Lesson #1 (Briefing)

⇒ Positioning aircraft controls for wind.

⇒ Familiarity with airport markings (including hold short lines), signs, and lights.

⇒ Aircraft lighting.

⇒ Use an airport diagram or taxi chart during taxi.

⇒ Towered and non-towered airport operations.

⇒ Visual indicators for wind.

⇒ Airport information resources (Chart Supplements U.S., airport diagrams, and appropriate publications).

⇒ Good cockpit discipline during taxi.

⇒ Appropriate taxi speeds.

⇒ Procedures for appropriate cockpit activities during taxiing including taxi route planning, briefing the location of Hot Spots, and communicating and coordinating with ATC.

⇒ Procedures unique to night operations.

⇒ Hazards of low visibility operations.

⇒ The importance of documenting any in-flight/post-flight discrepancies.

⇒ National Transportation Safety Board (NTSB) accident/incident reporting.

⇒ Airport security.

⇒ Maintain directional control after touchdown while decelerating to an appropriate speed.

⇒ Utilize runway incursion avoidance procedures after landing.

⇒ Park in an appropriate area, considering the safety of nearby persons and property.

⇒ Plan the taxi route to the ramp.

⇒ Follow the appropriate procedure for engine shutdown.

⇒ Complete the after landing checklist after the airplane has stopped.

⇒ Complete the engine shutdown checklist.

⇒ Disembark passengers safely and remain aware of passenger movement while on the ramp area.

⇒ Record aircraft discrepancies and notes for possible service needs before the next flight.

⇒ Conduct an appropriate post flight inspection and secure the aircraft.

of climb and in accordance with manufacturer's guidance.

⇒ Maneuver to the side of the runway/landing area when necessary to clear and avoid conflicting traffic.

⇒ Maintain takeoff power and VY +10/-5 or as recommended by aircraft manufacturer to a safe maneuvering altitude.

⇒ Maintain directional control and proper wind-drift correction throughout the climb.

⇒ Complete the appropriate checklist.

Maneuvering During Slow Flight

⇒ The range and limitations of stall warning indicators (e.g.: aircraft buffet, stall horn, etc.).

⇒ The interplay of aerodynamic factors (angle of attack (AOA), airspeed, load factor, aircraft configuration, aircraft weight, and aircraft attitude).

⇒ Select an entry altitude that will allow the Task to be completed no lower than 1,500 feet AGL.

⇒ Establish and maintain an airspeed, approximately 5-10 knots above the 1G stall speed, at which the airplane is capable of maintaining controlled flight without activating a stall warning.

⇒ Accomplish coordinated straight-and-level flight, turns, climbs, and descents with landing gear and flap configurations specified by the instructor without activating a stall warning.

⇒ Divide attention between airplane control, traffic avoidance and orientation.

⇒ Maintain the specified altitude, ±100 feet; specified heading, ±10°; airspeed +10/-0 knots; and specified angle of bank, ±10° or as recommended by aircraft manufacturer to a safe maneuvering altitude.

Lesson #3 (Briefing)

⇒ Positioning aircraft controls for wind.

⇒ Airport markings, signs, and lights.

⇒ Aircraft lighting.

⇒ Safe taxi procedures at towered and non-towered airports:

⇒ Maintain taxiway/runway alignment

⇒ Situational awareness to avoid runway incursions

⇒ Visual indicators for wind.

⇒ Airport information resources including Chart Supplements U.S., airport diagrams, and appropriate publications.

⇒ Good cockpit discipline during taxi, including maintaining a sterile cockpit, proper speed, separation between other aircraft and vehicles, and communication procedures.

⇒ Rules for entering or crossing runways.

⇒ Proper engine management including leaning, per manufacturer's recommendations.

⇒ Distractions during aircraft taxi.

⇒ Taxi instructions/clearances.

⇒ Perform a brake check immediately after the airplane begins moving.

⇒ Position the flight controls properly for the existing wind conditions.

⇒ Control direction and speed without excessive use of brakes.

⇒ Control the airplane during ground operations.

⇒ Maintaining situational awareness to avoid runway incursions

⇒ Taxiing to avoid other aircraft/vehicles and hazards

⇒ Exhibit proper positioning of the aircraft relative to hold lines.

⇒ Exhibit procedures to ensure clearances/instructions are received, recorded, and read back correctly.

