PRIVATE PILOT BASIC GROUND SCHOOL

Pierce County Careers Connection
Dual Credit Articulation Agreement

Upon completion of high school courses equivalent to the following competencies:

☐ Demonstrate knowledge of the following:

Pilot Training
- How to Get Started
- Role of the FAA
- Fixed-Base Operators (FBOS)
- Eligibility Requirements
- Types of Training Available
- Phases of Training
- Private Pilot Privileges and Limitations

Aviation Opportunities
- New Experiences
- Aviation Organizations
- Category/Class Ratings
- Additional Pilot Certificates
- Aviation Careers

Human Factors in Aviation
- Aeronautical Decision Making
- Crew Resources Management Training
- Pilot-in-Command Responsibility
- Communication
- Resource Use
- Workload Management
- Situational Awareness
- Aviation Physiology
- Alcohol, Drugs, and Performance
- Fitness for Flight

☐ Gain a basic understanding of the main airplane components and systems:
- Fuselage
- Wings
- Empennage
- Landing Gear
- Engine/Propeller
- Pilot's Operating Handbook (POH)

☐ Demonstrate knowledge of flight instrument functions and operating characteristics, including errors and common malfunctions:
- Pilot-Static Instruments
- Airspeed Indicator
- Altimeter
- Vertical Speed Indicator
- Gyroscopic Instruments
- Magnetic Compass

☐ Discuss the power plant and related systems:
- Reciprocating Engine
- Induction Systems

Discuss the power plant and related systems (cont'd):
- Supercharging and Turbocharging
- Ignition Systems
- Fuel Systems
- Refueling
- Oil Systems
- Cooling Systems
- Exhaust Systems
- Propellers
- Propeller Hazards
- Electrical Systems

☐ Demonstrate knowledge of the following:

Four Forces of Flight
- Lift
- Airfoils
- Pilot Control of Lift
- Weight
- Thrust
- Drag
- Ground Effect

Aerodynamics Principles of Stability
- Three Axes of Flight
- Longitudinal Stability
- Center of Gravity Position
- Lateral Stability
- Directional Stability
- Stalls
- Spins

Aerodynamics Principles of Maneuvering Flight
- Climbing Flight
- Left-Turning Tendencies
- Descending Flight
- Turning Flight
- Load Factors (Study Assignment)

☐ Explain stall/spin characteristics as they relate to training airplanes.

☐ Discuss importance of prompt recognition of stall indications.

☐ Explain important safety considerations, including collision avoidance precautions, right-of-way rules and minimum safe altitudes:
- Collision Avoidance/Visual Scanning
- Airport Operations
- Right-of-Way Rules
- Minimum Safe Altitudes
- Taxiing in Wind

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Explain important safety considerations, including collision avoidance precautions, right-of-way rules and minimum safe altitudes (cont'd):

- Positive Exchange of Flight Controls

☐ Discuss the following:

Airport Marking and Lighting

- Controlled and Uncontrolled
- Runway Layout
- Traffic Pattern
- Airport Visual Aids
- Taxiway Markings
- Ramp Area Hand Signals
- Airport Lighting
- Visual Glideslope Indicators
- Approach Light Systems
- Pilot-Controlled Lighting

Aeronautical Charts

- Latitude and Longitude
- Projections
- Sectional Charts
- World Aeronautical Charts
- Chart Symbology

Types of Airspace

- Classifications
- Uncontrolled Airspace
- Controlled Airspace
- Class E
- Class D
- Class C
- Class B
- Class A
- Special VFR
- Special Use Airspace Other Airspace Areas
- Emergency Air Traffic Rules
- Air Defense Identification Zones

☐ Explain radar, transponder operations, and FAA radar equipment and services for VFR aircraft:

- Radar
- Transponder Operation
- FAA Radar Systems
- VFR Radar Services
- Automatic Terminal Information Service (ATIS)
- Flight Service Stations
- VHF Direction Finder Assistance

☐ Explain the types of service provided by an FSS.

☐ Demonstrate how to use the radio for communication:

- VHF Communication Equipment
- Using the Radio
- Phonetic Alphabet
- Coordinated Universal Time
- Common Traffic Advisory Frequency (CTAF)
- ATC Facilities and Controlled Airports

Demonstrate how to use the radio for communication (cont'd):

- Emergency Procedures
- Emergency Locator Transmitters (ELTS)
- Lost Communication Procedures

☐ Explain the sources of flight information, particularly the Aeronautical Information Manual and FAA advisory circulars:

- Airport/Facility Directory
- Federal Aviation Regulations
- Aeronautical Information Manual (AIM)
- Notices to Airmen (NOTAMS)
- Advisory Circulars
- Jeppesen Information Services

☐ Comprehension of the material presented in Chapters 1 through 5 of the Private Pilot Manual:

- Airplane Systems
- Aerodynamic Principles
- The Flight Environment
- Communication and Flight Information

☐ Discuss various weather conditions, frontal systems, and hazardous weather phenomena:

Basic Weather Theory

- The Atmosphere
- Atmospheric Circulation
- Atmospheric Pressure
- Coriolis Force
- Global Wind Patterns
- Local Wind Patterns

Weather Patterns

- Atmospheric Stability
- Temperature Inversions
- Moisture
- Humidity
- Dewpoint
- Clouds and Fog
- Precipitation
- Airmasses
- Fronts

☐ Explain how to recognize critical weather situations form the ground and during flight, including hazards associated with thunderstorms and wind shear:

Weather hazards

- Thunderstorms
- Turbulence
- Wake Turbulence
- Wind Shear
- Microburst
- Icing
- Restrictions to Visibility
- Volcanic Ash

☐ Discuss the conditions, which result in wind shear.

