- (c) Areas of operation. Each approved course must include the flight training on the areas of operation listed in this paragraph (c)(2) of this section, that are appropriate to the instrument-aircraft category and class rating for which the course applies.
- (2) For a flight instructor-instrument rating course.
  - (i) Fundamentals of instructing;
  - (ii) Technical subject areas;
  - (iii) Preflight preparation;
- (iv) Preflight lesson on a maneuver to be performed in flight;
- (v) Air traffic control clearances and procedures:
- (vi) Flight by reference to instruments;
- (vii) Navigation aids;
- (viii) Instrument approach procedures;
- (ix) Emergency operations; and
- (x) Postflight procedures.
- Stage check and end-of-course tests.

Each student enrolled in a flight instructor instrument course must satisfactorily accomplish the stage checks and end-ofcourse tests, in accordance with the school's approved training course, consisting of the approved areas of operation of section 4 of this appendix for the flight instructor instrument (category and class of aircraft) rating for which the course applies.

## Appendix H—Ground Instructor **Certification Course**

- 1. Applicability. This appendix prescribes the minimum curriculum for a ground instructor certification course and an additional ground instructor rating course, required under this part, for:
  - (a) Ground Instructor—Airplane category.
  - (b) Ground Instructor—Rotorcraft category.
- (c) Ground Instructor—Glider category.
- (d) Ground Instructor—Lighter-than-air category.
- (e) Ground Instructor—Powered-lift category.
  - (f) Ground Instructor—Instrument.
  - Aeronautical knowledge training.
  - (a) Approved course requirements.

Each approved course must include the knowledge areas listed in paragraph (b) of this section, appropriate to the ground instructor category and class rating for which the course applies, and must include a total of at least:

- (1) 20 hours of training, if the course is for an initial issuance of a ground instructor certificate; or
- (2) 10 hours of training, if the course is for an additional ground instructor rating.
  - (b) Aeronautical knowledge areas.
  - (1) Learning process;
  - (2) Elements of effective teaching;
- (3) Student evaluation, quizzing, and testing:
- (4) Course development;
- (5) Lesson planning;
- (6) Classroom training techniques; and
- (7) Aeronautical knowledge areas in which training is required for-
- (i) A private and commercial pilot certificate that is appropriate to the category and class rating for which the course applies;
- (ii) An instrument rating, if applying for a ground instructor instrument rating.

(c) School hours credited.

A student who satisfactorily completed 2 years of study on the principles of education in a college or university may be credited with 10 hours of the required training in paragraph (a)(1) of this section.

3. Stage check and end-of-course tests. Each student enrolled in a ground instructor course must satisfactorily accomplish the stage checks and end-ofcourse tests, in accordance with the school's approved training course, consisting of the approved knowledge areas of section 2 of this appendix for the ground instructor rating for which the course applies.

## Appendix I—Additional Aircraft Category or Class Rating Course

- 1. Applicability. This appendix prescribes the minimum curriculum for an additional aircraft category rating course or an additional aircraft class rating course required under this part, for:
  - (a) Airplane category—single-engine class.
  - (b) Airplane category—multiengine class.
  - (c) Rotorcraft category—helicopter class.(d) Rotorcraft category—gyroplane class.

  - (e) Powered-lift category.
  - (f) Glider category—nonpowered class. (g) Glider category—powered class.
- (h) Lighter-than-air category—airship class. (i) Lighter-than-air category—balloon class.
- 2. Eligibility for enrollment.

A person must have the following to enroll in the flight portion of an additional aircraft category or additional aircraft class rating course:

- (a) The level of pilot certificate for the additional aircraft category or class rating for which the course applies.
- (b) At least a valid third-class medical certificate issued under part 67 of this chapter, if the course is for a aircraft rating in other than a glider or balloon.
- (c) A signed and dated statement affixed to the application certifying that no known medical defect exists that would make the person unable to pilot a glider or balloon, as appropriate.
- Aeronautical knowledge training. Each approved course for an additional aircraft category rating and additional aircraft class rating must include:
- (a) The aeronautical knowledge training that apply to that aircraft rating by this part, and that are appropriate to the aircraft rating and pilot certificate level for which the course applies; and
- (b) The total aeronautical knowledge training hours of each approved course must include the ground training time required by this part that are appropriate to the aircraft rating and pilot certificate level for which the course applies.
  - 4. Flight training.
- Each approved course for an additional aircraft category rating or additional aircraft class must include:
- (a) The flight training on the approved areas of operation of this paragraph, that are appropriate to the aircraft rating and pilot certificate level for which the course applies.
- (b) The total flight training time must include the training required by this part, that are appropriate to the aircraft rating and

pilot certificate level for which the course applies.

- (c) Flight training devices may be used when the course includes training in a 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 authorized ground or flight instructor.
- (d) Training in a flight training device that meets the requirements of § 141.41(a)(1) of this part, may be credited for a maximum of 10 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.
- (e) Training in a flight training device that  $% \left\{ 1\right\} =\left\{ 1$ meets the requirements of § 141.41(a)(2) of this part, may be credited for a maximum of 5 percent of the total flight training hour requirements of the approved course, or of this section, whichever is less.
- (f) Training in a flight training device that meets the requirements of § 141.41(a)(1) of this part and a flight training device that meets the requirements of § 141.41(a)(2) of this part, may be credited for a maximum of 10 percent of the total flight training hour requirements of the approved course, or by this section, whichever is less. However, training in a flight training device that meets the requirements of § 141.41(a)(2) of this part may be credited for a maximum of 5 percent of the total flight training hour requirements.
  - 5. Stage check and end-of-course tests
- (a) Each student enrolled in an additional aircraft category rating course or an additional aircraft class rating course must satisfactorily accomplish the stage checks and end-of-course tests, in accordance with the school's approved training course, consisting of the approved areas of operation of section 4 of this appendix that are appropriate the aircraft category and class rating for which the course applies at the appropriate pilot certificate level.
- (b) Each student must demonstrate satisfactory proficiency prior to being endorsed to operate an aircraft in supervised PIC flight.

## Appendix J—Aircraft Type Rating Course, for Other Than Airline **Transport Pilot Certificate**

- 1. Applicability. This appendix prescribes the minimum curriculum for an aircraft type rating course, for other than airline transport pilot certificate, for:
- (a) A type rating in an airplane category single engine class.
- (b) A type rating in an airplane category multiengine class.
- (c) A type rating in a rotorcraft category helicopter class.
- (d)  $\hat{A}$  type rating in a powered-lift category. (e) Other aircraft type ratings specified by the Administrator through aircraft type certificate procedures.
  - 2. Eligibility for enrollment.

A person must have the following to enroll in the flight portion of an aircraft type rating course:

- (a) At least a private pilot certificate;
- (b) At least a valid third-class medical certificate issued under part 67 of this chapter;