⇒ Exhibit situational awareness and taxi procedures in the event the aircraft is on a taxiway that is between parallel runways.

⇒ Use an airport diagram or taxi chart during taxi.

Steep Turns

⇒ Maneuvering speed, including changes in weight.

⇒ Controlling rate and radius of turn.

⇒ Accelerated stalls.

⇒ Overbanking tendencies.

⇒ Use of trim in a turn.

⇒ Aerodynamics associated with steep turns.

⇒ Aerobatic requirements and limitations.

⇒ Establish the manufacturer's recommended airspeed or if one is not stated, a safe airspeed not to exceed VA.

⇒ Roll into a coordinated 360° steep turn with a 45° bank.

⇒ Perform the Task in the opposite direction, as specified by the instructor.

⇒ Maintain the entry altitude ±100 feet, airspeed ±10 knots, bank ±5°; and roll out on the entry heading, ±10° or as recommended by aircraft manufacturer to a safe maneuvering altitude.

Ground Reference Maneuvers

⇒ The effects of wind on ground track and relation to a ground reference point.

⇒ The effects of bank angle and groundspeed on rate and radius of turn.

⇒ The entry/exit requirements of the maneuver.

⇒ The relationship of rectangular course to airport traffic pattern.

⇒ Determine the area is clear of terrain, obstacles, and other aircraft and the aircraft will remain in the appropriate airspace.

⇒ Select a suitable ground reference.

⇒ Identify a suitable emergency landing area.

⇒ Rectangular course: enter a left or right pattern, 600 to 1,000 feet above ground level (AGL) at an appropriate distance from the selected reference area, 45° to the downwind leg

⇒ S-turns: enter perpendicular to the selected reference line, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area

⇒ Turns around a point: enter at an appropriate distance from the reference point, 600 to 1,000 feet AGL at an appropriate distance from the selected reference area

⇒ Apply adequate wind-drift correction during straight and turning flight to maintain a constant ground track if around a rectangular reference area or to track a constant radius turn on each side of the selected reference line or a selected point.

⇒ If performing a pattern such as S-Turns, reverse the turn directly over the selected reference line; if performing turns around a point, complete turns in either direction around the selected reference point.

⇒ Divide attention between airplane control, traffic avoidance and the ground track while maintaining coordinated flight.

⇒ Maintain altitude ±100 feet; maintain airspeed ±10 knots or as recommended by aircraft manufacturer to a safe maneuvering altitude.

Lesson #4 (Briefing)

⇒ The purpose of the run-up.

⇒ Wake turbulence avoidance.

⇒ An emergency locator transmitter (ELT).

⇒ Division of attention and scanning.

⇒ Different than expected runway.

⇒ Divide attention between inside and outside the cockpit.

⇒ Ensure that powerplant and instrumentation are suitable for run-up and takeoff, including temperature(s) and pressure(s).

⇒ Communication procedures and ATC phraseology.

⇒ ATC light gun signal recognition.

⇒ Transponders.

⇒ Radar assistance.

⇒ Lost communication procedures.

⇒ Use of automated weather and airport information.

⇒ Equipment issues that could cause loss of communication.

⇒ Single-pilot resource management (SRM) and/or crew resource management (CRM).

⇒ Transmit using phraseology and procedures as specified in the AIM.

⇒ Towered and non-towered airport operations and runway selection.

⇒ Airport signs and markings, lighting, and wind indicators.

⇒ Collision avoidance, scanning, obstacle and wire strike avoidance.

⇒ Right-of-way rules.

⇒ Wake turbulence recognition and resolution.

⇒ Wind shear avoidance.

⇒ Runway incursion avoidance.

⇒ Use of automated weather and airport information.

⇒ Use of radio for proper communications.

⇒ Parachuting operations.

⇒ Approach and landing considerations for different types of aircraft.

⇒ Go-around or rejected takeoff, if appropriate.

⇒ Correct for wind drift to maintain the proper ground track.

⇒ Maintain orientation with the runway/landing area in use.

⇒ Maintain an awareness of the position of other aircraft in the pattern.

⇒ Accomplish the before takeoff checklist, ensure the airplane is in safe operating condition as recommended by the manufacturer, and provide the departure briefing.

⇒ Review takeoff performance, such as airspeeds, takeoff distance, departure, and emergency procedures.

