify malfunctions;

(d) “service” means to perform functions that assure continued operation;

(e) “repair” means to correct a defective condition. Repair of an airframe or powerplant system includes component replacement and adjustment, but not component repair; and

(f) “overhaul” means to disassemble, inspect, repair as necessary, and check.

(2) **Teaching levels.**

(a) level 1 requires—

(i) knowledge of general principles, but no practical application;

(ii) no development of manipulative skill; and

(iii) instruction by lecture, demonstration, and discussion;

(b) level 2 requires—

(i) knowledge of general principles, and limited practical application;

(ii) development of sufficient manipulative skill to perform basic operations; and

(iii) instruction by lecture, demonstration, discussion, and limited practical application;

(c) 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; and

(iii) instruction by lecture, demonstration, discussion, and a high degree of practical application.

(3) Teaching materials and equipment. The curriculum may be presented utilising currently accepted educational materials and equipment, including, but not limited to: Civil Aviation Training Organizations, 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*

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

- (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*

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

*D. FLUID LINES AND FITTINGS*

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

*E. MATERIALS AND PROCESSES*

- (1) 14. Identify and select appropriate nondestructive 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*

- (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*

- (3) 22. Identify and select cleaning materials.

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

*H. MATHEMATICS*

- (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*

- (3) 28. Write descriptions of work performed including aircraft discrepancies and corrective actions using typical aircraft maintenance records.
- (3) 29. Complete required maintenance forms, records, and inspection reports.

*J. BASIC PHYSICS*

- (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*

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

*L. MECHANIC PRIVILEGES AND LIMITATIONS*

- (3) 33. Exercise mechanic privileges within the limitations prescribed by Barbados Civil Aviation Regulations.

**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*

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

- (1) 3. Inspect wood structures.

*B. AIRCRAFT COVERING*

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

*C. AIRCRAFT FINISHES*

- (1) 6. Apply trim, letters, and touchup 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*

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

*E. WELDING*

- (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 aluminium and stainless steel.

*F. ASSEMBLY AND RIGGING*

- (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*

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

**II. AIRFRAME SYSTEMS AND COMPONENTS**

*A. AIRCRAFT LANDING GEAR SYSTEMS*

- (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*

- (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*

- (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 INSTRUMENTS SYSTEMS*

- (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.

*E. COMMUNICATION AND NAVIGATION SYSTEMS*

- (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, Radar beacon transponders, flight management computers, and GPWS.

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

*F. AIRCRAFT FUEL SYSTEMS*

- (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*

- (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) 50A. Inspect, check, troubleshoot, service, and repair alternating and direct current electrical systems.
- (1) 50B. Inspect, check, and troubleshoot constant speed and integrated speed drive generators.

*H. POSITION AND WARNING SYSTEMS*

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

*I. ICE AND RAIN CONTROL SYSTEMS*

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

*J. FIRE PROTECTION SYSTEMS*

- (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.

**I. POWERPLANT SYSTEMS AND COMPONENTS**

TEACHING

LEVEL

### *A. RECIPROCATING ENGINES*

- (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*

- (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*

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

## **II. POWERPLANT SYSTEMS AND COMPONENTS**

### *A. ENGINE INSTRUMENT SYSTEMS*

- (2) 9. Troubleshoot, service, and repair electrical and mechanical fluid rate-offflow 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*

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

### *C. ENGINE ELECTRICAL SYSTEMS*

- (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*

- (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*

- (2) 17. Overhaul magneto and ignition harness.
- (2) 18. Inspect, service, troubleshoot, and repair reciprocating and turbine engine ignition systems and components.

(3) 19A. Inspect, service, troubleshoot, and repair turbine engine electrical starting systems.

(1) 19B. Inspect, service, and troubleshoot turbine engine pneumatic starting systems.

#### *F. FUEL METERING SYSTEMS*

(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*

(2) 24. Repair engine fuel system components.

(3) 25. Inspect, check, service, troubleshoot, and repair engine fuel systems.

#### *H. INDUCTION AND ENGINE AIRFLOW SYSTEMS*

(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 carburettor air intake and induction manifolds.

#### *I. ENGINE COOLING SYSTEMS*

(2) 29. Repair engine cooling system components.

(3) 30. Inspect, check, troubleshoot, service, and repair engine cooling systems.

#### *J. ENGINE EXHAUST AND REVERSER SYSTEMS*

(2) 31. Repair engine exhaust system components.

(3) 32A. Inspect, check, troubleshoot, service, and repair engine exhaust systems.

(1) 32B. Troubleshoot and repair engine thrust reverser systems and related components.

#### *K. PROPELLERS*

(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 aluminium alloy propeller blades.

*L. UNDUCTED FANS*

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

*M. AUXILIARY POWER UNIT*

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