

## ***Flight Training Syllabus***

**Course Description:** This is a course of instruction for men and women of all ages in the skills of hang gliding. As an introductory course, ground school is accompanied with actual flying experience. Students proceed through the course according to their own ability, performance, and attitude. Each student must be comfortable and proficient at each level before advancing. Students should wear clothes comfortable for running. Long pants are a must due to the harnesses used. A good night's rest and healthy breakfast will help in the physical aspect of your lesson.

### ***Outline***

**Basic Ground School** – A familiarization with basic terms and technicalities.

1. Introduction and objectives.
2. History of hang gliding.
3. Glider familiarization and parts nomenclature:
  - Sail
  - Nose plate
  - Keel & Keel Pocket
  - Hang Straps (Primary & Secondary)
  - Leading Edges
  - Crossbar
  - Control Frame
    - Left and Right Control Uprights
    - Base bar (Controlbar/Speedbar)
  - Kingpost
  - Flying Cables (Upper & Lower)
  - Reflex Bridles
  - Nose & Sail Battens
  - Battens Ties
  - Washout Struts
  - Wheels
  - Other Important Equipment
    - Helmet
    - Harness
4. Aerodynamics, principles of flight:
  - Lift, Drag, and Gravity
  - Pitch, Roll, and Yaw
  - Air Speed and Ground Speed
  - Angle of Attack – nose angle
  - Stalls, Penetration, Glide Ratio, and Sink Rates(fpm)
  - Speeds to Fly – trim, minimum sink, and best glide

5. Flying conditions, considerations in determination of best glide:
- Airflow, Velocity, Direction, Stability, Wind Gradient, and Ground Effect
  - Students should train in light wind conditions as stronger winds amplify the need for corrections. No wind or smooth air up to 10MPH and no more than 15° cross to the hill is ideal.

### **Ground Exercises**

#### 1. Setting up the Glider

- The instructor will demonstrate proper set-up & take down procedures and preflight inspection.

#### 2. Ground handling the glider \*\*\*the student should constantly be monitoring the winds

- Place the glider nose down directly into the wind
- Level the glider
- Pick up the glider with a grapevine grip and place on shoulders as demonstrated
- Point the glider directly into the wind
- Set the angle of attack
- Keep wings level

#### 3. Running the glider

- First two steps should be walking, then jog to run. This allows you to have better control of the glider.
- The glider will slowly lift from your shoulders BUT should stay on shoulders for at least 6 steps
- Change your grip from “grapevine” to “beer-mug”.
- Maintain the glider 6” off your shoulders

#### 4. Harness

- Pick a harness that fits comfortably and is adjusted properly
- Hang Check – done **EVERY** time we hook into the glider.
  - Standing – put the carabineer through the main and backup straps. Lock carabineer if required
  - Lay down to prone position – check distance between chest and control bar (should be three fingers to one fist)
  - Leg straps should be in place and straight
  - Look up over your both shoulders to ensure lines are straight

#### 5. Downhill run with the glider and harness

- As on flat ground, get the glider level with the proper angle of attack
- Two walking steps, then jog and run keeping the glider level
- Look straight ahead, not down
- Gradually lean forward through the control frame
- If necessary make little corrections with the “shopping cart” method to stay straight and level.
- A good aggressive push out is required to stall the glider and come to a stop

6. Review of flight principles and first flights
  - Students begin at the beginning of the slope and work their way up with consistency and proficiency of skills
  - Emphasis on aggressive running with glider
  - Learning to relax and have a light touch on the down tubes
  - Anticipate the lifting force of the wing by not jumping into the glider
  - Once basic principles of takeoff are achieved, flight time will increase
  - Glider is controlled by a shifting of weight – “shopping cart” method
  - Control movements should be smooth and gentle
  - To increase speed – pull body forward through the control frame
  - To decrease speed – gently push the control bar forward to raise the angle of attack (avoid stalling the glider unless landing)
  - BE GENTLE, NOT JERKY
  - Learn to fly fast to facilitate quick control (think airspeed always)
  - Feel the wind on your face
  - Feel the pressure on the control bar
  
7. Stand up landings
  - Always land into the wind
  - Wind slows as you approach the ground, so keep sufficient airspeed
  - Gently slow down as you approach the ground for landing
  - Initiate your push out aggressively but smoothly (a sweeping motion while arching the back)
  - Have your feet directly under you prepared to run
  - If you have too much speed when you initiate push out you will gain altitude. Hold push out as soon as you notice this until the glider maxes out in altitude, then finish with an aggressive flare.

### **Refinement of Flying Skills**

1. Smooth transition to flight through smooth take off
2. Straight and level flight by eliminating unnecessary control
3. Consistent stand up landings aiming for the landing spot

### **Conclusion**

1. Students will upon finishing flights for the day – fill out a flight log
2. Receive a copy of this outline to reinforce skills learned on the training hill and be better prepared and familiar the next time out.
3. All equipment will be supplied by Susquehanna Flight Park Inc.
4. All instructors will be USHPA certified with the exception of student instructors which are under the direct supervision of a certified instructor.

\*\*Students are encouraged to purchase Hang Gliding Training Manual, by Dennis Pagen. The textbook is the first step to learning and understanding the concepts of flying a hang glider. It provides vital information that students need to become proficient pilots and pass the written exams.