⇒ Avoid runway incursions and ensure no conflict with traffic prior to taxiing into takeoff position.

Lesson #5. Flying Solely By Reference To Instruments
1 Hour Flight, 1 Hour Ground.

Lesson #5 (Briefing)

⇒ Takeoff distance.

⇒ Takeoff power.

⇒ Atmospheric conditions.

⇒ Wind conditions and effects.

⇒ The application of VX or VY and variations with altitude.

⇒ The manufacturer's recommended emergency procedures for relating to the takeoff sequence.

⇒ The demonstrated crosswind component for the aircraft.

⇒ Handling engine failure during takeoff and climb.

⇒ Criticality of takeoff distance available.

⇒ Plans for engine failure after takeoff.

⇒ Sterile cockpit environment.

⇒ Verify ATC clearance and no aircraft is on final before crossing the Hold Line.

⇒ Verify aircraft is on the assigned/correct runway.

⇒ Ascertain wind direction with or without visible wind direction indicators.

⇒ Determining if crosswind component is beyond the pilot's ability or aircraft manufacturer maximum demonstrated value.

⇒ Position the flight controls for the existing wind conditions.

⇒ Clear the area; taxi into the takeoff position and align the airplane on the runway centerline/takeoff path.

⇒ Confirm takeoff power; and proper engine and flight instrument indications prior to rotation:

⇒ Rotate and lift off at the recommended airspeed and accelerate to VY (or other speed as appropriate for aircraft).

⇒ Establish a pitch attitude that will maintain VY +10/-5 knots (or other airspeed as appropriate for aircraft).

⇒ Retract the landing gear and flaps in accordance with manufacturer's guidance.

⇒ Maintain takeoff power and VY +10/-5 or as recommended by aircraft manufacturer to a safe maneuvering altitude.

⇒ Maintain directional control and proper wind-drift correction throughout the takeoff and climb.

⇒ Comply with responsible environmental practices, including noise abatement and published departure procedures.

⇒ Complete the appropriate checklist.

Lesson #6 (Briefing)

⇒ Stabilized approach and interpretation and use of visual glide scope indicators.

⇒ Energy management.

⇒ Atmospheric conditions.

⇒ Wind conditions and effects.

⇒ Emergency procedures during approach and landing.

⇒ Land and hold short operations (LAHSO) or option to refuse LAHSO restriction.

⇒ Failure to recognize the need to perform a go-around/rejected landing.

⇒ Low altitude stall/spin.

⇒ Land and hold short operations. (LAHSO).

⇒ Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied +10/-5 knots, or as recommended by the aircraft manufacturer for the aircraft type and gust velocity.

⇒ Make smooth, timely, and correct control applications:

⇒ Execute a timely go-around decision when the approach cannot be made within the tolerances specified above or for any other condition that that may result in an unsafe approach or landing.

Lesson #7 (Briefing)

⇒ Explaining the use of charts, tables, and data to determine performance.

⇒ Partial or complete power loss

⇒ Engine roughness or overheat

⇒ Carburetor or induction icing

⇒ Loss of oil pressure

⇒ Fuel starvation

⇒ Electrical malfunction

⇒ Vacuum/pressure, and associated flight instruments malfunction

⇒ Pitot/static system malfunction

⇒ Landing gear or flap malfunction

⇒ Inoperative trim

⇒ Inadvertent door or window opening

⇒ Structural icing

⇒ Smoke/fire/engine compartment fire

⇒ Any other emergency appropriate to the airplane

⇒ Glass cockpit operations

⇒ Factors affecting performance to include atmospheric conditions, pilot technique, aircraft condition, and airport environment.

⇒ The effects of loading on performance.

⇒ The effects of exceeding weight and balance limits.

⇒ The effects of weight and balance changes over the course of the flight.

⇒ Aerodynamics.

⇒ Limitations.

⇒ Variations in flight performance resulting from weight and balance changes during flight.

⇒ Published aircraft performance data as it relates to expected performance.

⇒ Compute weight and balance for a given scenario, which includes practical techniques to resolve out-of-limit calculations and determine if the weight and balance will remain within limits during all phases of flight.

Lesson #8 (Briefing)

⇒ Major components of the systems:

⇒ Primary flight controls and trim

⇒ Flaps, leading edge devices, and spoilers as appropriate

⇒ Powerplant and propeller (basic engine knowledge)

⇒ Landing gear

⇒ Fuel, oil, and hydraulic

⇒ Electrical

⇒ Avionics

⇒ Pitot-static, vacuum/pressure and associated flight instruments

⇒ Environmental

⇒ Deicing and anti-icing

⇒ Normal operation of systems.

