Degree Applicability Course ID 001334 Glendale Community College November 2015

#### COURSE OUTLINE

## Aviation and Transportation 120 Private Pilot Ground School

## **Catalog Statement**

Aviation and Transportation 120 prepares the student for the Private Pilot Written Examination, and is taught under Federal Aviation Administration approved Private Pilot Ground School Certificate HH8S190Q. The course covers powerplant operations, radio procedures and radio navigation, meteorology, and enroute navigation procedures common to the private pilot.

Total Laboratory Units: 0.0
Total Course Units: 5.0

Total Lecture Hours: 0.0 Total Laboratory Hours: 0.0

Total Laboratory Hours To Be Arranged: 0.0

**Total Faculty Contact Hours: 0.0** 

Prerequisites: none.

# **Course Entry Expectations**

Prior to enrolling in the course, the student should be able to:

# **Course Exit Standards**

Upon successful completion of the required coursework, the student will be able to:

- apply Federal Aviation Regulations to flight;
- express an understanding of aerodynamics and the science of flight;
- demonstrating basic engine operating principles;
- performing tasks of enroute communication procedures;
- demonstrating knowledge of weather theory;
- evaluating aviation weather information;
- developing the skills of navigation, including, radio, pilotage, and dead-reckoning.

## **Course Content**

**Total Faculty Contact Hours = 128.0** 

Airplane Operation and Performance ( hours)
Airplane familiarization
Aerodynamic principles
The four forces

Angle of attack

"Burble" and stalls

Airplane controls

The three axis of control

Trim tabs

Wing flaps

Control use and coordination

Load factors

Weight and balance

Airplane Powerplants

Basic engine operation

Operating limitations

Cowl flaps

Carburetor heat

The oil system

Ignition systems

Engine operations

Starting

Warm-up

Airplane System

Electrical systems

Fuel systems

Pitot-static system

Airplane Instruments

Altimeter

Airspeed indicator

Vertical speed indicator

Turn and bank indicator

Magnetic compass

Directional gyro

Gyro-horizon

Airplane Operation

Taxiing

Run-up check

Takeoff

Climb

Stall series

Mixture control

Cruise performance charts

Descents

Traffic pattern flying

Landing

Go-around procedures

Night Flying

Meteorology (hours)

Atmosphere and atmospheric pressure

Circulation of the atmosphere

Atmospheric pressure

Air masses

Humidity

Clouds and fog

Stable and unstable air

Fronts and frontal weather

Thunderstorm

Types of airplane ice

Thermal activity

Mountain waves

The weather bureau

Weather reports

Area forecast

Terminal forecasts

Aviation weather (sequence) reports

Winds aloft

PEREPS and advisories

Weather and analysis

Weather checklist

### Communications (hours)

Aircraft receiving frequencies

Operation of transmitter and receiver

LF and VHF radio communications

Radio communications

Light code communications

Air Traffic Control procedures

### Publications (hours)

Airman's Information Manual - general

Part 1 - Basic Flight Manual and ATC Procedures

Part 2 - Airport Directory

Part 3 - Operational Data and Notices to Airmen

Abbreviations

Oil burner routes

Visual navigation chart bulletin

Notices to airmen (NOTAMS)

Airport-Facility Directory Legend

ARTCC communication frequencies

FSS frequencies and telephone numbers

### Federal Aviation Regulations (hours)

Certificates

Pre-solo requirements

Student pilot limitations

Private pilot examinations

Placards, records, inspection, registrations, and markings

Engine instruments and safety devices

Aviation and Transportation 120 Page 4 of 6

Controlled airspace

Visual flight rules

Airports with and without towers

Cross-country flight

"Rules of the Road"

Acrobatic flight

Reckless or negligent operation

Restricted and prohibited areas

Miscellaneous rules

### Navigation (hours)

Introduction

Charts and their use

Sectional charts

Chart symbols

Latitude and longitude

Use of the plotter

Dead reckoning navigation

Common terms used

Measuring a true course

Variation and deviation

Wind effects on an airplane

Navigation formulae

Flight planning from and procedures

## The Flight Computer (hours)

Calculator side of the computer

Reading miles, gallons, and time scales

Relationship of inner and outer scales

Time, speed, and distance calculations

Conversion scales

Airspeed and density altitude computations

Fuel consumption calculations

Wind side of the computer

Solving for GS and TH

Solving for wind

The wind triangle on the computer

## Radio Navigation (hours)

VOR navigation

Advantage of VOR

Airborne VOR equipment

Frequency selector

Course selector

"CDI" indicator

"To-From" indicator

VOR navigator procedure

VOR position fixes

Preflight Planning (hours)

Aviation and Transportation 120 Page 5 of 6

Importance

Steps in flight planning

Flight plans for filling with the FAA

Attitude Instrument Flying (hours)

Theory of instrument flight

Instrument indications

Emergency Procedures (hours)

General introduction

D/F assistance

Engine failure

Fires

Minor emergencies

## **Methods of Instruction**

The following methods of instruction may be used in this course:

- classroom lecture and demonstration:
- flight lessons in airplane;
- student observation of flight lesson in airplane;
- student practice in airplane.

Guest speakers from government agencies as well as the airlines will be invited to speak to the class from time to time.

### **Out of Class Assignments**

The following out of class assignments may be used in this course:

#### **Methods of Evaluation**

The following methods of evaluation may be used in this course:

- Examinations requiring analytical writing and thinking will be given at the completion of each section.
- A comprehensive examination will be given at the completion of the course.
- All questions must be answered with an accuracy of at least seventy (70) percent.

All maneuvers will be completed within the acceptable parameters dictated by the Federal Aviation Administration Commercial Pilot Practical Test Standards.

#### **Textbooks**

Hayes, Michael D, <u>Private Oral Exam Guide</u> [9<sup>th</sup> Edition]. Newcastle, WA: Aviation Supplies

Academics, 2009.

10<sup>th</sup> Grade Reading Level ISBN: 9781560277231

Jeppesen, Elroy B, <u>Flight Navigation Plotter (PN-1)</u>. E. Englewood, CO: Jeppesen Training.

10<sup>th</sup> Grade Reading Level Part #: 10009523

Jeppesen, Elroy B, Metal Flight Computer. E. Englewood, CO: Jeppesen Training. 10<sup>th</sup> Grade Reading Level Part #: 10001317

Jeppesen, Elroy Borge, <u>Private Pilot (FAA Practice Test Study Guide) (JA312404-010</u>. East Englewood, CO: Jeppesen Sanderson, Inc, 2006.

10<sup>th</sup> Grade Reading Level ISBN: 9780884874287

Jeppesen, Elroy B, <u>FAA Airman Knowledge Test Guide (JS312).</u> E. Englewood, CO: Jeppesen Training.

10<sup>th</sup> Grade Reading Level Part: 10001387

Jeppesen, Elroy B, <u>Private Pilot With Far Aim (JS314505)</u>. (Special Order, Contact Bookstore)

### **Student Learning Outcomes**

Upon successful completion of the required coursework, the student will be able to:

- student will have an understanding of aerodynamics and the science of flight;
- student will demonstrate an understanding of weather impacts, communication, and engine functions;
- student will have basic skills in of navigation, including, radio, pilotage, and dead-reckoning;
- student will plan flight with an overall and understand of emergency procedures.