☐ Explain the appropriate Federal Aviation Regulations in the Private Pilot Recommended Study List.

☐ Demonstrate specific knowledge of those FARs which govern student solo flight operations, private pilot privileges, limitations, and National Transportation Safety Board (NTSB) accident reporting requirements.

☐ Explain how to obtain and interpret weather reports, formats, and graphic charts:

Forecasting Process

- Forecasting Methods
- Types of Forecasts
- Compiling and Processing Weather Data
- Forecasting Accuracy and Limitations

Graphic Weather Products

- Surface Analysis Chart
- Weather Depiction Chart
- Radar Summary Chart
- Satellite Weather Pictures
- Low-Level Significant Weather Prog
- Severe Weather Outlook Chart
- Forecast Winds and Temperatures Aloft Chart
- Volcanic Ash Forecast and Dispersion Chart

☐ Discuss the sources of weather information during preflight planning and while in flight:

Sources of Weather Information

- Preflight Weather Sources
- In-Flight Weather Sources
- Enroute Flight Advisory Service
- Weather Radar Services
- Automated Weather Reporting Systems

☐ Recognize critical weather situations described by weather reports and forecasts:

Printed Reports and Forecasts

- Aviation Routine Weather Report (METAR)
- Radar Weather Reports
- Pilot Weather Reports
- Terminal Aerodrome Forecast (TAF)
- Aviation Area Forecast
- Winds and Temperatures Aloft Forecast
- Severe Weather Reports and Forecasts
- AIRMET.SIGMET/Convective SIGMET

☐ Demonstrate knowledge of the material presented in Chapters 6 and 7 of the Pilot Manual and the FARs that apply to private pilot operations, including private pilot privileges, limitation and NTSB accident reporting requirements.

☐ Explain how to use data supplied by the manufacturer to predict airplane performance, including takeoff and landing distances and fuel requirements:

Predicting Performance

- Aircraft Performance and Design
- Chart Presentations
- Factors Affecting Performance
- Takeoff and Landing Performance

Predicting Performance (cont'd)

- Climb Performance
- Cruise Performance
- Using Performance Charts

☐ Discuss how to compute and control the weight and balance condition of a typical training airplane:

Weight and Balance

- Importance of Weight
- Importance of Balance
- Terminology
- Principles of Weight and Balance
- Computation Method
- Table Method
- Graph Method
- Weight-Shift Formula
- Effects of Operating at High Total Weights
- Flight at Various CG Positions

☐ Explain the basic functions of aviation computers:

Fight Computers

- Mechanical Flight Computers
- Time, Speed, and Distance
- Airspeed and Density Altitude Computations
- Wind Problems
- Conversions
- Multi-Part Problems
- Electronic Flight Computers
- Modes and Basic Operations

☐ Discuss the effects of density altitude on takeoff and climb performance.

☐ Explain the basic concepts for VFR navigation using pilotage, dead reckoning, and aircraft navigation systems:

Piloting and Dead Reckoning

- Piloting
- Dead Reckoning
- Flight Planning
- VFR Cruising Altitudes
- Flight Plan
- Lost Procedures

VOR Navigation

- VOR Operations
- Ground and Airborne Equipment
- Basic Procedures
- VOR Orientation and Navigation
- VOR Checkpoints and Test Signals
- VOR Precautions
- Horizontal Situation Indicator
- Distance Measuring Equipment (DME)

ADF Navigation

- ADF Equipment
- Orientation
- Homing
- ADF Intercepts and Tracking
- Movable-Card Indicator
- ADF Precautions

Advanced Navigation
- VORTAC-Based Area Navigation
- Long Range Navigation (LORAN)
- Inertial Navigation System
- Global Positioning System

☐ Explain VFR navigation using pilotage, dead reckoning, and navigation systems.

☐ Discuss guidelines and recommended procedures related to flight planning, use of an FAA Flight Plan, VFR cruising altitudes, and lost procedures.

☐ Discuss the important aviation physiological factors as they relate to private pilot operations:
Aviation Physiology
- Vision in Flight
- Night Vision
- Visual Illusions
- Disorientation
- Respiration
- Hypoxia
- Hyperventilation

☐ Become familiar with the accepted procedures and concepts pertaining to aeronautical decision making and judgment, including cockpit resource management and human factors training:
Aeronautical Decision Making
- Applying the Decision Making Process
- Pilot-in-Command Responsibility
- Communication
- Workload Management
- Situational Awareness
- Resource Use
- Applying Human Factors Training

☐ Discuss the planning process for a cross-country flight:
Flight Panning Process
- Developing the Route
- Preflight Weather Briefing
- Completing the Navigation Log
- Flight Plan
- Preflight Inspection

☐ Demonstrate knowledge with the details of flying a typical cross-country flight, including evaluation or in-flight weather and decisions for alternative actions, such as a diversion:
The Flight
- Departure
- Centennial Airport to Pueblo Memorial Airport
- Pueblo Memorial Airport to La Junta Municipal Airport
- La Junta Municipal Airport to Centennial Airport
- Diversion to Limon Municipal Airport
- Return to Centennial Airport

☐ Discuss how to plan for alternatives.

☐ Demonstrate comprehension of the material presented in Chapters 8 through 11 of the Private Pilot Manual.

☐ Demonstrate comprehension of the material presented in this course in preparation for the FAA Private Pilot Airmen Knowledge Test.

☐ Demonstrate comprehension of the academic material presented in this course and the student's readiness to complete the FAA Private Pilot Airmen Knowledge Test.

A student earning a "B" grade or better may earn college credit at the following college:

College	Course	Credits
Clover Park Technical College	AVP 105 (CIP Code: 490102)	4

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