⇒ Abnormal operation of systems (recognition of system failures/malfunctions).

⇒ Systems interaction and pilot monitoring of automated systems.

⇒ Troubleshooting system failures/malfunctions.

⇒ Mismanagement of airplane systems, which can cause a problem or system failure.

⇒ Determining and/or declaring an emergency.

⇒ Detection and management of threats and errors.

⇒ Use immediate action items during emergency operations, as applicable.

Lesson #10. Preparation For Cross-Country Flights (Briefing) Soft-Field Takeoffs and Landings, Route Planning and Navigation.

Short-Field Approach and Landing

⇒ Landing distance.

⇒ Hazards of other than hard-surfaced runways.

⇒ Obstruction clearance.

⇒ Stabilized approach.

⇒ Energy management.

⇒ Wind conditions and effects.

⇒ Density altitude.

⇒ Emergency procedures during approach and landing.

⇒ Land and hold short operations.

⇒ Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied +10 /-5 knots or as recommended by aircraft manufacturer to a safe maneuvering altitude.

⇒ Make smooth, timely, and correct control application during the round out and touchdown.

⇒ Touch down smoothly at an appropriate airspeed.

⇒ Touch down within the available runway, at or within 200 feet beyond the specified point, threshold markings or runway numbers, with no side drift, minimum float, and with the airplane's longitudinal axis aligned with and over the runway center line/landing path.

⇒ Maintain crosswind correction and directional control throughout the approach and landing sequence, as required.

⇒ Execute a safe and timely go-around decision when the approach cannot be made within the tolerances specified above or for any other condition that may result in an unsafe approach or landing.

⇒ Apply brakes as necessary, to stop in the shortest distance consistent with safety.

⇒ Utilize after landing runway incursion avoidance procedures.

⇒ The importance of weight transfer from wheels to wings.

⇒ P factor in turning tendencies.

⇒ The effects of aircraft configuration.

⇒ The effects of runway surface.

⇒ Takeoff distance.

⇒ Takeoff power.

⇒ Wind conditions and effects.

⇒ Density altitude.

⇒ Application of VX or VY.

⇒ Emergency procedures during takeoff and climb.

⇒ Hazards of other than hard surfaced runway.

⇒ Clear the area, taxi into the takeoff position and align the Airplane on the runway centerline without stopping while advancing the throttle smoothly to takeoff power.

⇒ Confirm takeoff power, and proper engine and flight

instrument indications prior to rotation.

⇒ Establish and maintain a pitch attitude that will transfer the weight of the airplane from the wheels to the wings as rapidly as possible.

⇒ Lift off at the lowest possible airspeed consistent with safety and remain in ground effect while accelerating to VX or VY, as appropriate.

⇒ Establish a pitch attitude for VX or VY, as appropriate, and maintain selected airspeed -5 knots during the climb.

⇒ Retract landing gear and flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer's guidance.

⇒ Maintain takeoff power and VY +10/-5 or as recommended by aircraft manufacturer to a safe maneuvering altitude.

⇒ Consider the wind conditions, landing surface, obstructions, and selects a suitable touchdown point.

⇒ Maintain a stabilized approach and recommended airspeed, or in its absence, not more than 1.3 VSO, with wind gust factor applied +10 /-5 knots.

⇒ Make smooth, timely, and correct control application during the round out and touchdown and, for tricycle gear airplanes, keep the nose wheel off the surface until loss of elevator effectiveness.

⇒ Touch down softly with minimum sink rate and no drift, with the airplane's longitudinal axis aligned with center of the runway.

⇒ Maintain full up elevator during rollout and exit the "soft" area at a speed that would preclude sinking into the surface.

⇒ Maintain crosswind correction and directional control throughout the approach and landing sequence, as required.

⇒ Maintain proper position of the flight controls and sufficient speed to taxi on the soft surface.

Lesson #12. Night Flight #1 (Briefing)

⇒ Physiological aspects of night flying as it relates to vision.

⇒ Lighting systems identifying airports, runways, taxiways and obstructions, as well as pilot controlled lighting.

⇒ Airplane equipment requirements for night operations.

