

Last updated: 2/99

**SAN BERNARDINO VALLEY COLLEGE
COURSE OUTLINE**

I. CATALOG DESCRIPTION:

AERO 131A: Private and Commercial Pilot Ground School
6 hours lecture = 6 units

A review of the private pilot F.A.A. ground school and preparation of the F.A.A. private or commercial pilot examination. Topics include weight and balance and flight computers. The final is the F.A.A. written examination.

Prerequisite: None

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: One

III. EXPECTED OUTCOMES FOR STUDENTS:

Upon completion of this course, the student will be able to:

- A. Accomplish those basic areas which the Federal Aviation Administration outlines in Part 141 of the Federal Aviation Regulations to satisfactorily pass the FAA written exam.
- B. Research and compute weight and balance, performance charts and weather information and charts.
- C. Construct cross country flight plans.
- D. Distinguish and use safe operating and pre-flight planning.
- E. Interpret proper communication procedures and respond to proper airport operations.
- F. Define emergency procedures and respond with the appropriate response.

IV. CONTENT:

- A. Introduction
- B. On Becoming a Pilot
 - 1. Pilot training process and requirements
 - 2. Typical training program
 - 3. Qualifying for the pilot certificate
- C. The Practical Science of Flight
 - 1. The part of the airplane
 - 2. Why airplanes fly
 - 3. Controlling the airplane in flight
 - 4. Aircraft stability
 - 5. Special flight situations
 - 6. Stalls, spins, and recovery techniques
- D. The Power Plant and Its Systems
 - 1. Principles of reciprocating engines
 - 2. The oil system
 - 3. Airplane fuels and fuel systems

4. Airplane ignition system
5. Standardization of controls
6. The electrical system
7. Power plant operations
- E. Flight Instruments
 1. The pilot-static instruments
 2. The magnetic compass
 3. The gyroscopic instruments
 4. Using the flight instruments
- F. Airplane Weigh and Balance
 1. Principles of Weight and Balance
 2. Determining gross weight and center of gravity
 3. Using weight and balance in flying
- G. Performance: Measuring an Airplane's Capabilities
 1. The source of performance data
 2. The influence of air density on performance
 3. Takeoff performance
 4. Climb performance
 5. Cruise performance
 6. Landing performance
- H. Airports, Airspace, and Local Flying
 1. Airport and runway markings
 2. Aircraft traffic patterns
 3. Controlled and uncontrolled airspace
 4. Radio communications techniques
 5. Flying at night
 6. Noise abatement
 7. Planning and conducting a local flight
- I. Meteorology: A Pilot's View of Weather
 1. Elements of the atmosphere
 2. Motion and effects of the atmosphere
 3. Aviation weather
 4. Cloud recognition and relevancy
 5. Air masses and fronts
 6. Weather and the VFR pilot
- J. Using Aviation Services
 1. Sources of weather information
 2. Interpreting weather charts
 3. Weather reports and forecasts
 4. The preflight weather briefing
 5. Getting inflight weather information
- K. Flight Information Publications
 1. Regulatory publications
 2. Nonregulatory and supplemental publications
 3. Aeronautical charts
 4. Operational publications
- L. Federal Aviation Regulations
 1. FAR Part 1: Definitions and Abbreviations
 2. FAR Part 61: Certification of Pilots
 3. FAR Part 67: Medical Standards

4. FAR Part 91: General Operating and Flight Rules
5. FAR Part 135: Charter and Air Taxi
6. FAR Part 830: Nat'l Transportation Safety Board
- M. Basics of Navigation
 1. Methods of navigation
 2. Latitude and Longitude
 3. Aeronautical charts
 4. The pilotage technique
 5. The dead reckoning technique
 6. Flight computers
- N. Radio Navigation Aids
 1. Overview of radio navigational aids
 2. VOR navigation
 3. Distance Measuring Equipment (DME)
 4. Automatic Direction Finder (ADF)
 5. Area Navigation (RNAV)
 6. Radar assistance
 7. Flight planning with radio aids
- O. Composite Navigation: Going Cross-Country
 1. Overview of flight planning
 2. Cross-country flight planning
- P. The Physiology of Flight
 1. Effects of altitude on the human body
 2. Effects of motion on the senses
 3. Night Vision
 4. Effects of noise, short and long term
 5. Effects of drugs when used in aviation
 6. Effects of stress on the human body
- Q. Handling Airborne Emergencies
 1. Common causes of emergencies
 2. Emergency landings
 3. Recognizing and handling emergencies
 4. Assistance for lost pilots
 5. Communications during emergencies
 6. General rules for flying safety
- R. Preparation for the FAA Private and Commercial Pilot Written Examinations
 1. Multiple simulations of FAA written examinations

V. METHODS OF INSTRUCTION:

- A. Lecture;
- B. Discussion between teacher and students or from students working in a group;
- C. Use of audio visual aids and demonstrations; and
- D. A minimum of 12 hours of written homework will be assigned each week.

VI. TYPICAL ASSIGNMENTS:

- A. Read Chapter in "Air Invitation to Fly" textbook and answer review questions following the chapter as

assigned.

Typical Question: Describe how lift is generated and how Bernoulli's principle and Newton's 3rd law apply.

- B. Given weight and balance information, calculate the total weight, moment, and center of gravity. Also describe the flight characteristics expected from the loaded aircraft.

VII. EVALUATIONS:

A. Methods of Evaluation:

1. Oral questioning
2. Quizzes
3. Examinations
4. Mid-term examination
5. Final examination

Typical Questions:

- a. Explain the difference between a fix pitch propeller and a constant speed propeller.
- b. Calculate the amount of runway needed for take off from a given chart with various conditions.

B. Frequency of Evaluation:

1. Weekly assignments and quizzes
2. One mid-term examination
3. One final examination

VIII. TYPICAL TEXT(S):

Title: An Invitation To Fly, 4th Edition
Author: Glaseser, Gum Walters
Publisher: Wadsworth Publishing
Date of Publication: 1993

Title: Private/Commercial Pilot Test Guide
Author: Jeppeson
Publisher: Jeppeson
Date of Publication: 1998

IX. OTHER SUPPLIES REQUIRED OF STUDENTS: None

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