⇒ Airplane lighting systems: type, interpretation in flight, when to use each lighting system.

⇒ Personal equipment essential for night flight.

⇒ Night orientation, navigation, and chart reading techniques.

⇒ Safety precautions and emergencies unique to night flying.

⇒ Somatogravic illusion and black hole approach illusion.

⇒ Disorientation that can be experienced in unusual attitudes at night.

⇒ Visual scanning techniques during night operations.

⇒ Hazards of inadvertent IMC.

⇒ Collision avoidance, scanning, obstacle and wire strike avoidance.

⇒ Environmental considerations at night (e.g., IMC; terrain (roads)).

⇒ Physiological aspects of night flying.

⇒ The effects of aircraft configuration.

⇒ The effects of runway surface.

⇒ Takeoff distance.

⇒ Takeoff power.

⇒ Obstruction clearance.

⇒ Wind conditions and effects.

⇒ Minimum safe altitude.

⇒ Density altitude.

⇒ Application of VX or VY.

⇒ Emergency procedures during takeoff and climb.

⇒ Verify proper aircraft configuration.

⇒ Confirm takeoff power prior to brake release (if appropriate) and proper engine and flight instrument indications prior to rotation.

⇒ Rotate and lift off at the recommended airspeed, and accelerate to the recommended obstacle clearance airspeed or VX.

⇒ Establish a pitch attitude that will maintain the recommended obstacle clearance airspeed, or VX, +10/-5 knots, until the obstacle is cleared, or until the airplane is 50 feet above the surface.

⇒ After clearing the obstacle, establish the pitch attitude for VY, accelerate to VY, and maintain VY, +10/-5 knots, during the climb.

⇒ Retract landing gear and flaps after a positive rate of climb has been verified or in accordance with aircraft manufacturer’s guidance.

⇒ Maintain takeoff power and VY +10/-5 or as recommended by aircraft manufacturer to a safe maneuvering altitude.

⇒ Maintain directional control and proper wind-drift correction throughout the takeoff and climb.

⇒ Comply with noise abatement and published departure procedures.

⇒ Complete the appropriate checklist.

Emergency Descent

⇒ Glide speed, distance.

⇒ Stabilized approach.

⇒ Energy management.

⇒ Wind conditions and effects.

⇒ Situations, such as depressurization, cockpit smoke and/or engine fire that require an emergency descent.

⇒ Emergency procedures.

⇒ Communications.

⇒ ATC clearance deviations.

⇒ ELTs and/or other emergency locating devices.

⇒ Radar assistance to VFR aircraft.

⇒ Transponder.

⇒ Low-altitude maneuvering.

⇒ Collision avoidance, scanning, obstacle and wire strike avoidance.

⇒ Having the right-of-way in an emergency.

⇒ Failure to maintain situational awareness during an emergency descent.

⇒ Stalls and spins.

⇒ Difference between using VNE and VFE, and when each one is appropriate.

⇒ Analyze the situation and select an appropriate course of action.

⇒ Establish and maintain the appropriate airspeed and configuration for the emergency descent.

⇒ Establish appropriate propeller pitch (if constant speed), flap deployment, and gear position (if retractable) relative distance and altitude to selected landing area.

⇒ Exhibit orientation, division of attention and proper planning.

⇒ Maintain positive load factors during the descent.

⇒ Follow the appropriate checklist.

⇒ Emergency equipment.

⇒ Climate extremes (hot/cold).

⇒ The hazards of mountainous terrain.

⇒ The hazards of overwater operations.

⇒ Gear to meet basic physical needs until rescue.

⇒ ELT operation, limitations and testing requirements.

⇒ Being prepared to meet basic needs (water, clothing, shelter) for 48 to 72 hours in the event of an unplanned off-airport landing.

⇒ Identify appropriate equipment that should be onboard the airplane.

⇒ Identify appropriate personal gear to meet physical needs until rescue.

⇒ Brief the proper use of the fire extinguisher and other survival equipment.

Lesson #14 (Briefing)

⇒ Route planning, including consideration of special use airspace.

⇒ Applying universal coordinated time (UTC) to flight planning.

⇒ Converting and calculating time relative to time zones and estimated time of arrival.

⇒ Calculating time, climb and descent rates, course, distance, heading, true airspeed and ground speed.

⇒ Fuel planning.

⇒ Altitude selection accounting for terrain and obstacles, glide distance of the aircraft, VFR cruising altitude, and the effect of wind.

⇒ Conditions conducive to icing.

⇒ Symbology found on VFR charts including airspace, obstructions and terrain features.

⇒ Elements of a VFR flight plan.

⇒ Procedures for activating and closing a VFR flight plan in controlled and non-controlled airspace.

⇒ Seasonal weather phenomena.

⇒ Various classes of airspace.

⇒ Maintaining VFR at night.

⇒ Special use airspace.

⇒ Compliance with or avoidance of specific en route airspace.

⇒ Requirements for basic VFR weather minimums and flying in particular classes of airspace.

⇒ Requirements for flying in special use airspace (SUA), and special flight rule areas (SFRA).

⇒ Identify airspace and operate accordingly with regards to communication and equipment requirements.

⇒ Limitations of ATC services.

⇒ A route overflying significant environmental influences, such as mountains or large bodies of water.

⇒ Flight in areas unsuitable for landing or below personal minimums.

⇒ Seasonal weather patterns.

⇒ Prepare, present and explain a cross-country flight plan assigned by the instructor including a risk analysis based on real time weather.

⇒ Select appropriate routes, altitudes, and checkpoints.

⇒ Recalculate fuel reserves based on a scenario provided by the instructor.

⇒ Create a navigation log and simulate filing a VFR flight plan.

⇒ Interpret departure, en route, arrival route with reference to appropriate and current
charts.

⇒ Apply pertinent information from Chart Supplements U.S.; NOTAMs relative to airport, runway and taxiway closures; and other flight publications.

⇒ Flight plan shall be to the first fuel stop, based on the

maximum allowable passengers, baggage, and/or cargo loads using real-time weather and appropriate and current aeronautical charts.

⇒ Identify airspace, obstructions, and terrain features.

⇒ Select appropriate navigation system/facilities and communication frequencies.

⇒ Types of airspace/airspace classes and basic VFR weather minimums.

⇒ Charting symbology.

⇒ Special use, special flight rules areas, and other airspace areas.

⇒ Temporary flight restrictions.

⇒ Aircraft speed limitations in various classes of airspace.

⇒ Radar assistance to VFR aircraft (e.g. operations, equipment, available services, traffic advisories). Ground-based navigation (orientation, course determination, equipment, tests and regulations).

⇒ Satellite-based navigation (e.g. equipment, regulations, authorized use of databases, and Receiver Autonomous Integrity Monitoring (RAIM)).

⇒ Transponder (Mode(s) A, C, and S).

⇒ Selecting an alternate destination.

⇒ Deviating from ATC instructions and/or the flight plan.

⇒ The value of recording time at waypoints.

⇒ The assistance available if lost (radar services, communication procedures).

⇒ Declaring an emergency.

Notes:

Lesson #18 (Briefing)

⇒ Currency, regulatory compliance, privileges, and limitations.

⇒ Location of airman documents and identification required when exercising private pilot privileges.

⇒ The required documents to provide upon inspection.

⇒ Pilot logbook/record-keeping.

⇒ Compensation.

⇒ Towing.

⇒ Category and class.

⇒ Endorsements.

⇒ Medical certificates: class, expiration, privileges, temporary disqualifications.

⇒ Drugs, alcohol regulatory restrictions that affect the pilot's ability to operate safely.

⇒ Act as PIC under VFR in a scenario given by the instructor.

⇒ Use available aviation weather resources to obtain an adequate weather briefing.

⇒ Correlate weather information to determine alternate requirements.

⇒ Correlate available weather information to make a competent go/no-go or diversion decision.

⇒ Update/interpret weather in flight.

⇒ Evaluate environmental conditions using valid and reliable information sources to be able to make a competent go/no-go or diversion decision.

⇒ Given a scenario based on real time weather, where it would be appropriate, divert.

⇒ Use cockpit displays of digital weather and aeronautical information, as applicable.

Lesson #20. Dual Preparation For The Practical Test 2 (Briefing)

⇒ General airworthiness requirements and compliance for airplanes.

⇒ Certificate location and expiration dates

⇒ Required inspections

⇒ Inspection requirements

⇒ Individuals who can perform maintenance on the aircraft, including A&P and IA roles in aircraft maintenance and inspections.

⇒ Pilot-performed preventive maintenance.

⇒ Equipment requirements for day and night flight for example: flying with inoperative equipment (approved Minimum Equipment List (MEL), Kinds of Operation Equipment List (KOEL), VFR and placards.

⇒ Proving airworthiness (specifics of the aircraft-compliance with Airworthiness Directives or applicability of Safety Bulletins).

⇒ Obtaining a special flight permit.

⇒ Experimental aircraft airworthiness.

⇒ Inoperative equipment.

⇒ Equipment failure during flight.

⇒ Discrepancy records or placards.

⇒ Determine the aircraft is airworthy in a scenario given by the instructor.

⇒ Explain conditions where flight can be made with inoperative equipment.

⇒ Explain requirements for obtaining and flying with a Special Flight Permit.

⇒ Locate and explain operating limitations, placards, instrument markings, POH/AFM, weight and balance data, and equipment list.

⇒ Acceptable sources of weather data for flight planning purposes.

⇒ Weather products required for preflight planning and en route operations.

⇒ Current and forecast weather for departure, en route and arrival phases of flight.

⇒ Meteorology applicable to the airport, local area, departure, en route, alternate, and destination of a VFR flight in Visual Meteorological Conditions (VMC) to include expected climate and hazardous conditions such as:

⇒ Atmospheric composition and stability
⇒ Wind (e.g. crosswind, tailwind, wind shear, etc.)
⇒ Temperature
⇒ Moisture/precipitation
⇒ Weather system formation, including air masses and fronts
⇒ Clouds
⇒ Turbulence
⇒ Thunderstorms
⇒ Icing and freezing level information
⇒ Fog
⇒ Frost
⇒ METARs and TAFs
⇒ Weather related charts
⇒ Weather advisories
⇒ PIREPs
⇒ En route weather resources.

⇒ Cockpit displays of digital weather and aeronautical information.

Lesson #22 (Briefing)

⇒ Hypoxia

⇒ Hyperventilation

⇒ Middle ear and sinus problems

⇒ Spatial disorientation

⇒ Motion sickness

⇒ Carbon monoxide poisoning

⇒ Stress and fatigue

⇒ Dehydration and nutrition

⇒ Hypothermia

⇒ Optical illusions

⇒ The effects of alcohol, drugs, and over-the-counter medications, and associated regulations.

⇒ The effects of dissolved nitrogen in the bloodstream of a pilot or passenger in flight following scuba diving.

⇒ The effects of hazardous attitudes on aeronautical decision making.

⇒ Collision avoidance, scanning, obstacle and wire strike avoidance.

⇒ The pilot/airplane interface to include: pilot monitoring duties and the interaction with charts and avionics equipment.

⇒ Personal risk factors and the conflict between being goal oriented and adhering to personal limitations.

⇒ Optical illusions.

⇒ The circumstances of the flight (day/night, hot/cold) that affect the pilot's physiology.

⇒ Continue VFR flight into Instrument Meteorological Conditions (IMC).

⇒ Hazardous attitudes.

⇒ Failure to detect and manage threats and errors associated with human factors.

⇒ Ineffective monitoring of automation.

⇒ Distractions.

⇒ Perform a self-assessment including whether the pilot is fit for flight.

⇒ Show sound decision-making and judgment (based on reality of circumstances).

⇒ Automation management and effective monitoring of automated systems.

⇒ Establish personal limitations.

Lesson #23 (Briefing)

⇒ Pilot self-assessment.

⇒ Determine if the aircraft is appropriate for the mission by considering load, range, equipment and aircraft capability.

⇒ Environmental factors that could affect the flight plan:
⇒ Terrain
⇒ Route selection
⇒ Obstruction
⇒ Weather
⇒ External pressures.
⇒ Seasonal weather phenomena.

⇒ Oxygen use regulations, system operational guidelines, and system checks, if applicable.

⇒ Passenger briefing requirements and appropriate information.

⇒ PIC responsibility to have available material for the flight as planned.

⇒ Use of portable electronic devices.

⇒ Use of automation.

⇒ Inappropriate use of technology.

⇒ The impact of reported discrepancies.

⇒ Passenger behavior that could negatively affect safety.

⇒ Brief occupants on the use of safety belts, shoulder harnesses, doors, sterile cockpit, and flight control freedom of movement, and emergency procedures.

⇒ Conduct an appropriate pre take-off briefing.